Flowering Crabapples
THE GENUS Malus

by
Fr. John L. Fiala

Technical Editor: Dr. Gilbert S. Daniels

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Color plates follow page 112.
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In grateful remembrance
and dedication to
Arie den Boer
and
Lester P. Nichols

Note: All proceeds from the sale of this book accrue to the Research and Educational Fund of the International Ornamental Crabapple Society.
Foreword

Father Fiala's book on crabapples fills a void in gardening and horticultural literature. With more than 900 named entities, it is a wonder that more has not been written about these splendid landscape plants.

Father Fiala has brought a welcome personal touch to the study of ornamental crabapples, inviting others to enjoy them and to learn more about them. That there is much more to be learned about crabapples is amply demonstrated by the quagmire that is the taxonomy and nomenclature of the genus Malus.

We applaud Father Fiala for trying to make some sense out of the confusion, but an example of the kind of nomenclatural problem that plagues the genus is demonstrated by the toringo crab. The name for this crabapple apparently must be changed from Malus sieboldii to M. toringo. Father Fiala has made that change, but his consequent proposal to apply the name M. sieboldii to the plant heretofore called M. szumi 'Calocarpa' is not in accord with the rules of nomenclature. The epithet sieboldii has already been used for an entirely different crabapple. The taxonomic situation involving the common apple remains confusing, also. Most of its hybrids are apparently crosses with the already hybridized M. rotundifolia rather than with the wild M. pumila, a parent of the domestic apple that is rather rare in cultivation.

Only careful study of original descriptions, comparison with herbarium material, and the application of a range of techniques that a trained taxonomist can bring to these problems will solve them. We hope that Father Fiala's celebration of crabapples will inspire further work, and we ask that suggestions and questions be directed to the International Ornamental Crabapple Society.

Father Fiala began this project knowing his health was waning. He saw it nearly to completion, and the work very likely prolonged his life. He devoted his life to serving his Lord and his fellow humans. Father Fiala truly loved plants and tended his Lord's garden well. He left us with a more beautiful world—one enriched with new crabapples and lilacs and a botanical garden, Falconskeape. We remain grateful that he shared his knowledge about these remarkable plants with us.

International Ornamental Crabapple Society
The Morton Arboretum
Lisle, Illinois 60532
Preface and Acknowledgments

Working with flowering crabapples has been a joyful experience. Despite some disappointments, I have always been filled with the new hope of what another generation of plants would reveal. I began this adventure with simple trust in what I might be able to do in hybridization. Now I seek to share some of that life story with you.

I had wanted to write this book years ago. Since then I have learned that it is not merely the writing of a book that is important; rather, an author must live the book first and then write, with conviction, the contents of his or her knowledge and heart. A book without knowledge is foolishness; a book without heart is empty and cold. I trust the reader will find this book has both knowledge and heart.

Over the past half century I have been taught many things about crabapples by wonderful teachers, a great deal of which I may have forgotten. These kind people have given me advice and taught me more than books ever could. Time with my plants, especially the time spent in hybridizing flowering crabapples, has seasoned my judgment and, I trust, added a depth of knowledge that I would never have thought possible so long ago. I stand in awe now of all that I have lived through in my study of flowering crabapples.

As I share and tell of the marvels that these trees unfold, I am mindful of those teachers who helped me live this book, especially the two men who greatly influenced my life with flowering crabapples. To one of them I wrote a simple letter, when I was but 12 years old, asking about crabapples. The six-page letter I received in answer to my question was filled with encouragement and a new vision of what could be done in hybridizing. I scarcely knew the meaning of that word when Arie den Boer of Waterworks Arboretum, De Moines, I.A., brought it to my attention, but I always admired him as a mentor who charted the course for a young farm boy. He set my feet and my resolve on firm ground by telling me that I could do something worthwhile working with crabapples, and down through the years, to his last letter from Monaco in 1962, his letters brought new visions and encouraged strength.

The other man who greatly influenced my life with crabapples was someone I met later in life. Professor Lester P. Nichols of Pennsylvania State University took time to see what I was doing with flowering crabapples and to encourage the directions of my hybridizing
work. His vision, a practical application of good genetics to a wonderful experience in hybridizing, can be summed up with these words of advice:

Trees filled with diseases will never survive, nor will you accomplish anything with them. Choose your disease-free progenitors wisely — then the challenge is to stick to the rules (no matter how beautiful the flower be). Disease resistance must be your first rule of thumb in judging your work.

Over the years we became staunch friends, evaluating and setting new goals. I have long forgotten how many beautiful flowering crabapples were felled along the way, but this professor’s advice and recommendations have lasted me a lifetime.

To these two men of learning, I dedicate this book, for all that they have done for me and given to me. Without them, this book would not have been possible. I owe them more than I can repay.

And then there are a great many other men and women of vision whom I have met along life’s way. They, too, have worked with me over the many years, sharing their plants and experiences, giving me vision, strength, and encouragement to finish this book. To these “life co-authors” I also am gratefully indebted:

Dr. Donald Egolf of the U.S. National Arboretum, Washington, DC, a wonderful teacher and friend in hybridizing, is a wonder-filled, living book of endless knowledge on hybridizing and plants. He has always held his book of learning open to me.

Professor Robert Clark, Meredith, NH, steadfast friend of many decades past, has patiently read the chapter on taxonomy and shared his great knowledge of plants with me. In my years of illness, he has been a comfort and strength.

Henry Ross, director of Gardenview Horticultural Park, Strongsville, OH, has been a teacher and steadfast friend for most of my life. I am grateful to him for the beauty of his crabapple introductions that grace Falconeke & Company Gardens and for the wisdom of his knowledge that fills my life. His garden of exotic and rare plantings is not duplicated anywhere else in the world. Together he and I, along with our crabapple introductions, have grown old with a few of our many dreams fulfilled.

Francis Nock, Perry, OH, who like Moses can take a leafless staff, strike the ground, and make it grow, is a wonderful plantsman and propagator. Like me, he, too, sees visions and dreams whenever we walk in a garden.

Roy and Sarah Klehm, South Barrington, IL, gave me a start by promoting my introductions in their world-famous nursery. Without their patient love and help, much of my work would have gone unnoticed. These two great plantspersons have shared so much with me and lit a new lamp for me in the growing darkness.

Dr. Thomas Green of the Morton Arboretum, LISLE, IL, shared his knowledge and vision, reviewing the chapters on botanical species and crabapple names, an area in which he is an expert.

Dr. Edward Hasselkus of the University of Wisconsin, whose knowledge and ideas help fill the pages of this book, has graciously reviewed the many lists for me.

Dr. John Sebruck, Flossmoor, IL, whose landscape ideas are reflected in the chapter on landscaping, has graciously given me permission to use excerpts from his articles on crabapples in landscaping, first published in the bulletin of the International Ornamental Crabapple Society. He has also shared with me, an old man, his youthful enthusiasm and love for flowering crabapples.

Keith Warren, horticulturist for J. Frank Schmidt & Son Co., Boring, OR, has practically written the chapter on propagation and provided illustrations for it. An outstanding authority on the subject, he has been heavily involved in crabapple improvement and production at the Schmidt nursery for the past 16 years. His friendship and help in evaluating my newer crabapples are greatly appreciated.

Michael Scott of Oregon was one of the first, with Professor Les Nichol, to encourage me to introduce to the public the crabapples of my life’s work. He also was among the first to propagate them.

Norbert Kien of J. Frank Schmidt & Son Co., Boring, OR, has shared his knowledge and ideas with me.

Robert S. Lyons, Madison, OH, is another life co-author whose knowledge and ideas are shared in this book.

John H. Martens, Naperville, IL, has written knowledge-filled articles on Malus species from which I have gleaned much information to renew and strengthen my vision.

John den Boer, Killen, AL, has kept his father’s work alive and assisted me in the listing of flowering crabapple names.

Robert Simpson, Simpson Orchard Co., Vincennes, IN, has done excellent work in introducing new and better clones of flowering crabapples, many of which fill my garden with their beauty and my life with inspiration. So many of my own introductions share their genetic background with so many of his introductions: clergyman that I am, I have been wedding our crabapple children for several decades.

Dr. Karen Murray and her husband Peter, Medina, OH, who share my love for flowering crabapples, have succeeded me as caretakers and keepers of my beloved Falconeke Gardens. To them is owed the promise and legacy of my life’s work and the future potential that fills the plants of that treasured garden.

Larry and Mary Eagan, friends and keepers of my Southern Garden, make possible the beautiful flowers and plants that, with these friends, are catalysts of my joy, hope, and strength.

Dr. Norman Anderson, Robert Fuller, Donald Hagan, and Charles King, all of Ocala, FL, with their great medical knowledge and skill have kept me around for yet another springtime of hybridizing and another autumn of harvesting seed. These men give me hope to finish this book despite increasing illness, difficult health, and the reddest, fast approaching end of an endless winter that puts to rest forever the dreams of gardens, flowers, and many wonderful people.

All my sisters, in-laws, and relatives for whom I have named some of my finest introductions, especially my nephew LeRoy Flahy, have shared in and encouraged my crabapple work over the years and the indoctrinated labors it entailed.

My late husband, and true love, Billy Flahy, generously gave, over 50 years ago, to a boy of 12, five acres of land on which to plant his first orchard of trees and his endless dreams.

And now, my dear reader, I give this book to you, paraphrasing Robert Frost, who so beautifully put it, to plant, as my proxy, seeds of continuing beauty when I am long, long gone. I hope this book will kindle an environmental attitude in you and arouse your interest in planting flowering crabapples to provide beauty, fruit for birds, and an outstanding source of fall and winter food. May the flowering crabapples that have filled my life for nearly 50 years fill your hearts with their beauty, as they have mine, and may they fill our gardens, parks, and arboretums with their wonder in springtime and with their magnificent color parade in autumn.
Introduction

In the past, many articles on flowering crabapples have appeared in various horticultural and botanical journals, but only a few complete books have been written on the subject. Most of these publications were not written for the general public but are of a technical nature suitable for arboretum collectors, botanical specialists, or taxonomists.

In 1903 Professor Charles Sargent made a strong effort to improve flowering crabapples by considering, at some length, the known cultivars in his book called Trees and Shrubs. From 1939 to 1958 Donald Wyman wrote a number of informative articles, and in 1943 he produced a booklet entitled Crab Apples for America, which was the first attempt at a check list of the many crabapple species, cultivars, and clones. Many of his evaluations of the then-known species and hybrids have been superseded today, but his study was a tremendous asset in calling attention to the need for further work. Arie den Boer of the Waterworks Arboretum, Des Moines, IA, published a fairly comprehensive book in 1969 entitled Ornamental Crabapples, a work that stood alone for many decades as a reliable source of information.

In 1970 Roland Jefferson of the U.S. Department of Agriculture published a scholarly work entitled History, Progeny, and Locations of Crabapples of Documented Authentic Origin in which he carefully reviewed fundamental problems of authenticity in naming and classifying crabapples. This book brought attention to the many misnamed plants on display in arboretum collections and for sale at nurseries. Quoting Donald Wyman, horticulturist at the Arnold Arboretum, Jefferson (1970b) wrote the following:

Crab apples hybridize very freely, and because of this, much controversy has resulted in their proper identification. Seed has been gathered in large collections, been grown and the seedlings named after the trees from which the seed was collected. All too frequently such seed has produced plants [natural hybrids] with totally different characteristics from the parent plant, and when this has become evident, it has caused much confusion.

Jefferson's well-documented work should be consulted by all who seek authentic crabapple
Introduction

In addition to those who wrote about flowering crabapples, other individuals worked hard to develop and promote flowering crabapples. The Arie den Boer Arboretum (formerly Waterworks Arboretum) in Des Moines, IA, is dedicated to the man who first made flowering crabapples an important and national horticultural, ornamental tree. Born in Gouda, Holland, Arie den Boer served as an apprentice in 1913 in Bokspool, beginning his nursery career at Croux & Fils, Chateny, Steine, France. From there he left for the United States where he worked for Bobrink and Atkins in Jersey and several other nurseries. A specialty in landscaping appealed to him very much, and in 1926 he was placed in charge of the extensive grounds of the Waterworks Arboretum, which he developed into what was known as the Charles Sing Denman Woods.

It was Charles Denman, the arboretum’s manager, who encouraged Den Boer to establish one of the world’s greatest flowering crabapple collections. To this end Den Boer accumulated every possible crabapple. His plantings attracted thousands of springtime visitors, and with them grew the popularity and planting of the crabapples he so loved. Den Boer also wrote extensively to foster public and nursery acceptance of flowering crabapples. In 1959 he published *Flowering Crabapples*, a well-known book for which he drew hundreds of detailed illustrations of flowers, leaves, and fruit for easy identification of the then-known species and hybrids. Through his efforts flowering crabapples gained popularity, a popularity that has continued to increase after his death. Truly he was one of the great crabapple pioneers and the father of modern ornamental crabapples.

Another tireless promoter of crabapples is the late Lester P. Nichols, professor of plant pathology extension at Pennsylvania State University, who spent a lifetime popularizing these ornamentals by his extensive studies on the disease resistance of individual clones. For more than 30 years Nichols evaluated crabapple clones for their value as ornamentals and for their disease resistance. His annual listing of disease-resistant and disease-susceptible cultivars has been a tremendous help in hybridizing newer and better clones, and his visits to my plantings at Falconskoep Gardens, his friendship, his assistance in evaluating my hybridizing efforts, and his suggestions for improvements and encouragement have been a gift to me. A welcome friend and evaluator of the many crabapple breeding programs at Falconskoep, he was also my mentor. Much of this book contains his thoughts wrapped in mine.

Nichols encouraged hybridizers to introduce smaller trees that were more adaptable to home gardens. He spoke enthusiastically of colorful autumn fruit that made the crabapple an “all-season ornamental.” More than anyone else in recent times he has advanced the flowering crabapple to its prominent position as the leading flowering tree in the United States. He was instrumental in the organization and formation of the International Ornamental Crabapple Society, bringing together crabapple notables for the first organizational meeting and giving the new organization strong leadership and direction. He wrote numerous articles on flowering crabapples, their landscape value, and diseases, and he identified the best of the modern named clones. He was a pioneer and a catalyst for the tremendous modern progress in his favorite ornamental.

I would be remiss if I did not mention the great hybridizing work done by two outstanding friends. The first, Dr. Donald Egolf of the U.S. National Arboretum, Washington, DC, is a genius in plant hybridization of many genera. His crabapple introductions, of supe-
Development of the Modern Flowering Crabapple

From the discovery of various crabapple species around the world to the emergence of the newest polyploid clones, the magnificent flowering crabapple has been treasured for its fruit and as an ornamental. I cannot think of any other major ornamental tree, except perhaps the lilac, that has so many new, outstanding, and really different forms. Today, flowering crabapples have reached a new zenith of popularity commensurate with their great variety in tree form, flower color, and fruit color.

SPECIES OF ASIA, NORTH AMERICA, AND EUROPE

The first phase of flowering crabapple development involved the discovery and popularization of the species. Plant explorers, such as Ernest H. Wilson, who worked first for Veitch & Sons, England, and then for the Arnold Arboretum; William Purdom, Charles Sargent, and J. F. Rock of the Arnold Arboretum; and several others, actively sought out new *Malus* species in Siberia, China, Tibet, Korea, and Japan. Other pioneers, such as Niels E. Hansen of the South Dakota Agricultural Experiment Station in Brookings and several enterprising nurseries in the Midwest, sought out native crabapples in the United States.

As new crabapple species were discovered by plant explorers abroad and at home, they were quickly introduced into arboretum plantings, public parks, and large private estates. No horticultural institution did as much for introducing and discovering new species, varieties, or special clones as did the Arnold Arboretum, Jamaica Plain, MA. As a center for crabapples, this arboretum distributed seed collected by plant explorers, seed from Kew Gardens in England, and seed or scions of many of the Siberian crabapples collected originally by Russian plant explorers for the great arboretum at St. Petersburg. Especially under Professor Charles Sargent, who took an active interest in crabapples, the Arnold Arboretum not only sought out new crabapple materials in Siberia and Japan, but it also energetically promoted any new crabapple found in its gardens or elsewhere.
Many of the newly discovered plants were too large for the smaller home garden but found their way to large estates, parks, and arboretum collections where they could be viewed in bloom by thousands of admiring visitors each spring. Although it was vogue at the time for large arboreta to plant every variation classified by taxonomists as a species or subspecies, with the rapidity of new discoveries also came some confusion as to the proper naming of these plants. Many clones suddenly received species or subspecies status, and, in the clamor for new garden material, factors like size, form, and disease resistance were mostly overlooked. Numerous inferior species and clones that were not planned today were touted by garden writers as “exotic.” Hybridizers and so-called seed planters hurriedly embraced the species in a race for breeding new hybrids and naming new plants, so that cultivars (i.e., related groups of similar seedlings) were given clonal names whereas in reality each was different from the other.

Nonetheless, the gardens, parks, and arboreta of the day were filled with magnificent springtime beauty. People stood in awe of both native and nonnative species, each with its own beauty. Many trees were large and spreading, up to 40 ft (12.2 m) high and wider in spread, and even more were worthless, only a few crabapples were truly exotic. Yet, in bloom, all the flowering crabapples managed, somehow, to be truly magnificent.

**INTERSPECIFIC HYBRIDS**

Following the discovery and popularization of crabapples came the period of interspecific hybrids. As various crabapple species were crossed with the newly discovered species, a series of interspecific clones emerged. Many of these clones outdid their parents in beauty. Most were grew from random seedlings found under a tree in some arboretum; very few were the results of careful hybridizing. With the naming of a great number of these interspecific hybrids also came some taxonomic confusion as to what these plants were: they cultivars (i.e., families of similar, cultivated seedlings), or they were selected individual clones that could be propagated only by asexual means?

The confusion between clone and cultivar still rages today. For some people, every named plant becomes a cultivar, even though it is a selected plant and not a member of a group of cultivated seedlings. For others, however, every named plant becomes a clone since it must be asexually propagated and is a single, selected, named plant.

I do not choose to settle this nomenclature problem in the present volume. Instead, I have chosen a middle-of-the-road position: If a plant is specially selected for certain unique characteristics, I designate it a clone, since to retain these characteristics it must be asexually propagated (i.e., cloned), whether it is a wild species or a cultivated plant. If a plant is a member of a group of unselected, cultivated seedlings or hybrids, I designate it a cultivar. By the latter term, I include groups of unnamed seedlings or groups of similar seedlings of the same hybrid background (e.g., Rosybloom hybrids). For further discussion of this problem, see “A Confusing Problem of Nomenclature” in Chapter 10.

**ROSBYBLOOM HYBRIDS**

With the discovery of *Malus pumila* ’Niedzwetzkyana’ in Siberia, a new race of crabapples with dark, deep rose, red, and purple flowers became prominent: the Rosybloom hybrids.

What a handsome lot they were! *Malus pumila* ’Niedzwetzkyana’ was discovered, named, and introduced by Niels Hansen of the South Dakota Agricultural Experiment Station, Brookings, who obtained a plant from Mr. Niedzwetzyk, of Alma Alta, Turkestan, in 1897 while on a plant expedition. Crossing this plant with *M. lutea*, Hansen named his first hybrid *M. lutea* ’Hopsa’ in 1920, but the name Rosybloom was first given to hybrids and open pollinated seedlings of *M. pumila* ’Niedzwetzkyana’ by William T. Macon in the Central Experiment Farm, Ottawa, Canada, before 1920.

After World War I, efforts were made in Canada to improve and develop plants suitable for that area. Isabella Preston, also of the Central Experiment Station, was charged with this program. She later used *Malus pumila* ’Niedzwetzkyana’—most as open pollinated seedlings but at times, crossed with *M. lutea’—to develop the mangles she introduced under the Lake Series of Rosybloom clones. These open pollinated seedlings of *M. pumila* ’Niedzwetzkyana’ are not real Rosybloom (i.e., not hybrids with *M. lutea*), although several have very similar characteristics (e.g., red-bronze leaves, red-purple flowers, and larger red-purple fruit). They are simply open pollinated seedlings.

The general characteristics of Rosybloom (a group of crosses with *Malus pumila* ’Niedzwetzkyana’ and *M. lutea*) are reddish green to bronze leaves; red buds opening to large, dark, red-purple flowers fading to dull pink; mostly, but not always, large red-purple fruit; generally highly susceptible to apple scab and fire blight but lost disease not defoliating the tree. All the Rosybloom seem to be very hardy, but most are not recommended because of their large size, fading flower color, and especially their lack of disease resistance. Despite these faults some excellent hybrids are had in second and third generations using *Malus pumila* ’Niedzwetzkyana’ (e.g., *M. x inamuricata* ‘Lemoinei’, ‘Lisset’). These selected progeny should be used for hybridization rather than the Rosybloom.

Nonetheless, from hybridizers such as Niels Hansen to Isabella Preston to Niels H. H. who is himself a gift to the plant world, W. R. Leslie, William E. Franklin, and others, the handsome Rosybloom marched forward. Adding their splendor to crabapples in bloom—rich pinks, deep rose, bright reds, and red flushed with purple—the Rosybloom parade grounds stretched from the agricultural stations of midwestern United States and Canada to the prestigious plantings of the Arnold Arboretum, Kew Botanical Gardens, Morton Arboretum, and various universities horticultural plantings. It did not seem to matter that along with their beautiful flowers the Rosybloom hybrids also produced large-sized dark red and purple fruit that was prone to many diseases. Apple scab, which not only disturbed the fruit but defoliated the trees by midsummer, and fire blight were accepted as part of the price for springtime grandeur, and spraying for disease became a necessary routine. Eventually, however, selected clones not subject to fire blight were recognized. As second-generation hybrids proved to be more resistant to disease, the bright-hued Rosybloom paraded on.

**ZUMI HYBRIDS AND MULTIBRIDS**

The discovery by hybridizers of the tremendous importance of a species once called *Malus sieboldii* var. *sami* by some or *M. inamuricata* by others brought into being a new race of crabapple known as the Zumi hybrids. The species, called *M. sieboldii* in this volume, is pure Zumi and has none of the old *sieberlidi*, which has since been renamed *M. beringei*. Two of the clones of *M. sieboldii* —*Calocarpa* and ‘Wooster’—have much smaller, abundant, colorful fruit and great disease resistance. Today there are so many single, red-budded, abundant, white-flowering, disease-resistant clones and hybrids with every color of mini, small, and medium, fruit that one wonders if there could be any room for more disease-resistant hybrids of this
class. How many of these splendid clones can nurseries continue to carry? It would seem that their introductions are at an end, yet more are named each day with nuances of differences.

To complicate things even more, the Zuni hybrids were married to the interspecific hybrids and the Rosyblooms hybrids. Naturally, they begot and begot magnificent hybrids of every stature, blossom color, and wonderful fruit. The resulting multibrids (plants with many species in their makeup) are so completely intercrossed that they cannot rightfully identify their progenitors. Soon their number was so great that multibrids could find no room in the gardens, parks, and arboretums because nurseries did not have enough room to carry all the variations. Many multibrids became reclines in only one garden or arboretum, where their loveliness was soon forgotten by all.

MINI-FRUITED HYBRIDS

Out of the multibrids came the magnificent mini-fruits. Loved by birds and wonderfully handsome, these miniature crabapple trees bear fruit so small that to find any smaller fruit seems impossible. Although the mini-fruited crabapples have been tailored to so small a space that every home garden may grow them, few nurseries carry them. Many nurseries are still in the species or interspecific or Rosyblooms stage of crabapple development and have not kept up with progress in hybridizing flowering crabapples. Only a few far-seeing, progressive nurseries have forged ahead and added these newest introductions.

GLORIOUS WEEPING CRABAPPLES

To the race of mini-fruited multibrids are now added the weeping crabapples. These modern weepers come in a variety of forms: some are dainty and graceful, very Oriental-looking, while others are heavily branched. There are graceful semiweepers, umbrella-like or airy and carefree in form, even very low ground-covering weepers. Many of these delicate weepers are especially adapted to Japanese gardens, rock gardens, and smaller landscapes in city gardens. They will even grow well in a pot on a penthouse roof.

Add to these various forms the color of their autumn fruit and one creates rivers of molten reds, orange, or gold. What an outstanding group of cascading mountains of bloom or colorful fruit are these weepers and semiweepers suitable for every and any landscape need. What more could one ask of any flowering tree? Surely with these the hybridists have outdone themselves. Can there possibly be more? Indeed there is.

EXCLUSIVE POLYPLOIDS

The newest phase of flowering crabapples appears to be the emergence of the tetraploid and octoploid introductions. These polyplzploid crabapples are fitted with such a rich chromosome inheritance that it is impossible to know what their fourth-generation children will look like. (With tetraploids, it takes about four generations of cross-breeding to really see explosive results in genetic wonders.) The polyplzploids are smaller, tailored, often very rounded, heavily twigged trees or bushes with heavy-textured, leathery leaves. They are totally disease free and often brilliant in autumn color, characterized by colors that defy an artist's pallet in their variety of hues and combinations of tones. The polyplzploids have fragrant, large-flowered, Oriental blossoms, some with the spicy air of Old Cathay. Above all, these elegant clones are magnificent in abundant, persistent fruit.

What more beauty is yet to come from the hybridization of flowering crabapples? We do not know. But the next decade will be an exciting one for crabapple hybridizers. The progressive groundwork has been laid through the discovery of the species, the alliance of the interspecific hybrids, the grand entrance of the Rosyblooms, the debut of the Zuni dynasty and the multibrids, and more recently, the emerging reign of the polyplzploids. Selective hybridization and new developments with tetraploid crabapples have revolutionized this magnificent flowering tree, producing lower, smaller forms from 8 to 15 ft (2.4 to 4.6 m) at maturity that are entirely or mostly disease resistant, and that have unbelievable flower forms and colors, with an abundance of autumn fruit in every size and nearly every shade of color. The flowering crabapple has become an outstanding tree for all places and all seasons in any garden.
CHAPTER 2

Flowering Crabapples as Ornamental Trees

Flowering crabapples are best known in the landscape for their outstanding displays of magnificent springtime bloom and colorful autumn fruit. They are also highly prized for their disease-resistant summer foliage and varied tree form (growth habit). If crabapples were known only for their colorful fruit in autumn or their burst of bloom in spring, people would consider them exotic landscape trees. But the flowering crabapple offers much more. Year-round the regal flowering crabapple dominates our gardens and parks as THE ORNAMENTAL TREE.

MAGNIFICENT SPRINGTIME BLOOM

In the springtime crabapples unfold their deep carmine, red, pink, or white buds and explode into a truly magnificent display of clouds of white, cream, shades of pink, magenta, red, burgundy, red-orange, and orange-coral. Often the combination of bright carmine-red buds opening to white blossoms adds to the sheer beauty of color. Along with the many color possibilities, crabapple blossoms also come in several forms—single, semidouble, and double. Some of the semidouble and double blossoms look like miniature roses, others have fringed or cupped petals; some are a single color, others are a combination of two or more colors or shades.

Bloom Sequence

The bloom time of flowering crabapples extends from very early bloomers to late blooming types such as the North American species and their hybrids. Typically this period covers about 4 weeks, or, in ideal weather conditions, 5 weeks, but with the proper selection of trees according to their sequence of bloom, this period can be drawn out to nearly 6 weeks.
Among the crabapple species the general pattern of sequence of bloom is fairly dependable, but with the large number of introduced clones it is impossible to list all of them according to their sequence of bloom. In general, most of the multiflora are mid-season bloomers. With careful selection a sequence of bloom can be had that extends probably no more than 3-4 weeks.

Peak crabapple bloom time is generally from the beginning of May in the prairie states of the Midwest to mid-May in Illinois, Indiana, Michigan, and Ohio, to the 3rd week in May for Pennsylvania and New York, to late May for the Eastern and New England states. Since springtime begins in the south and lower areas of the Midwest, and extends westward and eastward as well as from lower latitudes to higher altitudes, each person must determine the exact dates of spring bloom in his or her geographic conditions. Since peak bloom time is determined, crabapples are fairly dependable year after year. There are, of course, especially in recent years, times of extraordinarily early and warm spring weather that force plants, including crabapples, to bloom well in advance of the normal season. For example, in 1988 the crabapples at Falconekeap Gardens in Ohio bloomed, for the first time in memory, in mid-April rather than in their usual 2nd week of May, and the late frosts that came at the end of April were disastrous. While such fickleness of weather is not uncommon in the Midwest, the blooming timetable in the Eastern and New England states is much more stable.

The average flowering period for crabapples, from bud opening to petal fall, is about 10 days, although very hot days or windy conditions with rain can cut this down dramatically to 5 or 6. Double-flowering crabapples generally have a longer period of bloom, perhaps to 12 days.

Crabapples can be divided broadly into four groups according to their blooming periods. In the earliest group, Malus baccata, together with its varieties and clones, is always the first to bloom. Among its varieties and clones, variety manshuriaca always blooms first, followed by 'Jackii', 'Dolgo', 'Halward', and hybrids such as M. spectabilis and M. xanthina. This group generally blooms with the early magnolias and spring bulbs such as daffodils.

The second group of crabapples is led by Malus sylvestris and such clones as 'Lenoile', 'Lisot', 'Orange Crush', 'Profusen', and their related hybrids. Also blooming at this time are M. floribunda, M. sargentii, M. x录bretensis, M. xagnusbergensis, M. micrantha, M. prunifolia, the later clones of M. spectabilis, M. sieboldii, M. xanthina, and hybrids of the above. This second group of crabapples blooms with flowering cherries, later tulips, and the early hybrid lilacs—Syringa xspicantiflora—which are excellent companions.

The third group of crabapples includes Malus floribunda, M. xanthina, M. sieboldii, M. xagnusbergensis, M. spectabilis, M. xanthina, and M. prunifolia. This group is in bloom with Syringa vulgaris, the common lilac, and peonies.

The latest blooming crabapples generally are Malus coronaria and M. xanthina. This group blooms with the late lilacs Syringa reticulata and S. xanthina.

Fragrance

Many crabapple blossoms are delightfully fragrant. The North American species (Malus coronaria and M. xanthina with their named clones) have that wonderful fragrance known as apple blossom. Others have an exotic Oriental fragrance resembling cinnamon or cloves. Flowering crabapples could be planted for their fragrance alone that fills the garden with a mystique equalled by few plants.

The fragrance most associated with flowering crabapples is that of the native American species, Malus coronaria and M. xanthina and their selected clones. Those who are wont to poking their noses into flowers claim that M. xanthina is more fragrant than M. coronaria. To me they both offer intoxicating fragrances that no garden should be without. Years ago, as a farm boy walking the meadows, I would stop, when the wild crab were in late bloom, to breathe in deeply their fragrance.

What the common lilac and its readily recognizable fragrance is to all the lilacs, so these American species give meaning to fragrance in crabapples. It is a fragrance that should not be lost. Hybridizers need to incorporate it into their newer hybrids. Unfortunately, native American species do not hybridize well with their Asian cousins. Then, too, the Asian cousins at times have a fragrance all their own very unlike the fragrance of the American species. We need to preserve them all.

I have always planted a few of the most fragrant Malus xanthina and M. coronaria on the western side of my gardens so that the prevailing southwesterly winds would carry their fragrance to the house and the rest of the garden. That is where the most fragrant species belong—crabapples and lilacs as well—on the southwestern side. I have never been disappointed. Visitors frequently ask, "What is that delightful fragrance?" For shamed! Many Americans and most Europeans and Asians have never smelled the wonderful fragrance of crabapples in bloom.

Because they have been so heavily planted in parks and arboreta, the species of crabapples have received the most attention from those who forreotted out fragrances in gardens. Nonetheless, several of the new hybrids have delightful perfumes of their own making. A few of the modern hybrids, such as the multiflora and some of the polypliods, have a very pronounced fragrance all their own. Professor Nichols would often remark to me how he enjoyed the special crabapple fragrances. We both agreed that the native American species have the strongest and most pleasing fragrance of all.

In hybridizing the multiflora I have found fragrance to be an elusive factor. It does not always appear to be a family treasure passed from one generation to another, except in the Malus xanthina and M. coronaria groups. The following list groups crabapples according to their fragrance. In most cases, the cultivars are not as strongly fragrant as the species.
The Most Fragrant Crabapples
M. coronaria group
M. angustifolia
M. angustifolia 'Prince Georges'
M. baccata
M. coronaria var. dasyclada
'Charlottiae'
M. dasyclada
M. leucotica
M. 'Elk River' and most of its progeny, including M. 'Chinook', M. 'Craberry', M. 'Kola', M. 'Redflesh', M. 'Red Tip', and M. 'Shokey'
M. 'Nieuwlandiana'
M. kenssis group
M. 'Boone Park'
M. 'Brandyswine'—excellent fragrance
M. 'Timbriata'
M. 'Fiore's Improved'
M. 'Kehm's Improved Bechtel'
M. 'Nevis'
M. 'Nova'
M. 'Palmeri'
M. 'Plena'
M. 'Prairie Rose'—delightfully fragrant
Multibrids
M. 'Burgandy'—grapelike

COLORFUL AUTUMN FRUIT

From autumn to winter, flowering crabapples put on what is, perhaps, their greatest display, namely, that of colorful fruit. Beginning in September through November, and often into the snows of December and January, the color parade continues—unless the hungry birds put an abrupt end to the fruit. A few clones begin to color as early as late August. To many people this horticultural color parade of ripening fruit is the crowning jewel of flowering crabapples.

Fall crabapple fruit comes in a most wonderful range of colors—from pale lime, to chartreuse with bright yellow highlights, to clear lemon-yellows, to many shades of gold often rouged with pink, orange, or bright red cheeks, to bright orange, cinnamon, lacquered Chinese red, carmine, deep claret, burgundy, and purple-red, to bishop's purple, at times with a blue blush making the trees appear blue-fruited. No other fruiting tree or shrub provides such a wide array of color. When planted side by side in masses of color in the landscape, the colored fruit of crabapple makes possible a veritable color shock of contrasts, a landscape feature that must not be lost by those who plan and design modern gardens.

The presence of two-colored fruit on crabapple clones is another design feature that should not escape the alert landscaper. Many crabapples present an array of changing fruit color as they ripen, turning often from yellow to gold to deep orange or orange-checked. In many clones freezing enhances the color of fruit. Malus 'Serenade' and M. Shaker Gold' are excellent examples of two-colored fruit enhanced by freezing. Lemon-colored and light gold-colored clones are often deepened to rich golds and coppers with recurring frosts, and their colorful fruit frequently persists into the snows of December and January and, in a few clones, even through the awakenings of the March.

The power of so many color combinations is only now being realized by a few landscape designers as one of the highlights of modern horticulture with flowering crabapples. But to be effective, autumn color in fruit must be thoughtfully conceived, planned with special cultivars, and then carefully planted. It is an art in modern garden design—a mass of magnificent springtime bloom of contrasting blossom colors followed in autumn with another massive display of magnificently contrasting colored fruit. The selection of the properly colored fruit clones thus goes far beyond tree form, height, or availability.

Size

Traditionally, any apple tree that produced fruit less than 2 in (5 cm) in diameter was considered a crabapple. Today, however, finer distinctions are made and we refer to crabapple fruit from 1 to 2 in (2.5-5 cm) as large-fruited; from 0.5 to 1 in (1.3-2.5 cm) as medium sized; from 0.25 to 0.5 in (0.6-1.3 cm) as small-fruited; and below 0.25 in (0.6 cm) as mini-fruited.

Figure 2.2. The very small fruit of M. 'Ellis Magic'—only 0.4 to 0.5 in (1-1.3 cm) in diameter—puts this clone into the newer class of mini-fruits, so-called because their fruit is less than 0.25 in (0.6 cm) in diameter. These tiny fruits are most eagerly sought after by smaller birds.

As spectacular as flowering crabapples have always been, the newer cultivars outdo the older species. Through hybridization and selection, the fruit of these newer clones has been improved and greatly reduced in size to as small as 0.25 to 0.5 in (6.5-12.5 mm). These smaller fruits, which are greatly relished by many species of birds, are an asset in landscaping since they do not fall, rot, or pose other undesirable problems. Thus, smaller-fruited trees are ideal street trees if the proper form is chosen.

It is my belief that crabapples whose fruit is 0.25 to 0.6 in (0.6-1.6 cm) in diameter provide the showiest display of fruiting surface. Smaller trees, such as the mini-fruits, must be
extremely heavily fruited to be showy, and the larger fruited trees can be too heavy and messy.

Weeping Crabapples in Autumn Fruit

The newer, weeping flowering crabapples, with their great variety in types of form, are especially attractive in autumn fruit. Many are extremely heavily fruited and display spilling fountains of glowing lava in red, orange, or gold colors. They are particularly suitable for smaller gardens or for Japanese gardens, where they are like explosive orbs of color in the autumn landscape. I believe the orange-reds and brilliant, bright red fruited weepers are the most attractive crabapples in fall color. The yellow fruited are also beautiful but not quite as showy.

Too few of these modern crabapples are available, although several nurseries, seeing the trend of the future, have mostly discarded the older, disease-prone, messy, large-fruited cultivars and are making the newer ones available, mostly as patented named varieties. Although they may be more expensive initially and harder to find, most gardeners plant flowering crabapples only once, so it is worth the extra trouble and cost to search out the best varieties. Unless gardeners demand the newer cultivars, however, retail nurseries will continue to propagate the old standbys, such as Malus 'Alnnea', M. 'Hopa', and M. 'Pink Weeper' (M. 'Osokomierart Echtermeyer'), and large trees like the disease-carrying Rosyblooms. A number of the Rosybloom hybrids are totally or reasonably disease resistant and are wonderful trees that have a definite and rightful place in estate gardens, parks, and arboriculturn collections, but they are not suitable for smaller home gardens. Since most people rarely plant framework trees in their gardens, why settle for planting outcasts when for a few dollars more and a little extra time, you can have a garden treasure of the very best for a lifetime?

DISEASE-RESISTANT SUMMER FOLIAGE

During the summer months the newer flowering crabapples remain almost entirely disease free, retaining healthy green or reddish green leaves with fruit from scab or rot. These trees require no spraying. With their resistance to disease, they make attractive backgrounds or more formal trees that can be used for any purpose in landscape design. This is a tremendous advantage over the older, earlier hybrids, which were often very large trees and required many sprays to keep them from being defoliated in summer and somewhat free from disease.

With time, diseases and viruses produce mutations within their own structure so that although a given crabapple may be resistant to one particular form of a disease, it may not be resistant to the mutant form of that disease. Some propagators are concerned that tissue culture may, perhaps, leave a cultured plant more vulnerable to some plant diseases, but this remains to be seen. Much more study needs to be done about the various layers of plant tissue to understand their exact work and influence upon the total plant and genetic inheritance. These problems are being worked out now and, I feel certain, will all be solved with time.

Disease resistance is of primary importance in the production of new hybrids. Furthermore, it is important that new clones that claim to be disease resistant not be tested solely under nursery conditions where routine spraying is conducted to maintain disease-free stock. In such situations it may be the effective spraying program rather than the clone itself
that results in a disease-free condition. As more and more scientific hybridization with
disease-resistant progenitors is conducted, modern clones are proving to show outstanding
disease resistance compared to earlier hybrids. Today’s newer hybrid crabapples are,
indeed, a sturdy stock. More information on diseases and pests of flowering crabapples is
presented in Chapter 5.

CHAPTER 3

Tree Form

One of the chief assets of the flowering crabapple, an asset that contributes to the crab-
apple’s rating as the number-one flowering tree, is the great variety of tree forms that makes
it suitable for any landscape need. Most crabapples are round and spreading in form. Only
a few are small and shrublike to bushlike in form. The number of columnar, vase-shaped,
and fan-shaped forms was, only a few decades ago, limited to just a very few named clones,
but today hybridizers have increased the number to more than two dozen good varieties.
The most surprising modern form with, perhaps, the greatest changes is the weeping crab-
apples. Thirty years ago only two fair weepers were available; today there are more than 50
with several subdivisions in the weeping types. The various forms can be summed up as
depicted:

Rounded and spreading forms

- Large trees: To 40 ft (12.2 m) high and as wide; includes several
  species and some of the Rosyblooms, perhaps two dozen
  really good plants
- Medium trees: From 15 to 25 ft (4.6 to 7.6 m) high and as wide; includes
  the majority of named crabapples, more than 100 good
  selections
- Small trees: From 10 to 15 ft (3.2 to 4.6 m) high and as wide; includes
  a good number of the newer multibrids, Zumi hybrids,
  and polyploids, perhaps 75–100 fine clones

Columnar forms

- Columnar
- Vase-shaped
- Fan-shaped

Weeping forms

- Includes about 50 very good selections, whether heavily
  limbed, fountainlike or umbrella, refined cascading,
  refined free-form, and semiweeper

Shrub or bush forms

- Only about a dozen good ones available
ROUNDED AND SPREADING FORMS

The majority of named crabapples have an upright form that is rounded and spreading. This form is natural to crabapples and very pleasing in landscaping. The rounded and spreading trees go well when grouped in masses, especially when interspersed with an occasional smaller group of columnar forms to break the evenness of the rounded forms. One of the best sites for the rounded and spreading forms is on a hillside; the display is even better if it can be viewed from an adjacent hill or from across a lake. No other form is better for massed effect.

The rounded and spreading form can be broken down into three groups according to size. Large rounded and spreading trees, which include some of the species and many of the Rosyblooms, exceed 20 ft (6.1 m) in height and width, often reaching 40 ft (12.2 m) high. Specimens this large are best used as background trees on larger properties. It would be difficult to include them in any medium-to-smaller garden.

The medium-sized forms grow from 15 to 20 ft (4.6 to 6.1 m) in height and equally as wide. They are far better than the larger forms, being more adapted to smaller areas. With proper space, they are more easily worked into very effective masses or smaller groups. There are any number of outstanding clones in this group, which allow for a wide range of color in blossom as well as in fruit.

The smallest of the rounded and spreading forms are undoubtedly the most useful of all the flowering crabapples. The trees do not exceed 15 ft (4.6 m) in height and width, fitting into almost any reasonable space. Several trees of this size can make up a bed that has color harmony both in blossom and fruit. This size is ideal for specimen plantings and, for massed effect, many smaller trees can be used in the space that would accommodate only one of the largest kinds. These small forms are also ideal for all home plantings, patio and pot trees, and street plantings. Some of the finest, newest multibrids and polyblooms are in this class. Here, also, can be found the best heavily fruited trees and the brightest colored fruits. A great number of the outstanding crabapples belong to this smaller form. Because trees of this form are so useful to gardeners, this group should be the one carried most by nurseries.

Among upright to spreading forms are some smaller clones such as Malus 'Coralburnt', which is lovely in bloom and form if grafted on smaller rootstock or on its own roots; Malus 'Doublblush', a petite white double with golden fruit; the lovely M. 'Jewelberry'; and M. 'Leprechaun', a dainty grower with very small red fruit. Malus 'Adirondack' is an outstanding vase-shaped rounded clone that is wonderful in bloom and perfect for any garden. Malus 'Autumn Glory', M. 'Harvest Gold', M. 'Indian Magic', and the outstanding M. 'Win-

![Figure 3.1. Malus 'David' is typical of rounded, smaller tree forms.](image)

Figure 3.1. Malus 'David' is typical of rounded, smaller tree forms.

COLUMNAR, VASE-SHAPED, AND FAN-SHAPED FORMS

Where only one or a few flowering trees are possible, flowering crabapples are ideal. The newer ones, with their smaller height and graceful forms, fit very well into modern home landscaping. The smaller, narrow forms fit well in narrow places and small gardens without looking the least bit overcrowded or requiring a great amount of pruning to keep them in form. These narrow, columnar trees are wonderful accents to any garden design, rising skyward in the landscape like pillars of bloom in spring and again as pillars of fruit in fall. Among these cultivars are Malus 'Ann Marie', M. 'Ballertina', M. 'Burgandy', M. 'Contu-

![Figure 3.2. Malus 'Golf Course' is an upright to rounded tree with ascending branching.](image)

Figure 3.2. Malus 'Golf Course' is an upright to rounded tree with ascending branching.

rion', M. 'Cranberry Lace', M. 'Golden Candles', M. 'Karen', M. 'Lenore', M. 'Madonna', M. 'Maysong', M. 'Robert Clark', M. 'Sentinel', M. 'Showboat', M. 'Silver Moon', M. 'Velvet Pillow', and M. 'Van Eseltine', among others. Malus 'Red Barron' has reddish leaves and is singularly upright. All these cultivars are narrow growers, although with age they tend to spread, as does any tree. Heavy fruiting year after year tends to open a tree and make it more spreading, but some pruning will delay this march of spreading time.

Upright columnar trees, whether vase-shaped or fan-shaped in form, have outstanding value in crabapple landscaping; they are ideal for narrow places, they are excellent as a single specimen along a garden walk, they break the monotony of level horizons, and they are ideal street trees. Every gardener must find a place for one or two of these crabapples.

Double or semidouble flowers are rare in columnar, vase-shaped, or fan-shaped forms,
and good-to-excellent columnar clones with double flowers are even more rare; not many of them are on the market. Some of the best come from Robert Simpson’s work: *Malus* ‘Burgandy’, *M. Centurion’, *M. Sentinel’, and the late-flowering *M. Silver Moon’ (one of my top ten favorites). A beautiful crabapple called *M. Ballerina’ has masses of large, white cupped blossoms, but alas, they come on rather sharp spurs. An excellent white double is *M. Madonna’; it has fruit but its spring glory alone is sufficient to recommend it.

Excellent progress has been made in the introduction of several columnar crabapples of low-to-medium height, including *Malus* ‘Adirondack’. This type of crabapple is always useful for smaller areas, tight places, and in street plantings, and it is excellent for the smaller home garden. Many smaller columnar crabapples are outstanding in blossom as well as in colorful autumn fruit.

**WEEPING FORMS**

Some 35 years ago only the weeping crabapples were the older *Malus* ‘Excellenz Thiel’ (Späth), *M. Oekonomierat Echtermeyer’ (Späth), and the then-new *M. Red Jade’ (Reed). Since that time a great number of very fine weeping crabapples has been introduced. Many of the newest weepers and semiweepers originated at Falconlake Gardens where one of the goals, for 50 years, was to work for better weeping forms. Today weepers are divided into classes: rough-limbed weepers, slender cascading weepers, fountain-like weepers, and free-form weepers. What a handsome group they are!

One of the first weepers, *Malus* ‘Oekonomierat Echtermeyer’, was a coarse-limbed tree with reddish leaves. This older tree was much too disease prone for today’s gardens, so hybridizers have all but eliminated this type. A number of graceful, fountain-like weepers are currently available and make excellent garden plants. One of the first really fine fountain-like weepers was *M. Red Jade’ with its wonderful display of slightly large red fruit. Unfortunately, this fine plant tends to spread rather wide with age—to 35 ft (10.7 m) wide and 15 ft (4.6 m) high. It has since been surpassed by other cultivars, including *M. Candied Apple’, *M. Louisia’, *M. Lullaby’, *M. Luwick’, and *M. Molten Lava’.

In my opinion, the finest weepers are the cascading forms. Among this group are the yellow-fruited *Malus* ‘Autumn Treasure’, *M. Fiesta’, the beautifully red-fruited *M. Red Swan’, and *M. White Cascade’. In addition to the cascading forms, graceful semiweepers, such as *M. Serenade’ with its changing gold-orange-red fruit, are great choices in excellent weeping forms. For a small garden, weeping flowering crabapples are one of the finest choices. (For additional information on selecting a small weeper, see “Our Root Venues Grafted and Budded Trees” in Chapter 4.)

Weepers are mostly loners; that is, they do not like other performers in the spotlight to upstage them. Do not plant groups of weepers, but rather plant a single weeper as a focal point in the garden. As a center-stage performer, weeping crabapples can parcel their magnificent cascading or fountain-like form.

The finest weepers in my opinion are *Malus* ‘White Cascade’ (Henry Ross) and my own *M. Red Swan’ (once called *M. Red Snows’, now renamed in deference to an unknown previous baptism, Totally different in form— *M. White Cascade’ is a finely branched cascading weeper, *M. Red Swan’ is a finely branched but exotically free-form weeper—these two crabapples, along with *M. Molten Lava’, are excellent choices for a Japanese-style garden.

A few weepers are tetraploids and one, *Malus* ‘Fountain’, is an octoploid. The latter actually is a hybridizer’s plant and much too slow growing for most gardens. Its leaves are so small and heavy they appear diseased with some virus even though they are perfectly healthy.

Many nurseries do not like weeping crabapples because it takes extra work to provide a central trunk. To assist the progress of the weeping crabapples, the following list trumpets the worth of all known weeping crabapples to date:

- *M. coronaria var. angustifolia* ‘Pendula’—Never been able to find one
- *M. prunifolia* ‘Pendula’—Not of much value
- *M. sieboldi* ‘Elisa Rathcke’—Heavily limbed
- *M. Akiie’ (Fiala)—Reddish leaves, red blossoms, a fountain weeper
- *M. Anne E’ (Marbeck) (syn. ‘Marbeck Weeper’)—Spread, white-flowered weeper with small red fruit, very good
- *M. Autumn Treasure’ (Fiala)—Very fine, small cascading weeper, small gold fruit
- *M. Blanche Ames’ (K. Sax)—Semiweeper to 20 ft (6.1 m), semidouble flowers, small gold fruit, excellent
- *M. Candied Apple’ or *M. ‘Weeping Candied Apple’ (Zampini)—Horizontal branching, free-form weeper, red fruit
M. ‘Color Parade’ (Fiala)—An excellent semiweeper, fruit coral with red cheeks, heavy annual fruiting
M. ‘Coral Cascade’ (Henry Ross)—Semiweeper, coral fruit color unique, one of the best
M. ‘Dancing Elf’ (Fiala/Murray)—Very refined, smaller weeper, small fruited
M. ‘Dream River’ (Fiala/Murray)—Heavily branched, pink buds, white blossoms, reverse petals pink, fringed
M. ‘Egret’ (Fiala)—Very refined long-branched fountain weeper, an octoploid, semidouble to double blossoms, red fruit; the only semidouble weeper
M. ‘Elsie Rathke’ (Arnold Arboretum)—A heavily limbed M. xmonoglaucemis seedling; the clone not much propagated today
M. ‘Excellenz Thel’ (Späth)—An old form that produced ‘Red jade’
M. ‘Fiesta’ (Fiala)—A very fine, new semiweeper, unique fruit color is a combination of gold, orange, and coral red
M. ‘Firecloud’ (Fiala)—Semiweeper, very bright red-orange, showy fruit, very new and outstanding
M. ‘Firecracker’ (Fiala)—Excellent, very small fountain weeper, very red fruit
M. ‘Firedance’ (Fiala)—Spreading weeper, horizontal branching, troubled with some apple scab on leaves but never defoliated; should be discontinued
M. ‘Flamingo’ (Fiala)—Small, classic fountain weeper with red leaves, pink blossoms, dark red fruit; a fourth-generation Rosy-bloom weeper
M. ‘Flaming Star’ (Fiala)—Red-flowering graceful fountain weeper
M. ‘Fountain’ (Fiala)—An octoploid, classic fountain weeper, very slow growing, huge white blossoms, leaves very leathery, very small; a hybridizer’s "must" parent for octoploid weepers
M. ‘Girard’s Weeping Dwarf’ (Girard)—An older clone no longer available
M. ‘Goldions’ (Fiala)—Refined semiweeper to fall weeper with bright yellow fruit, almost a mini-fruit
M. ‘Henry Ross’ (Fiala)—Graceful fountain weeper with gold-yellow fruit; an excellent white-flowered clone
M. ‘Little Troll’ (Fiala)—A new mini-fruit, graceful, small weeper, very bright fruit less than 0.25 in (0.6 cm) in diameter
M. ‘Louisa’ (Volly Hill)—A fountain or umbrella weeper, good pink blossoms, yellow fruit; very fine plant
M. ‘Lullaby’ (Fiala)—Graceful fountain to free-form weeper, small yellow fruit
M. ‘Luviick’ (Fiala)—Very refined, elegant fountain to free-form weeper with large pale pink blossoms, red fruit
M. ‘Maria’ (Fiala)—Free-form semiweeper, outstanding reddish, leathery foliage, rose red blossoms, dark red-purple fruit, very heavy annual bloomer
M. ‘Ming Dynasty’ (Fiala)—Heavy to free-form weeper with good reddish foliage, rose-red blossoms, and abundant, annual, dark, larger fruit
M. ‘Mollie Ann’ (Fiala)—A very unusual weeping octoploid with racemelike branches, in branchlet clusters of 4–7; very leathery smaller, narrow leaves; white blossoms, red fruit; should be used in hybridizing octoploids as it contains outstanding genes
M. ‘Molten Lava’ (Fiala)—Excellent, very heavily fruited annual, free-form weeper of great beauty, bright orange-red fruit; one of the finest
M. ‘Oekonomien Echtermeyer’ (Späth)—Graceful semiweeper, bronze red foliage, rose pink blossoms, dark fruit; susceptible to most diseases

Figure 3.5. Mibas ‘Red Swirl’, an exotic fountain-like weeper of refined cascading form. A medium-size tree, it grows to 12 ft (3.7 m) high and has fine, pendulous branching.

M. ‘Pagoda’ (Fiala)—A new mini-fruit, small, dainty, slow-growing fountain weeper, white blossoms, orange-red fruit; colors early
M. ‘Pisio’ (Den Boer)—Semiweeper, white flowers, red fruit
M. ‘Red Jade’ (Reed)—Classic heavily limbed weeper, outstanding in medium-size red fruit, spreads to 15 ft (4.6 m) high and 30 ft (9.1 m) wide; an excellent weeper where there is ample space; subject to fire blight in some localities
M. ‘Red Peacock’ (Fiala)—Semiweeper to fan-shaped weeper, brilliant orange-red smaller fruit; very fine
M. ‘Red Swirl’ (Fiala)—Very refined, delicately branched free-form weeper of elegance; fall leaves golden yellow; fruit small, oval, brilliant red, persistent; one of the very finest weepers; heavy annual bloomer; formerly called M. ‘Red Snows’; one of the finest embankments developed at Falconskepe
M. ‘Rhaposody’ (Fiala)—Semiweeper, large white blossoms, small bright red fruit; a SUBSTITUTE for M. ‘Red Jade’
M. ‘Royal Splendor’ (Fiala)—Excellent, small, refined fountain weeper, outstanding bright red fruit; very showy and select
M. ‘Seafoam’ (Den Boer)—Fine semiweeper; pink flowers and small yellow fruit; not very well known or much grown; difficult to find a source plant
M. ‘Sensation’ (Fiala)—Graceful, smaller semiweeper, heavily fruited annually,
fruit small, orange with red cheek; very fine and outstanding
M. 'Serenade' (Fiala)—An excellent semiweeper with outstanding orange-tocoral fruit; a showy, annual bloomer, heavily fruited; one of a very few in its fruit color class
M. 'Sind Fire' (Fiala)—An excellent heavy weeper, horizontal-to-downwardbranching; very fine green leaves and bright red fruit
M. 'Snow Ballerina' (Fiala)—Formerly called M. 'Cascade', small weeper, whiteflowers, abundant red fruit
M. 'Spring Beauty' (Fiala/Murray)—Free-form weeper with pale pink blossoms;very showy
M. 'Springtime' (Fiala)—Refined red-leaf weeper, orchid blossoms are unique,hybridizers only, scab
M. 'True Love' (Fiala/Murray)—Graceful, fountain weeper; white flowers inabundance, bright red smaller fruit; showy
M. 'Walnuttime' (Fiala/Murray)—Fountain weeper, large green leaves, whiteblossoms, orange-red fruit
M. 'White Cascade' (Henry Ross)—One of the finest introductions, a refined,graceful, cascading weeper of outstanding beauty; buds pale pink opening tofaintly tinted pink-white blossoms, fruit greenish yellow; very heavyannual bloomer
M. 'Wildfire' (Fiala)—Semiwearer, pink blossoms, brilliant red fruit, very per-sistent and showy
M. 'Woven Gold' (Fiala)—Refined, semiwearer with small gold fruit

Among weepers, the need exists for really good bright pink and dark red flowering weep-ers with bright fruit. There is also a need for good double-flowered weepers. To my knowl-edge Malus 'Flame' is the only semidouble flowering weeper. Developing double-floweredweepers will be very difficult since all double-flowered crabapple trees have far less fruitthan single or semidouble forms—usually the fruit is very sparse or altogether absentbecause on double-flowered trees the stamens are often fused as extra petals and the pistils,if they exist, are twisted and buried in the mass of petals, making the flowers rarely fertile.One of the finest introductions of weeping crabapples is their wonderful display of cascading,colorful fruit, so it will not be easy to develop a weeper with double blossoms and abundant,colorful fruit.

**SHRUB OR BUSH FORMS**

Of the four basic crabapple forms, the small shrub or bush form has the least number ofofferings. For a time Malus sargentii and M. baccata 'Parkmanii' stood out as the only can-didates. Today a few more have been added, but I am not convinced that such small formsare greatly needed or useful as they are not able to put on a good showing of blossoms andfruit as well as the smaller tree forms can. I regret that in the half century of hybridizing atFalconskeape Gardens the shrub form has not been given more attention. Instead, hybridiz-ing at Falconskeape focused on producing small tree forms that do not grow much higher than10–12 ft (3–3.7 m), only a few feet taller than a bush or shrub form.

Really low bush forms that do not exceed 6 ft (1.8 m) are very rare. The very complicatedoctoploid Malus 'Fountain' is perhaps the smallest crabapple grown. The original tree, now
CHAPTER 4

Flowering Crabapple Culture

Flowering crabapples are very easy to grow as they make few demands and seem to accept a wide range of growing conditions that other trees and shrubs do not tolerate. With minimal care they will lavishly repay gardeners with two seasons of beauty—springtime bloom and wonderful autumn fruit.

GOOD SOIL AND DRAINAGE

Crabapple trees luxuriate in full sunlight in deep rich soils that are well drained. Soils with a pH range of 5.0 to 7.5 suit crabapples well, but the ideal pH range is from 5.5 to 6.5. Even if gardeners are fortunate to have ideal soil conditions, they may not be able to allocate the best part of the garden to crabapples. Flowering crabapples, however, are not greedy and will accept almost any soil that is not waterlogged or overly dry. As long as the soil has a reasonable amount of nutrients and water, crabapples manage to do very well.

Like most plants, crabapples prefer rich sandy loams, but even in heavier clay soils they do better than many other trees and shrubs and seem to bloom well once they are established. They will accept slightly wetter soils than lilacs, for example, but in these heavier soils they should have excellent drainage as they will not grow in waterlogged, swampy areas nor in soils inundated for long periods of time.

PURCHASING THE PLANTS

Shop around at the specialty nurseries that sell crabapples by their true (i.e., scientific) name; avoid garden stores that sell ready-to-plant pots merely by blossom color. Good, named crabapples also come in take-home pots, but many nurseries carry only the older named plants. Generally these trees are much, much cheaper than the patented, newer varieties, but there is a great deal of difference between carefully named and patented clones that are disease resistant and the larger specimens that are sold by color but with no guarantee of
true excellence. Once the latter are grown and aging in your garden, you will wish you had paid a little more.

Most garden retail nurseries do an extremely poor job marketing flowering crabapples. Their clerks rarely have the knowledge needed to make a proper selection. A reliable nursery, even if you buy by mail order, usually gives you a better, guaranteed-true-to-name plant than does the local retail garden store that sells by color and no name guarantee. But as always, there are exceptional retail garden nurseries that have excellent and very knowledgeable clerks. (I once found one where the young college-aged sales person could name all the plants by their Latin names. You never forget such a person. Today he is a taxonomist at a very large arboretum.) Careful emitter! Let the buyer beware!

OWN-ROOT VERSUS GRAFTED AND BUDDED TREES

The newer weeping crabapples are ideal for smaller gardens and, if they come on their own roots or grafted and budded on dwarf rootstock, they will remain small for many years. Most of the new cultivars are best on their own roots; when they are grafted on common apple rootstock they are much larger than they should be. Hopefully nursery professionals will resort to tissue-cultured plants or to budding on very dwarf stock. Keith Warren, an expert on the propagation of crabapples, assures me that good nursery professionals use the best, disease-resistant, dwarf or lower-growing rootstock that can be had. Often it may provide a better root than the own-root clone might have. Nonetheless, there will always be the unscrupulous few who will graft naturally low crabapples on common apple rootstock to create a larger, saleable plant in one year’s time.

Weeping crabapples are not as rapidly produced as upright, columnar forms. They must be trained to a central leader or top budded. Hence they command a higher price and rightfully so. They are priceless garden treasures when several years old. Many nurseries prefer not to grow the weeping cultivars simply because of the extra years of growth and special care and handling needed to bring them to marketable size.

PLANTING FLOWERING CRABAPPLES

Crabapple trees usually come from the nursery bare root. Thus it is important to keep the roots in water or covered with a wet bag until the tree is planted. Do not let the roots dry out at any time.

Dig an ample hole for the tree so the roots are not twisted or crowded under but spread out well in all directions. Place some very good soil under and over the roots to give them a good start. Fill in the hole, but leave a depression for holding water around the tree. Always plant the tree as deep as it was in the nursery—no deeper and, above all, not any shallower. The tree is not likely to die under these circumstances.

Crabapple trees are sturdy little trees, and the newer varieties can withstand rather long periods of summer drought when established. Newly planted trees, however, require care and watering their first few years. During the first critical year, as they seek to establish themselves, they must be watered frequently. Never let them completely dry out, especially in sandy and clay soils.

Ideally, crabapples prefer well-drained, loamy, organic soils with sufficient moisture and in direct sunlight. They delight in a good, deep mulch around the trunk for at least a 4-5 ft (1.2-1.5 m) radius. Adaptable as they are, crabapples bloom rather well even in partial shade, but in full shade they become long limbed and rangy, as does any tree. Once established crabapples can take care of themselves in competition with many aggressive plants, although this should not be the ideal or even ordinary case in a garden. Give them a sod-free area around their trunk, fertilize on occasion, and prune only when necessary.

PRUNING

All root suckers should be removed immediately. Also remove rampant sucker growth, called water sprouts, from the branches and trunk. Never use water sprout suckers for grafting or budding; they delay the bloom time of young trees considerably.

To prune my flowering crabapples to two or three trunks that sometimes intertwine and give a most interesting pattern to their form as they grow older and especially when viewed in the winter landscape. (Of course, those who mow my lawn do not think as highly of my intertwined, artistic trunks, beautiful as they are, when they have to work around them.) Nothing is as beautiful as an older tree with multiple stems artistically pruned.

Choice trees should be entrusted only to professionals for pruning. Often a maintenance crew of inexperienced pruners leaves stubs of removed branches so long they can never be healed over by cambium growth. These stubs then become entrances for root and disease into the heartwood of the tree.

Good pruning of branches, especially the larger ones, requires skill and knowledge. The branch to be removed must be shortened first, then the remaining stub cut a second time close enough to the main trunk so that it can be overgrown in time and completely healed by the new growth. A stub a few inches long will never be overgrown by new bark before rot sets in to damage the heartwood. To avoid making a rotted hole in a tree for disease or nesting birds, heavy branches must first be undercut before the final uppercut is made. If not, the weight of the removed branch will rip off the bark below the cut, damaging the entire area below the cut.

For a small one- or two-tree job, homeowners are more prone to prune the trees themselves than they are to hire a professional. Most often these trees bear the marks of this dollar-saving pruning all their lives, whether a rotted hole or a large-debarked area around the removed branch that never was able to heal itself. If a tree is worth planting and is of ornamental value, it merits the relatively insignificant cost of hiring a professional pruner. But remember, not every person who hangs out a shingle knows the profession. In the tree removal business, many so-called professionals know nothing outside of cutting down and removing trees. Fred Lape of the Landis Arboretum once told me about a local person he hired to prune some choice conifers. When asked by Mr. Lape if he knew how to prune trees, the man answered, “I can cut down most any tree but I don’t haul barn manure. That prunin’ work has to be done by someone who has cows.”

PREVENTING DAMAGE TO TREES

Although flowering crabapples are easy to grow and maintain, considerable damage is often done to trees by their human caretakers. Examples are found in every arboretum or home garden.
Lawn Mowers

Put a riding mower in the hands of a horticulturally uneducated operator and you have one of the greatest threats to the trunks of young and old trees. I once visited a large arboretum where nearly all the trees showed evidence of mower damage. I brought this to the attention of the grounds supervisor who complained, "That is because they give me all these summertime college cowboys for help."

Mower operators should not try to see how close to a tree they can maneuver the machine, but rather how wide a grass-free area they can make around the trunk. These grass-free areas are worth whatever time it takes to maintain them, if they do nothing other than reduce mower damage! Never let careless or untrained mower operators in your garden. Just because a person can cut grass with a mower is no indication the individual qualifies for garden and arboretum work.

I was once shown a planting by an arboretum superintendent, where the returning to an untrained college student had completely eliminated a 2-acre (0.8-ha) planting of newly set out crabapple whips. When older trees are debarked at ground level, they are rarely able to overgrow the damage, which becomes an entrance for disease and decay. More small trees are killed by careless mowers than by rabbits or mice combined! The late Fred Lape, founder and director of the Landis Arboretum, Esperance, NY, was once asked by a visitor why he planted three trees of the same kind in all plantings. "Two for the mowers, and one to survive," came his ready reply.

Flowering crabapples ask only for reasonable care in return for a bounty of blossoms and colorful autumn fruit year after year. Mark smaller, newly planted trees in tall, white stakes that can be easily seen by tractor operators, well above the highest grass.

Chemical Weed Killers

Despite their great advantages, chemical weed killers are highly toxic materials. Several have proven to build up in the soil and, though they control weeds as if by magic during their first years, they eventually build up to lethal levels, killing the very trees and shrubs they were designed to protect. The first indication of trouble is poor, dwarfed, curly leaf development, followed by pale and yellowing leaves. Eventually the trees die. Today all good garden superintendents are aware of herbicide build-up. Since many chemical weed killers follow the cycle of soil build-up described above, they must be used selectively, for short and specific periods, never as a general program for an entire area. Rotating use of chemical weed killers is of no value as most of them contain similar, if not identical, components that build up in the soil with constant use. This same warning must be given for chemical sprays that eliminate root suckering.

Soil build-up toxicity often does not become apparent for a few years, and by then the trees are dying and nothing can undo the damage. Whole plantings can be killed almost at once when the soil level reaches lethal toxicity. Frequently when a planting or orchard begins to fail and die, viral infections or disease are suspected. After the trees have died, on closer examination, the constant, yearly build-up of chemical weed killers is determined to be the cause of death. Once the soil is so contaminated, it cannot be used for replanting. How long the chemical build-up remains is still unknown, but it appears to last for several years.

In conclusion, short cuts and time-saving spraying programs are not always what they appear to be initially. At times chemical weed and brush killers become a necessity (e.g., to get rid of wild grapes or multiflora rose, poison ivy, etc.), but the best gardens are generally chemical free, if possible.
CHAPTER 5

Diseases and Pests of Flowering Crabapples

Flowering crabapples need very little care. Occasionally, however, when things are not going well, they may need a little attention to keep them looking and growing at their best.

Some of the worst problems for crabapples come from ordinary apple diseases, such as apple scab, various leaf diseases, fire blight, and cedar-apple rust. Hybridizers seeking to eliminate these problems have worked wonders by breeding disease resistance into the newer crabapple clones. Even if a garden is small, gardeners cannot afford to spend a lot of time spraying their trees, such as must be done in commercial apple orchards. Thus the first thing gardeners can do to keep their crabapples healthy is to purchase none but the most disease-resistant trees. The second thing they can do is to follow good, clean cultural practices.

In rating crabapples for disease resistance, one must be aware that despite the great progress made by plant hybridizers and introducers to produce disease-resistant clones, the term disease resistant is somewhat relative. Most of the newer introductions are far superior in disease resistance than previous crabapples and can in all honesty be labeled disease resistant, but there are epidemic years when constant rains plague an area for weeks at a time, or viral attacks break out unexpectedly, or insect hordes appear from nowhere. Under these exceptional conditions every crabapple appears to be susceptible to disease. There are, indeed, the “Years of the Apple Scab” or the “Years of the Cedar-Apple Rust” that touch every crabapple growing in a particular area. In these extraordinary years one should not condemn a special clone that has been previously disease resistant for several years or decades. I have seen excellent crabapples condemned because of one year in which they showed scab or fire blight that was of no real disfiguring consequence but happened to be epidemic that season. Disease resistance should be judged as a general characteristic, not on the basis of a single year’s performance.

Many of the best disease-free crabapples are very new to commercial growers and some, as yet, have not been propagated by nurseries. In time, only disease-resistant clones will be propagated and available in the market, but until then, one must study the lists of named
crabapples carefully and seek out those disease-resistant clones currently on the market. They will cost more, particularly if they are patented, but the slightly higher initial cost is well worth not having to spray and not having to look at scab-fruited, defoliated trees in the garden. There is no reason for any nursery to offer today the highly disease-prone clones that once were the vogue because they were a new kind of crabapple, yet thousands of flowering crabapples are sold each year to a public uneducated about disease-resistant clones. Retail garden center operators must simply demand disease resistance as the first requisite of quality!

**DISEASES**

**Apple Scab**

Apple scab (*Venturia inaequalis*) is an unsightly disease of apples in general, both commercial and ornamental. It not only disfigures the fruit, but it also defoliates the tree by the beginning of or during midsummer. To prevent this disease, trees must be sprayed before their flowers open, and once again one week to 10 days after the petals have dropped. It may be necessary to repeat sprayings every 10 days for as many as five to eight applications. Any of the several new fungicides available at garden stores are suitable for this purpose.

Spraying is a time-consuming process with lots of heavy work. It is meaningful only for the largest collections and arboreta that seek to maintain a full collection of the crabapple species and older, once-important clones. I do not advise it for any home garden or even larger estates. The alternative to spraying is to plant only disease-resistant clones. If you plant the older crabapples, however, be prepared for a spraying program. Much of the discredit to flowering crabapples in the past is attributable to such clones as Mulas/Alney’s ‘Alney’, ‘Eley’, ‘Hop’s – ‘Radiant’, and some of the Rosyblooms hybrids, as well as to several of the once-touted, disease-prone species. Defoliated crabapples in midsummer, scab-ridden fruit, and the need for spraying programs all give crabapples a bad reputation that must not be tolerated.

The first evidence of apple scab is the appearance of dull, smoky areas on new leaves, particularly at the midrib. These areas soon become olive-colored and velvety as the infection progresses and then assume a definite outline as olive-green or brown circular spots. The leaves yellow and fall, defoliating the tree often by midsummer. This fungus disease overwinters on fallen leaves, producing sporae in the spring that are carried by the wind and rains to opening apple buds. Thus, the cycle continues. Development, which is normally rapid, is accelerated in warm spring days. Several secondary cycles may occur in a single season, each one requiring additional sprayings. A very few crabapple clones are somehow susceptible to apple scab yet do not lose their leaves. Nonetheless, they continue to reproduce the air-borne spores.

In general, apple scab is far more prevalent in humid areas of the United States than it is in drier areas. It is rarely found in the drier areas of the Rocky Mountain States, but in some heavily misted pockets along either seacoast, all crabapples are scabby.

On rare occasions, a clone that is susceptible to apple scab may also have some truly outstanding characteristic (e.g., unique blossom shape or color) that hybridizers wish to preserve. Breeding these rare clones with a strongly disease-resistant clone may result in disease-free progeny, but the susceptible gene will be lurking somewhere in the genetic background. Because this has happened to me at times in my 50 years of hybridizing, I have learned to never trust the supposedly disease-free progeny. It is one thing to plant these suspected clones as ornamentals for the garden—many are indeed very handsome and worthwhile—but it is another thing to base the entire future of hybridizing on them.

Some crabapples, such as *Malus pumila*, are notoriously disease prone, so much so that I would advise against using any of its forms for hybridization. The one exception is the only red-flowering, naturally red-leaved crabapple, *M. pumila* ‘Niedzwetzkyana’. From this remarkable Russian variety, which genetically is strongly prone to apple scab, have come all the most beautiful red-flowering crabapples, including the Rosyblooms. The first Rosy-
bloom hybrids were a sensational revolution in flowering crabapple color with their deep pink, red, and purple-red colors, but they also kept their progenitor's propensity to apple scab. Fortunately, after only a few generations, hybridizers have been able to breed out the disease-prone gene and now we have some very beautiful red-flowering, disease-free clones.

Fire Blight

Fire blight (*Erwinia amylovora*) is a widespread bacterium that survives from year to year in the margins of cankers on susceptible, infected trees and plants (e.g., pears, apple, quince, firethorn, hawthorn, mountain ash, and serviceberry). It is by far the most damaging of all crabapple diseases. Beginning at bloom time it occurs sporadically in warm moist weather, spreading from susceptible trees, but it also occurs during warm, moist summer months. When infected, tree parts—blossoms, twigs, whole branches—and even the entire tree turn brown as though scorched by a fire or an intensely dry wind. Infected blossoms appear water-soaked, shriveled, and brown. During the growing season new terminal growth suddenly wilts and turns brown, and dead leaves remain attached to branches. Cankers occur on small or large limbs, trunks, and even roots, usually starting around the base of a blighted blossom spur or shoot. Rains help spread the bacteria, and insects, attracted by the sugar in the bacterium ooze, become contaminated carriers.

Some of the most susceptible crabapples are also very beautiful in bloom. Among this group are *Malus baccata* 'Columnaris', *M. Dorothea', *M. 'Pink Perfection', *M. 'Red Jade', M. xchaiderkeri, M. 'Snowcloud', M. 'Snowdrift', M. tschonoskii, M. 'Van Esettine', and several clones of *M. halliana*.

Dr. Charles Powell (pers. com.), a plant pathologist at Ohio State University, described the conditions that encourage fire blight as follows:

Conditions favorable for fire blight infection include open blossoms or succulent new growth, temperatures above 65°F [18°C], plus rainfall or a relative humidity above 60 percent. The disease is most likely to be severe in areas where fire blight was present in the preceding year.

Professor Nichols (pers. com.) observed:

Areas of Colorado and North Dakota may have severe fire blight infections almost every year, while in some areas of the northeastern states severe infection may not be seen for 6 to 7 years. When severe infection does occur it may be devastating, as several branches or whole trees may be killed outright.

Old neglected apples and pears harbor the cankers of fire blight over winter. Such trees should be removed from proximity to flowering crabapples. Another measure of control can be attained if blossoms are sprayed with streptomycin formulations at 100 parts per million. The spray should be applied when 20-30 percent of the blossoms are open. If bloom time lasts more than 5-7 days, spraying should be repeated. Outbreaks of the infection may appear throughout the year on growing shoots following rain accompanied by wind and prolonged high humidity. In these weather conditions, spraying seems to be the only remedy of some control.

All crabapples should be inspected within 2 weeks after petal fall to ascertain any fire blight incursion. Remove all infected areas immediately and burn them. If pruning shears are used, remember to sterilize them before using them again on healthy plants. One part liquid bleach to nine parts water is an effective disinfecting treatment. Since the bacterium is especially aggressive toward new, succulent growth, avoid late-spring fertilizing of trees. Also avoid sources of organically bound nitrogen, such as barnyard manure, since it can, too, cause epidemic infections in warm, wet springs. Another precaution is to avoid planting crabapples in heavy, poorly drained soils.

Cedar-Apple Rust

Caused by the fungus *Gymnosporangium juniperi-virginianae*, cedar-apple rust is a problem only where there are large numbers of native cedars or plantings of ornamental junipers within a mile (1.6 km) of crabapples. Dr. Powell explains how the disease develops:

Orange areas ¼ to ½ inch [3 to 19 mm] in diameter appear on affected leaves. The upper surface of these areas is covered with minute black dots within a reddish circle. Later, on the underside leaf surface of the orange spots, many ¼ inch [1.5 mm] cup-shaped structures with fringed edges are formed in circular clusters. In late summer, spores from the cups are blown to and infect red cedars and other juniper trees, where, after 18 to 20 months, a different type of spore is produced on gall to re-infect crabapples and apple trees.

Figure 8.4: Ripened leaf spores of cedar-apple rust.

Figure 8.5: Cedar-apple rust on fruit.
Severe infection causes early leaf fall and dwarfing of infected trees. On *Malus ioensis* ( Iowa or prairie crabapple), which is very susceptible, as are most of its named clones, repeated infection may cause the death not only of whole branches but of the entire tree.

Eliminating all cedar trees within a mile (1.6 km) radius of flowering crabapples provides almost complete control. When cedar trees are on neighboring properties or are a part of expensive landscaping that cannot be removed, they remain a source of constant re-infection. Three sprayings of 75 percent wettable zineb, applied at 10-day intervals starting when blossoms begin to show color, will give effective control. The most effective control is to plant completely disease-resistant crabapples.

**Powdery Mildew**

Caused by the fungus *Podosphaera leucotricha*, powdery mildew attacks leaves and terminal blossoms as well as fruit. Twisted, narrow, cupped terminal leaves covered with a white powdery fungus coating are the visible signs. Infected terminal growth is weakened and thus is easily killed in winter. On some highly susceptible clones such as *Malus* 'Almeiy', white powdery patches may be found on the fruit.

Powdery mildew is generally a problem only where air movement among trees is poor or where crabapples are growing adjacent to commercial apples such as *Malus* 'Cortland' or *M. Rome*. The fungus overwinters as threads within dormant buds. High humidity and temperatures around 70°F (21°C) provide conditions ideal for disease development. Spores do not germinate from moisture on buds and leaves but rather require atmospheric moisture content approaching saturation (C. Powell, pers. com.)

To control powdery mildew, spray three times at weekly intervals with benomyl 50 percent wettable powder.

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**INSECT PESTS**

**Aphids**

Aphids are the small sucking insects so often related to and cared for by ants, who milk them for their honey dew secretions and carry them from place to place. Ordinarily, aphids do not constitute a problem, but when they appear in great number, especially on new growth, the leaves become twisted and curled. The aphid's sticky secretions turn the foliage black due to a sooty fungus growth.

Aphids are most frequently found on new sucker growth. Thus, the prompt removal of suckers helps control these pests. They are also easily controlled by a spraying of malathion, often readily available in combination with other insecticides at garden stores.

**Mites**

Mites, particularly red spider mites, are piercing, sucking insects so small that a hand lens is needed to see them. Ordinarily, in the northeastern states they rarely are a problem. Mites cause leaves to discolor, especially in hot, dry seasons, turning them yellow to bronze before they fall.

When mites first appear, a Kelthane™ spraying usually controls them. A second spraying may be necessary. For the most part, healthy growing trees are rarely damaged by minor insects and do not have to be sprayed.

**Tent Caterpillars**

*Malacosoma* species are a bothersome nuisance, forming unsightly silklke webs in the branch crotches of infected trees. They are becoming more and more plentiful each season as they appear to have no apparent natural enemies. Birds, fearing entanglement in the unsightly webs, refuse to eat these caterpillars.

Tent caterpillars lay their eggs in bands around small twigs in the summer or, in warmer seasons, in late fall. When the eggs hatch very early the next spring, the caterpillar larvae immediately begin eating all the leaves in the vicinity. From a silklke nest in the forks of branches, each morning they spread out on silken threads to pasture on nearby leaves, returning to their nest in the evening. When fully grown the caterpillars wander in all directions looking for a place to pupate; when they find it, they form a cocoon in late June or July, or even earlier depending on the climate. Moths soon emerge to lay their eggs in rings around twigs for the next generation. Although it is claimed there is but one generation a year, I have found these caterpillars among the trees and shrubs in my garden almost every summer month until September. I am told there is also a subspecies.

**Fall Webworm**

Fall webworm, *Hyphantria cunea* (Drury), exhibits the same behavior as its relative, the tent caterpillar, except that it forms its massive nest in August whereas the tent caterpillar spins its nest in early spring. The greenish gray-brown caterpillars of this species are very hairy
and larger than tent caterpillars, and they spin tents that are much larger, sometimes a yard (0.9 m) long. The adults are white moths with one-inch (2.5 cm)-wing spans.

Although neither caterpillar seems to permanently damage a tree, they leave unsightly, leafless branches where they have been feeding and messy webs not easily removed. If they are few and in reachable areas, the nests can be removed by hand and the caterpillars within them destroyed. It is best to destroy the nest in the evening when all the caterpillars are home for the night describing their day's foraging to another one. A paper bag is excellent for this purpose as it can later be incinerated with all the caterpillars. Destroy any egg rings if you observe them in the fall or winter when they are most easily seen on smaller branches.

If there are many fall webworms, and particularly if they cannot be reached, it is best to spray with one of the many insecticides designed for them: malathion, methoxychlor, diazinon, and other garden insect mixtures where available. Spraying is most effective when feeding starts, since once the caterpillars have pupated the spray cannot reach them. When using any chemical, follow instructions strictly, wear a face mask and do not directly inhale any pesticides. Always keep pesticides away from and out of reach of children.

Apple-and-Thorn Skeletonizer

You can identify the larvae of apple-and-thorn skeletonizers, Chlorusius piairian Clerck, when you see a small, spotted caterpillar that feeds mainly on the upper surface of leaves. The edges of leaves are rolled upward and fastened with a web. Eating all but the veins and lower surface of the leaf, the caterpillar feeds on the web. It produces two broods a year with larvae present in July and again in August-September. The adult is a small moth.

San Jose Scale

San Jose scale, Quadraspidius perniciosus (Comstock), usually does not infest crabapples to any large extent. When it does, however, it must be dealt with promptly as heavily infected trees or shrubs can be killed. All scale insects—oyster shell, mealybug, and San Jose—have similar life cycles. Because the insect can only reach the spring in the young mites or scales, looking like white fluff, are on the move, correct timing of spraying is essential. A dormant spray, such as lime sulphur, should be applied in spring before buds begin to open; after that, one of the special scaleicides available at garden centers must be used in the mite or moving stage. Whatever scaleicide is used, follow directions on the container carefully. Usually heavily infected branches must be removed and destroyed by burning. Heavily encrusted areas on older branches or in tree crotches must often be scraped off as no insecticide can reach them. After scraping, the areas are then thoroughly sprayed with a good scaleicide.

Cicada

Cicadas (Cicadidae or Magicicada septendecim) have begun to emerge in varying cycles—every 10, 17, or 20 years, for example. In the "Year of the Locust," whatever year that may be, they greatly damage flowering crabapples, particularly young trees, for they emerge in great

Diseases and Pests

hordes, often by the thousands, in Ohio, Pennsylvania, and neighboring states. Their eerie droning, caused by rubbing their metallic-like wings together, can be heard for miles.

When they emerge from the pupal stage, the adult, winged cicadas do not feed on anything, but promptly begin a mating drone, which is frightening as it goes on for days at end. Upon mating, the female immediately seeks a young branch, generally a 2- or 3-year-old branch, into which she makes the rattle-like slits where she deposits her white eggs. She then moves below the slits and cuts a circle around the branch, thus greatly weakening it so that it falls to the ground easily when the wind blows. There the now-hatched small white grubs burrow into the ground and make their descent below the frost line, eating at roots as they grow. Fat and about 1-1.5 in (2.5-3.8 cm) in length, these grubs can devastate roots of young trees. When hatched in the thousands, as they are in the "Year of the Locust," they seriously damage the roots of even mature trees and shrubs. Moles feast upon these grubs, so if you have moles, you have grubs. The two are inseparable.

Today locusts are known to emerge in 10-, 17-, 20-, and off-year cycles. Coming clock-like to the surface to renew their life cycles, the time of their emergence can be accurately predicted by the local agricultural service, which can best inform you when not to plant young orchard trees or when to protect them with cheese cloth against the emerging hordes. If cicadas invade your territory, examine your trees and immediately cut off the egg-laden, razor-sharp branches, then burn them. In this way you will catch the brood before it hatches and enters the ground. You will not further damage the tree by removing these branches as infested branches will almost always die, and, should they survive, they will always have the scored-around bulge that dwarfs their growth.

No spray is effective against adult cicadas nor do they have any natural predators. Their wiry-like wings and awful white frighten even the boldest birds, who will not come near them. Some grub-killing insecticides will rid lawns of grubs, but once these pests burrow deeper, nothing reaches them. One form of digger wasp preys on cicadas but, unfortunately, in horde years the number of digger wasps is insignificant compared to the thousands of cicadas that emerge. Fortunately, the "Year of the Locust" comes rather infrequently and urbanization is somewhat diminishing the number of locusts.

Japanese Beetle

In some areas in the eastern and midwestern Great Lakes states, the Japanese beetle (Popillia japonica) has become a horticultural pest that must be dealt with aggressively. It loves the entire rose family of plants and has a definite preference for crabapple leaves. Eating the leaves of its host plant, the Japanese beetle, when it appears in force, can completely skeletonize a small tree.

This medium-size scarab beetle has a metallic green-bronze body. Birds will not eat, nor does it have any natural enemies, so the number of Japanese beetles increases yearly. For years we never had these beetles in Falconkape Garden; then, suddenly, they appeared, devouring whatever suited their palate.

The most effective control for Japanese beetle seems to be sex attractive pheromone traps. Prescribed sprays designed specifically for this pest are reasonably effective, and a bacterium, commonly called milky spore disease (under the trade name Dylox and Dasanit), infects and kills the fat white grubs in the soil. Where Japanese beetle grubs are in the soil, moles will move in for they are among a mole's favorite food. Perhaps all the methods possible must be used to rid a garden of this nastiest scourge until far more effective means of control can be researched.
Apple Borer

The apple borer, *Synanthedon pyri*, is not a serious problem except in older trees that have been neglected and show signs of trunk decay. Should the borer problem be serious, gardeners should consult their local agricultural agent. Ordinarily, a remedy for a lone borer or two can be found in garden center preparations. Follow directions carefully.

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**Figure 5.7.** Tree damaged by round-headed apple borer.

When an old crabapple begins to decay from within, the trouble spot has been progressing for several years. Perhaps the best remedy is to replace the old tree with a young and vigorous one. Good, careful pruning practices are necessary to prevent branch stubs from rotting into the heartwood of the tree. All cuts should be made close to the trunk; leaving only a very small bump to be overgrown by the cambium layer as soon as possible. Stubs 4 in (10.2 cm) or longer may begin to decay before they can be overgrown. These always spell trouble.

Codling Moth

Codling moths need large fruit to complete their developing cycle. Thus they are not bothersome to crabapples.

ANIMAL PESTS

**Deer**

Where deer are plentiful, damage to trees can be rather extensive. For one thing, deer prefer the succulent branches of last season’s growth as one of their favorite winter browse. Thus a herd of 20 or more deer can heavily damage a planting of crabapples in short order. Browsing is particularly harmful as the deer destroy the fruiting buds on the outside areas of the tree. In addition to browsing, the bucks, at rutting time and also when losing their antlers, viciously attack young trees, often ripping and shredding the bark so that either the tree or its shape is so totally destroyed that it must be replaced.

Several deer repellents are available on the market, but the best repellent is a good dog. Often just walking through the garden with the dog leaves enough dog scent to ward off the deer from congregating in crabapple plantings. Where there are large herds of deer, nothing deters them.

Hunting deer is the only sure cure I know of for this difficult problem, which is far greater in public arboreta and parks than on private estates, but it often leads to a heated argument between naturalists and horticulturists. Are the gardens for plants or for animals, or for both? The more a garden is frequented by people during the winter months, the less likely deer will damage it, but one thing is sure: flowering crabapples and deer will never co-exist on peaceful terms. One will have to go.

**Rabbit**

Rabbits are rodents whose teeth must be kept short by constantly gnawing on wood to wear them down. If rabbits do not keep their teeth worn down and sharp, the teeth will overgrow and soon the rabbit will be unable to open its jaws because of the overlocked teeth. This, in turn, brings certain starvation.

One of the rabbit’s favorite woods is crabapple. The heavy trunks of older trees are not in danger, but the bark of younger trees and their lower branches are often stripped bare up to the snow line and as high as a standing rabbit can reach. Since the snowfall varies from day to day, there is no advantage in wrapping or fencing in trees. With a snowbank and a rabbit, nothing is sacred! If a young tree is girdled all around by a rabbit, it will certainly die. Often this damage is not seen until snow has melted, but by then nothing can be done for the tree’s survival.

A good licensed trapper or hunter is probably better than any other remedy. Rabbit-repellent sprays, mostly containing thiourea, can be had from local garden stores, but at best they are a half measure of protection. I know of several orchardists who prune their apple trees in early winter, leaving the pruned branches strewn around the trees. Rabbits strip these first before attacking mature trees that are more difficult to reach. Most rabbits are nocturnal, debarking trees during the night hours when even a trusted rabbit dog is fast asleep. When rabbits are plentiful, expect severe damage, especially if the snowfall is heavy for then they can climb on the crusty surface to reach higher, young branchlets. In the smaller garden this is usually not a problem.

**Mouse and Vole**

Mice and voles can cause considerable damage as they, also, debark smaller trees. Unlike rabbits, however, these small rodents damage trees below the snow or hidden in the cover of higher grass left around the tree trunks. Since mice do not like to work in grass-free areas, one of the best preventive measures is to have a grass-free ring 3 ft (0.9 m) wide around a trunk. High grass around a trunk is an open invitation for mice to set up winter quarters. Wire or hardware cloth protection of tree trunks, particularly on very young or newly set trees, aids in reducing damage by mice, and poisoned grain baits are available from garden and farm stores. The latter must be used with care to keep pets and children from eating them.

A good barn cat, not a neutered pet but a mouser that patrols the garden, is an invaluable asset in reducing the mouse population. Patrolling in summer and late fall, “dear kitty”
will be curled up in a warm hay mow or under your favorite chair in winter, not even
dreaming of what the mice are doing under the heavy snow.

Where mice are plentiful, damage to trees is inevitable. Several natural predators, such
as owls and hawks, once kept mice somewhat in control, but today one rarely, if ever, hears
the hoot of an owl or the scream of a hunting hawk.

CHAPTER 6

Landscaping with Flowering Crabapples

Flowering crabapples are choice garden trees. You can plant a single focal specimen near the
patio, using one of the smallest varieties as potted plants for the garden court, or you can
plant crabapples as a central design along the garden walk, as backgrounds for flowering
plants, and as flowering screens, windbreaks, or property line dividers. Many special clones
are excellent street or highway trees.

Modern flowering crabapples outshine their illustrious predecessors among the species
not only in bloom but also in tree form. Trees of every imaginable form exist today: beauti-
ful upright or columnar trees; vase-shaped or fan-shaped trees; broadly spreading trees;
delightful smaller, rounded, almost tailored trees; gently spreading trees; and to top it all,
a whole new line of unique weepers in many shapes. More recently hybridizers have intro-
duced shrublike and bushlike forms that are suitable for even the smallest garden. For every
need and space in the garden there is an appropriate crabapple.

The effect of crabapples in the landscape is enhanced when trees are planted in odd-
numbered groups (three, five, or more, where space is available) in a single color flanked
by another odd-numbered group in a contrasting or complimentary color. Even in small
gardens an excellent design is achieved with just a few trees, such as a white-flowering
crabapple tree flanked on either side by a pink or deep red tree.

FACTORS IN SELECTING CRABAPPLES FOR THE LANDSCAPE

The successful growing of any plant, including crabapples, requires a careful considera-
tion of the plant's characteristics as well as those of the proposed site. According to Dr. John
Sabuco (1987) of FloraMoore, IL, one of North America's foremost landscape architects and
a past president of the IOCs, the key factors to consider for successful crabapple plantings
are as follows:
Crabapple Characteristics
Size
Hardiness
Fruit color & size
Disease resistance
Fragrance
Form
Food value

Site Characteristics
Area
Climate (micro & macro)
Background
General maintenance
Distance from viewer
Use
Ornamental/bird food

I have often gone back to Dr. Sabucu's wisdom-packed articles, not only because he has personal knowledge of the many crabapple clones, but because he also has a distinct eye for how to best use these trees to their fullest potential in different kinds of gardens, whether the desired effect is flowering beauty or magnificent fruit or both. In the lengthy quotation below, Dr. Sabucu (1987) explains the process by which he assists clients to select the right crabapple for a given site:

When I select a crabapple for one of my clients the first order of business is to determine the size of the plant needed and in what period of time it must fulfill its role in the landscape... In short, a tree should be able to reach its fullest capacity without need for pruning. Trees appear to grow slower as they age, when in fact they generally put on the same volume of new growth more or less, year after year. The new growth is spread out over more branch tips... A hillside vista can be best accented with very short, wide trees. This makes the view seem more grand and does not block the view from the top of the hill. These trees are also beautifully displayed when you look up the hill or against it.

Next, I take stock of my site characteristics to determine the form, flower and its color, fruit size and color; the following is a list of automatic criteria:

Close to viewer
Fragrant flowers
Small fruit
Red fruit
Persistent fruit
Detailed blossoms (doubles, bicolor, etc.)
Medium-to-small size (unless desired for shade)

Far from viewer
Large fruit
Yellow fruit
Medium-to-large size
Red or dark brown stone or brick background
White flowers
Yellow fruit
Yellow fall leaf color
Light brown or tan stone or brick and natural cedar
White flowers
Red fruit
Yellow or orange fall leaf color
Blue sky
White or red flowers

As Dr. Sabucu would be the first to point out, these excellent observations and recommendations in no way exhaust the almost limitless combinations for effective landscape use of flowering crabapples nor do they eliminate the need for preliminary planning and knowledge of individual clones.

DESIGNING THE GARDEN

A permanent site for flowering crabapples depends on where and how they are to be used. Different considerations are given in small home gardens than are given for large estates, parks, or arboreta. Each situation requires its own unique design and special type of flow-
erbing crabapples. Choose the clone most suited to your landscape design. Be bold and lavish in using crabapples as the framework of your garden and they will never disappoint you. Do your winter homework well, determining the flower color combination, form and size of tree, and the fruit colors well before you buy your plants.

Should you be blessed with a lake or pond, plant crabapples close to the water but on higher ground so their beauty can be reflected in the water. White and light pink blossoms reflect better than do the deep reds which are also elegant mirrored next to white blossoms. Never place crabapple trees at the water’s edge, where their roots are constantly in water. They will not grow, but will rot away, and, if the lake is large enough to harbor muskrats, the muskrats will tunnel under and destroy any trees planted too close to the water’s edge. Find higher ground, even some short distance back from the water, where the trees can still be reflected, mimicking that in the lake.

Wherever crabapples are planted, they will adapt. They will delight you with billowing blossoms in springtime, with good green foliage in summer, and again in autumn with a tremendous color display of small fruit. The fruit, food for hungry birds, lasts several weeks, in some cases even into the snows of winter. If allowed to form several trunks, many crabapples develop magnificent outlines of twisting trunks and branches in the winter landscape. What more could one ask of any tree?

PATIO, POT, AND SIDEWALK CRABAPPLES

Some crabapples are ideal patio or sidewalk trees as they grow well in large pots. They must be watered and not left on their own. Also, give them sunlight or they will grow tall and rangy in their quest for light. Prune them at first only very moderately until they have formed a mature frame, then most of the lower branches can be removed.

FLOWERING CRABAPPLES FOR LARGE GARDENS AND ESTATES

Where space is not a problem, flowering crabapples can be planted to produce some of the most beautiful landscaping effects, whether through mass plantings of wide color combinations or distant vistas of color. For a magnificent show, plant three trees of the same color in a group. I believe that a triangular planting is best. Then on either side of the triangle, plant one or three trees of a contrasting color. For example, if you plant dark reds in the center, plant white bloomers on either side, but if you plant a white bloomer on the center, plant pale pink trees on either side. Even from a distance these plantings make a wonderful display.

While planting for spring bloom, be careful to select cultivars that have equally contrasting autumn-colored fruit. Since most of the red-flowering crabapples have rather dull red to purplish fruit, they are not the best choice for the central cultivar in a group planting. Rather choose the cultivars with bright red buds that open to pure white blossoms and place red and pink blossoms next to or behind them. Those with the brightest red or orange autumn fruit should offset a central yellow-fruited tree.

There are far more clones with fine bright red fruit than there are yellow-fruited ones. Next come a few good orange-fruited clones, then rare copper-colored and multicolored clones, and lastly, a few clones with purple fruit and one or two clones whose fruit has a bluish blush. One must plan for both the springtime and the autumn effects at the same time and not lose the impact of either one.

In larger estate gardens beautiful results can be obtained by combining smaller groups of flowering crabapples with many of the choice conifers. This combination is especially attractive using the lower growing ones as a background for the crabapples. I have seen a combination of one of the best red-flowering cultivars, Malus ‘Liset’, and the deep pink M. ‘Dorothea’, (might I foolishly suggest one of my own crosses, M. ‘Orange Crush’) planted a small distance from a clump of Acer ginnium or its magnificent hybrid (which I have seen only at Rochester, NY). The subtle tones of the maple’s shiny, copper-colored bark were caught up in the orange tones of the flowering crabapple. These effects are realized only after both trees reach some degree of maturity, but they should be planned well in advance at planting time.


GARDEN WALKS

An effective landscaping scheme for a windswept “garden walk” includes a series of flowering crabapple specimens planted one-by-one or in small plantings here and there on either side of the walk (or drive), interspersed with other plantings of conifers, lilies, shrubs, and beds of Hemerocallis or Hosta. Stagger the colors of the crabapple clones for both spring bloom and autumn fruit.

How magnificent an estate planting, arboretum, or large crabapple collection would be if it were handled in this manner! But no, most crabapples are lined up uncomplainingly in orchard tree rows. Companion landscaping could make a big difference in the overall effect. For example, the excellent Lilac Walk at Ewing Park, Des Moines, IA, would be even more exciting if it were interspersed with lower-growing, newer flowering crabapples. At the Holden Arboretum, Mentor, OH, the new plantings intersperse crabapples with all kinds of companion plants in a beautifully designed garden walk. (Yes, they also have the old traditional flowering crabapple orchard and a new testing plot set out in rows.)

Hopefully a flowering crabapple-lilac combination will find favor in many large estate, park, and arboretum plantings. The two have always had a secret love affair for one another, ever since Eve was driven from paradise. In fact, an old Moravian tale claims that one angel at the gate gave Eve a sprig of flowering apple blossoms to remind her of her sin, while the
other angel gave her a spray of lilacs to assure her she would be forgiven. According to the legend, ever since that time crabapples bloom first and then with them, come the lilacs.

FLOWERING CRABAPPLES AS FOCAL POINTS IN A GARDEN

For a specimen or garden focal point, try one of the newest weeping crabapples, such as Malus ‘Anne E’, M. ‘Henry Ross’, M. ‘Lousa’, M. ‘Lullaby’, M. ‘Luwick’, M. ‘Mollen Lava’, M. ‘Red Swan’, or M. ‘White Cascade’ in front of a small mass of blue or dark green conifers. Weeping crabapples create an outstanding effect, especially if they are chosen for heavy autumn fruiting.

Never plant weeping crabapples in groups; always plant them as single specimens of extraordinary beauty. Weepers do not look good if massed together; even three weepers in a group somehow shout out to be planted alone. If you have room, however, a short distance away from the weeper, plant a group of three slower-growing upright crabapples on either side of it. The uprights will break the horizontal form and frame the selected weeper. Although not many of these smaller upright trees are available, there are a few with no appreciable fruit, including Malus ‘Centurion’, M. ‘Eline’, M. ‘Fleming’, M. ‘Karon’, M. ‘Sentinel’, and the double M. ‘Van Eelsel’.

FLOWERING CRABAPPLES AS BACKGROUNDS AND SCREENS

As background plantings, flowering crabapples make excellent flowering/fruiting screens to hide tennis courts, laundry-drying and play areas, or any area in a backyard that needs screening. When using crabapples for screens and boundary plantings, mix upright, spreading and columnar tree forms with rounded or semiweeping forms. The variety of forms adds interest and diversity of blossom color and fruit color to the planting.

Crabapples also do well as a broad boundary line between properties, filling in with both beauty and food for migrating birds if one uses the newer small-fruited kinds that the birds love so well. At Falconsakee, the fruits of Malus ‘Autumn Glory’ and M. ‘Leprechaun’ do not last more than a month ever since the migrating cedar waxwings learned there was a favorite restaurant stop along the way. Each year they come in flocks of 20 or more and remain with us for a few days until their appetite for crabapples is sated. In the spring, robins reverse the order and can be seen flapping around after gorging themselves with the fruit of older crabapples from cultivars that hold their fruit through winter. No other flowering tree or conifer has such versatility and adapts so well to as many uses with such minimal care.

LARGE ARBORETUM PLANTINGS

Any large planting of flowering crabapples bears with it special problems of maintenance costs, space, variability of plantings, and correct choice of materials planted. Much of what has already been said about planting, selecting appropriate clones, landscape use, and design applies equally to arboricultural plantings.

The general practice, several decades ago, was to plant each genus in an area of its own, a kind of taxonomic grouping. Within these groups one could make comparison of the many species and separately named clones by passing among them, mostly in orchardlike rows. After bloom time, no one paid attention to the crabapple trees until autumn fruiting time. Although these plantings were practical, economic, and spraying-wise, they did not show what flowering crabapples could offer in conjunction with other plantings. The orchardlike setting displayed no real landscaping design of the various tree forms but did provide sudden vistas of landscaped beauty.

Arboreta today still need to preserve species and special clones of interest and value. Their botanical collections remain important for study, research, and hybridizing. Many of the plants can be found nowhere else and would be lost entirely if they were not kept by arboreta. The historical collections of arboreta are also important to record the horticultural
progress that has been made. But in addition to these two functions, arboretum plantings are very important for educating the public about what is available in newer plants and how these plants can be used artistically in the home garden or larger estate. Rather than planting flowering crabapples in orchard rows, they are much more beautiful and educational if planted in a general landscape design in conjunction with many other species. A long, winding garden wall, landscaped on both sides with crabapples, lilacs, conifers, and a multitude of arboretum plants, is an endless delight in all seasons as something is always in flower.

Well-planned garden walls offer exciting vista openings to those who walk them. The new garden walk at the renovated Holden Arboretum, Mentor, OH, and the Long Walk at the Ewing Arboretum, Des Moines, IA, are two such plantings. Growing in beauty each year, these walks educate the public to the beauty, value, and use of a great number of horticultural specialties. They also provide the public with the opportunity to compare older trees—whether species or clones—with newer introductions. Often people are then able to recreate certain vistas of excellence in their own backyard gardens, and this, after all, is what arboreta should and could be doing.

For some arborists, adopting this philosophy may require a total revamping of their fundamental views on arboretum plantings, but it will certainly attract many more people to the arboretum all through the year. I challenge arboretum directors and their managing boards to give flowering crabapples, and all other genera, their rightful place: display them in their best attire—not as forgotten orchard trees.

HIGHWAY PLANTINGS

Flowering crabapple trees are excellent for highway plantings, but it is best to plant them in groups of three or more. Large massed bloom is more visible from speeding automobiles than are single trees.

Some crabapples are more effective than others in highway plantings. The shrub forms, weepers, and smaller trees to 10 ft (3 m) high should be avoided. For background, choose some of the taller species, such as Malus baccata or M. tschonoskii, with its upright form, or choose any of the disease-resistant Rosby-bloom hybrids, such as M. ‘Makamik’ or M. xwarneckii, which holds its fruit until late in the winter. The upright, rounded, and spreading forms are the most effective with an occasional columnar form to break the monotony of design.

The following list contains my recommendations for highway plantings:

- M. ‘Adams’—To 20 x 20 ft (6 x 6 m), excellent but smaller fruit
- M. ‘Albright’—Pink blossoms, larger fruit, second-generation Rosby-bloom
- M. ‘Amberina’—Wonderful fall fruit
- M. ‘ Ames White’—Excellent yellow-fruiting tree
- M. baccata ‘Jackii’—To 20 x 20 ft (6 x 6 m), very fine fall fruit
- M. baccata ‘Tallak’—15 to 15 ft (4.6 x 4.6 m), larger dark red fruit that lasts all winter
- M. ‘Ballerina’—Fine upright form for accent
- M. ‘Baskataway’—Pink flowering, spreading form 20 x 25 ft (6 x 7.6 m), very fine for larger red fruit, excellent disease resistance
- M. ‘Bob White’—Persistent fruit, green-tan to yellowish
- M. ‘Burgandy’—Red blossoms, upright form, excellent
- M. ‘Callaway’—Excellent white, does well even in the South
- M. ‘Calvary’—Fine red blossoms, dark fruit
- M. ‘Cardinal’s Robe’—Good deep pink, red-purple fruit
- M. ‘Centurion’—An upright tree for accent
- M. ‘Cato’—Excellent choice
- M. ‘Dawson’—Excellent choice
- M. ‘Ferrill’s Crimson’—Excellent choice, but difficult to find
- M. ‘Firebrand’—White blossoms, brilliant red fruit
- M. ‘Gibb’s Golden Gage’—Excellent yellow-fruited tree
- M. ‘Gypsy Gold’—Larger gold-orange fruit very persistent, very showy
- M. ‘Harvest Gold’—Gold fruit persistent to winter
- M. ‘Henry Kohankio’—Excellent larger fruit can be seen from fast-moving vehicles
- M. ‘Indian Magic’—15 x 15 ft (4.6 x 4.6 m), good fruit
- M. ‘Kersen’s Improved Bechtel’—Late bloomer, fragrant
- M. ‘Kirk’—15 x 15 ft (4.6 x 4.6 m), very showy red fruit, persistent
- M. ‘Lemineur’—Plant larger trees, outstanding once it begins to bloom
- M. ‘Maria’—Excellent spreading to 15 ft (4.6 m), dark pink bloom, dark red fruit, very persistent
- M. ‘Michael’—Outstanding in its brilliant red fruit, very heavy bloomer
- M. ‘Ornamental Roy’—Excellent in every way
- M. ‘Pauline’—Very heavy, red-fruited annual bearer
- M. ‘Peter Pan’—Smaller fruit turns orange-rust with frost, persists to spring, very heavy bloomer
- M. ‘Prairifire’—An excellent tree with dark red blossoms
- M. ‘Ralph Shay’—Excellent in bloom and in fruit
- M. ‘Selkirk’—Shawny, fruit colors early
- M. ‘Sentinel’—An upright tree, fine in all aspects
- M. ‘Serenade’—Vase-shaped to semiweep, very heavy orange fruited
- M. ‘Skeith’—Calocarpa—Outstanding in brilliant red fruit
- M. ‘Skeith’ ‘Wooster’—Excellent red fruit, showy, earlier coloring than ‘Calocarpa’
- M. ‘Sissipuk’—One of the better Rosbyblooms, large background
- M. ‘Velvet Pillar’—Columnar, dark red foliage good for accent, few fruits
- M. ‘Winter Gold’—Smaller tree but the best for yellow fruit

In areas susceptible to snow and ice, highway plantings should be some distance from the pavement to escape being buried by snow plows or killed by heavy salting of icy roads.
If heavy salting is required in an area, flowering crabapples should not be planted as they are severely damaged by salt sprays. The crabapple plantings along highways in Kentucky, particularly around the Lexington area, are excellent proof of what can be achieved. Today the state would undoubtedly use newer and better varieties that were not available 20 years ago.

CHAPTER 7

Companion Plants to Flowering Crabapples

Flowering crabapples put on a display of blossoms in spring and a fruiting extravaganza in autumn that are unequalled by any other plant. Even a single crabapple with a well-kept grass-free circle around it can be a thing of great beauty: the springtime blossoms, the rich green or reddish foliage on an excellent tree form in summer, or, the magnificent fruit display in autumn. Flowering crabapples need no excuse for not having companion plants for they can very well hold center stage by themselves. Nonetheless, the singular, artistic value of any planting is increased when enhanced by selective companion plants. Correct companion plants frame and accent the beauty of crabapple trees, but are not an absolute necessity.

Today, skilled and knowledgeable landscape architects are featuring flowering crabapples as the main planting in gardens of great beauty from springtime to autumn, and, yes, even for the winter landscape. The year-round beauty of these gardens is enhanced when suitable companion plants accent crabapple floral or fruiting displays. Many plants can be used with crabapples to make a wonderful garden design. Thus each garden has its own secrets—the unique combination of companion plants that makes it a personal creation of landscaping beauty and that imprints upon its design the handiwork of its creator. The several outstanding companion plants suggested in this chapter are for those gardeners who desire a challenge and a triumph for their garden.

Which companion plants are to be included with flowering crabapples depends a great deal on what kind of garden is planned. Is yours a small home garden with miniature charm and limited space? Do you have a small, walled-in courtyard attached to a condominium? Is yours a very small roof garden on a city high-rise that has room for only a very few potted plants? Do you have greater space—perhaps a large suburban lot or even a country estate of a few or several acres? Or, are you in charge of city street plantings? Perhaps you are the director of a large city park planting, or an extensive private collection, or even an arboretum's flowering crabapple selections. Whatever your need and purpose, there are special crabapples to suit any design.
After considering the garden design, its size, purposes, use, and special features, one must determine what kind of maintenance will be provided. Are you looking for minimal or peripheral maintenance to stay within a limited budget? Or can you support the additional costs of garden beds and underplantings filled with perennials or annual bedding plants? Perhaps your budget permits the luxury of select background plants. All these factors are important considerations when beginning to plan for companion plants to flowering crabapples.

CONIFERS

When planting background conifers—whether tree or shrub forms—for flowering crabapples, one must be aware of the ultimate height and spread of the companion plantings at maturity. Background trees, especially conifers, should be at least 60–70 ft (18.3–21.4 m) behind and away from the crabapples. Otherwise, as maturity approaches, you will have an impenetrable thicket of trees and branches and be forced to remove either the crabapples or their background companions. Background or companion plantings must be allowed to develop to their fullest beauty if they are to add to the garden’s total design.

At the Secret Arboretum, Wooster, OH, an excellent collection of conifers forms a very handsome background for crabapples Malus ‘Mary Potter’, ‘M. Lemonii’, and several of the species. The conifers are mature plantings, some 50 ft (15.2 m) high or higher, yet the landscaping design is outstanding. A visit to a conifer planting, such as the one at the Secret Arboretum, Arnold Arboretum, Morton Arboretum, or Canada’s Royal Botanic Gardens, will give an excellent indication of what conifers require as they approach maturity so as not to be crowded out, poorly shaped, or heavily pruned early in their development. In small gardens everything must be scaled down so that the smallest evergreens are used with the smaller crabapples. The resulting effect can be as pleasing as the large-scale landscaping at the Secret Arboretum.

Stately conifers in combination with flowering crabapples are always appealing. The massed blossom of red buds and white flowers opening against a dark green backdrop of conifers makes viewers realize the brilliant whiteness of flowering crabapples. Use selected conifers only to accent the white or pink crabapple blossoms.

The texture of the various conifers must also be taken into consideration. Pines give a heavy texture and a nature-oriented atmosphere, whereas spruces, cedars, and most other smaller growing conifers give a more delicate background appearance, suitable for the medium and smaller growing crabapples, especially the elegant and refined fountain weepers. Specimen crabapples are in their glory with such attendants.

A massed planting of several crabapples in a single group against a conifer background is always a spectacular display. Try pale pink clones against a background of three or five blue spruces, especially the bluest cultivars Malus ‘Moerheim’ or M. xplatyphyla ‘Hoopesii’. The pale pink against the blue background is most pleasing, and as time goes on, you will see that you have created a landscaping attraction that is rarely equaled. If you choose heavily fruited trees from among the pink-flowered clones, you will have an equally fantastic garden planting in autumn as well as spring. Red-, orange-, or yellow-fruited crabapples against blue conifers are outstanding. The following pink crabapples are especially pleasing with a blue background:

- M.×strawberrywine
- M. ×coerulea
- M. ×harrisi
- M. ×parkanii
- M. ×brandywine
- M. ×candiedapple
- M. ×cranberrylace
- M. ×dorothea
- M. ×eylene
- M. ×indianmagic

White-flowering crabapples are equally as impressive as the pink-flowering ones and perhaps have a wider selection of smaller, colorful fruit. Malus ‘Linnet’ and M. ‘Orange Crush’, with bright red fruit tinted orange, are a bit more bold but just as delightful against a blue background. Plant either one of these beauties in a small group with white-flowering trees on both sides and the best blues of the newest spruces in the background. You can sit back and glow over the creation you have masterfully placed in the garden.

When planting red-flowering crabapples, use a lighter-colored background. White is ideal. You can offset the red blossoms with white-flowering crabapples or a mass planting of dogwood (Cornus florida). A board fence painted white or a white barn also make excellent backgrounds for bright red crabapples. To subdue the bold effect of red against white, on the opposite side of a walk plant a red crabapple in the center and flank it with pale pink crabapples. Behind this group use blue spruce or any of the medium-to-lower growing conifers as a background.

A mass of blue or dark green conifers also makes an excellent background for crabapples planted as specimen plants or garden focal points.

LILACS

Early flowering lilacs are among the finest companions to flowering crabapples. The earliest lilacs—S. ×olbiata and its hybrids S. ×fittingii—come in a wide range of colors from white, pink, blue, and lilac to deep purple. As the bright red crabapple buds explode into blooming white blossoms, the early lilacs unfurl into banners of lavender, purple, and blue. These shades, not found in crabapples, make possible a whole new array of color combinations.

Crabapples love to be attended by lilacs, but remember to use the earliest flowering
lilacs only: *Springa xanthochiliflora* 'The Bride' or 'Sister Justin' and the tetraploid *S. vulgaris* 'Alboïs' or 'Gertrude Clark'. Common lilacs bloom a bit later, catching only the later-blooming crabapples, although there is enough overlap of buds and blossoms that they, too, go well with the crabapples if selected clones are planted. Among the red crabapples that go very well with early white lilacs are *Malus 'Arch McKean', M. 'Candy Cane', M. 'Debutante', M. 'Eline', M. 'Henry Kohnke', M. 'Indian Magic', M. 'Karen', M. 'Lemont', M. 'Liset', M. 'Orange Crush', M. 'Profusion', M. 'Sentinel', and M. 'Van Eseltine'. Any number of deep rose and bright pink flowering crabapples also go well with the excellent, newer white lilacs.

Among lavender-colored lilac species, *Springa oblasti* var. *dibotriis* is a smaller, excellent, early blooming, very fragrant plant that is wonderfully suited to any companion of the white-flowering *Zuni* crabapples or the pale pink flowering cultivars. It is a rounded shrub to about 10 ft (3 m) tall and about as wide. Pale pink crabapples, such as *Malus 'Debutante', M. 'Eline', or M. 'Spring Song', are also excellent when flanked with some of the best of the blue lilacs: S. 'Bluebird', S. 'Olivier de Serres', or S. 'Wonderblue'.

Very few late-blooming crabapples are at peak in the slightly later lilac bloom season. *Malus 'Coral Glow', a late coral pink; M. 'Joy', a late shell pink with dusty foliage; M. 'Silver Moon', a wonderful, white, late bloomer; and a very few other crabapples are at their peak when lilacs are in full bloom. The deepest purple lilacs, such as *Springa 'Albert P. Holdren', S. 'Arch McKean', S. 'Frank Paterson', S. 'Sarah Sands', or S. 'Yankke Doodle', make an excellent background for the late-blooming *M. Silver Moon*. They are also excellent when planted on either side. Thus flanked, you will have a perfection of bloom and landscape. Try using late-blooming crabapples as backgrounds to some of the deep, deep purple-red, later blooming lilacs, such as *Springa vulgaris* *juliana*, a magnificent lilac species, never grows too tall, at most to 8 ft (2.4 m) high and as wide. Another cultivar of *S. vulgaris*, S. 'Dr. John Rankin', has violet flowers that are especially beautiful with pale pink or white crabapples.

With their pale pink to rose blossoms, the later-blooming crabapples of the *Malus coronaria* and *S. x miniata* groups, especially the roselike double forms, are excellent with the later forms of *Springa vulgaris*. For an outstanding combination, surround some of these later-blooming crabapples with *S. juliana* or its outstanding clones, such as S. 'Pink Parasol' or the near-white S. 'Karen', or use the rare lilac species *S. reflexa*. For other later-blooming lilac hybrids, use some of the *S. x sargentii* like *S. Ursula* (many of these are large shrubs to 18 ft (5.5 m), the beautiful S. 'Miss Canada', or the much smaller S. 'Lark Song' (to 6-8 ft/1.8-2.4 m high), S. 'Garden Peace', and S. 'Quarter'. The delightful lilac hybrids of Tibetan background also are later blooming: S. 'High Lama', S. 'LING Tong', or S. 'Ten Yung'. The combinations are endless and most beautiful. Indeed the right flowering crabapples and the right lilacs are a splendid combination.

**DOGWOODS**

Crabwoods and dogwoods were meant for each other: both bloom at the same time. Where dogwoods grow well, use them copiously with flowering crabapples. The white, pink, and red dogwoods make wonderful companions.

When merging a large planting into a woodland area, there is no better combination at the wood's edge than flowering crabapples and dogwoods. In such plantings use only the smaller forms of crabapples, those not exceeding 12-15 ft (3.7-4.5 m) in height. Some of the larger species and named clones are too tall and wide and would screen out the dogwoods, thus losing the whole effect.

**A choice red- or pink-flowering dogwood surrounded on each side by some of the excellent, newer *Zuni* hybrids or the multibirds, with their masses of white flowers, is an excellent combination. Many other combinations are possible. For example, a trio of columnar or upright-growing crabapples (e.g., *Malus 'Centurion', M. 'Madonna', M. 'Sentinel') not only gives color contrast with dogwoods, but also provides an excellent contrast in shape to the more-rounded and spreading dogwoods. The colorful autumn fruit of flowering crabapples, often cascades of rich orange-reds, goes well with the brilliantly colored and changing dogwood foliage.

**MAGNOLIADS**

Like conifers and lilacs, magnolias also make a splendid combination with flowering crabapples. The magnolia known as 'Dr. Merrill' is so early it can only be used with the earliest-blooming crab. Two others magnolias, 'Elizabeth' or 'Miss Honeybee', come in shades of pale yellow that will enhance pure white or pale pink crabapples. All the pink- and purple-flowering magnolias go well with the white-flowering crabapples.

**HOSTA AND HEMEROCALLIS**

An excellent companion for crabapples is an underplanting of any one kind of hosta. Use only one variety for an underplanting; otherwise the effect will appear spotty and somewhat 'out of place'. The newly opening leaves of hostas lend a charm to the blooming crabapples. In summer the dark green crabapple foliage not only gives needed shade to hostas, but also provides a fine rich green canopy for their blooming. A great number of excellent, newer *Hosta* varieties are available today, so consult a hosta book or visit one of the many collections to see the wonderful choice in leaf color, texture, plant size, and flowering now available. For a formal underplanting, edge a bed of large-leaved hostas, perhaps in a blue leaf color, with a smaller gold-leaved hosta. The gold-leaved varieties also make excellent backgrounds for red-fruited weeping crabapples in autumn.

A bed of summer blooming *Hemerocallis* (daylilies) is also an excellent underplanting for crabapples. Once again, a bed of a single variety of *Hemerocallis* is far more artistic than a mixed bed of all colors and flowering scape heights. In general, it is best to not underplant weeping flowering crabapples because their long branches, which eventually reach the ground, need space for excellent weeping. The daylilies available today are truly outstanding. William Manson, a friend and one of the world's finest hybridizers, not only has produced some of the most beautiful clones available today in every array of color and ruffled excellence, but he has also written an outstanding book on the species that should be consulted by all who grow this marvelous perennial (*Hemerocallis*, published by Timber Press, 1989).

**PERENNIALS AND ANNUALS**

A high-maintenance companion planting of many perennials and annuals is very handsome with flowering crabapples, but, because it is difficult to maintain, it can be used only in the smaller gardens or as an occasional bed in larger state parks and arboretum plantings. Again, it is best to underplant crabapples with only one variety of perennial or annual flower.
ers. If you mix flowers, you will get a flowering wild meadow effect. Use low-growing plants only.

If you have a greenhouse or can obtain plants in early spring that are already at the blooming stage, all sorts of combinations are possible. Some of my favorites are small violas, pansies, small very clear-blue flowering creeping veronica, creeping hardy phlox, and a host of others. One very color conscious gardener planted an enormous bed of red-purple Johnny-jump-ups (Viola sp.) under a clone of an older, deep red-purple blooming Rosy-blooms; it has remained one of the finest combinations I have ever seen. The flowers of the old crabapple were a regal purplish and not a faded magenta at all.

Generally, I avoid the bright yellows and oranges of small marigolds, although in mass plantings they could be attractive with white-flowering crabapples, and they are especially good in autumn with the bright red-fruited crabapple clones. With their brilliant colors, peonies are good companion plants where beds can be planted along a garden walk. They are hardy and bloom early in spring.

At Gardenview Horticultural Park, Strongsville, OH, the plant genius of director Henry Ross has created, over the past 40 years, an English garden that is among the world’s finest. Every imaginable choice plant is nestled somewhere in this most remarkable garden. Perhaps the more choice perennials have come from this rare garden than from anywhere else in the world. Henry’s underplantings are worthy of duplication, though his work and efforts could never be totally duplicated or found elsewhere. One comes away from this garden paradise each time with new ideas and garden designs.

**SPRING BULBS**

One of the finest displays is the combination of flowering crabapples underplanted with beds of almost any of the spring bulbs. Plant spring bulbs in masses—one kind of bulb in one color—and make your plans in autumn. Do not mix species or colors or you will get a poor, spotty effect. Some of the newer grape hyacinths, make an excellent massed bed, as do tulips.

The color tones of some flowering crabapple blossoms are so subtle that the eye does not seem to notice them until they are brought out by the color of a companion planting. Orange tones are one such example. If you plant a bed of orange-red tulips underneath Malus ‘Orange Crush’ or M. ‘Liset’, you will immediately see the orange in these crabapple flowers that you never noticed before.

Unfortunately, underplanting crabapples with bulbs presents the problem of what to do with the bulb’s dying foliage. Unless allowed to dry and nourish the bulb, it becomes necessary to replace the bulbs with summer annuals and then replant the bulbs in fall. This high-maintenance underplanting probably should be discouraged as a companion planting with flowering crabapples.

**SHRUBS**

Most shrubs do not go well with flowering crabapples. They cannot be used as underplantings as their size and needs are too competitive for ground and nutrients, although a very few look well when planted in masses on the sides or behind the crabapples. Their need for almost annual pruning adds greatly to maintenance costs.

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**CHAPTER 8**

**Propagation**

"You can have it all!" This favorite phrase aptly describes why crabapples remain the most popular flowering tree. From the city forester's perspective, a crab is a tough, adaptable tree. For the grower, it is easy to produce. For the garden center, a crab is colorful and sells itself when in bloom, while for the landscape designer, it offers great diversity in the landscape. Name your size, your tree form, or your choice of flower, fruit, or foliage color and there is a crab to fit! It is a tough plant that grows well in all but the southernmost states. Today a well-developed group of cultivars is offered for year-round color and interest, with the newest cultivars almost entirely disease resistant.

Diversity is the key to modern propagation as well. Crabbs can be grafted, budded, or grown as rooted cuttings. Some can be produced via micropropagation, and a few even come relatively true to type from seed. All these methods are used by various growers. While it may seem crabapples are easy to propagate because there are so many ways to do it, this diversity creates a certain complexity. Which technique is best?

**TO BUD OR NOT TO BUD**

Own-root propagation (cuttings, micropropagations) versus budding or grafting has become a debated issue in modern crabapple production. Proponents of own-root trees claim protection from potential graft incompatibility, reduced suckering, root hardiness, and ease of propagation. (Also the true size of the mature tree is not regulated by the vigor of a different rootstock.) Proponents of budded and grafted plants claim reduced sucker, rootstock soil adaptability, hardiness, strong anchorage, and ease of propagation.

Keith Warren (pers. com.) of J. Frank Schmidt & Son Nurseries, Boring, OR, has grown crabapples by all these techniques. For a while, he was enthusiastic about the potential of own-root propagation, but, after much testing and evaluation, he has come to believe that budded crabapples, on the right rootstock, offer the greatest advantage.

Most of the own-root arguments are less than persuasive. Keith Warren has never seen incompatibility with the commonly used scion/rootstock combination, although such
incompatibility has been reported on Malus baccata rootstock. Own-rooted crab apples generally, but not always, have reduced suckers, but suckers have not been eliminated. Suckering varies with cultivars. Most own-rooted crabs will probably prove to be more root hardy than those budded on domesticated rootstock, but again this will vary by cultivar and it has yet to be fully documented. The greatest problem with own-rooted crabs appears to be in root anchorage. Nursery trees often appear sparsely rooted and there are reports of own-rooted trees having been blown over in a windstorm, thus destroying landscape settings.

ROOTSTOCKS

Traditionally, most crab apples have been budded or grafted onto seedlings of domesticated apples (i.e., Malus sylvestris or M. pumila). Various understocks of M. pumila (also called M. domestica Borkhausan) are used, including the following:

- M. ‘Alnarp’
- M. ‘Ania’
- M. ‘Antonovka’
- M. ‘Budagovski’
- M. ‘Dolgo’ seedling
- M. ‘Domestica’
- M. ‘Polish’
- M. pumila clones EMLA 7, 9, 26, 27, 106, 111

The fact that the great majority of existing crabs in landscapes have been propagated via rootstock attests to the performance and soil adaptability of these rootstocks. Domesticated rootstock, however, does have two drawbacks: It can sucker heavily, and it is not totally root hardy in the most northern areas. These drawbacks are being bypassed through use of clonal understocks. EMLA 111 (one of a series of rootstocks developed by the East Malling and Long Ashton research stations in England from Paradise stocks of Europe) virtually eliminates suckers and gives moderate improvement in root hardiness, while other clonal rootstocks developed in Poland and in the Commonwealth of Independent States are extremely hardy. Using the right clonal rootstock has the greatest potential for improving crabapple development.

Propagation

In a study of crabapple suckering over a period of several years, Keith Warren was able to divide rootstocks into five groups according to the number of suckers produced per 2-year-old tree: Group I: averaged 0–0.25 suckers per tree; Group II, 0.26–0.75; Group III, 0.76–2; Group IV, 2.1–4.5; and Group V, 4.6 suckers or more per tree. The five groups are as follows (K. Warren, pers. com.):

- **Group I: Nearly Sucker Free**
  - M. ‘Alnarp’
  - M. ‘Budagovski’
  - M. ‘Domestica’
  - M. ‘Polish’
  - M. pumila clones EMLA 7, 9, 26, 27, 106, 111

- **Group II: Low Sucker**
  - M. ‘Ania’
  - EMLA 108
  - EMLA 111
  - EMLA 118
  - Polish 18

- **Group III: Moderate Sucker**
  - M. ‘Antonovka’
  - M. ‘Dolgo’

- **Group IV: Heavy Suckering**
  - M. ‘Ania’
  - EMLA 106

- **Group V: Very Heavy Suckering**
  - M. ‘Antonovka’
  - M. ‘Polish’

Table 1 compares the strengths and susceptibilities of three rootstocks to own-root propagations.

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<th>Nursery vigor</th>
<th>Soil tolerance</th>
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<th>Crown gall</th>
<th>Woody apple aphid</th>
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<tr>
<td>85%</td>
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<td>Fibrous</td>
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<td>Resistant</td>
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CRABAPPLES FROM SEED

A few crabs will grow rather true to type from seed. Malus sargentii and M. sylvestris are sometimes produced this way. A more uniform crop and stronger growth can be expected, however, when selected clones of these species are vegetatively propagated. Crabapple seed requires a 3-month chilling period for germination to commence, after which the seed is planted in trays, kept watered and dusted with a fungicide. When plants have two or three true leaves they can be potted into pot pots or in shaded nursery raised beds. All things considered, crabapples are sturdy little plants, and if well cared for should make good growth the first year.
MICROPROPAGATION

Micropropagation of crabs has become successful. Nonetheless, laboratory grown plantlets need to be handled very cautiously to avoid shock, and carefully controlled greenhouse conditions are needed. For the first 2 weeks after removal from the flask, shade and high humidity are essential. After 3-4 weeks, plants can be moved into larger pots. When 6-8 in (15-20 cm) tall, they are hardened off and transplanted out into raised soil beds. This should be done during cool weather with frequent irrigation. At the end of the season, dormant liners can be harvested for field lining out.

SOFTWOOD CUTTINGS

Propagation by softwood cuttings is increasingly being used in crabapple production. Early July seems to be the best time to take cuttings under Oregon conditions; June is better in warmer parts of the country. Depending upon the cultivar, a basal treatment of Hormodin 2 or Hormodin 3 is best (3000 ppm IBA or 8000 ppm IBA in nlacl). Liquid dips in a solution of 5000-10,000 ppm IBA are also used on a few cultivars.

Cuttings are rooted in poly covered tunnel houses under intermittent mist. They are left undisturbed until late winter, at which time they are harvested bare root then held in cold storage. When the ground dries in spring, the cuttings are transplanted out into soil beds and grown to a larger size. Cuttings that have been transplanted into soil beds for a season have a higher survival rate than those that go directly from the cutting beds to final field spacing.

BUDDING CRABAPPLES

Most crabs are propagated by budding on an understock. In years past domesticated apple (Malus pumila) was generally used, but in recent years other Malus understocks have been tried. Many crabapple seedlings are root hardy and thus have been used for budding, but suckering is still a problem. The hardest crabapple species, M. baccata, produces the worst suckering of any rootstock Keith Warren has tested. Clonal understocks are gaining wider acceptance. After careful testing, Warren has found that EMLA 111 has the best combination of performance characteristics and a proven record.

The majority of crabs are budded using the T-bud technique and tied with a rubber bud strip. A few species, such as Malus floribunda and M. sargentii, often give poor bud takes when T-budded; with these crabapples better results are obtained via chip budding. While T-budding generally works well on domesticated apple, chip budding is preferable on EMLA 111.

GRAFTING CRABAPPLES

Grafting is also used by some growers. Sclons are bench grafted onto a chosen rootstock using a whip-and-tongue graft. The scions can be heeled into moist media, callused at moderate temperature (50-60°F/10-16°C) for 1-2 weeks, then held in cold storage until spring planting is possible.
Grafting seems to be the only practical method of producing *Malus* 'Coralburst', 'M. Joy', 'M. Satin Cloud', and most of the tetraploid and octoploid because of their short internodes and small buds. Using a virus-free rootstock and scion, a straight stem of a crab variety with good trunk characteristic is grown as a whip to 4-6 ft (1.2-1.8 m) tall. *Malus* 'Coralburst' or other tetraploid or weeping clones (e.g., 'M. Red Swan') are then top grafted using a whip-and-tongue graft. It is important that the interstem be virus-free, as many crab cultivars carry viruses that are harmless to the carrier, but may be devastating to certain scion cultivars grafted onto them. With the exception of *M. Coralburst* and other top-grafted clones, cultural operations involved in growing crabs by various methods become the same after a year's establishment in the field.

**CULTURE OF NEWLY PROPAGATED PLANTS**

Plants produced from seedling rootstocks, clonal rootstocks, cuttings, or tissue culture are all lined out when the ground dries in spring, usually in April. Rootstocks are T-budded or chip-budded in August; own-root plants are allowed to become established without training. Fields are kept weed-free by cultivation and are frequently irrigated. In the fall, herbicide is applied to keep out winter germinating weeds.

Late in the winter, while plants are still dormant, all are cut down with a forage chopper to within 6 in (15.2 cm) of the ground. This removes and sheds unwanted top growth. The budded rootstocks are then neatly cut off just above the cultivar bud and own-root plants are cut off above the lowest bud within 2 in (5.1 cm) of the crown. As buds begin to grow in the spring, the strongest shoot is selected and the others rubbed off. A Grow Straight® growth control stake is set into the ground within 0.25 in (0.6 cm) of the chosen shoot. This protects the tender shoot from hail and wind as it begins its growth toward becoming a straight trunk. Plants are fed monthly with high nitrogen fertilizers and optimum soil moisture is maintained through weekly irrigations during hot weather.

When trees reach 12-18 in (30-46 cm) in height, they are staked with a steel rod and taped with vinyl ties. Every 10 days crews walk the rows and add another tie to keep the growing trees straight. Cultivation takes place on a weekly basis.

Disease-resistant crabs have come to dominate the market. There is still a market demand for certain cultivars that are susceptible to disease; however, and these cultivars must be sprayed every 10-14 days with fungicides registered for scab and mildew. Occasionally, insect buildup will require the use of insecticides. Acetophen (Orthene) should be avoided as it is phytotoxic to numerous cultivars, especially if repeated applications are made.

Through the summer any basal suckers that develop must be removed. These are pulled off or cut at their point of origin. Care must be taken as any remaining stub will repropagate. Also, any limbs that develop on the lower stem are removed. These are pinched out of the leaf axil by hand while quite small, without disturbing the leaf. It is much more efficient to hand pinch than to use pruners.

Limb removal, tapping, sucker removal, cultivation, spraying, and irrigation continue throughout the season. By fall, the whip or lightly branched tree should be 4-7 ft (1.2-2.1 m) in height, depending on the cultivar. Many of these will be dug and sold as one-year trees. Those that remain to be grown on to larger sizes are dormant pruned. Trees are topped at a height of 4-6 ft (1.2-1.8 m) depending on the cultivar. A new leader is established by tapping the emerging shoot with masking tape.

**Propagation**

As needed, trees are straightened and desuckered, and strong branches are pinched during the growing season to ensure an open canopy. Fertilization, irrigation, cultivation, and spraying continue throughout the season.

**DIGGING AND MARKETING**

Digging season begins late in the fall. Crabapples are slower to go into dormancy than most deciduous trees, so digging takes place mainly in December. Digging too early can reduce a tree's ability to survive. High clearance diggers are used to lift the trees, which are then packed by crews onto pallets for transportation to the warehouse and grading stations. palletized trees are handled efficiently by forklift and scissorlift.

After grading, banding, and labeling, the trees are put into humidified cold storage. Temperatures are maintained at 35-36°F (1.7°C), and humidity is held close to 100 percent. Regular fungicide applications are made to avoid botrytis or other disease problems. As the weather begins to warm up, the spring shipping rush is on. Orders are assembled, double checked, and carefully packed into refrigerated semitrailers. All work is finally completed when the trucks arrive at the customer's door.

Crabapples continue to be popular and in high demand. As work progresses in selective breeding, selection of new plant material, and evaluation of crabapples, this outstanding group of flowering trees is getting better and better. Efficient production means the best trees will be made quickly available in the market.
CHAPTER 9

Introducing and Hybridizing Flowering Crabapples

Of the great number of named flowering crabapples, some are outstanding plants that point to the excellent work being done both in hybridizing and in selecting superior clones, but many others are not outstanding. Arie den Boer has pointed out why there are so many mediocre crabapples:

The vast majority of flowering crabapples, until recently, were not the results of specific hybridization, but rather, products of chance seedlings or open pollinated seed. For older cultivars up to 1930 one should be skeptical about a specific cross listing both parents.

Although several hundred crabapples have been named, fewer have been described and marketed, and a great number remain relatively unknown and unavailable. Many of them appeared to be interesting or superior clones at the time they were introduced, but, in fact, they were promising only because there was little on the market by way of genuine comparison. Perhaps 60 to 70 percent of all named crabapples—both botanical selections and named clones—should never have been introduced, albeit they show the progression from the mediocre crabapples of yesterday to the excellent crabapples on the market today.

The greatest improvements in the flowering crabapples have not been made by chance seedlings, but rather through the patient, thoughtful hybridization and selection of superior genetic materials by a relatively few individuals over the past 100 years. While the majority of new clones still appear to be open-pollinated or chance seedlings, they are coming from far better and selected seed parents. Controlled hybridization may be a newer effort, but it is proving to have excellent results.

Controlled hybridization is also a long process measured in years. The number of hybridizers today is perhaps less than five or six worldwide. Few researchers in government or private arboreta have a guarantee of the needed longevity of employment for hybridizing programs. Even fewer in private horticultural research can afford to launch a hybridiza-
tion program. Because many of the pioneering hybridizers are now retired, a whole new generation of well-trained researchers is needed.

Through the long and tedious task of perfecting modern crabapples, certain individuals and organizations stand out as giants who advanced the progress of crabapple hybridization by their painstaking work. Some of them laid foundations for future hybridization, others opened new veins of genetic creativity. In this chapter we want to identify some of the leading hybridizers, introducers, and originators of flowering crabapples both past and present. Then we will present some directions for future hybridizing efforts.

PLANT EXPLORERS AND INTRODUCTORS

One must respect the labors of the early and modern plant explorers, ever searching the world for new species or outstanding variants of species already discovered. Ernest H. Wilson, William Purdom, and Charles Sargent in the past and more recently, the members of the joint Sino-American expeditions into China have all made landmark contributions. The selective work of Karl Sax, although not as well known perhaps as is the work of others, is representative of the many important milestones along the road of progress that have given us the modern crabapple.

In Europe, Victor and Emil Lemoine of Victor Lemoine et Fils, Nancy, France, introduced the beautiful deep red clone Malus 'Lemoinei,' while G. A. Doorenbos, director of the Department of Parks, The Hague, Netherlands, has produced three outstanding crabapples: M. 'Lisaet,' M. 'Profusion,' and the magnificent yellow-fruited M. 'Winter Gold.' Undoubtedly others outside of Canada and the United States are working with flowering crabapples, but because their introductions have not been as extensive, or as available as have those of North American breeders and nursery professionals, they are unknown to me.

THE GREAT HORTICULTURAL INSTITUTIONS

A number of horticultural organizations, past and present, must be credited for introducing new crabapple materials, both by sending out plant explorers to distant lands and by introducing change seedlings from their own gardens.

James Veitch & Sons, Ltd., Chelsea, England, through its plant explorations in China and the Far East, brought a great number of crabapple species to Western gardens and thus greatly influenced the availability of newly discovered crabapples.

The Royal Botanic Gardens, Kew, England, has been influential in introducing, evaluating, and making new plant materials available.

The Arnold Arboretum of Harvard University, Jamaica Plain, MA, has been perhaps the foremost among horticultural institutions in introducing new crabapples and making them available. This institution's work in plant explorations has been monumental and possibly among the greatest in new crabapple selections. Its discovery of a southern growing Malus lohaceri in China promises to aid the work of hybridizing clones adapted to warmer climates.

The U.S. National Arboretum, Washington, DC, particularly in the past decade and a half, has been instrumental in introducing several botanical species from the joint Sino-American explorations in China and Korea.

The South Dakota Agricultural Experiment Station at Brookings has been outstanding, especially in the time of Niels Hansen, in developing and introducing new Rosybloom crabapples specially adapted for the harsh Western prairie conditions.

The Canada Department of Agriculture experiment stations at Beaverlodge, Alberta; Morden, Manitoba; Rostherm, Saskatchewan; Sutherland, Saskatchewan; and Ottawa, Ontario, in the times of W. R. Leslie, W. T. Moosun, and Isabella Preston, were most active in developing new Rosybloom crabapples suited to western Canada. From these sources many excellent clones were introduced, but because they did not receive marketing publicity they remain relatively unknown.

The Seestram Arboretum at the Ohio Agricultural Experiment Station, Wooster, OH, has developed an impressive number of crabapple plantings that are truly outstanding in bloom and attract thousands of visitors in spring. This collection ranks among the finest with both old and new crabapples.

The Morton Arboretum, Lisle, IL, and the Boerner Botanic Gardens, Hales Corner, WI, have impressive collections of flowering crabapples, many that are found nowhere else.

The Royal Botanic Gardens, Hamilton, Ontario, Canada, is developing an excellent collection of well-organized and carefully chosen flowering crabapples, mostly of Canadian origin.

A number of universities have excellent crabapple collections that are being upgraded and developed: University of Wisconsin, University of Michigan, University of Washington, and University of Illinois.

Several nurseries specialize in introducing newer clones of exceptional merit. Foremost in their number are Roy and Sarah Klehm of Charles Klehm and Sons Nursery, South Barrington, IL; Lake County Nursery, Perry, OH, and J. Frank Schmidt & Son Co., Suring, WI. While other nurseries also introduce new crabapple clones, none can compare with these in modern new, outstanding clones as do these three nurseries and none of them is more aggressive in their efforts to seek out the finest clones. All three are to be commended, for without aggressive marketing, new clones would never be recognized or made available.

The International Ornamental Crabapple Society (IOCS) was founded by a group of dedicated crabapple enthusiasts: Peter Bristol, Fred Buscher, John den Boer, Fr. John Fiala, Thomas Green, Edward Hasselkus, William Hendricks, Francie Hill, Joseph Hill, Norbert Kinen, Robert Lyons, John Martinis, Les Nichol, John Sabuco, Michael Scott, Robert Simpson, and Michael Yannay. Under the progressive leadership of the IOCS, an excellent bulletin has been published and interest in selection of new clones has been promoted. This worldwide society is open to anyone interested in flowering crabapples.

MODERN HYBRIDIZERS

Through the truly heroic efforts of a few modern hybridizers, the flowering crabapple has become the outstanding ornamental among all flowering trees. A few of the modern crabapple introducers and their general areas of work are discussed below.

Niels E. Hansen is known for his work with Malus pumila 'Niedzwetzkyana' at the South Dakota Agricultural Experiment Station, Brookings. From his travels to Turkestan, he brought back original material with which he began the famous crosses of red-flowering crabapples. The list of cultivars in this volume (see Chapter 12) contains many of his selections and introductions, perhaps as many as 70 or 80 clones. His work with the Rosybloom is outstanding, as is his work with the North American species. Many more of his introductions should be grown in the largest arboretum to keep them from being lost and to maintain them for genetic breeding materials.
Isabella Preston and W. R. Leslie, both with the Canada Department of Agriculture, are responsible for the selection of perhaps another 50 to 60 Rosybloom clones, most of them open-pollinated. These introductions have not been as widely grown and appreciated as they should have been because many are large trees and many are disease prone. Among them, however, are several outstanding clones. Some of the newest clones, developed by Thomas Machin at Devonian Botanic Garden, and those at the Canada Department of Agriculture Experiment Station, Morden, Manitoba, appear very worthwhile additions to advanced Rosybloom clones.

Robert C. Simpson of Simpson Orchard Company, Vincennes, IN, was one of the first nursery professionals to plant, select, and introduce some of the heaviest fruiting, smaller-fruited crabapples that today are classified among the multibilateral. In his landmark work he has selected, popularized, and marketed some of the finest crabapples available today. Among his excellent introductions are Malus 'Adirondack' and M. 'Barnes', 'Indian Magic', M. 'Red Jewel', M. 'Yellow Jewel', and especially the late-blooming M. 'Silver Moon'. One could plant a whole garden of Simpson's excellent introductions.

Henry Ross of Gardenview Horticultural Park, Strongsville, OH, has introduced a limited number of very excellent clones. Among some of the first polyplaid M. 'Coralburst', the outstanding double-flowered M. 'Cotton Candy', the beautiful Rosette- blosomed semiwrepper M. 'Ross's Double Red', and the outstanding semiwrepper M. 'White Cascade'. His M. 'Coral Cascade' remains not only one of the finest fruiting forms, but is in a coral color class of its own. Ross's introductions rank among some of the finest blooming crabapples available.

Donald Egolf of the U.S. National Arboretum, Washington, DC, has been engaged in programs of developing superior, disease-resistant clones, and in selecting superior clones from modern plant explorations to China, Korea, and Japan. Among his named introductions are the outstanding Malus 'Adirondack' and M. 'Naragansett'. Many of his numbered selections should be named and introduced.

James Zampini of Lake County Nursery, Perry, OH, has only begun working with a number of very low growing, open-pollinated crabapples to be marketed under a series titled Round Table crabapple dwarfs. This series should have value for smaller landscaping needs.

Lori and Michael Yanni of Johnson's Nursery, Menomonie Falls, WI, two of the very few younger hybrider's, have undertaken a small but promising program that should show excellent results in a few years.

Fr. John L. Fiala of Falconskeape Gardens, Medina, OH, was engaged for 50 years in intensive programs (1) to produce newer multiflora, especially among the weeping crabapples; (2) to introduce small, disease-resistant trees with heavy, persistent fruit in an extensive range of color; and (3) to induce polyplaid. Among the 120 named clones he introduced are Malus 'Amberina', M. 'Autumn Glory', M. 'Molton Lav', M. 'Orange Crush', M. 'Serendip', the outstanding weeper M. 'Red Swan', the polyplaid M. 'Corpus King', and M. 'Satin Cloud', and the doubles M. 'Cranberry Lace', M. 'Doublene', M. 'Eline', and M. 'Karen'. Falconskeape Gardens has sold more weeping and semiwrepper crabapples than any other source. The first to
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Figure 9.7. Donald Egolf, U.S. National Arboretum, Washington, D.C., is an outstanding plant hybridizer of many genera and an honorary Life Director of IOCS. Outstanding among his many crabapple introductions is M. Nansi- 
gusticae.

Figure 9.8. James Zaplotnik, Lake County Nursery, Allen, OH, is a crabapple nursery- 
man and introducer of several new and better crabapples, including the Round 
Table Series of dwarf crab.

pioneer the mini-fruits with small fruit less than 0.5 in (1.3 cm) in diameter. Fr. Fiia also intro- 
duced a line of dwarf crabapples and weepers. He was a pioneer in the work with tetraploid, 
octoploid, and polyploid crabapples.

PRESEVING AND IDENTIFYING THE WORK OF HYBRIDIZERS

A great number of flowering crabapples, even in some of the best collections, are misnamed. 
While one does not wish to discard older trees 
that are beautiful in bloom and fruit just because 
they have been misnamed, their true identity 
needs to be researched or they should be listed 
as “name uncertain.”

Once in my younger years I sent a large collec-
tion of my best flowering crabapples, many now patented, to one of our nation’s largest 
arborets because the director at that time realized these plants might have value. Twenty 
years later these trees were destroyed. Although they were some of the finest crabapples in 
the collection, because they had been carelessly left untagged, no one took time to inquire 
where they came from and thus they were destroyed. Had they been left, today this arbo- 
retum would have an outstanding collection of some of the newest clones already 20 years 
old. It seems that each time a large arborum or public collection receives a new adminis-
tration, the first order of business is to get rid of older specimens or material, beautiful 
though they may be, that have no apparent name or that appear to the new director to be 
outdated or useless. (This happens to personnel as well as to plants.)

I recall another incident in which the lifetime work of an outstanding nut tree hybridizer 
working at the USDA research center in Beltsville, MD, was completely destroyed in one 
week by a new director, who had no interest whatsoever in nut trees. Nearly 30 years of 
remarkable hybridization were lost forever. I was hybridizing nuts at the time and would 
have given anything to save those trees, and so would have the American Nut Growers 
Association, had we been informed of the intent to destroy a lifetime of some of the nation’s 
best hybridizing. Not even a scion was saved!

Unfortunately, this destruction also happens to most work of individuals who do not 
publicize and introduce their plants while alive and able. Much of the flowering crabapple 
work of some of the older hybridizers is relatively unknown today, and eventually will be 
lost forever, because it has not been publicized and made generally available. The lifetime 
work of Julian Potts, which includes flowering crabapples, is one example. Much material 

is being lost in both public collections and, perhaps more often, in private ones.

I am not advocating that worthless, diseased clones be kept in collections simply 
because they are already there as older specimens. Our gardens, parks, and arborets cannot 
support space for historic but valueless trees. Disease-ridden flowering crabapples whose 
horticultural value is very limited should be removed to make room for newer and better 
specimens. After all, the arborets and larger collections are where the public goes to see 
and identify the “best” trees for their smaller home gardens. The public may not be aware 
that certain clones are disease resistant; what they see is what they believe is recommended 
by that institution.

INTRODUCING NEW FORMS TO THE MARKET

One of the foremost problems facing hybridizers as they work to improve crabapples is 
getting nurseries to accept their work. It can be almost impossible, not because the new 
introductions are not excellent or outstanding, but because the commercial market for crab-
apples is already so saturated with many excellent trees that nurseries are reluctant to add 
new names that they consider untried and unselected. Most nurseries want to test new 
 crabapples for as long as 10 to 15 years, yet from experience I know that good hybridizers 
have already tested their selections years before they offer them to the commercial market. 
The original trees of most of my own introductions were 25 to 35 years old before they were 
considered and accepted by nurseries. During that period of waiting, three or four new 
generations were growing in my garden. Unfortunately, the overwhelming majority of 
introductions offered by hybridizers never appear in the wings, yet alone on center stage, 
of the current market. Instead, these excellent crabapples are grown to cast their beauty in 
the introducer’s garden alone. Many of them have a one-tree life span.

Many of them have a one-tree life span. 

I recall another incident in which the lifetime work of an outstanding nut tree hybridizer
Chapter 9

Lovers may sing to some youthful heart and inspire it with the dedication, not for monetary gain, for there is none, but for a transcendent love of flowering crabapples to, again, recapture these special nurseries of long ago.

Another factor that greatly limits the rapid introduction of newer crabapples to the public is the general sameness of the clones offered from nursery to nursery throughout the country. The various lists of cultivar offerings constantly repeat the same tried-and-proven dozen or so names. Very few nurseries break from the old standbys and forge ahead to offer newer kinds of crabapples. What a choice gardeners and landscapers would have if every nursery offered a different list! What wonderful variety would exist in our gardens!

HYBRIDIZING POLYPLOIDS

Although the chromosome numbers of a few flowering crabapples have been counted, the data needs to be updated to include all the known species and their subspecies, and it needs to be made public (Table 2). No published records exist yet of the chromosome counts of the important subspecies and principal clones of outstanding merit. In fact, with a very few exceptions, little work has been done with the known polyploids outside the work done at Falconskape Gardens for the past 45 years.

Ordinarily, in most species of plants, the advanced polyploids (e.g., tetraploids or above) show remarkable progress in flower size, improved petal and leaf texture, disease resistance, fruit size, more intense and newer flower patterns, and sometimes fruit color. Multiple characteristics, particularly in flower color, form, and patterns of variety, are found in the single plant, yet are not observable in the diploid counterparts of the same species. Many of these polyploid traits are great improvements over the diploid form. Most often, if it is possible to cross the diploids with the tetraploid forms, the resultant progeny are sterile yet beautiful triploids. On occasion we find certain clones described as "sterile, produces no fruit." Are these true triploids, the result of crossing diploid and tetraploid clones? I am unaware of any research that studies this complicated polyploid breeding.

Based on the chromosome counts that have been done in Malus, we find natural diploids (2x), triploids (3x), several natural tetraploids (4x), and even one quintaploid (5x). From natural serendipity and laboratory conversion we may possibly have three or four octoploids (8x). Adding the five or six laboratory-induced tetraploids to the already existing natural polyploids, we find a solid base has been established for the tetraploid and polyploid crabapples of the future (Table 3). The initial groundwork for octoploid hybrids and advanced polyploid hybridization in flowering crabapples has also been laid. Among the octoploids are two outstanding clones, Malus 'Comalburn' and M. 'Satin Cloud', and it is possible that M. 'Shinto Shrine' and M. 'Copper King' are also octoploids. The current need then is to continue building on this knowledge by interhybridizing the existing polyploids and by adding to their number new, induced polyploids of superior clonal material.

Two or three dedicated research hybridizers, spending most of their life efforts with advanced polyploids, could revolutionize the future direction of flowering crabapples. Who will they be? It has not been given to me, so far, to see my polyploid children's children to the fourth generation. Thus I have always hoped that grants could be obtained for younger hybridizers to continue this work. The greatest results of polyploid interhybridization are not seen until at least the fourth, fifth, or sixth generations when the explosion of gene characteristics begins to work its wonders, resulting in new combinations.

Scientific hybridizers, who wish to work with advanced polyploids, stand at the threshold of advanced generations and should take advantage of the groundwork that has been

<table>
<thead>
<tr>
<th>Table 2. Chromosome counts for flowering crabapples. Data based on Darlington and Wylie (1961). Malus x = 17</th>
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</thead>
<tbody>
<tr>
<td>Name</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>Diploid (2x = 34)</td>
</tr>
<tr>
<td>M. sargentii</td>
</tr>
<tr>
<td>M. axiata (M. prunifolia)</td>
</tr>
<tr>
<td>M. baccata</td>
</tr>
<tr>
<td>M. tomentosa</td>
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<tr>
<td>M. spicata</td>
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<tr>
<td>M. xanthina</td>
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<tr>
<td>M. meyeri</td>
</tr>
<tr>
<td>M. psidifolia 'Niedzwetskyana'</td>
</tr>
<tr>
<td>M. sieboldii var. zumi</td>
</tr>
<tr>
<td>Diploid (2x = 34) and triploid (5x = 51)</td>
</tr>
<tr>
<td>M. prunifolia</td>
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<tr>
<td>M. sylvestris</td>
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<td>M. psidifolia 266 varieties</td>
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<td>Tetraploid (4x = 68)</td>
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<td>Quintaploid (5x = 85)</td>
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<td>M. sargentii 'M. sieboldii'</td>
</tr>
<tr>
<td>Octoploid (6x = 116)</td>
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<tr>
<td>M. coronaria</td>
</tr>
<tr>
<td>M. 'Foustin'</td>
</tr>
<tr>
<td>M. 'Satin Cloud'</td>
</tr>
<tr>
<td>M. 'Hosana'</td>
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<td>M. 'Egret'</td>
</tr>
</tbody>
</table>

*Possible sextaploids (6x = 102) or octoploids (8x = 136) |
| M. 'Shinto Shrine' | 102-136 | Flagg 1977 | Induced cultivar |
| M. 'Copper King' | 102-136 | Flagg 1977 | 2nd generation cultivar |
| M. 'Achille McCan' | 136 | Flagg 1977 | 2nd generation cultivar |

*Variables counts may indicate chimaeras
Table 3. Natural, induced, and second generation polyploid flowering crabapples.

<table>
<thead>
<tr>
<th>Name</th>
<th>Introducer</th>
<th>Origin</th>
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</thead>
<tbody>
<tr>
<td>Tetraploids (4x = 60)</td>
<td></td>
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</tr>
<tr>
<td>M. 'Ann Marie'</td>
<td>Fiala</td>
<td>2nd generation hybrid</td>
</tr>
<tr>
<td>M. 'Arch McKown'</td>
<td>Fiala</td>
<td>2nd generation hybrid</td>
</tr>
<tr>
<td>M. 'Copper King'</td>
<td>Fiala</td>
<td>2nd generation hybrid; may be octoploid</td>
</tr>
<tr>
<td>M. coronaria</td>
<td>Natural species</td>
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<tr>
<td>M. coronaria var. angustifolia</td>
<td>E. de Wolfe</td>
<td>Natural variety</td>
</tr>
<tr>
<td>M. coronaria var. dasyphylla 'Charloettae'</td>
<td>Natural selection</td>
<td></td>
</tr>
<tr>
<td>M. coronaria var. glauciflora</td>
<td>Natural variety</td>
<td></td>
</tr>
<tr>
<td>M. coronaria var. platypetala</td>
<td>Natural variety</td>
<td></td>
</tr>
<tr>
<td>M. coronaria 'Cornellone'</td>
<td>Fiala</td>
<td>Induced</td>
</tr>
<tr>
<td>M. coronaria 'Nieuwland'</td>
<td>Slavin</td>
<td>Natural selection</td>
</tr>
<tr>
<td>M. 'Grandmother Louise'</td>
<td>Fiala</td>
<td>Induced</td>
</tr>
<tr>
<td>M. 'Hepheantis'</td>
<td>Fiala</td>
<td>Natural species</td>
</tr>
<tr>
<td>M. 'Hepheantis Donnell'</td>
<td>Fiala</td>
<td>Induced</td>
</tr>
<tr>
<td>M. 'Imsir' 'Pratice Rose'</td>
<td>Fiala</td>
<td>Natural clone</td>
</tr>
<tr>
<td>M. 'Imsir' 'Prince Georges'</td>
<td>Fiala</td>
<td>Natural hybrid</td>
</tr>
<tr>
<td>M. 'Joy'</td>
<td>Fiala</td>
<td>2nd generation hybrid</td>
</tr>
<tr>
<td>M. 'Kola'</td>
<td>Hansen</td>
<td>Natural hybrid</td>
</tr>
<tr>
<td>M. 'My Bonnie'</td>
<td>Fiala</td>
<td>Induced</td>
</tr>
<tr>
<td>M. 'Peter Murray'</td>
<td>Fiala</td>
<td>2nd generation hybrid</td>
</tr>
<tr>
<td>M. 'Shinto Shrine'</td>
<td>Fiala</td>
<td>Induced</td>
</tr>
<tr>
<td>M. 'Tetragold'</td>
<td>Fiala</td>
<td>Induced</td>
</tr>
<tr>
<td>Quintaploids (5x = 85)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M. toringo</td>
<td>Natural species</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Octoploids (8x = 136)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>M. 'Copper King'</td>
<td>Fiala</td>
<td>2nd generation hybrid; may be a chimaera</td>
</tr>
<tr>
<td>M. 'Cornburrst'</td>
<td>H. Ross</td>
<td>Natural selection</td>
</tr>
<tr>
<td>M. 'Eget'</td>
<td>Fiala</td>
<td>Induced weeper</td>
</tr>
<tr>
<td>M. 'Fountain'</td>
<td>Fiala</td>
<td>Induced weeper</td>
</tr>
<tr>
<td>M. 'Hosonna'</td>
<td>Fiala</td>
<td>2nd generation hybrid</td>
</tr>
<tr>
<td>M. 'Satin Cloud'**</td>
<td>Fiala</td>
<td>Induced</td>
</tr>
<tr>
<td>M. 'Shinto Shrine'</td>
<td>Fiala</td>
<td>Induced, may be a chimaera</td>
</tr>
</tbody>
</table>

*The series of M. 'Satin Cloud' seedlings yet to be introduced, including M. 'Satin Laco', M. 'Satin Silver', and so on, are also octoploids.

We know that the North American species Malus coronaria and all its counted sub-species are tetraploids, that M. toringo appears to be a quintaploid, and that a number of very useful induced tetraploids and octoploids are now available. Could it be that these flowering crabapples do not readily hybridize with Asian species because of the difference in ploidy rather than because of the difference in blooming times or natural sterility? Could not a whole new race or races of flowering crabapples arise if some of the best species were converted into polyploids and then hybridized with tetraploids or advanced octoploids?

Two avenues are open to future hybridists working with the polyploids: one is to continue interhybridization of all the existing polyploid clones, the other is to increase the genetic pool by inducing new polyploids in the laboratory. Great success is predicted as the induced polyploids presently available come from a number of hybridized species and sub-

species. If the natural tetraploids can be included with these induced clones, the range of newer polyploids would be considerably extended.

Although many of the existing polyploids have shortcomings in different areas, most of them are already highly resistant to diseases. Improvement needs to be made primarily in flower color and fruit color. Only a very few polyploids—induced or natural—have deep red or pink flowers, and the light pinks are mostly in the Malus coronaria group, which has its own breeding problems. The lone red-flowering and red-leaved clone is M. 'Joy', and it would need additional infusion of better red-flowering clones to support a good breeding program.

Hybridists should pursue both avenues of research: they should use the existing polyploids to their fullest potential, and at the same time, they should continue to induce new polyploids, not from seedlings, but from the very best of the already selected and proven diploid clones and species.

In selecting already proven clones for inducing polyploids, colchicine treatment has been the most effective method in the past. Those working with this alkaloid should remember that it is an extremely toxic chemical and that it should therefore be used with a mask under a hood. Careless use of this poisonous chemical can be devastating as this author can attest.

Hybridists should also pay special attention to use only the best clones: (1) those completely resistant to all diseases, (2) those with smaller and mini-sized fruit whose color is exceptional, and (3) those with excellent, annual flowering habits and abundant bloom. Hybridists should also keep in mind the need for red, deep purple, and pink flowers, and they should try to include as many double-flowering clones as possible. When inducing new polyploids hybridists should also try to include as many different tree forms as possible—shrubs, upright, rounded, spreading, and especially weeping forms. Many of these forms are already found in existing polyploids.

The last and most important catalyst for success in the future is to find research hybridizers who will be willing to spend a lifetime in this work. A lifelong commitment to hybridizing crabapples could seem impossible for many, but to some very few it could be an exciting golden dream, as it has been for me for the past half century.

SEVEN AREAS FOR FUTURE RESEARCH

Much progressive work has already been done on flowering crabapples by hybridizers who were giants in their day. Isabella Preston, Carl and Niels Hansen, Karl Sox, Robert Simpson, H.R. and P.H. Wright, Donald Eglof, and Fr. Fiala, for example, have produced excellent clones that are worthy foundation materials for further hybridizing. The work they have laid does not need to be repeated in the future, unless newer and better clones can be substituted, but rather future hybridists should build on it. Some areas that need further work for interest crabapple hybridizers could well include the following:

1. Expand the number of good polyploid hybrids. With the emergence of tetraploid and octoploid clones, this area of hybridization has just begun to open. From crossing polyploids in other genera, we know that it will be at least the fourth or fifth generation before we have a sufficiently large gene-chromosome pool to see remarkable results and radical breakthroughs. The existing group of polyploids needs to be expanded to include polyploids with pink and red flowers, double flowers, fragrance, and colorful autumn fruit.
2. Develop clones with better pink, red, and deep purple flowers.
3. Improve late-blooming hybrids, particularly the disease-prone North American species, to obtain disease-free, late-blooming clones with the strong fragrance and double flowers of the North American species.
4. Continue to pursue fruit of excellent color, especially in the yellow-bright gold group, that is also abundant and persistent for longer periods. The fruit of some of the newest multibrid crabapples changes color as ripening advances (e.g., from yellow to orange to brilliant red, often retaining cheeks of a previous color), a trait that is extremely attractive.
5. Continue to seek small, genetically dwarf, bushlike trees, weepers and upright forms that can be grown in very limited spaces. Already there exists an increasingly larger group of small-sized crabapples, tailored for smaller gardens, condominium complexes, commercial shopping plazas, street plantings, and planter culture.
6. Investigate the breeding potential of the lesser-used species, such as Malus florentina, M. fusca, M. toringoides, M. tschonoskii, and M. yunnanensis. Most of these species have been little touched by hybridization. Funded research to individuals or horticultural institutions working in this area could accomplish a great deal.
7. Develop a strain of flowering crabapples for southern (not tropical) climates that requires fewer hours of chilling to break dormancy and bloom. Most crabapples (and apples) require a fairly great number of chilling days to break dormancy in spring and if they do not receive these hours they never break dormancy but resprout from the root. This eventually kills the tree in a very few years. Currently, many flowering crabapples either will not grow or do very poorly in warmer climates with limited chill days. Several of the multibrids seem to indicate they could break dormancy and grow and flower well in southern gardens. I began testing a few possibilities at Ocala, FL, with measured success for selected clones (e.g., Malus ‘Dorsett Golden’), but what is needed is testing on a larger scale by a university research program that would plant a sizeable number of selected clones for evaluation and hybridizing research.

The warm-climate Israeli apples, such as Malus ‘Anna’ and M. ‘Ein Shemer’, for example, both clones of M. pumila var. sylvestris or M. sylvestris, could be used to develop crabapples suitable for southern states and warm climates where flowering crabapples have not done well in the past. These small apples or very large crabapples (fruit 2-2.5 in/5-6.3 cm across) were introduced by the Israeli Agriculture Department in 1967 and are grown in that country commercially. Malus ‘Anna’, which is carried by nearly all nurseries in the southern United States, has yellow fruit with a red blush; M. ‘Ein Shemer’ has yellow fruit. Both of these new apple clones, which require only about 300-400 hours of chilling to break dormancy in spring (versus the usual 600 hours of chilling below 45°F [7°C] required of most apples and crabapples), can be grown in northern and central Florida and may be forerunners of a new line of Southern Belle hybrids. Neither clone is recommended for ornamental value, but both are highly recommended for hybridizing with Asiatic and North American species to extend the range of flowering crabapples.

The greatest promise for developing warm-climate crabapples appears to exist in the polyploid crabapple clones, especially those with heavy, leathery leaves, so indicative of warmer climate plants. Perhaps some southern nursery
CHAPTER 10

Taxonomy of the Genus *Malus*

Flowering crabapples belong to *Malus*, a large genus comprising many species and various hybrids. While Liberty Hyde Bailey and other taxonomists considered *Malus* a subgenus of *Pyrus*, today most taxonomists follow Miller and Rehder, considering *Malus* a separate genus of its own split off from *Pyrus*. The taxonomy of *Malus* is as follows:

<table>
<thead>
<tr>
<th>Order</th>
<th>Rosales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family</td>
<td>Rosaceae</td>
</tr>
<tr>
<td>Subfamily</td>
<td>Pomoideae (contains 14 or more genera, including <em>Malus</em>)</td>
</tr>
<tr>
<td>Genus</td>
<td><em>Malus</em></td>
</tr>
<tr>
<td>Species</td>
<td>c. 24 (or 31), depending on how the varieties are classified</td>
</tr>
<tr>
<td>Varieties</td>
<td>Many</td>
</tr>
<tr>
<td>Hybrid Clones, Cultivars, and Strains/Groups</td>
<td>Over 700, and increasing with hybridization</td>
</tr>
</tbody>
</table>

Rehder subdivided *Malus* into five sections, but because his is an older classification, some of the newer species and the older disputed species are not included (e.g., *M. hornemannii*, *M. toringo*). Through the efforts of the International Ornamental Crabapple Society much work is being done to clarify, sort out, and classify these crabapples of recent or complex origins. Also, with recent plant explorations in China, the islands of Japan, Korea, and Taiwan, new plant materials are being discovered and older, poorly documented forms are being reexamined or reintroduced. In time, Rehder’s classification may be updated, but meanwhile it is usable for those interested in taxonomy, and I am presenting it in this volume with a few minor additions suggested by Rehder or other taxonomists, botanists, and botanical geneticists who followed him. Among the most notable changes to Rehder’s classification are (1) the renaming of *M. sieboldii* (Regel) Rehder to an older, previous name *M. toringo* Siebold ex De Vriese 1848 (Wijnands 1979); (2) the elevation of Rehder’s *M. sieboldii* var. *ziuni* to species rank with the name *M. sieboldii*; and (3) in the North American crab-
apples, the reclassification by Fiala of several species to varietal standing (see under section Chironomus).

BOTANICAL SUMMARY OF THE GENUS MALUS MILLER

Section Eumalus Zabel

Series Pumilae Rehder—leaves convolute in bud, always undivided
1. M. pumila Miller—common apple; Eurasia
   var. sylvestris Miller—rarely cultivated 'Niedzwetzkyana' (Dieck) Schneider
   Synonym: var. niedzwetzkyana (Schneider) Rehder
   × M. xanthosanguinea (see under #7)
   Synonym: M. xanthopurpurea (Barbier) Rehder
   'Aldenhamensis' (Gibbs) Rehder
   'Ekey' (Bean) Rehder
   'Lemoinei' (Lemoine) Rehder
   × M. baccata (see under #5)
   Synonym: M. xadstringens Zabel
   × M. coronaria (see under #20)
   Synonym: M. xheterophyllos Spach
   × M. ioensis (see under #23)
   Synonym: 'Red Tip'
   × M. ioensis (see under #23)
   Synonym: M. xoanolii (L. H. Bailey) Britton
   × M. prunifolia
   Synonym: M. xastracaria Dumont de Courset
   × M. spectabilis (see under #3)
   Synonym: M. xenoplogus (D. Schoch

2. M. prunifolia Willdenow Borkhausen
   'Rinkii' (Koldzum) Rehder
   × M. baccata (see under #5)
   Synonym: M. xbaccata (Carrière) Rehder
   × M. floribunda (see under #8)
   Synonym: M. xfloribunda f. L. Späth ex Zabel
   × M. pumila 'Niedzwetzkyana' (see under #8)
   Synonym: M. xfloribunda f. L. Späth ex Zabel
   × M. pumila (see under #1)
   Synonym: M. xastracaria Dumont de Courset
   × M. toringa (see under #10)
   Synonym: M. xtoringa (Zabel) Rehder

3. M. spectabilis (Aiton) Borkhausen
   'Riverside' (Booth) Nash
   × M. baccata (see under #4)
   Synonym: M. xspecabilis Makino
   × M. pumila (see under #1)
   Synonym: M. xadstringens Schoch


Series Baccatae Rehder—calyx deciduous (partly so in some hybrids)
5. M. baccata (Linnaeus) Borkhausen
   var. himalica (Maximowicz) Schneider
   var. mandshurica (Maximowicz) Schneider
   'Jackii' Rehder
   'Rockii' Rehder—today considered a clone
   × M. floribunda (see under #8)
   Synonym: M. xvariegata (Rehder) Sargent
   × M. halliana (see under #7)
   Synonym: M. xhalliana Koehne
   × M. prunifolia (see under #2)
   Synonym: M. xspecabilis (Carrière) Rehder
   × M. pumila
   Synonym: 'Heppe'
   × M. pumila (see under #1)
   Synonym: M. xastracaria Zabel
   × M. sieboldii (see under #9)
   Synonym: M. xzamii (Matsumura) Rehder
   × M. sieboldii—no longer considered a hybrid
   M. sikkimensis (Hooker) Koehne
   × M. spectabilis (see under #4)
   Synonym: M. xspecabilis Makino

6. M. hortensia (Pontoppidan) Rehder (M. hortensia Rehder)

7. M. halliana Koehne
   var. spontanea (Makino) Koldzum
   'Parkmani' Rehder
   × M. baccata (see under #5)
   Synonym: M. xvariegata Koehne
   × M. pumila 'Niedzwetzkyana' (see under #1)
   Synonym: M. xhalliana Lemoine Rehder
   × M. toringa (see under #10)
   Synonym: M. xtoringa (F. L. Späth) Schneider

Section Sorbusacea Zabel—leaves folded in bud, sharply serrate

Series Siebeldiniae Rehder

8. M. floribunda Siebold—cultivated in Japan
   M. brentii Rehder—related species or hybrid
   × M. baccata (see under #4)
   Synonym: M. xvariegata (Rehder) Sargent
   × M. prunifolia (see under #2)
   Synonym: M. xspecabilis (Späth) Zabel
   × M. pumila 'Niedzwetzkyana'
   Synonym: M. xhalliana Lemoine

9. M. sieboldii (Asami) Fiala—formerly M. zamii Rehder (M. baccata var. mandshurica × M. sieboldii)

Note: Today Malus sieboldii var. zami (Matsumura) Asami has been renamed as M. sieboldii Fiala, a separate species, and the former M. sieboldii (Regel) Rehder has been renamed M. toringa Siebold ex Vriese (Wijnands 1979) (see under #10).
10. *M. tomentosa* Siebold ex De Vriese (Wijnands 1979)
   × *M. bailliana* (see under #7)
   Synonym: *M. saxatilis* (Späth) Schneider
   × *M. prunifolia* (see under #2)
   Synonym: *M. saxatilis* (Zabel) Rehdier

Note: *Malus tomentosa* replaces *M. saxatilis* (Nageli) Rehder and *M. saxatilis* var. arborensis Rehder; *M. saxatilis* Cavaleri; *M. saxatilis* var. 'Wooster' Rehder become *M. saxatilis* Cavaleri; *Malus saxatilis* (Zabel) Rehder; and *M. saxatilis* 'Wooster' (Rehder) Fiala.

11. *M. sargentii* Rehder—cultivated in Japan
   Series *Florentina* Rehder—calyx and pedicels tomentose, leaves always lobed, styles 5
   12. *M. florentina* (Zuccagni) Schneider
   Series *Krasenbuehler Rehder—styles glabrous*
   13. *M. fusca* (Rafinesque) Schneider
   14. *M. tomenticeps* (Rehder) Hughes
      *M. tomenticeps* (Batalin) Schneider—closely related to *M. tomentosa*
   15. *M. kaneensis* (Batalin) Schneider
   *M. lomannensis* Rehder—closely related species
   Series *Yunnannenses* Rehder—fruit with cup-shaped cavity at apex of core not free, with grit cells
   16. *M. prostrata* (Hemsley) Schneider
   17. *M. yunnannensis* (Franchet) Schneider

Section *Chloromeles* Rehder
18. *M. xplatycarpa* Rehder (see under revised #20)
   Synonym: *M. coronaria* var. platycarpa (Rehder) Fiala
19. *M. glaucescens* Rehder (see under revised #20)
   Synonym: *M. coronaria* var. glaucescens (Rehder) Fiala
   *M. glabratia* Rehder
   Synonym: *M. coronaria* var. glabratia (Rehder) Fiala—closely related to *M. coronaria* var. glaucescens (see under revised #20)
20. *M. coronaria* (Linnaneus) Miller
   var. elongata Rehder
   var. dasyacalyx Rehder
   'Charlottae' Rehder
   'Nieuwendamiana' × *M. pumila* (see under #1)
   Synonym: *M. x heterophylla* Spach
   *M. bracteata* Rehder (see under revised #20)
   Synonym: *M. coronaria* var. bracteata Fiala
21. *M. lancifolia* Rehder (see under revised #20)
   Synonym: *M. coronaria* var. lancifolia Fiala
22. *M. angustifolia* (Aiton) Michaux (see under revised #20)
   Synonym: *M. coronaria* var. angustifolia (Wenzig) Fiala
23. *M. iotensis* (A. Wood) Britton
   var. jannae Rehder
   × *M. pumila* (see under #1)
   Synonym: *M. x soulardii* (L. H. Bailey) Britton

**Taxonomy**

× *M. pumila* 'Niedzwetzkyana' (see under #1)
   Synonym: 'Red Tip'
   'Fimbriata' A. Slavin
   'Flore Plena' (Schneider) Rehder
   'Palmeri' Rehder

Note: Today, taxonomists would classify only two species under section *Chloromeles* (Rehder) Fiala; the remaining "species" would be treated as varieties or clones. The two species are *Malus coronaria* and its varieties, all of which are natural tetraploids, and *M. iotensis* and its forms, all of which are diploids. Together with the morphological structures of plants, equal importance for differentiation must also be given to chromosomal counts. Chromosomes, although microscopic, are also stable, observable, genetic characteristics and should be given as much consideration in taxonomic classification as any other observable characteristic.

Revised 20. *M. coronaria* (Linnaneus) Miller—all natural tetraploids
   var. angustifolia Fiala
   var. bracteata Fiala
   var. dasyacalyx Fiala
   var. glaucescens Fiala
   var. lancifolia Fiala
   var. platycarpa Fiala
   'Charlottae'
   'Nieuwendamiana'
   × *M. pumila* (see under #1)
   Synonym: *M. x heterophylla* Spach

Revised 23 = 21. *M. iotensis*—all natural diploids
   var. anguina Rehder
   'Fimbriata' A. Slavin
   'Flore Plena' (Schneider) Rehder
   'Palmeri' Rehder
   × *M. pumila* (see under #1)
   Synonym: *M. x soulardii* (Bailey) Britton
   × *M. pumila* 'Niedzwetzkyana' (see under #1)
   Synonym: 'Red Tip'

Section *Erioloba* Schneider—leaves deeply lobed; flowers 6–8, slender stalked, fruit 1.5 cm across
24. *M. iberiota* (Labill.) Schneider

Section *Ducetilis* Schneider—leaves not or slightly lobed; flowers 2–5, styles villose below; fruit 3 cm across
25. *M. tschonoskii* (Maxim.) Schneider

**CLASSIFICATION OF THE NORTH AMERICAN SPECIES**

Although some taxonomists along with Rehder are wont to recognize many North American species, others (including this author) hold the opinion, supported by chromosome study, that there are presently three distinct species native to North America—*Malus coronaria*, *M. iotensis*, and *M. fusca*—that all the other North American crabapples are varieties, clonal forms, or natural hybrids between these three far-ranging species. When one
grows a large number of selfed seed from these species, the progeny has considerable variation. A third group of taxonomists-botanists, believing that M. isocarpa is the diploid form of M. coronaria, would reduce the North American species to two: M. coronaria, with a diploid form M. isocarpa, and M. fusca.

*Malus coronaria* is a natural tetraploid with 68 chromosomes, whereas M. isocarpa and M. fusca are diploids with 34 chromosomes each. Some of the hybrids are triploid with either 51 or 68 chromosomes. The group listed under *M. coronaria* appears to be closely related, all with 68 (tetraploid) chromosomes; those under *M. isocarpa* and *M. fusca*, again, group together having 34 (diploid) chromosomes.

My suggested reclassification of the North American crabapple species, varieties, and clones is as follows:

*M. coronaria* (Linnaeus) Miller
 var. angustifolia (Michaux) Fiala—68 chromosomes; one specimen has 34 chromosomes and is perhaps a hybrid seedling
 var. bracteata (Rehder) Fiala—chromosomes not counted
 var. dasyphyllus (Rehder) Green, Fiala
 ‘Charlotte’, a double-flowering clone of great beauty and fragrance. Some botanists would place it under *M. coronaria* but it appears, more correctly, to be a form or hybrid of var. dasyphyllus. Rehder, and more recently, Dr. Thomas Green, Morton Arboretum, place it under var. dasyphyllus.
 var. glabrata (Rehder) Fiala—possibly a hybrid or form of var. glaucescens
 var. glaucescens (Rehder) Fiala—66 chromosomes
 var. lancifolia (Rehder) Fiala—51 and 68 chromosomes
 var. platycarpa (Rehder) Fiala—synonym: *M. coronaria* × *M. pumila*; 51 and 68 chromosomes; a natural hybrid or a group of similar hybrids
 ‘Hoopesi’, a hybrid cultivar
 ‘Matthewsii’, a hybrid cultivar
 ‘Aesculifolia’ (Rehder) Fiala
 ‘Coral Glow’ (Fiala)
 ‘Elk River’ Hansen
 ‘Nienwold’ (Slavin)
 ‘Pink Pearl’ (Sax)
 ‘Thoms’ (Thoms)

*M. isocarpa* Britton—34 chromosomes, a natural diploid; its clones have not been counted
 var. texana (Rehder) Fiala
 ‘Boone Park’ (Den Boer)
 ‘Brandywine’
 ‘Fimbriata’ (Slavin)
 ‘Fliore’s Improved’ (Fiore)
 ‘Klehm’s Improved Bechtle’ (Klehm)
 ‘Nevis’ (Arrowwood)
 ‘Palmer’ Rehder
 ‘Pleas’ (Rehder)—synonym: ‘Bechtle Nova’ (considered a lighter pink sport of ‘Pleus’)
 ‘Prairie Rose’—open-pollinated seedling of *M. isocarpa*
 ‘Prince Georges’—probably a hybrid, possibly with *M. coronaria* var. angustifolia

### Taxonomy

*M. fusca* Schneider—34 chromosomes, a natural diploid
 var. texanae Schneider
 var. texanae nana Rehder

The older classification for the native North American crabapples, accepted by Rehder and some taxonomists, disregards the chromosome relationships and recognizes the following as valid species and not as varieties:

*M. angustifolia* Michaux
*M. bracteata* Rehder
*M. coronaria* Miller
*M. fusca* Schneider
*M. glabrata* Rehder
*M. glaucescens* Rehder
*M. isocarpa* Britton
*M. lancifolia* Rehder
*M. platycarpa* Rehder

Thus Rehder and those who agree with him recognize nine native North American species rather than three. In time, taxonomists will sort out the true species from varieties, for there appears to be a central area for each of the three native species, from which point natural interspecific hybrids begin to appear, with the greatest difference at the farthest point from the main location of the given species. The climatic and geographic conditions must probably influence regional adaptations, natural mutations, and genetic variations, creating varieties rather than distinct species and allowing for a degree of interspecific natural hybridization.

Great opportunity exists for hybridization between the North American species and the best Asiatic ones, especially with the much improved, newer hybrid cultivars. The semidouble, double, and even single blooming North American species with their later blooming and strong, captivating fragrance coupled with the Asiatic species in disease resistance, better tree forms and excellent smaller, colorful, autumn fruit would greatly enhance newer crabapple hybrids. Such hybridization efforts should be greatly encouraged particularly to stabilize the strong apple-blossom fragrance.

### PROPOSED CHANGE TO ELEVATE *MALUS SIEBOLDII* VAR. *ZUMI* TO SPECIES RANK

With the name change I am proposing in this classification—from *Malus sieboldii* (Regel) Rehder to *M. torengii* and reclassification of the species—some other changes become evident and necessary, specifically concerning the taxonomic place of *M. sieboldii* var. *zumi* and its clones (e.g., ‘Calocarpa’, ‘Wooster’). Rehder considered it a hybrid of *M. baccata* var. manfrediana × *siegoldi* and called it *M. zumi*.

I am convinced that this crabapple is incorrectly described as a hybrid of *Malus baccata* × *M. sieboldii* (M. torengii). Having worked with selected clones of *M. sieboldii* var. *zumi*, especially with ‘Calocarpa’ for nearly 50 years, except for the leaf similarities in lobing I cannot find any indication of *M. torengii* hybridization. Thus I consider *M. sieboldii* var. *zumi* a separate species, similar in some ways (e.g., its small, bright red fruit) to *M. baccata*, yet differ-
PROPOSED CHANGE TO RENAME MALUS SIEBOLDII (REGEL) REHDER TO M. TORGINO

This crabapple taxon has seen a great deal of controversy as to its real species status, its description and as to its true or valid name. It has been described by von Regel as Pyrus sieboldii, by Siebold as Malus toringo and Pyrus toringo, and by Rehder as M. sieboldii (Regel) Rehder. On the basis of research done by Dr. D. O. Wijnands, Wageningen Agricultural University, Wageningen, Netherlands, the more recent name of M. sieboldii (Regel) Rehder, according to taxonomic rules, must give way to the previous name M. toringo (Siebold) Siebold ex De Vriese.

In March 1979 Wijnands published an update and a change of name for this crabapple from Malus sieboldii (Regel) Rehder to the original name of M. toringo (Siebold) Siebold ex De Vriese (Wijnands 1979). Citing earlier sources of nomenclature and description (which Rehder seems to be unaware of), according to private file cards on Malus, but not used for some unknown reason), Wijnands, following Han's evidence, listed the following authorities:

* Sorbus toringo Siebold 1848; Siebold ex De Vriese (Wijnands 1979).
* Malus toringo (Siebold) Siebold ex De Vriese, Tsumbou Flora 3:268, 1856.
* Malus sieboldii (Regel) Rehder, Plant. Wilson, 2:293, 1915.

Quoting an excerpt from page 47 of the 1848 catalogue on plants from Japan, the Indes-Orientalis et Occidentales Nederlandis, a listing of plants offered by Von Siebold & Comp. á Leyde, written in Dutch, Wijnords wrote: “Six plants of a new importation from Japan of Sorbus toringo are for sale at 500 francs each.” The description is in a footnote in French, “with white and rose flowers, leaves 5 lobed and smaller than M. spectabilis, with yellow fruit.”

Wijnands noted that the taxon is not to be confused with the common apple used in Japan and that “the name ‘toringo’ in Japan is synonymous with Malus prunifolia var. rinki.” Thus the new name of M. toringo already had some old Japanese confusion about it. Because of the Japanese use of “toringo” as a synonym for M. prunifolia ‘Rinki’, Rehder may have passed over the older taxon (i.e., M. toringo) in favor of M. sieboldii. Now that the name has been changed back to M. toringo, there is certain to be confusion about two uses of “toringo”!

There remains yet another problem that most taxonomists tend to ignore. Generally they describe Malus toringo as a species, although several voice doubts that it may be a hybrid with “red and yellow fruit.” It is my opinion that genetically an original Malus species had one-colored fruit, most probably red, and that the yellow fruit came later as a mutational fruit color, frequently linked with the pink-flowering gene. (I am aware that a few other species are also described as having red and yellow fruit.) With time, through the introduction of mutations or through interspecific hybridization of distant ancestry in the natural state, a species may evolve to the point where the fruit has two or more colors. The pralial species becomes contaminated with geographic and climatic adaptionals variants. How is this conclusion reached? By observing carefully protected self-pollinated seedlings. When these seedlings bear fruit of two different colors, or a combination of colors (e.g., yellow with a reddish blush, or orange colored fruit), one should immediately suspect some distant, hybrid origin or admixture from foreign pollen—at least this is my personal view.

The problem of “red and yellow” fruit will always remain with us. I do not believe it can ever be settled. What were the early taxonomists really describing? A specimen of a true species, or a specimen that was similar to the true species but already contaminated with interspecific hybridization in the wild? When one reads many of the older species descriptions, keeping in mind genetics, a good deal of ‘hybrid description’ is contained in them. This leads me to conclude that some of these taxonomic descriptions are based on crabapple hybrid specimens and not on specimens of the true species.

In the case of the classic Malus sieboldii taxonomy controversy, it is interesting to note that in one description (i.e., of Siebold ex De Vriese), the specimen has “yellow fruit,” whereas in another description (i.e., of Rehder) it has “a red or brownish yellow fruit.” In the latter description, the word or immediately betrays genetic impurity, possibly from a distant, natural, interspecific hybridization, or, more probably, the admixture into a species of its own color mutations. I am convinced that both men are describing different plants or at least variants of a species.

One of the problems facing previous generations of taxonomists is that they had to base their decisions on whatever specimen was given them. They had little means of knowing if a specimen was a valid new species or an interspecific natural hybrid. They knew nothing about polyploids nor were they concerned with chromosome counts. Since those days, however, taxonomists have access to additional information. From chromosome counts, we know that Malus sieboldii (Regel) Rehder (which is now called M. toringo) is a very rare, natural quintoploid, which immediately indicates that it is a very different kind of crabapple species or variant, the only one of all the crabapples that is so unique!

On the basis of chromosome counts, then, I distinguish, in this volume, between Malus sieboldii (Regel) Rehder, which I call M. toringo, and M. sieboldii var. zumi, which I call M. sieboldii. M. toringo is a quintoploid (5x) having yellow fruit, whereas the new M. sieboldii is a diploid (2x) having red fruit. The yellow-fruited clones in M. sieboldii (Regel) Rehder—what I call M. toringo—should be considered either as color mutations or the admixture of hybrid origins, both of which can occur in the wild state. Thus the name M. sieboldii is properly a red-fruited species.

PROBLEMS IN CLASSIFYING CRABAPPLES

There will be more reclassification of the species and their varietal forms as time passes. Probably not many new additions will be made from the wild as the habitat for native plants undergoes urbanization and urban sprawl. Time is fast running out for finding new plant materials, even in remote areas. There are, however, great opportunities for hybridization of many of the lesser known species, especially among the fast-disappearing North American species.
Great opportunities also exist in converting the native species, *Malus iaconis* and *M. fusca* into tetraploids. *Malus coronaria* and its varieties are already natural tetraploids. Their interspecific hybridization with the Asiatic species and many of the newer multibrids should produce an array of uniquely different crabapples. An open field exists in working with the many new multibrids (plants with several species in their parentage). We should begin using newer nomenclature in designating hybrids. I have suggested in another work on lilacs that we use the word hybrid for a plant of two species; trilibr for a plant of three species; quadrilibr for four; quintilibr for five; sextilibr for six; septilibr for seven; octilibr for eight; nonilibr for nine; and decilibr for ten. With rapid advances in hybridization, these designations give precise meaning to what kind of hybrid we are referring without cumbersome wordage.

Although taxonomists differ as to the exact number of species and their classification, the species listed above and their principal varieties and clonal forms are generally accepted today. The greatest differences among taxonomists concern the classification of *Malus coronaria* and *M. iaconis*. Further study of these two may find they are one species, with *M. coronaria* being the tetraploid form and *M. iaconis* being the diploid. Taxonomists also differ over the reclassification of *M. sieboldii* to *M. tomento* with *M. xasmi* being reclassified to become the species *M. sieboldii*. Thus several points of the taxonomy of *Malus* still need changes, refinement, and reclassification.

One difficulty in classifying crabapples comes from planting open-pollinated seed and then giving it a species name. Only asexual propagation by graft, cutting, or tissue culture will assure the propagation of a valid species. (Some few botanists question the clonal reliability of tissue cultured plants.) I once visited a nursery where blocks of so-called *Malus sieboldii* plants were being sold as “true species” plants. Yet all the plants were from open-pollinated seed in which there were hundreds of variants, even red-leaved ones! In time these so-called "true species seedlings" totally distort the identification of the real species.

Another difficulty facing taxonomist is that many native crabapples are fast disappearing, if not lost, in most of their natural habitat. Some are lost to rapid urbanization and commercial farming, others to the overlapping of native species or the "natural" cross breeding of native species with commercial orchards. For example, where the native North American species *Malus iaconis* grows near orchards of the marketed apple, *M. pumilla*, wind often carries pollen to the native crabapples and hybrid cultivars result. The overlapping of native species, which, as a result of environmental and climatic influences, also produces hybrids—mutations and adaptive clones with regional variations but only slight taxonomic differences. Often these are hybrids are mistaken as separate, native species, but to consider them as such would be an error. Taxonomists must consider a large number of native plants before any single individual can be classified as a species or variety.

Unfortunately, the native crabapples will soon be found only in the larger collections and as arboretum specimen plants. Before they disappear a last effort should be made to identify and preserve all that is possible. The flowering crabapples have become sophisticated inbred modern horticulture. Sadly, the story of the species, which begins with its name, now ends with "the natives no longer possess the land!"

**A CONFUSING PROBLEM OF NOMENCLATURE**

A problem of nomenclature exists today with regard to the use of the words clone or cultivar. Many taxonomists, and most of the general public, have a problem calling a single, specified, and selected plant a cultivar, if that designation only means "a cultivated plant originating in cultivation" (as opposed to a plant found in the wild), for in the past the word cultivar has simply meant "a cultivated group of plants." The word clone appears to be readily understood by the overwhelming majority as a plant "exactly as the same original one," whether its origin be in the wild or as a cultivated plant. Thus a clone is a selected plant whose unique characteristics can be retained only by asexual propagation—be that by tissue culture, rooted cuttings, budding, or grafting. To remain identical a clone cannot be reproduced by seed, for no matter how similar, seedlings are never identical (i.e., exactly the same as the seed parent plant). Let me add here that expert tissue culturists disagree on whether tissue culture always reproduces an identical plant. Some differences in plants stem from the layer of plant tissue being cultured; more differences are attributable to the skill of the culturists; and other differences arise because chemical hormones used in tissue culture produce mutations. These can be real problems and need to be addressed by plant propagators if plants are to remain identical clones.

Species are expected to have a certain amount of variability in their selfed seedlings; hence, when a very special seedling appears with unique characteristics (e.g., *Malus baccata* 'Jacki'), it must be named as a clone and propagated asexually to preserve those characteristics and not by seed. Group hybrids of species originating in cultivation (e.g., Rosyblooms) are considered cultivars.

In the past the International Committee on Nomenclature, which zealously guards the registry of all named plants, put forth some confusing and ambiguous directions as to what was and was not a cultivar or a clone. Recently it has issued many pages of instructions to clarify the distinctions, but it seems the ordinary public, many taxonomists, botanists, geneticists, and horticultural writers remain as confused as ever. In this book I have chosen to use the word clone when writing of a specially selected plant with characteristics which can be reproduced only by asexual propagation. On the basis of this definition, a clone could be a very select form of a species. For example, when protected, selfed seed of a species is planted, many species produce seedlings of varying characteristics. Should someone select a seedling that has some unique variation, it would have to be cloned (i.e., asexually propagated) to preserve that uniqueness, be it a native species or a cultivated plant. Any hybrid that is named for its unique characteristics is a clone—whether it originated in the wild or in cultivation—because it must be reproduced only asexually to preserve these characteristics.

The economic confusion still rages. In some circles every named plant is a cultivar, even though it is a selected plant and not a member of a group cultivar, while in other circles the same plant is a clone since it must be asexually propagated and is a single, selected, named plant! Do I not choose to settle, or even enter into this nomenclature problem, which despite recent attempts at clarification, remains as confusing as ever and cultivar is still an ambiguous term. Does it include only one; selected, named, cultivated plant, or does it include the whole family, group, or strain of similar unselected seedlings?

In this book I have chosen a middle-of-the-road position. If a plant is specially selected for certain unique characteristics, I designate it a clone; since to retain its unique characteristics it must be asexually propagated (i.e., cloned). If a plant is a member of a group of unselected, cultivated seedlings, I designate it a cultivar. This term applies to groups of unnamed seedlings or groups of similar seedlings of the same background (e.g., the Rosyblooms hybrids).

I am certain there will be a very great outcry from some nomenclature perfectionists. Perhaps some taxonomists will protest my definitions, but I write for an understanding of the named crabapples, many of which must be asexually propagated to retain their unique characteristics, and are therefore clones. The vast majority of the public, for whom this book is also
written, are untrained in nomenclatural taxonomy, but they readily understand what the words *clone* and *cloning* mean. For most of them a clone is an identical plant in all its parts and a cultivar is a cultivated plant. I regret any problems I may cause purists of nomenclature rules, but for the countless individuals, who plant gardens, produce or buy nursery materials, and read horticultural books, the present rules of nomenclature remain extremely ambiguous, despite many pages of recent clarifications.
Plate 15. Malus in the Lagoon Area of J. Frank Schmidt & Son Co. arboretum, Boring, OR.

Plate 16. Flowering crabapples in the LH Gardens, taken from the roof of the McKay Center.

Plate 17. Blooming crabapples surround Falcon Lake, Falcon-koze Gardens, Medina, OH.

Plate 18. Malus incisa 'Hulahul' and M. 'Libr' at Falconkoze Gardens.

Plate 19. Malus collection, Boerner Botanical Gardens, Hales Corner, WI.


Plate 22. Malus 'Hillic' at the Arnold Arboretum, Jamaica Plains, MA.
Plate 23. Rosebushes at a shopping plaza, Medina, OH.

Plate 24. This young 'Red Swan' specimen will provide a unique design as it matures along the garden walk.

Plate 25. The double, pink blossoms of M. 'Cotton Candy' are complimented by the white blossoms of M. 'Leprochaun', a very heavy annual bloomer.

Plate 26. Malus 'Hannah Parkman', a pink-flowering crabapple that looks good when planted in front of blooming lilacs.

Plate 27. Malus 'Silver Moorf', a late-blooming white crabapple, is most effective with deep purple, later-blooming lilacs, such as Syringa 'Sarah Sandra'.

Plate 28. Lilacs and crabapples at Falconer-keupe Gardens.
Plate 29. *M. sargentiana* is a large, upright tree with spreading branches.

Plate 30. As old as it is, *M. sargentiana* remains one of the beautiful crabapples in bloom.

Plate 31. Opening red buds of *M. sargentiana*.

Plate 32. *Malus sargentiana* in bloom.

Plate 33. *Malus sargentiana* buds.

Plate 34. Closeup of *M. sargentiana* flowers showing two-toned pink-red blossoms.

Plate 35. Although the fruit of *M. sargentiana* is not showy by today's standards, its springtime show of magnificent blossoms makes it a standard as a specimen crabapple.
Plate 36. Malus baccata 'Alexander', a medium, upright multi-branched that is very handsome in abundant, annual bloom.

Plate 37. Malus baccata 'Halward' has very small, brilliant red fruit.

Plate 38. Malus baccata 'Halward' is an excellent, white blooming crabapple with dark glossy green leaves.


Plate 40. Malus baccata 'Jackii' grows to be a rather tall, spreading tree.

Plate 41. Malus baccata 'Jackii' flowers.

Plate 42. Malus baccata 'Jackii' in an excellent clone with glossy red fruit.

Plate 43. Coming from Northeast Asia and colder areas of northern China, M. baccata is one of the hardiest of all crab-apples and among the first to bloom.
Plate 55. Malus floribunda, introduced from Japan in 1862, is still one of the finer species for larger gardens; it has been used extensively in hybridizing.

Plate 56. Malus floribunda tree form.

Plate 57. Malus floribunda flowers.

Plate 58. Malus floribunda fruit.

Plate 59. Malus halliana var. spontanea is very dwarf and corymbose, with like, broader than tall. Recently it was surpassed by M. halliana National Arboretum No. 127.

Plate 60. Malus halliana var. spontanea blossoms.

Plate 61. Malus halliana National Arboretum No. 127 is a lovely fan-shaped small tree.

Plate 62. Malus halliana National Arboretum No. 127 has bright pink, double blossoms.

Plate 63. Malus halliana ‘Parkmani’, a small tree with elegant semidouble, pink blossoms, is one of the choicest offspring of this species.

Plate 64. The shell pink blossoms of M. halliana ‘Parkmani’ blossoms are among the most attractive crabapple blossoms.
Plate 65. Malus urophylla—tetraploid flower.
Plate 66. Malus urophylla blossoms.
Plate 67. Malus urophylla 'Donald', a glossy leafed, never
Plate 68. Malus urophylla 'Donald' blossoms.
Plate 69. Malus urophylla 'Donald' fruit.
Plate 70. Malus urophylla 'Wayne Douglas' has purplish,
larger fruit, hinting at hybrid origin.
Plate 71. Malus ioensis is perhaps the root of the North Ameri-
Plate 72. Malus ioensis 'Kiehls Improved Bechtel' tree in
Plate 73. Malus ioensis 'Kiehls Improved Bechtel' flower.
Plate 74. Malus ioensis 'Kiehls Improved Bechtel' fruit.
Plate 75. Malus ioensis 'Kiehls Improved Bechtel' autumn leaf
color.
Plate 76. *Malus ioensis* 'Noru' fragrant, double flowers.

Plate 77. *Malus ioensis* 'Tiera' tree in bloom.

Plate 78. *Malus ioensis* 'Tiera' has wonderful double, very fragrant flowers.

Plate 79. *Malus ioensis* 'Prince Georges' is a delightfully fragrant hybrid with no fruit.

Plate 80. *Malus pumila* 'Niedzwetzkyana', a break of serendipity that led to the deep red-leaved, red-budded, and red-flowered crabapples with somewhat larger red-purple fruit. Insignificant in itself, its progeny is regal red.

Plate 81. *Malus pumila* 'Niedzwetzkyana' blossom.

Plate 82. *Malus pumila* 'Niedzwetzkyana' fruit.
Plate 83. *Malus sp.* 'Lemoinei', one of the finest of the magnificent red flowering multiflora crabapples. Its singular fault is the time it takes before it begins to bloom, about 7 years, but once of blooming age, it is a heavy, annual bloomer increasing in beauty each year. In regal splendor it dominates any landscape.

Plate 84. *Malus sp.* 'Lemoinei' flower.

Plate 85. *Malus sp.* 'Lemoinei' fruit.

Plate 86. *Malus xrobusta*, a cross of *M. baccata* × *M. prunifolia*, is a large tree, showy in white bloom. Selected named clones are superior to the simple cross.

Plate 87. *Malus xrobusta* blossoms.

Plate 88. *Malus xrobusta* is called the cherry crabapple because of its small red fruit.

Plate 89. *Malus xrobusta* 'Gary's Choice', a clone rarely seen.

Plate 90. *Malus xrobusta* 'Persicifolia' tree in bloom.

Plate 91. *Malus xrobusta* 'Persicifolia' fruit.
Malus sargentii (Sargent's Crabapple)

Plate 92. Malus sargentii, the smallest of the species crabapples, is an excellent ornamental.

Plate 93. Malus sargentii blossoms.

Plate 94. Malus sargentii fruit.

Malus xochitecchii

Plate 95. Malus xochitecchii, a fine semidouble hybrid of M. floribunda × M. prunifolia, is beautiful in spring bloom but lacks the lustre of colorful fruit in autumn so necessary in modern flowering crabapples. Today it is seen only in the largest arboreums. Its value in hybridizing is very limited.

Plate 96. Malus xochitecchii blossoms.

Plate 97. Malus xochitecchii fruit.
Plate 98. Malus sieboldii 'Calocarpa', one of the finest of all the flowering crabapples.

Plate 99. Malus sieboldii 'Calocarpa' blossoms.

Plate 100. Malus sieboldii 'Calocarpa' fruit.

Plate 101. Malus sieboldii 'Weeester' fruit.

Plate 102. Malus sieboldii is rarely seen today except in a few arboreta.

Plate 103. Malus sieboldii flower.

Plate 104. Malus sieboldii fruit.
Plate 105. *Malus spectabilis* is a species not known in the wild.

Plate 106. *Malus spectabilis* flower.


Plate 109. *Malus tomentosa* (once called *M. sieboldiana* with picturesque main branching.

Plate 110. *Malus tomentosa* blossom.

Plate 111. *Malus tomentosa* fruit.

Plate 112. *Malus tomentosa* ‘Fuji’ tree form.

Plate 113. *Malus tomentosa* ‘Fuji’ double flowers.

Plate 114. *Malus tomentosa* ‘Fuji’ yellow fruit.
Plate 121. Malus 'Adams' is one of the finest red-flowering crabapples.

Plate 122. Malus 'Adirondack' is a narrow, upright tree with distinct obovate growth.

Plate 123. Malus 'Adirondack', an excellent annual bloomer, has heavy-textured, wide-spreading, white flower with traces of red.

Plate 124. Malus 'Adirondack' fruit is bright red-orange and medium to small in size.
Plate 125. Malus 'Almato' is a very graceful weeper.

Plate 126. Malus 'Amberina' blossoms.

Plate 127. Malus 'Amberina' has magnificent orange-red smaller fruit that is excellent among the yellow leaves of autumn and very showy after leaf fall.

Plate 128. The bright red flowers of M. 'American Masterpiece', one of the Round Table Series of dwarf crabapples developed by James Zampini, show no bleaching.

Plate 129. The attractive pumpkin-orange fruit of M. 'American Masterpiece' is a welcome contrast in the autumn.

Plate 130. Malus 'Arch McKean', a smaller, upright multistemmed with pale pink blossoms and deep red mini-fruit.

Plate 131. Malus 'Autumn Glory', an abundant annual bearer, is very showy in spring.

Plate 132. Malus 'Beverly' has very showy, small, bright red fruit but only in alternate years.

Plate 133. Malus 'Birdland', a new introduction, is excellent in fall fruit color. Pictured here is the fruit after frost.

Plate 134. Malus 'Blanche Amor' bears semi-double, white flowers in great profusion annually.
Plate 135. Malus 'Bob White' in bloom.

Plate 136. Malus 'Bob White' has the good quality of an autumn change of leaf color to a bright gold which enhances the fruit.

Plate 137. Malus 'Bob White' was introduced for its abundant golden fruit. Fruit color is a bit better after frost.

Plate 138. In springtime bloom, M. 'Brandywine', one of the better, newer, double-flowering crabapples, provides an outstanding display of sheer beauty.

Plate 139. Malus 'Brandywine' deep rose-red buds open to very fragrant rose-like blossoms.

Plate 140. The yellowish green fruit of M. 'Brandywine' is large, mealy, and falls early—the one fault of this magnificent tree.
Plate 141. Malus 'Callaway', an excellent ornamental, is uniquely adapted for southern regions.

Plate 142. Malus 'Callaway' flowering branch.

Plate 143. Malus 'Callaway' fruit.

Plate 144. Malus 'Cameo', one of the Round Table Series of dwarf crabapples developed by James Zampini, has single flowers that are tuchita-pink on white.

Plate 145. Malus 'Cardinal's Robe' tree in bloom.

Plate 146. Malus 'Cardinal's Robe' fruit.

Plate 147. The white blossoms of M. 'Christmas Holly' are very showy in spring as are the hollylike red fruit in fall.

Plate 148. Malus 'Copper King' has wonderful abundant copper-gold-orange fruit.
Plate 140. *Malus 'Coralburst*', one of the first polyploid introductions to reach the commercial market, immediately became a success because of its magnificent bloom, dwarf form, and adaptability to all types of garden design.

Plate 150. *Malus 'Coralburst'* coral pink buds open to double rose flowers.

Plate 152. *Malus 'Coral Cascade'* with its pink-coral-orange fruit that becomes more copper-orange after frost and persists in beauty into January, is one of the very best in its fruit color class.

Plate 153. *Malus 'Cranberry Lace'* an upright double-flowering crabapple, is attractive in bloom and in abundant red fruit.

Plate 151. *Malus 'Coralburst'* fruit is a unique bronze color.

Plate 154. *Malus 'David'* an outstanding white-flowering clone with good red fruit.
Plate 155. Malus 'Doublooms', a smaller tree to 12 ft (3.7 m) high, is an excellent crabapple for any garden.

Plate 156. The double to semidouble, white blossoms of M. 'Doublooms' open from brilliant carmine buds.

Plate 157. Malus 'Doublooms' fruit before frost is a bright lemon color.

Plate 158. Malus 'Doublooms' fruit after frost turns a deeper lemon-gold.

Plate 159. New and as yet not well known, M. 'Erie' is a small tree with semidouble blossoms and copper-gold fruit.

Plate 160. Malus 'Erie', an open-pollinated seedling of M. prunifolia 'Niedzwetzkyana', one of Isabella Preston's Lake Series.

Plate 161. Malus 'Fountain', an octopod dwarf weeper, in bloom.

Plate 162. Malus 'Golden Galaxy', an outstanding gold-fruited multiflora, is a smaller tree with white flowers and very showy autumn fruit.
Plate 163. The magnificent M. 'CV-19', a heavy annual bloomer, has double rose-pink blossoms that appear early on the tree and last for two or three weeks.

Plate 164. Malus 'Hamlet', one of the Round Table Series of dwarf crabapples developed by James Zeman, has rosy-pink blossoms.

Plate 165. Malus 'Hopka', the first selection of M. pumila 'Niedzwetzkyana', is probably a cross of M. pumila 'Niedzwetzkyana' x M. baccata.

Plate 166. Malus 'Hopka' blossom.

Plate 167. With its heavily fruited branches, M. 'Indian Magic' is a very effective ornamental.

Plate 168. Malus 'Indian Magic' rose-colored blossoms.

Plate 169. Malus 'Indian Magic' autumn leaves.

Plate 170. The elliptical glossy red fruit of M. 'Indian Magic' turns orange after fruits.
Plate 171. Malus 'Indian Summer', an outstanding, annual-bearing crabapple with brightly colored fruit that puts on a magnificent autumn display.

Plate 172. Malus 'King Arthur' is one of the Round Table series of dwarf crabapples developed by James Zappelini.

Plate 173. Malus 'King Arthur' has bright red fruit.

Plate 174. Malus 'Lancelot', one of several dwarf crabapples developed by James Zappelini, Lake County Nursery, Barry, OH, in autumn foliage.

Plate 176. Malus 'Lancelot' fruit is light-to-medium gold.

Plate 175. Malus 'Lancelot' blossoms.
Plate 177. *Malus 'Leprechaun'* is a very heavy annual bloomer that produces red mist-fruits.

Plate 178. *Malus 'Lisett',* a cross of *M. sargentii* 'Lemoinei' x *M. sieboldii,* is probably the brightest orange-red crabapple.

Plate 179. *Malus 'Lisett'* is excellent in bloom.

Plate 180. *Malus 'Lisett'* is excellent in fine deep purple, smaller maroon-red fruit. The glossy fruit is too dark to be showy unless planted next to yellow-fruited clone.
Plate 181. *Malus 'Louisa'* is one of the newer spreading, fountainlike weepers of low height.

Plate 182. *Malus 'Louisa'* has rose-colored buds and blossoms borne in great profusion annually.

Plate 183. *Malus 'Louisa'* lemon-gold fruit.

Plate 184. *Malus 'Lullaby*', a smaller, more refined version of 'Red Jade' with large white flowers and yellow fruit.

Plate 185. *Malus 'Lavrick*', graceful, refined weeper with excellent form, in bloom.

Plate 186. *Malus 'Medonna*', a double-flowering white crab-apple with an upright form, is excellent for narrow places in the landscape.

Plate 187. *Malus 'Makamak*', one of the few Rosyblooms that can be recommended, makes an excellent bloomer but lacks any good fall display of fruit.

Plate 188. *Malus 'Marta'* blossoms.

Plate 189. *Malus 'Mathews'* blossoms.
Plate 190. Malus 'Maywong', a very upright, narrow tree, is excellent for tight places. Its large, white, cupped blossoms are very showy.

Plate 191. Malus 'Michael', an extremely showy mini-fruited clone, has brilliant orange-red fruit that colors early September and persists to December.

Plate 192. Malus 'Melton Lava' is one of the showiest weepers on the market today and among the best in heavy fruiting.

Plate 193. Malus 'Morning Sun', magnificent springtime bloom.

Plate 194. Malus 'Morning Sun', colorful autumn fruit.

Plate 195. Malus 'Naragansett' in spring, an excellent white-flowering tree for the smaller landscape.

Plate 196. Malus 'Naragansett' in autumn.

Plate 197. Malus 'Naragansett' produces exceptionally fine, brilliant red small fruit.

Plate 198. Malus 'Oedermannii Echtermeyer', a cross of M. 'Excellenz Thie' x M. prunifolia 'Niedzwiedzynska'.
Plate 191. *Malus 'Orange Crush'*, an exceptional red-flowering crabapple with attractive fruit.


Plate 193. *Malus 'Purple Prince'* tree in bloom.

Plate 194. *Malus 'Purple Prince'* fruit is blush-purple with a fine blue bloom.

Plate 195. *Malus 'Pygmy'* tree, a genetic dwarf, is almost a perfectly rounded tree.

Plate 196. *Malus 'Radiant'*

Plate 197. *Malus 'Redbird'* fruit is bluish-red. It is an annual bloomer whose primary ornamental value lies in its brilliant crimson-red fruit. However, the combination of white flowers with unopened bright red buds in spring is also very ornamental.
Plate 208. Malus ‘Red Jade’ an excellent weeping crabapple, is a large tree that needs room to develop to perfection. The bright red fruit persists into winter.


Plate 210. Malus ‘Red Peacock’, a choice crabapple where there is space to appreciate its spreading form, is very effective in heavy fruit on cascading branches, similar to a peacock’s tail.

Plate 211. Malus ‘Red Swan’, a medium-size, exotic fountain-like weeper, which with M. ‘White Cascade’ is one of the finest weeping crabapples (and the author’s favorite). Pictured is the original M. ‘Red Swan’ at Pelargonium Gardens, Medina, OH. The 30-year-old tree has not been pruned.

Plate 212. Malus ‘Red Swan’ puts on a long fall show of brilliant red fruit against the golden background of the autumn leaves.

Plate 213. Malus ‘Red Swan’ has unique abundant blossoms that follow rose buds.

Plate 214. Malus ‘Red Swan’ fruit is small, oblong in flowing racemes, and bright orange-red.
Plate 215. *Malus* 'Ross's Double Red' is a magnificent spreading tree with outstanding double rose-pink flowers.

Plate 216. *Malus* 'Royal Sceptre', one of the Round Table Series of dwarf crabapples developed by James Zampini, has double rose-pink and white blossoms.

Plate 217. *Malus* 'Royal Scepter' fruit is bright red, very abundant, and showy.

Plate 218. *Malus* 'Sarah', with its large, semi-double blossoms, puts on a very showy annual display of both blossoms and fruit.

Plate 219. *Malus* 'Satin Cloud', the first of a series of polyploids developed at Falconbridge Gardens, Medina, OH, has abundant, pure satin white blossoms with a unique Oriental fragrance that strongly resembles cinnamon and clove.

Plate 220. *Malus* 'Satin Cloud' is disease-free and has leathery, green leaves in the summer that turn to brilliant shades of orange-red and purple in the autumn.

Plate 221. *Malus* 'Satin Cloud' fruit is small, hard, and persistent, turning from greenish-yellow to amber-yellow.
Plate 222. *Malus 'Scorgog'* blossom, another of Isabella Preston's Lake Series.

Plate 223. *Malus 'Selkirk*', an excellent Rosybloom, has very showy purplish-pink blossoms.

Plate 224. *Malus 'Selkirk'* fruit is among the glossiest, brightest red fruit of any crabapple.

Plate 225. *Malus 'Serrinef'* is a narrow, upright tree that should be far better known and grown.

Plate 226. *Malus 'Serenade'* branches are very fine and arching.

Plate 227. Heavy annual fruitering makes *M. 'Serenade'* almost weeping with age.

Plate 228. *Malus 'Serenade'* blossoms.

Plate 229. *Malus 'Serenade'* fruit is exceptionally colorful: beginning a pale coral, it becomes a deep coral-orange with amber highlights, finally turning pale orange-gold to deep burnt orange with frosts.
Plate 230. Malus 'Silver Moon' is strongly oval to upright in shape. It blooms fully 10 days after most crabapples have faded, making it a most welcome late-blooming addition to the landscape.

Plate 231. Malus 'Silver Moon' has marvelous pure white blossoms.

Plate 233. Malus 'Sinal Fire', a weeper with somewhat unique, downward branching and bright orange-red fruit.

Plate 234. Malus 'Sir Caladrii', one of the Round Table Series of dwarf crabapples developed by James Zampini.

Plate 232. Malus 'Silver Moon' fruit is bright red fruit.

Plate 235. Malus 'Snow Ballerina', an excellent small, fountain-like weeper, has deep rose-pink buds that open to large, single, white blossoms in great profusion. This annual bloomer is very showy in white cascades of bloom.

Plate 236. Malus 'Snowdrift', a chance seedling of unknown parentage, is outstanding in bloom.
Plate 237. Malus 'Spring Song' is a small, gold-fruited multiflora of exceptional merit in showy, large, pink blossoms.

Plate 238. Malus 'Starlight' is a heavy bloomer whose starlike blossoms have prominent yellow anther centers.

Plate 239. The fragrant white blossoms of M. 'Sugar Tyme' are showy in spring as are the small, red fruit in fall.

Plate 240. Malus 'Timiskaming' blossom, one of Isabella Preston's Lake Series.

Plate 241. Malus 'White Cascade', one of the finest of the new fountain-like weeping crabapples, in white bloom.

Plate 242. Malus 'White Cascade' is truly magnificent in pink buds.

Plate 243. Malus 'White Cascade' fruit.
CHAPTER 11

Botanical List of Crabapple Species

The following list of crabapples presents the accepted botanical species with their related varieties, hybrids, and named clones. Each of the crabapples described in this chapter is of documented authentic origin; that is, the original type plant or the parent plants are known. Named clones of documented authentic origin are listed in this chapter with the appropriate parent species and some of the more important clones are described in this chapter. Most named clones, however, are described in Chapter 12, which lists all the named clones, whether their origin is known or not, in alphabetical order.

Names and Descriptions. Over the years much consideration has been given to naming new species and to reclassifying older names and variants. Today, most members of the scientific community accept the classification of the genus Malus presented by Alfred Rehder, with some differences as to groups and individual species. It is my opinion, together with several taxonomists and botanists, that Rehder may have been too ready to name every variation, giving many of them species or subspecies rank. Thus, the list of accepted species presented in this chapter differs from Rehder in the number and classification of valid species and subspecies, particularly in the North American species, relegating some of Rehder's taxa to varietal or clonal rank.

The reader will quickly note that some of the species and clones described in this chapter have conflicting descriptions. Unless, as Donald Wyman and Roland Jefferson pointed out, a plant is propagated by sexual means, seedlings can vary considerably from desirable horticultural plants to discards, yet all of them bear the same name. Because crabapples so readily hybridize by wind-borne and insect-borne pollen, it is often impossible even for experts to determine the exact classification of a plant, not to mention its exact parentage.

Great abuse has arisen by nurseries planting random, open-pollinated seed of a given species, then treating all seedlings as equal. In fact, it is still common practice in some nurseries to plant open-pollinated species seed. One then sees why a given species grown from seed is outstanding in one location while at another, a mile away, it may be quite inferior and even different. Professor Lester Nichols once told me that in his study of crabapple dis-
es he found at least five different clones bearing the name *Maloa Winter Gold*, all asexually propagated. He never determined which was the real clone! Professor Nichols added that he had come across this same situation many times with other named clones as well as with seed-sown species and subspecies.

Much of taxonomy is dependent on the examination and careful description of herbarium specimens. But what plant of a species did the first collector gather? Was it a typical specimen generally representative of the whole species, or was it a particular variant that struck the plant explorer’s eye? Was it truly typical—a valid sample—or was it merely one of several possible variations within the species?

Some years ago I made a study of self-sown species seeds. To ascertain how much variation exists in a species, I planted three separate seedling beds, each one containing approximately 1,000 seedlings of *Maloa sieboldii*. Much more variation existed than what I expected. At least 112 of the 3,000 seedlings were notable variations from the taxonomic description of the species, and another 25 seedlings were mutations. These same variants exist in nature. Since the taxonomic description of a species often rests on the first specimen prepared by a collector, one must realize that a number of variants exist for that species, all of which still fit the general species description. Only in the asexually propagated, named clones is there real stability.

There exists today a new field of plant selection in which self-sown species seed is planted on a large scale, then the best horticultural plants are selected, not necessarily representative of the species type. These specially selected plants with outstanding characteristics should be given a clonal name; they should not be offered as the typical specimen.

Those who hybridize for any length of time (over 50 years in my case) come to evaluate the particular clone used in hybridizing rather than the description for the species. Minor variations, such as individual disease resistance, become very important in gene transmission for better or poorer plant progeny. In-depth study of a species points to a common geographical center for that species from which radiates, in widening circles, the number of variations, especially those produced by geographic and climatic influences. Often a chromosome count of the variation shows a difference of one or more chromosomes, or their parts, that account for the deviation from the species. In *Paeonia brownii*, for example, the chromosome number increases as one sees the species in its native California slightly spread northward, but are these variants therefore a different species?

Today the chromosome count of individuals and plants is a species factor. It should be included in the taxonomic description of every species and its variants. At present, only a general counting of the chromosomes of the flowering crabapples in the genus *Maloa* has been made. Yet, comparing the North American species with close, supposedly related species or their subspecies shows an interesting relationship between some of them (see reclassification of *M. coronaria* in Chapter 10). These variations attest to the adaptability of the species and may be given subspecies rank, but they fall short of being separate, independent species.

In the North American crabapple species, and in some Asiatic species as well, too much importance has sometimes been given to minor botanical variants. Many of these variants have been grace with unnecessary botanical names when they should have received varietal or cultivar status. Realizing the difference of opinions among taxonomists, botanists, and vegetatists, the present volume gives both classifications—Rehder’s standard classification of the genus *Maloa* and a new reclassification by the author. The reclassification does not intend to settle any taxonomic arguments but rather to present an accepted, although not unanimously, presentation of flowering crabapples that is practical, scientific, and understandable. Some of the academic classifications do not have verifiable, living counterparts, but exist only as herbarium specimens or, at times, only as written descriptions of long-lost herbarium specimens. The following list simply presents all the names, accepted and rejected, with as much pertinent information as was available at the time of writing.

After more scientific research and thoughtful study, hopefully taxonomists, together with botanists and plant geneticists, will agree on a final order or proper species, subspecies, varieties, and clonal names for the genus *Maloa*. Then may all the true crabapples live happily ever after! Until then, the following botanical list is given with all its inherent flaws but counting all the botanical members as present, at least as many as could be ascertained as being legitimate.

The description accompanying a botanical name is the one accepted by the person who first described the plant correctly according to the rule of international nomenclature. I have not listed all the variant names by succeeding taxonomists or botanists, interesting though they may be. Since only the first adequately described name is the valid name, I have felt it an encumbrance to list all the scientific names subsequently added to that species. For such historical nomenclature the reader is referred to the works of Alfred Rehder, L. H. Bailey, and others. What the species was once called matters very little, except to taxonomists; what it is called today is of importance.

**Evaluations and Recommendations.** Some crabapples, especially those that no longer exist or those that are grown only as a single plant in a given collection, are listed with no description or, at best, a minimal description. Others, the better-known crabapples, are described and evaluated for beauty of bloom and autumn fruit. When known, a rating for disease resistance is given. Faults, such as proneness to disease, overly large fruit size, and alternate blooming, are noted as are suggestions for landscape value and/or hybridization. The ratings are as follows:

<table>
<thead>
<tr>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>Superior in every way: flowering annually, good fruit color, disease resistant</td>
</tr>
<tr>
<td>Recommended</td>
<td>Superior for a special reason (e.g., double flowers, very rare, exceptional hybridizing value) or outstanding in bloom, fruiting, or autumn leaf color despite minor disease susceptibility</td>
</tr>
<tr>
<td>Good</td>
<td>Satisfactory in flowering and fruit color but slightly susceptible to apple disease</td>
</tr>
<tr>
<td>Not recommended</td>
<td>Having too many negative factors to be continued in commerce or for landscaping use</td>
</tr>
<tr>
<td>Name only</td>
<td>Known by name only; no, or very limited, information available</td>
</tr>
</tbody>
</table>

Throughout the descriptions, “excellent” crabapples are marked with an asterisk (*) and “recommended” crabapples are marked with a plus sign (+). At times a crabapple is designated “excellent” for a very special reason: it may be unusual in double flowers or very rare. It may have slightly larger fruit (making it excellent for highway planting since small fruit cannot be seen by fast-traveling vehicles), or it may be so outstanding in bloom, fruiting, or autumn leaf color that it merits recommendation despite minor disease susceptibility. Some crabapples are recommended solely because they have outstanding hybridizing value. A few are so unique that one could build a whole new race of flowering crabapples using them as foundation breeders. Other crabapples are
recommended because they are representative of advanced, induced polyploids that have only very recently been created and introduced.

A few crabbapples designated "good" will be acceptable because of outstanding annual bloom, although they may have poor or no fruit (e.g., some of the double-flowering crabapples) or be slightly susceptible to minor diseases (e.g., may have some leaf spot but are not injured or defoliated by it). Plants subject to considerable defoliation, fire blight, large fruit, early fruit rot, and alternate-year blooming are placed on the "not recommended" list.

In recommending or evaluating a species or a clone I have combined the recommendations of many experts from the past and the present, although they do not always agree in their opinions and evaluations. Included in this group are crabapple pioneers such as Arte den Boer, Roland Jefferson, Alfred Rehder, Charles Sargent, and Wheelock Wilson; crabapple authorities of today such as Robert Clark, John den Boer, Thomas Green, Ed Haselkorn, Robert Lyons, Henry Ross, and John Sabuco; and crabapple hybridizers such as Donald Eggel, Carl Hansen, Niels Hansen, Isabella Preston, and Robert Simpson. Naturally I also have included my own observations over the past 50 years.

**Disease Ratings.** Disease-resistance ratings are based on reports published by the late Professor Lester Nichols. Titled Dese Ristant Crabapples, this work is undoubtedly one of the monumental studies on the susceptibility to disease of various clones. Not only did Nichols' study examine a large number of crabapples in many different locations, but it covered several years. The disease-resistance ratings of newer clones not rated by Nichols are based on information supplied by the plant introducer and the nursery propagating the clone.

It is important to remember that not all crabapples do well in every location. A concern that Professor Nichols and I both discussed was the variability of many crabapples that are completely disease resistant in the drier midwestern and eastern United States but show some disease susceptibility when planted in areas of greater moisture or heavy rainfall. It would be wrong to list a crabapple as susceptible to some or all diseases simply because in one geographic area it does not perform well. To be fair to any given plant introduction, eventually crabapples will have to be rated by specific areas of the country. Until then, all ratings remain rather subjective and of limited use. They do, however, help weed out the many clones that do not perform well in any location. A crabapple that appears to be susceptible or to perform poorly in local arboretum collections, propagating nurseries, and large private plantings is the best indicator of disease susceptibility and general evaluation of that crabapple.

Where nursery ratings for disease are given, the question arises as to the validity of these ratings since spraying programs are a general rule because of the nursery's need to protect the plants for sale. The resistance or susceptibility to disease, under more or less sterile nursery conditions, cannot validly determine the real disease resistance of any crabapple for the home owner who never sprays ornamental landscaping. This was a continuing problem Professor Nichols faced in his ratings. A few nurseries maintain a special "no spray" testing plot to determine the susceptibility of their plants to disease, but most nurseries use extensive, routine spraying and are as disease sterile as a hospital ward because of fear of any contaminating diseases.

In addition to leaning very heavily on the studies of the late Professor Nichols, I also have relied on Charles Powell and on the judgment of crabapple growers and outstanding nursery professionals like Norbert Kinn, Roy and Sarah Klimb, Michael Scott, Keith Warn, Michael Yanni, and James Zampini. Their combined observations have been an education in evaluation, since they see flowering crabapples from so many different viewpoints.

**Locations.** Many descriptions include numbers corresponding to locations where specimens can be found. For a list of these numbers and the places they represent, see "Key to Crabapple Locations" (Appendix 5).

**M. xadstringens Zabel ex Rehder**

Parentage: M. baccata x M. pumila

Introduced in 1910 from China. Leaves pubescent; flowers mostly pink to pinkish, on short stalks, with villous calyx; fruit usually subglobose, to 2 in (5 cm) in diameter, red, yellow, or green, with rather short stalks. Particularly susceptible to most apple diseases. Has a number of clones in culture, including M. 'Hopa', M. 'Holyp', M. 'Martha', and M. 'Trancedent'.

Hybrids of M. baccata with M. pumila (such as M. xadstringens) are large trees with considerable spread. Although their bloom time may be somewhat outstanding, the leaf blights, scab, rusts, and other diseases that mostly disfigure the leaves of these hybrids in summer and their large fruit prohibit recommending most of the hybrid progeny, either for ornamental use or for hybridization. The large, fallen, diseased fruit causes problems especially when trees are planted close to houses or along the street. The need for routine spraying to keep the trees from being defoliated in summer militates against recommendation of their continued propagation. Newer cultivars, highly resistant to diseases, have already supplanted these older hybrids for all landscaping uses.

**M. angustifolia**

See M. coronaria var. angustifolia.

**M. angustifolia 'Pendula'**

See M. coronaria var. angustifolia 'Pendula'.

**M. angustifolia 'Plena'**

See M. koronis 'Prince Georges'.

**M. apetela Schneider**

Parentage: A clone of M. pumila

A petalless apple of no value. A worthless clone that never should have been named. A biological deformation or a mutant.

**M. xanthodroma (Rehder) Sargent**

Plates 29, 30, 31

Synonym: M. floribunda var. xanthodroma

Rehder

Trade name: Arnold crabapple

Parentage: M. baccata x M. floribunda

Originated as a chance seedling at the Arnold Arboretum circa 1883. Introduced by the arboretum as No. 139-1. Originally named M. floribunda var. alnodioides by Alfred Rehder in 1909; renamed M. xanthodroma by Charles Sargent in 1920.

A large, upright, spreading tree to 25 ft (8 m) high and 25 ft (7.5 m) wide, with long, pendulous branches; leaf edges have a very slight wave; buds dark red, on long stems, opening to large, abundant flowers 2 in (5 cm) across, pink fading to white-pink, single; fruit oval, yellow with a faint pink or red blush, 0.4-0.6 in (1-1.5 cm) wide and 0.5-0.6 in (1.2-1.5 cm) long, with a flattened calyx end.

Because this is an alternate bloomer and subject to disease, Lester Nichols believed it should be phased out, but I would find this difficult to do for it is very floriferous. If I had a large estate or arboretum, I would find a corner to keep this venerable matriarch that has been used extensively in hybridization. Many of its progeny are outstanding (see list below), but when one carefully examines these cultivars, their good points are attributable to the other crabapple involved in the cross and not to M. xanthodroma. Although at one time this hybrid was a popular clone, it is no longer recommended for continued propagation because it is too large, an alternate bearer, and subject to disease. As a historic crabapple it might be carried by the larger arboreta, but it is not for the smaller garden or for any landscape design today. Loc. 4, 8, 10, 12, 13, 14, 18, 24, 26, 31, 32, 33, 34, 35, 61, 64, 69, 73, 74, 76, 78, 81, 84, 85. Progeny of M. xanthodroma include the following:

- M. 'Barbara Ann' Wyman
- M. 'Cardinal' Wellington
- M. 'Dorothy' Wyman
- M. 'Ferris Scott' Sax
- M. 'Henderson' Sax
- M. 'Helen Rapport' Sax
- M. 'India' den Boer
- M. 'Van Etten' New York Experiment Station—Geneva

**M. asiatica**

See M. prunifolia var. niki.

**M. xaroxacum Dumort de Courset**

Synonym: M. 'Astrocahan'

Parentage: M. pumila x M. prunifolia

Known in Europe. Leaves sharper and more serrate than those of M.
Botanical List

*M. batocata* (Linnaeus) Borkhausen Plate 36

Trade name: Siberian crabapple


One of the first crabapples to come into springtime bloom. Bears some of the smallest fruit. A rounded, upright tree with spreading branches and slender branchlets, up to 40 ft (12 m) tall, with narrow, weak root system; leaves good; buds creamy pink to pinkish, opening in a great profusion of single, pure white, delightfully fragrant flowers on abundant fruiting spurs, 1.2-1.8 in (3-4 cm) across; fruit red (turns to the Arnold Arboretum from Russia in 1889), synonym *M. batocata* (Linnaeus) Borkhausen. Introduced into the United States by the Arnold Arboretum in 1889.

A medium-sized, spreading tree 13-18 ft (4-5.5 m) high and 25 ft (8 m) wide, with very picturesque branching if allowed multiple trunks; leaves very dark green; buds deep crimson, rose to strawberry-pink to light-pink flowers; abundant, 1 in (0.5 cm) across; fruit small, red-yellow (or green-yellow, according to another source), not particularly showy. Although the fruit of this hybrid is insignificant by modern standards, the crabapple buds are an effective contrast to the pink flowers, and the springtime show of magnificent blossoms makes this tree a standard specimen crabapple. In the past, it was used as a landscape annual bloomer and resistant to most diseases, except moderate scab. This fine ornamental should be used for springtime ground cover. It is not suitable for the small garden. It makes an excellent multi-trunked specimen in the winter landscape and produces effective springtime color. It is well adapted to hybridizing programs.

2. **M. batocata**

See M. punicea "Aurea" in Chapter 12.

*M. batocata* (Linnaeus) Borkhausen Plate 36

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M. baccata 'Kittelfoile' Matsumura
M. baccata 'Kittestyle' Borkhausen
M. baccata 'Listo' McPherson
M. baccata microcarpa Borkhausen
M. baccata microcarnea Borkhausen
M. baccata ecobonica Regel
M. baccata 'Hochri' Borkhausen
M. baccata praecox Borkhausen
M. baccata 'Praunfrisia' Borkhausen
M. baccata 'Sanguinea' Borkhausen
M. baccata 'Siberica' Borkhausen
M. baccata 'Striata' Borkhausen

M. baccata var. himalayica (Maximowicz) Schneid.

Synonyms: M. himalayica, M. 'Himalayica'.

Trade name: Himalayan crabapple.


A pyramidal tree when young, becoming rounded with age. "showy white blossoms; attractive berrylike red or yellow fruit" (Alfred Rehder). One of the best forms of M. baccata for disease resistance. Loc. 31, 35, 37, 47, 54, 69, 79.

*M. baccata var. mandshurica (Maximowicz) Schneid.

Trade name: Manchurian crabapple

Synonym: M. mandshurica

A showy tree, perhaps the earliest to bloom. Introduced from China to England in 1824 and to the Arnold Arboretum in 1917. Native of the United States in 1910. Flowers white, to 0.5 (1.2 cm) across, fragrant; fruit very small, to 0.5 (1.2 cm) in diameter. This variety is used in the southernmost region of China where M. baccata had known to be native-the Shennongja Valley District specifically, south of the Luyang River near Linquen, 4265 ft (1300 m), 110°30' E, SABE No. 1298, 14 September 1980. This seed could belong to a different species because of its most of southern origin, but it appears to belong to M. baccata. Similar seedlings at the Arnold Arboretum also have superior clones from the same seedling group (as yet unnamed).

A small, upright, slightly to rounded tree to 12 ft (3.5 m) in height, leaves green, yellow, green, yellow, red, white; buds white, opening to yellow, yellow, red, yellow; flowers white, abundant; annual bloom; fruit medium-sized, red, persistent. Good disease resistance; subject to mild scab and mild fire blight. A very showy form of M. baccata. Loc. 12, 35, 37, 54, 61.

M. baccata 'Fructa Flava', M. baccata 'Flavescent'.

A yellow-fruited clone. Disease resistant (Nichols). Loc. 16, 31, 32.

M. baccata 'Flexiflora' Synonym: M. baccata 'Graebli' but larger. A tree to 25 ft (8 m) high, flowers white, abundant; annual bloom; fruit medium-sized, red, persistent. Good disease resistance; subject to mild scab and mild fire blight. A very showy form of M. baccata. Loc. 26, 32, 54, 61.

M. baccata 'Graebli' Synonym: M. baccata 'Graebli' but larger. A tree to 25 ft (8 m) high, flowers white, abundant; annual bloom; fruit medium-sized, red, persistent. Good disease resistance; subject to mild scab and mild fire blight. A very showy form of M. baccata. Loc. 26, 32, 54, 61.

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M. baccata 'Graebli' Synonym: M. baccata 'Graebli' but larger. A tree to 25 ft (8 m) high, flowers white, abundant; annual bloom; fruit medium-sized, red, persistent. Good disease resistance; subject to mild scab and mild fire blight. A very showy form of M. baccata. Loc. 26, 32, 54, 61.
ten Arborium, Lisle, Ill." With pink blossoms, it probably is an open-pollinated seedling of M. baccata. 

An upright, rounded tree to 20 ft (6 m) high and as wide; buds rose-red, opening to pale pink flowers somewhat larger, relatively less branched plant or shrub of lower and denser habit than M. floribunda; leaves smaller, more closely serrate, with shorter, more slender teeth; flowers single, nearly white on glabrous pedicels, about 0.4 in (1 cm) long, petals oval; fruit subglobose, 0.4 in (1 cm) in diameter, slightly ribbed, bright red, not pulpy at maturity, on stiff, upright stalks (based on Alfred Rehder's description). According to Arne den Boer, this crabapple forms "a stiffer branched compact bush or a very small tree." Should be phased out because of its disease and small, rather dull red fruit. Loc. 16, 24, 32, 79, 87.

M. cerasifera

See M. sibirica.

M. coronaria (Linnaeus) Miller Plate 44

Synonym: Pyrus coronaria Linnæus

Trade name: American crabapple, Wild sweet crab

Widely distributed across the eastern half of the United States, from New York to Alabama and west to southern Indiana. Has a number of subspecies or varieties. Often becomes a very large, widely branched tree, mostly found in small clearings or fields. Altogether it may grow to 30 ft (9 m) high or more and equally as broad. It is somewhat difficult to transplant as it gets older and, like all crabapples, is best grown on its own roots or medium-growing rootstock. It is the author's opinion that M. pumila should never be used as a rootstock because of the many diseases it transmits.)

BRACTS: obovate at base, leaves ovate to lanceolate, usually rounded at the base, 5–10 cm long, irregularly serrate and usually slightly lobed. FLORUS: deciduous-tomentose when young, finally glabrous, green beneath. (Alfred Rehder). Buds deep pink, opening to single flowers that are light pink to pink-white or even salmon-pink, delightfully fragrant, one of the strongest fragrances of all crabapples. Fruit is depressed-globose, about 3 cm across, ribbed at apex, greenish (Rehder). Highly sus-

M. impressa Rehder

Trade name: Nippom crabapple

A species or, most likely a hybrid of unknown origin, closely related to or a variety of M. floribunda. Introduced into cultivation in 1850 in Pennsylvania. A slow-growing tree or shrub of lower density than M. floribunda; leaves smaller, more closely serrate, with sharper, more slender teeth; flowers single, nearly white on glabrous pedicels, about 0.4 in (1 cm) long, petals oval; fruit subglobose, 0.4 in (1 cm) in diameter, slightly ribbed, bright red, not pulpy at maturity, on stiff, upright stalks (based on Alfred Rehder's description). According to Arne den Boer, this crabapple forms "a stiffer branched compact bush or a very small tree." Should be phased out because of its disease and small, rather dull red fruit. Loc. 16, 24, 32, 79, 87.

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A southern form of *M. coronaria* with 68 chromosomes and extremely fragrant flowers. Native of southeastern United States, from Virginia to Florida and westward into Mississippi. It was classified by Nathaniel Britton as *M. coronaria*.

André Michaux described it thus: A tree rarely 30 feet high with a short trunk 8" to 10" in diameter, rigid, spread- ing, rarely slender and pendulous. Flowers about 1" in diameter, very fragrant on slender glabrous or rarely puberulous pedicels, ¾ to 1" long, in mostly 3-5 flowered clusters; petals oblong-ovate, gradually narrowed below into a long claw, rose colored about ¼" wide; stamens shorter than petals; styles 5 united at base, villous below the middle, fruit depressed-globose, pale yellow-green, ¾ to 1" in diameter.

Alfred Redhead described it thus: Shrub to tree 10 m. with slender branches; lvs. ovate-oblong, oblong or lance-oblong, obtuse or subacute, usually broad-cuneate, 3-7 cm. long, coarsely crenate-serrate or sometimes nearly entire, rarely more sharply serrate, glabrous and light green beneath, usually turning brown in drying... under favorable conditions (around grove?) flowers 2.5 cm. across. (single pink); fruit subglobose or sometimes higher than broad, 1.5-2.5 cm.

Should be phase out—susceptible to both scab and fire blight (Nichols). Loc. 35, 68.

*M. coronaria* var. angustifolia 'Pendula' Redhead

**Synonym:** *M. angustifolia* 'Pendula'

'With slender, pendulous branches.' This pendulous form is very difficult to find in cultivation and is probably only a lost clone.

*M. coronaria* var. angustifolia 'Plena'

See *M. ioensis* 'Prince George'.

*M. coronaria* var. angustifolia 'Prince George'

See *M. ioensis* 'Prince George'.

*M. coronaria* var. bracteata Fiata Plates 45, 46

**Synonym:** *M. bracteata*, *M. Buncombe*

A natural tetraploid with 68 chromosomes. Very similar to *M. coronaria*. Most probably *M. bracteata* is not a true species but a varietal form of *M. coronaria*. The great similarities to and wide distribution of *M. coronaria* argue well for one or two native species with regional climatic and natural hybrid variations. Alfred Redhead (quoted in Sargent 1926) described the tree's history.

Syr. *Pyrus bracteata* (Rehd.) Bailey, a native American crabapple found wild from Missouri south to Georgia, also called 'Buncombe' crabapple, was sent to Redhead in 1912 to the Arnold Arboretum by B. F. Bush and C. F. Sargent from Campbell, MO.

A medium-sized tree, widely branched; buds flesh pink, opening to pale pink flowers about 1.2-1.6 in 0.4 cm across, single, fragrant. Redhead further described the variety thus: Leaves less lobed (than *M. coronaria*), though of flowering branches elliptic-ovate to oblong, abruptly acute or obtuse, sparingly serrate or sometimes entire, those of shoots slightly lobed, pubescent when young, soon glabrous, green or pale beneath.

Because this late-blooming crabapple is susceptible to rust disease, moderate scab, and fire blight, it is not recommended for smalls (i.e., home) gardens. Loc. 14, 31, 32, 54.

*M. coronaria* var. dasyphylla (Rehd.) Fernald

**Plate 47**

**Synonym:** *M. dasyphylla*

Found from southern Ohio to Ohio and Indiana. Introduced into cultivation about 1920. Leaves paler beneath, those of shoots sometimes pubescent on the vein; calyx villous; flowers rose-pink, single, 1.4 in (3.5 cm) across, very fragrant, but otherwise much like the species. No horticultural value; too much disease. Loc. 31, 34.

*M. coronaria* var. dasyphylla 'Charlotte' (Rehd.) Fiata

**Plate 48**

An excellent form of *M. coronaria* var. dasyphylla with large, semidouble flowers. Similar to the species. Discovered by E. de Wolt as a natural seedling near Waukeg, IL, in 1902, and named to honor his wife.

A tree becoming broad-branched with age; buds buff-apricot, opening to dark pink flowers 2 in (5 cm) in diameter, semidouble to double, with 12-20 petals (half as many as M. 'Bechtel'); fruit green to green-yellow, with a slight blush bloom, 0.25-1.25 in (0.6-3.4 cm) in diameter. Subject to rusts and fire blight taxa are all the clones of *M. coronaria* and most of its varieties. Should be phased out—too much disease (Nichols). Although beautiful, fragrant, and late blooming, *M. coronaria* var. dasyphylla 'Charlotte' remains a one-season tree with unattractive autumn fruit. For this reason, and because of its susceptibility to diseases, this crabapple is only questionably recommended for home landscaping. In a large arboretum collection or a large estate planting it certainly has a place, if only for its fragrance and late flowering. Cen- tury hybridizers should seek to improve it.

Some botanists would place *M. Charlottea* as a clone of *M. coronaria*; others like Alfred Redhead feel it is more rightly a clone of variety dasyphylla or even a hybrid of a form of *M. coronaria* var. ioensis. It has some similarities with double forms of *M. ioensis*, yet it most resembles variety dasyphylla. Someone pointed out that it is an intermediate form be- tween *M. coronaria* and *M. ioensis*, and its location is closer to *M. ioensis* and *M. dasyphylla*. Loc. 30, 10, 14, 24, 25, 31, 35, 54, 68, 79, 81.

*M. coronaria* var. glabrata (Rehd.) Fiata

**Plate 49**

**Synonym:** *M. glabrata*

Trade name: Biltmore crabapple

Native from North Carolina to Alabama, this variety differs only slightly from *M. coronaria* var. glaucous, and is probably a poorer form of it with single, pink flowers. Grown from seed collected in the wild by Charles S. Sargent. Introduced in 1912 by the Arnold Arboretum; first recorded as Sargent's Malus Seedling No. 7. A medium-sized tree with 68 chromosomes. Because it is not particularly ornamental, it should not be used in landscaping, but hybridiza- tors and other enthusiasts might enjoy crabapples farther south may find some value. Subject to mild scab and moderate fire-scarpe beetle (Nicorh). Loc. 14, 31, 54, 61, 81.

*M. coronaria* var. glaucous (Rehd.) Fiata

**Plate 50**

A shrub or small, round-headed tree with spiny branches; leaves quite glaucous at maturity, dark green above, glaucous beneath, turning yellow in winter; fruit dark purple in autumn; buds pink, opening to single, pink flowers 1.4 in (3.5 cm) across, fragrant; fruit depressed-globose, yellow-green turning brown-yellow and waxy, fragrant, 1.4 in (3.5 cm) in diameter. Subject to cedar-apple rust. This is of no particular horticultural value; however, in the hands of hybridizers it could be used to extend new hybrid ranges of saudtward, as it has a wide southern range of adaptability, fragrant blossoms, good fruit, and a desirable autumn leaf color. It should be crossed with the newer, disease-resistant, lower-growing, autumn-colored, small-fruited Asiatic hybrids.

*M. coronaria* var. glaucous 'Dunbar' B. Slavin

**Synonym:** *M. coronaria* var. glaucous

**Trade name:** Dunbar crabapple

A selected open-pollinated growing known by Bernard Slavin, Monroe County Parks, Rochester, NY. Named to honor John Dunbar, Monroe County Parks Department, Rochester, NY. Only slightly different from *M. coronaria* var. glaucous. Subject to severe cedar-apple rust and mild scab (Nichols). Loc. 12, 15, 24, 31, 66, 81, 89.

*M. coronaria* var. lancifolia (Rehd.) Fiata

**Synonym:** *M. lancifolia*

Trade name: Allegheny crabapple

Native from Pennsylvania and Virginia to Alabama. A natural tetraploid with 68 chromosomes, although one count, which may be an error, indicates a diploid with 34 chromosomes. A tree to about 24 ft (7.5 m) high, with spreading, often spiny branches; leaves ovate-lanceolate to oblong-obovate, acute or acuminate, rounded or broad-cuneate, 1.6-3.1 in (4-8 cm) long, coarsely serrate, those of shoots ob- long-ovate, usually with 68 chromosomes. Because it is not particularly ornamental, it should not be used in landscaping, but hybridiza- tors and other enthusiasts might enjoy crabapples farther south may find some value. Subject to mild scab and moderate fire-scarpe beetle (Nichols). Loc. 14, 31, 54, 61, 81.

*M. coronaria* var. lancifolia (Rehd.) Fiata

**Plate 51**

A shrub or small, round-headed tree with spiny branches; leaves quite glaucous at maturity, dark green above, glaucous beneath, turning yellow in winter; fruit dark purple in autumn; buds pink, opening to single, pink flowers 1.4 in (3.5 cm) across, fragrant; fruit depressed-globose, yellow-green turning brown-yellow and waxy, fragrant, 1.4 in (3.5 cm) in diameter. Subject to cedar-apple rust. This is of no particular horticultural value; however, in the hands of hybridizers it could be used to extend new hybrid ranges of saudtward, as it has a wide southern range of adaptability, fragrant blossoms, good fruit, and a desirable autumn leaf color. It should be crossed with the newer, disease-resistant, lower-growing, autumn-colored, small-fruited Asiatic hybrids.
well be a southern form of *M. coronaria*, perhaps a cross of *M. coronaria var. lancefolia* × *M. pumila var. M. pumila var. angustata* × *M. pumila*. Arië den Boer pointed out the following:

A considerable number of hybrids between *lancefolia* and an orchard apple, found in a grove of *lancefolia* trees, all show the characteristic lance shape of the species in the leaves of the spur. In the case of the Georgia crab (spilometra) the spur leaves point to *M. arboreum* (var. lancefolia) as one parent.

A medium-sized tree to 19.6 ft (6 m) high, with rather spreading, thornless branches; leaves ovate to elliptic, rounded at base and at apex, but with short acute point, sharply and usually doubly serrate, larger than the species; pink buds followed by white flowers 1.2–1.6 in (3–4 cm) across, single; fruit depressed-globose, deeply impressed at ends, about 2 in (5 cm) in diameter, yellow-green. Subject to moderate scab and severe cedar-apple rust; thus, could be prized in Nicholls.

This crabapple never gained much popularity as an ornamental, although it is sometimes used for that purpose. It is often used in the South for preserves. Found only in the largest collections and hence not readily available to crabapple fanciers, this crabapple should be made available if it could be used to extend the hybrid range southward. Loc. 10, 14, 31, 55, 73.

Seedling trees of *M. platycarpa* vary considerably in type, leaf variations, and vigor; only the best (e.g., *M. platycarpa* 'Hoopesii') should be passed on, the rest can be discarded. Just because natural seedlings have been named and described, even mistakenly given specific names, does not mean they should be perpetuated. So many new, disease-resistant and beautiful hybrids are available that we must learn to discard many of the older crabapples, especially those of unknown parentage with no horticultural or genetic value. We must not clutter our gardens, parks, and arboreta with nondescripts.

*M. coronaria var. platycarpa 'Hoopesii'*

Plate 51

Synonym: *M. platycarpa var. hoopesii* Rehder Trade name: Hoopes crabapple

Known as a cultivated plant since 1876. Not different from the variety. Definitely a clone and not a subspecies. Leaves slightly or not lobed; calyx and pedicels pulsatent pink; young buds pink, opening to single, white flowers 1.6 (4 cm) across; fruit green, 2 in (5 cm) in diameter, sometimes used for jelly; an annual bearer. Subject to moderate scab and severe cedar-apple rust (Nichols). Loc. 4, 13, 16, 31, 32, 54, 89.

*M. coronaria* Arnold Arboretum No. 33340

See *M. coronaria* 'Pink Pearl'.

*M. coronaria* 'Aucubaefolia' (Rehder) Fiala

Same as the species but with variegated leaves. This form is very difficult to find, and perhaps is now lost to cultivation

"M. coronaria* 'Coralglow' Fiala 1987 (Plate 52)

A hybrid of *M. coronaria* 'Pink Pearl' (Arnold Arboretum No. 33340) that retains the same unique bud and blossom color (in a somewhat lighter shade) but is resistant to leaf diseases and has much smaller red-green fruit. This unique tree has deep coral, single, very late flowers that are fragrant. It was planted for its late flowers and has much smaller red-green fruit. It is in cultivation annually.

A tree to 12 ft (3.5 m) high by 14 ft (4.3 m) wide, with branches twisted and horizontal at odd angles, very picturesque, especially in winter landscape, similar in shape to the parent tree; leaves green, buds bright rose-coral, opening to single, pale coral flowers, fading to light coral-pink; fruit red with a bright green cheek, somewhat large to 0.75 in (1.9 cm) in diameter, persistent, showy. Disease resistant despite its parentage.

Despite its beauty, this clone is highly recommended for two reasons: there are no other crabapples in this color class, and very few crabapples are available to the trade. *M. platycarpa* has an excellent background tree, especially in massed plantings on large estates, in parks, and as a roadside tree. When it is used for its blossoming feature (after all the other crabapples have faded), it is not suitable for close-in landscaping, where the fruit might be a problem. Could be used to hybridize for the blossoming color and late bloom. Very superior to its parent M. coronaria 'Pink Pearl' in several ways: the leaves have far better disease resistance and never deflate the fruit is smaller and has better color (a red rather than rose green); and the tree is disease resistant and an annual bloomer. Loc. 47, 100.

*M. coronaria* 'Elk River' N. E. Hansen

Discovered by J. W. Keegan growing near Elk River, 40 mi (60 km) north of Minneapolis, MN, Introduced in 1930 by Niels E. Hansen, South Dakota Agriculture Experiment Station, Brookings.

A spreading tree to 18 ft (5.5 m) high. Roland

Jefferson (1970, p. 13) described the buds as pink to rose-red with carmine veines; the flowers as rose-pink with a rose-pink blush on the back of petals, 1.6 in (4 cm) across; and the fruit as dark green and 1.2 in (3 cm) in diameter. Subject to mild scab and cedar-apple rust (Nichols). Should be used more in landscaping large gardens, parks, and arboreta, as well as for hybridizing. Loc. 79, 91.

A large number of the progeny of *M. coronaria* 'Elk River' were introduced by Hansen. Many of them should be used far more in background landscaping, either in clumps or as single specimens. Today they are extremely difficult to find, except in one or two Western arboreta. They also should be used in advanced hybridization, especially with the newer Asian cultivars. The fine work of Hansen certainly deserves to be continued, not repeated, in advanced hybridizes that use some of his introductions as basic materials.

Progeny of *M. coronaria* 'Elk River' include the following:

- *M. Chinook* N. E. Hansen
- *M. Cranberry* Wodarz
- *M. Kolga* N. E. Hansen
- *M. Redfest* N. E. Hansen
- *M. Redfish Winter* N. E. Hansen
- *M. Tick* (open pollinated) N. E. Hansen
- *M. Shoker* N. E. Hansen
- *M. Tipi* N. E. Hansen
- *M. Wandness* N. E. Hansen

*M. coronaria* 'Elongata' (Rehder) Fiala Plate 53

Synonym: M. krummianum var. elongata, M. Rehder Sweet

A cultivar of no added value to the species. Native from New York to North Carolina and Alabama. Leaves narrowly triangular-ovate or oblong-obovate, more deeply lobed and incised, more or less serrate, sometimes cuneate. Loc. 10, 31, 35, 54.

*M. coronaria* 'Nieuwland' A. D. Slavin

Synonym: *M. Nieuwlandiana* Slavin Selected by Bernard Slavin, Parks System, Rockefeller from a group of seedlings of *M. coronaria*. Named in 1931 by Slavin's son, Arthur, to honor the Rev. J. A. Nieuwland, professor of botany at the University of Notre Dame.

Buds rose-red, opening to pink flowers 2 in (5.5 cm) across, fragrant, double; fruit yellow-green, about 1.6 in (4 cm) in diameter. A selection that should be grown more, especially in large parks. A fine clone for hybridizers seeking to incorporate the fragrance and double blossoms into new hybrids with Asiatic species and modern disease-resistant clones. Loc. 4, 14, 18, 24, 68.

*M. coronaria* 'Pink Pearl' Sax Plate 54

Synonym: Arnold Arboretum No. 33340

Once considered a seedling of *M. sargentii* × *M. xanthocarpa*, now considered an open-pollinated chance seedling of *M. coronaria*. One of the latest-blooming crabapples, it begins with a magnificent display of coral bloom unique in flowering crabapples and ends covered with large green apples.

A medium-sized tree with twisted branches growing horizontally in irregular form; leaves subject to every apple disease, defoliating by July; buds deep coral-pink, opening to single, fragrant, coral-pink flowers; fruit green, to 1.4 in (3.5 cm) in diameter. Should be planted out—highly susceptible to all diseases, especially extreme scab (Nichols).

This, with multiple branches suckers abundantly on the limbs of this tree, making pruning necessary. Because of its unusual form, this crabapple is suitable for a Japanese garden or as a focal tree, especially in a winter landscape where there is lots of snow. The tree is also attractive for the shrinking color of its annual blossoming. Loc. 18, 31, 47.

Attempts have been made at Falsonsekeke Gardens, Medford, OH, over the past 20 years to hybridize this clone to retain its unique blossom color and form but not its disease-resistant tree that does not lose its leaves. Good success has been achieved with five seedlings, which are more disease-resistant than the parent and better plants. One of these, M. coronaria 'Coralglow', which is entirely disease-resistant and has small dark green fruit, but still retains the late blooming and the unique coral blossom, should replace *M. coronaria* 'Pink Pearl' in future hybridizing programs.

*M. coronaria* 'Thoms' Thoms

Discovered as a spontaneous seedling by Louis Thoms on his farm near Franklin, OH, in 1920. Introduced by the Soberkuch Nursery in 1927. John Wister believed this clone was probably identical to *M. coronaria* and appeared spontaneously in Pennsylvania. A hybridizer's crabapple.

- Flowers single, pink, 1 in (4 cm) across (slightly larger than species); fruit yellow-green, about 1 in (2.5 cm) in diameter.

*M. dascylifera* See *M. coronaria* var. dascylifera...
C. lutea), its white flowers grow in bunches in the form of a corymb (flat-topped cluster). Similarly, the fruits, yellow, ripe, turning to a rich red, grow in clusters. Arie den Boer added, "It has a compact, upright or pyramidal form, but in a location to its liking, sometimes becomes a broad bush.

Alfred Rehder described the species as being difficult to grow in the North but might profit by hybridizing research in a more southerly location and perhaps be a new southern hybrid race in Maine. It is unavailable in nurseries and, to my knowledge, the Boerner Botanic Gardens near Milwaukee, WI, and the Morton Arboretum, Lisle, IL, may have the only living specimens in the United States. It would be interesting research in Maine. It has not yet been used in hybridizing. Loc. 10, 14, 26, 31, 81, 87.

"M. floribunda" Siebold Plates 55, 56, 57, 58. Trade name: Japanese flowering crabapple One of the most beautiful of the flowering crabapple species, one of the oldest in cultivation. Its origin—when, where, and how—remains unknown. Many taxonomists and botanists believe it originated in Japan and was introduced to Western horticulture about 1862. Because its seedlings show considerable variation, it has never been found in the wild. Some authorities question its species status, believing it to be a hybrid of unknown parentage. In its flowering crabapple is its annual flowering display, disease resistance, tree form, and fruit attractiveness. No other species has the finest flowering crabapple in its annual flowering display, disease resistance, tree form, and fruit attractiveness. No other species has this combination of traits. A small, spreading tree 12 ft (3.5 m) high and 18 ft (5.5 m) wide; buds deep pink to red, opening to simple white flowers; Moons white young; fruit yellow and red, 0.4 in (1 cm) in diameter. Resistant to foliar and fruit diseases, but slightly susceptible to powdery mildew and moderately susceptible to fire blight (Nichols).

Alfred Rehder described it thus: A shrub or tree to 10 m with wide-spreading branches; leaves elliptic-ovate or ovate to oblong-ovate, acuminate, usually 4-8 cm long, sharply serrate; finally nearly glabrous; flowers deep crimson in bud, changing to pale pink or nearly white, 2.5-3 cm across; pedicels pubescent, purple 2.5-3.5 cm long, blue-gray fruit globose, 6 mm across. Arie den Boer, describing the fruit, said, "The small, yellow, round fruit, which sometimes has a reddish blush, is eagerly eaten by new birds.

Document: "M. floribunda" var. annulata

See M. floribunda.

M. floribunda 'Ellwangeriana' Ellwanger and Barry Nursery Trade name: Ellwanger crabapple A spreading tree to 18 ft (5.5 m) high and 25 ft (8 m) wide; buds pink, opening to single, pink and white flowers; fruit green-yellow with red choke, not particularly showy, 0.6-1.5 cm in diameter; alternate bear. Subject to

Figure 11.2. M. floribunda (Italian crabapple) is a species native to the mountains of Italy that has been cultivated.
mild fire blight and slight mildew (Nichols). Possibly a hybrid. Listed by Gibbs as very ornamental. Loc. 12, 31, 35, 37, 54, 79, 81, 89.

*M. borbonia* 'Excellenz Thiel' Späth 1909

Parentage: M. prunifolia 'Pendula' × *M. borbonia*

Introduced to the United States by the Arnold Arboretum in 1912. One of the first weeping crabapples. A small, weeping tree with pendulous branches; buds rose-red, opening to white-pink flowers 1.8 in (4.5 cm) across; fruit orange-yellow with red cheek, slightly more than 0.5 in (1.2 cm) in diameter. Alternate bearer. Subject to very severe scab and mild fire blight.

A fairly good weeper that produced M. 'Red Jade' but cannot compare with newer, weeping clones, most of which trace back, some generations, to this clone. When crossed with M. *serrata 'Nightingale* this clone produced M. 'Oekonomounterschmeyer Späth', a rather poor, disease-ridden weeper that should be discarded. Loc. 9, 26, 31, 35, 37, 81.

Progeny of *M. borbonia* 'Excellenz Thiel', all weepers, the following include:

M. 'Oekonominterschmeyer Späth'
M. 'Pixie' A. den Boer
M. 'Red Jade' Reed
M. 'Seasam' A. den Boer

*M. borbonia* 'Hilker'. See M. 'Hilker' in Chapter 12.

*M. formosana* Kawakami

This species is extremely rare in the United States. The only known plants are at the Corin Plas Repositories in Corvallis, OR, and Geneva, NY, from seed obtained by Melvin Westbrook. Corvallis, OR, collected directly from trees that had matured in Taiwan. Arie den Boer, who in 1949 obtained seed from the Japanese government, then in Taiwan, recounted the following history:

Attempts to raise this plant in the U.S. have been unpropotional to the number of times. I tried it also. After several years of correspondence with various organizations in Japan, governmental and horticultural, I succeeded in obtaining about 15 grams of seed. I was informed by consular officials in Taiwan that it had been necessary to send an armed expedition into the mountains to collect that small amount of seed. After one month's maturing this was going to be an experiment worth watching. However, with the best of care, including shading and timely watering, the seeds did not germinate. It then occurred to me that in the virgin forests on the mountain slopes of Taiwan there would probably be a heavy layer of humus. At least I considered it possible, and I decided to imitate that condition covering the seed box with some partly decayed sphagnum moss. It is difficult to say that this was exactly what the seeds needed for germination, but germinate they did. Unfortunately the terrific drop in temperature on Nov. 11, 1940, killed all the seedlings.

*M. formosana* grows in the mountains of central Taiwan in a very limited area at the altitude of 7001-8000 ft (2100-2400 m), in the vicinity of Mt. Ali. It appears that the species exists from the southern mainland of China to Hainan. It has withstood temperatures as low as -70°F (-57°C) in Fort Irwin, CA, and -50°F (-46°C) in British Columbia. Although seldom used as an ornamental, *M. formosana* may have some limited potential for hybridization because of its hardiness and disease resistance.

Young shoots clothed with white-gray hairs that become glabrous, purple-brown the second season; leaves deciduous, ovate to obovate, lanceolate, acute or acuminate, usually round or cuneate at the base, sometimes oblously lobed above the middle, finely sharply serrate, 1.5-3.5 in (3.8-9 cm) long, 0.75-1.25 in (1.9-3 cm) wide, dark dull green, at first puberulent above, finally glabrous, paler pubescent below; flowers single or rarely in pairs or in small clusters; petals 5, orbicular with a short claw and a few jagged teeth near the base, 0.6 in (1.5 cm) long, creamy white; stamens 20-30; fruit ovaloid, attractive, medium-sized, about 0.6 in (1.5 cm) long, pendulous, glabrous, yellow tinged with pink or red on the sunny side and green in the shade, ripens in October, usually contains 3 pale brown seeds; calyx falls away leaving a small pit in the center. Highly resistant to scar and fire blight after 20 years of testing (Nichols).

There is considerable variation in this species. Of those in my collection, the majority are the leaves lobed, but in some trees, there is practically no lobing; some trees have elliptical fruit that is longer than wide, while others have round fruit. The skin of the fruit is not fragrant or waxy like the other North American species. One fruit of this species is that it is an alternate bloomer.

*M. formosana* is found in moist, deep, rich soil, often shrubby with numerous slender branches, at times forming large impenetrable thickets. The largest specimens grow to 40 ft (12 m) high with trunks 12-18 in (30-45 cm) in diameter in the valleys of western Washington and Oregon. The species is very hardy and disease resistant; it tolerates moist soils more so than the other species of *Malus*. It has withstood temperatures as low as -70°F (-57°C) in Fort Irwin, CA, and -50°F (-46°C) in British Columbia. Although seldom used as an ornamental, *M. formosana* may have some limited potential for hybridization because of its hardiness and disease resistance.

*M. fusca* var. *levipes*. Flowers single, pink-white, 1 in (2.5 cm) across; fruit 0.4 in (1 cm) in diameter, red or yellow-red. An alternate bearer.

*M. fusca* 'Wagener'. A selected clone. Very resistant to disease (Nichols). Should be used in hybridization because of excellent disease resistance. Loc. 10, 15.

*M. glabrata* Rehder

See *M. coronaria* var. glabrata.

*M. glaucescens* Rehder

See *M. coronaria* var. glaucescens.

*M. xgloriosa* Lemoine before 1931

Synonym: M. *Gloriosa* Parentage: M. *nudiflora* × M. *pumila* 'Nudzwetskyana'.

Named prior to 1931, but introduced to the United States by the Arnold Arboretum in 1936. A medium-sized, round to spreading tree; leaves red-purple; buds red-purple, opening to purple, single flowers 1.6 in (4 cm) across; fruit brown-red to red, 1.2 in (3 cm) in diameter. Subject to severe scab (Nichols). An alternate, light bloomer. Should be discarded. Loc. 9, 14, 15, 24, 26, 31, 54, 61, 79, 81, 87.
M. hattiana Kochne

A diploid with 34 chromosomes. A smaller-growing species. Cultivated in Japan and China. Introduced to the United States from Japan in 1863 by G. R. Hall, for whom the species was named. Alfred Rehder described the natural garden.

It is a small tree or shrub to 5 m with a rather loose open head; young trunks soon glabrous; first leaves ovate or elliptic to oblong-ovate, 3-5 cm long, acuminate, crenate serrate, quite glabrous, except the midrib above dark green and lustrous above and often purple-tinted; petioles 3-20 mm long; flowers 4-7, bright rose, 3.3-5 cm across; pedicles slender, nodding; styles 4-5; terminal flowers usually without petals; petals usually more than 5; fruit oblong, 6-8 mm across, purplish, ripening very late.

The fruit of M. hattiana is not ornamental. Variable forms much more important than the species. Fine disease resistance (Nicholas). Loc. 4, 16, 24, 26, 38, 47, 54.

Species crosses of M. hattiana include the following:

M. xsergozayan (M. hattiana × M. xiroga) M. xharutogi (M. hattiana × M. baccata) Plates 59, 60

Introduced into the United States by the Arnold Arboretum in 1919 from a plant collected by E. H. Wilson in the mountains of Kyushu Island, Japan. Alfred Rehder described it in 1901. Synonym: M. xparkmanii. Plates 26, 65, 64

Synonyms: M. 'Parkman', M. 'Parkmanii'.

Plants 65, 66

M. hattiana var. spectabilis (Makino) Kobusui

M. hattiana var. spectabilis (Makino) Kobusui Plates 59, 60

Introduced into the United States by the Arnold Arboretum in 1919 from a plant collected by E. H. Wilson in the mountains of Kyushu Island, Japan. Alfred Rehder described it in 1901. Synonym: M. xparkmanii. Plates 26, 65, 64

Synonyms: M. 'Parkman', M. 'Parkmanii'.

Plants 65, 66

M. xsergozayan (M. hattiana × M. xiroga) M. xharutogi (M. hattiana × M. baccata) Plates 59, 60

Introduced into the United States by the Arnold Arboretum in 1919 from a plant collected by E. H. Wilson in the mountains of Kyushu Island, Japan. Alfred Rehder described it in 1901. Synonym: M. xparkmanii. Plates 26, 65, 64

Synonyms: M. 'Parkman', M. 'Parkmanii'.

Plants 65, 66

Figure 11.3. Malus 'hupehensis' produces small, semi-double flowers in early spring. A high percentage of the blossoms are semidouble.
on larger estates, parks, and arboretum collections. It is a heavy but somewhat alternate bloomer.

Some of this species appears to be reasonably fertile and could be used by hybridizers, but because the species is apomictic, it has not been used much in hybridizing programs. Naturally fertilized, most of its seedlings are identical to the parent plant, although on occasion slight variations (e.g., in leaf texture, slight pink-white in blossoms, and sometimes redder fruit) are found. One form has white buds and smaller white flowers; another has pink buds and larger pink blossoms. All forms have the same leaf structure, tree form, and mostly green fruit blushed red. Loc. 4, 12, 14, 18, 24, 25, 31, 35, 37, 47, 55, 61, 66, 73, 79, 81, 85, 86, 89.

* _Magnolia 'Heptagon'Donald_ Palko 1950  
Plate 67, 68, 69  
A tetraploid clone that may be an induced octoploid with 136 chromosomes. A superior form of _M. heptagon_ developed at Falconskepe Gardens, Medina, OH, by using colchicine. Named to honor the introducer's nephew, Donald Kozak, a horticulturist. Leaves very heavy, glossy, dark green; flow- ers pink, fragrant, abundant; fruit red, red with red cheek. An excellent, annual bloomer. Excellent disease resistance (Nichols). Recommended as slightly better than the species in tree form, leaf characteristics, and redder fruit. Loc. 31, 47, 100.

*M. heptagon_ 'Rosea'  
Same as species but with pale pink flowers instead of white. This form has been described but appears to be lost as clones so named are not the true form. Loc. 12, 18.

* _Magnolia 'Wayne Douglas'_ Hill Plate 70  
A seedling selected by Tully Hill, Martha's Vineyard, MA. The true form, type of blossoms, leaves, and fruit indicate that this crabapple may be a unique hybrid of unknown parentage. A medium-sized, upright but somewhat spreading tree with a rounded form, not like the long-branched form of the species; buds pale pink, opening to white, single flowers; fruit purple, wife (purple); borne in small clusters; somewhat larger than the species, 0.5 in (1.2 cm) in diameter, not particularly showy. Appears to be disease-resistant. A worthy addition to the progeny of _M. heptagon_. Could be interesting for hybridizing.

*M. iosea_ (A. Wood) Britton Plate 71  
Trade names: Iowa crabapple, Prairie crabapple, Midwest crabapple.  
A natural diploid with 34 chromosomes. Some taxonomists consider it a diploid form of the tetraploid _M. coronaria_. One of the most beautiful North American crabapple species. Native to Iowa and the neighboring states of Minnesota, Wisconsin, Nebraska, and Kansas, extending to parts of upper Iowa and Louisiana. J. Martens said of it: Then came the settlers, and, with them, the European crabas favored for their larger fruits and customary taste. What with the clearing of the woodland and the introduction of competition, _M. iosea_ lost its area of monopoly and dominance as THE crabapple of the upper Mississippi Valley. Gradually it became a smaller arborium and nursery tree, rather than a wild one. Regarding its wild occurrence (30 years ago), "There are isolated trees and small groves near Chicago, and the plant has been found near Milwaukee, Wisconsin. A large native mass was found in northeastern Indiana." Now with extreme urbanization, the question arises, "Are any more specimens of _M. iosea_ existing in a truly wild state?" What a pity that state parks have not taken it upon themselves to isolate and preserve this fine native tree!  
Most of Alfred Rohrer's subspecies of _M. iosea_ have been classified as clones. As single plants they do not meet the requirements of a subspecies.  
Like _M. coronaria_ and its clones, _M. iosea_ and its forms are highly susceptible to scab and cedar-apple rust. Both species, and their clones would have to be phased out (Nichols). Although they are not recommended for home planting for this reason, they are a truly unique and beautiful group of crabapples, especially the double-flowering clones, which are among the most beautiful flowering and strongly fragrant of all crabapples. Late bloomers, they have a unique, strong fragrance not found in any other species. Thus, they are recommended for their late bloom, double flowers (in some clones), and especially for their fragrance. Larger arboretum collections should continue to carry _M. iosea_ and hybridize them. More native seed needs to be planted before all the stands of _M. iosea_ disappear to urbanization, and the best of these seedlings should be selected for hybridization. Loc. 89.

Species crosses of _M. iosea_ include the following:  
M. 'Evelyn' ( _M. iosea_ x _M. sargenti_ )  
M. 'Mollihena' ( _M. iosea_ x _M. pandurata_ )

*M. iosea_ var. _jazamia_ Rehder Synonym: _M. texana_  
Most probably a variant form of a southern _M. iosea_. No disease (Nichols). Loc. 35.

*M. iosea_ 'Amazing'_ N. E. Hansen 1932  
Synonym: _M. iosea_ 'Amazing'_  
The name "Amazing" represents the origins of the two parents: _Am_ from American crabapple (_M. iosea_), and _Stam_ from Siberian crabapple (_M. baccata_). The form of _M. iosea_ used in this cross was a wild, red-fruited selection. An upright tree; flowers pink; fruit green with dull red blush, about 1.4 in (3.5 cm) in diameter. No disease (Nichols). Loc. 35, 37.

*M. iosea_ 'Boone Park'  
Discovered by Arlie den Boer and Clyde Heard in Boone Park, Boone, IA, and introduced by them. Flowers single, light pink, 1.6 in (4 cm) across; fruit dull green to dull yellow, 1.2 in (3 cm) in diameter. Subject to moderate scab and cedar-apple rust (Nichols). Loc. 54, 61, 68, 81.

*M. iosea_ 'Embratia'_ A. D. Slavin 1931  
Trade name: Fringe petal crabapple  
A seedling introduced by Bernard Slavin, Rochester Park, Rochester, NY. Named in 1931 by Slavin's son, Arthur, for the finely fringed edges of the petals.

Expanding buds brown-red to red, opening to shell-pink, double flowers 2 in (5 cm) across, very fragrant. Subject to scab and rust. Seldom does this clone produce fruit. Perhaps a hybridizer will find some fertile pollen and use this excellent crabapple for newer plants. Loc. 31, 79.

*M. iosea_ 'Fiore's Improved'_ Fiore 1964  
A seedling from a seedling fed at Charles Fiore Nurseries, Nursery Place, IL, before 1964. Better than the species.  
A medium-sized, upright spreading tree; leaves gray-green, light gray, fragrant; flowers single or occasionally semidouble, deep rose pink; twice the size of the species; fruit one-third larger than the species.  
Should be used for hybridization despite the usual susceptibility of _M. iosea_ and related crabapples to disease. More native seed needs to be planted before all the stands of _M. iosea_ disappear to urbanization, and the best of these seedlings should be selected for hybridization. Loc. 89.

* M. 'Knecht's Improved Bechtel'_ Plates 72, 73, 74, 75  
Synonym: _M. 'Knechts'_ Knecht (a Latinized name that should not be used for a clone)  
A selection by Clyde Knecht, who found growing in a Chicago park. According to Roy Knecht (Knechts, com.), his Clyde Knecht was sitting on a park bench with the young lady he was dating when he saw this unique plant blossoming in a group of native crabapples. Having no way to mark the plant, the young lady tore a piece of the lace from her petticoat. This marked, Clyde returned to the tree in the fall for scionwood. Although the plant was named after the Knechts, not the young lady, years later Roy Knecht memorialized the unknown young lady by naming a _Hemerocallis_ 'Pink Petticoat'.

A vase-shaped tree to 20 ft (6 m) high and 18 ft (5.5 m) wide; leaves soft green covered with a silky tomentum; flowers double, large, pink, very fragrant, blooms late; very few fruit, 1 in (2.5 cm) in diameter, green inconspicuous. Subject to moderate scab and cedar-apple rust as well as mild fire blight (Nichols).

A fine tree for blossoms and fragrance, despite some disease susceptibility. Probably one of the best clones of the _M. iosea_ group. Should be planted in larger gardens, parks, and arboretum collections. Also would be one of the most offered and used in hybridizing for all its fine qualities. Hybridizers should attempt to improve this disease resistance (e.g., _M. 'Knecht's Improved Bechtel'_ x _M. coronaria_ 'Cornogal').  
Loc. 15, 18, 24, 31, 79, 81, 86, 100.

*M. iosea_ 'Nevis'_ Arrowwood  
Discovered in 1930 by James Arrowwood near Nevias, IN. Introduced by Nels E. Hansen, South Dakota Agriculture Experiment Station, Brookings. This dwarf seedling of _M. iosea_ bears flowers when only 4 ft (1.2 m) high.  
Flowers single, pink, about 1.6 in (4 cm) across; fruit green, 1.2 in (3 cm) in diameter. Mostly disease resistant, but subject to severe scab (Nichols). Rather outstanding for a clone of _M. iosea_. Should be used in landscaping and hybridizing. Loc. 31, 79.

All the progeny of _M. iosea_ 'Nevis' have been selected by N. E. Hansen. Despite the disease susceptibility of _M. iosea_ Hansen's selections should be far more available in nurseries and they should be used by hybridizers for the many fine qualities they possess (e.g., smaller form). Arboretum should also have them at least for their genetic value, if not to make them available to hybridize to create collection in the Midwest (where _M. iosea_ and _M. cora-
**M. i o n s i s ' P r a i r i e R o s e '**

An open-pollinated seedling of *M. i o n s i s*. Introduced before 1959 by the Agriculture Ex-
periment Station, University of Illinois, No.
OPS 825. Similar to *M. i o n s i s ' P l e n a '*, but with
flowers that are deeper pink, very fragrant, and
double. In the 45 years this sterile clone has
grown in my garden, it has never produced
fruit. Its pollen may be fertile. Although it is
subject to severe scab and limited rust, I would
not be without this clone because of its fragrance.
Loc. 16, 19, 24, 31, 46, 47, 61, 73, 79.

**M. i o n s i s ' P h i l o d e l p h i a '**

Plate 79

Synonyms: *M. coronaria var. angustifolia* 'Philodelphia', *M. coronaria var. angustifolia' Pflaum' *M. coronaria var. angustifolia' Plena' (1) To
some it is most probably a sterile hybrid of *M. i o n s i s* x *M. coronaria var. angustifolia*, but
others doubt that a diploid in nature can cross
with a tetraploid. This hybrid of uncertain
parentage originated from open-pollinated
seed collected in 1919 for the Arnold Arbore-
tum by a plant explorer from the USDA. It is
one of the best hybrids of the group. The origi-
nal plant was grown at the Plant Introduction
Station, Glen Dale, MD; scionwood from it
was then sent to the Arnold Arboretum in 1930.
The arboretum introduced the crabapple in 1945
and named it after Prince Georges
County, MD, where the Glen Dale station is
located.
A medium-sized to small tree; expanding
buds deep rose-pink, opening to double, light
rose-pink flowers 2 in (5 cm) across, with 35-61
petals, wonderfully fragrant; not known to
produce fruit. Late blooming but a heavy, an-
nual bloomer. Slightly subject to scab and card-
apple rust, neither of which have been found
at Falconbridge Gardens, Medina, OH, on our
4-year-old tree. It appears to be more resistant
to scab and fire blight than most members of the
*M. i o n s i s* and *M. coronaria* groups.
This magnificent crabapple is a wonderful
tree for naturalizing woodland edges and as
a specimen tree, even for smaller gardens. To
the author it is one of the most beautiful crab-
apples. Nursery professionals should become
more acquainted with it. For its springtime
beauty it should be planted more as a specimen

**M. i o n s i s ' R e d S e e d l i n g N o. 1 '**

See M. 'Evelyn' in Chapter 12.

**M. i o n s i s ' S p i n o s a '**

Of no horticultural value, this thorny form
should not be named. Subject to moder-
ate scab and mild cardapple rust (Nichols).
Loc. 31.

**M. k a n s a u s e n s i s (Batalin) Schneider**

Fig. 11.5

Synonym: *Pyrus kansasensis Batalin*; *Erdkultur
kansasensis* (Batalin) Schneider

Introduced by the Arnold Arboretum from seed collected in 1911 by E. H. Wilson in
Tachien-Lu, western Szechwan, China. Native of Ka-nanu, Hupai, and Szechwan provinces
in China. Alfred Rehder described it thus:
A small tree to 8 m.; young brts. pubes-
cent, leaves ovate, truncate, rounded or
broad-cuneate at base, 5-8 cm long, or
sometimes 5-lobed, with triangular-acute
acule closely serrate lobes, pubescent be-
neath, at least on the veins; petals 1.5 cm
long; flowers 4-5 white, 1.5 cm across;
pedicles 1.5-2.5 cm long ... fruit ellipsoid,
about 1 cm long, yellow or red.
Not particularly ornamental; flowers single.
Subject to severe scab in some locations, disease
free in others (Nichols). This crabapple is very
rare and found only in a few of the largest ar-
boretums, it has not yet been used much in
hybridizing. Loc. 10, 12, 31, 61.

**M. k a n s a u s e n s i s var. calva Rehder**

A handsome, small tree, not particularly
showy; leaves barrel, calyx, and pedicels
glabrous, even when young. Subject to moder-
ate scab (Nichols). A little known and seldom
seen species, even in the largest collections. To
my knowledge it has never been used in hy-
bridizing. Loc. 37.

**M. l a n c i f o l i a**

See M. *coronaria* var. *lancifolia*.

**M. l e n c o c a r p a**

See M. *orbiculus* 'Leoncarrpa'.

**M. m a c r o c a r p a**

See *M. toringoides* 'Macrocarpa'.

**M. s c a u d e l u r g e n s i s Schoch**

Synonym: *M. 'Magdeburg'*

Parentage: *M. spectabilis* x *M. pumila

Very showy in bloom. Buds pink, opening
to single and semidouble pink flowers with 7-15
petals, 1.6 in (4 cm) across; fruit 1.2 in (3 cm)
in diameter, yellow-green often blushed red,
not ornamental; heavy annual bloomer. Good dis-
ease resistance; subject to mild scab (Nichols).
Loc. 10, 12, 18, 26, 31, 35, 54, 81, 87.

Figure 11A. *M. kansasensis* at the Arn-
old Arboretum, Jamaica Plain, MA.

**M. m a n d i l u a r i c a**

See M. *baccata* var. *mandilucia*.

**M. m a n d i l u a r i c a ' M i d w e s t '**

See M. 'Midwest' in Chapter 12.

**M. *s c i r r o r o m a l a z a * Makino**

Fig. 11.7

Trade names: Kaido crabapple, Midget crab-
apple

Parentage: *M. spectabilis* x *M. baccata

Introduced into the United States circa 1856.
Native to North Korea and the islands of Japan.
A handsome, upright, pink ornamental, very

Figure 11.5. The rare M. *kansasensis* in bloom.
M. orientalis
Grown from seed collected in Armenia, 2 m (3 km) below Yeghegnadzor, at 990–620 ft (2980–1900 m) elevation. Seed collected by T. Elias in September 1976 for the Arnold Arboretum. Loc. 16.

M. xalaycarpa
See M. coronaria var. platycarpa.

M. xalaycarpa var. hoopesii

M. pratii (Hemsl.) Schneider Synonym: Purpurea pratii Hemsl., Derrynasprin pratii (Hemsl.) Koidzum. Trade name: Pratt's crabapple. Discovered by and named for A.E. Pratt, from Malus seed No. 1107 collected by H. E. Wilson in Wu-Shan, western Szechwan, China, in 1906. Introduced into the Arnold Arboretum in 1909. Alfred Rehder described it thus: A tree to 10 m; leaves ovate or elliptic to ovate-oblong, acuminate, usually rounded at base, 6–15 cm long, and 3.5–7 cm broad, finely and doubly serrate, with callous-pointed teeth and with 6–10 pairs of veins sparingly pubescent beneath; petals 1.5–3 cm long; flowers white, 2 cm across in many flower clusters, petals suborbicular, styles 5, glabrous; fruit globose-ovoid or subglobose, 1–1.5 cm across, red or yellow, pubescent, at least stalks, calyx persistent. Handsome tree with large leaves but with neither flowers nor fruit conspicuous.

While it appears disease resistant (Nichols), it is not a tree for horticultural beauty and it cannot be recommended for use in the landscape, so it should be retained only in the largest collections. In England it is said to have good autumn color but this feature alone is insufficient to recommend it. Loc. 10, 16, 31, 32, 81, 87.

M. prunifolia (Wild endorsements) Borkhausen Trade name: Pearleaf crabapple, Plumleaf crabapple

...the fruit and leaf color of this crabapple is of tremendous importance, and although there is a crabapple listed simply as "omorlandi" (Loc. 15, 54), using a group name in a hybrid cross for a single clone should not be done as group names are reserved for species.

M. prunifolia var. rinki (Koidzum.) Rehder Synonym: M. asiatica. Trade name: Japanese pearleaf crabapple. Introduced into the United States about 1880. Cultivated as an ornamental because of its growth habit and colorful, persistent fruit. A rather narrow tree, paper barks single, pink, opening to white flowers about 2 in. (5 cm) across; fruit green and red, 0.6–1.2 in. (1.5–3 cm) in diameter, abundant, persisting 3–4 months. An alternate bloomer. Should be planted out, subject to very severe scab (Nichols). It could be a ground tree on large estates and parks, but with so many excellent newer crab apples, there is no reason to grow it. "Both "prunifolia" and "rorio" are derived from the Chinese name for this apple, taimen. In Japan, the word taimen, meaning Chinese apple, is used for the same plant, but do not confuse this use of the word with the newly renamed species M. rorio (formerly M. sieboldii). Loc. 10, 12, 14, 26, 31, 54, 79, 80, 81.

M. prunifolia fastigiata
Received by the USDA before 1906. This form fastigiate only when young; as increasing heavier fruit crops are borne, it becomes more and more spreading, and with the branches remaining in that position. Flowers single, white, 1.5–2.5 cm across; fruit yellow or red, 0.8 in. (2 cm) in diameter. An alternate bearer, yet its fruit is impressive although a bit large. Subject to very mild scab. Loc. 10, 26, 31, 32, 54, 79, 81.

M. prunifolia 'Pendula'
Trade name: Pendant crabapple.

M. prunifolia Miller
Trade name: Common apple

Cultivated in Europe and West Asia from ancient times. Together with its numerous clones has become the commercial fruit apple of the world. Although most of its fruit is over 2 in. (5 cm) in diameter and thus it cannot be classified as a crabapple, these species has played a major role in the development of modern crabapples. Over the years great strides have been made in improving its size, taste, and quality as an eating apple. A tree to 40 ft. (12 m) high, with a short trunk and rounded head, leaves broad-elliptic to elliptic or ovate, 1.8–3.9 in. (4.5–10 cm) long and 1.2–2 in. (3–5 cm) broad; buds pink, opening to white flowers suffused pink; fruit subglobose, 0.8 in. (2 cm) and much larger. Subject to mild scab (Nichols).

Because M. pumila is subject to all the apple diseases and insect infestations, it therefore must be sprayed several times in the growing season. It has been used in hybridizing with extremely limited success, although some varieties have been of great use in hybridizing the smaller flowering crabapples. Because of its promiscuity to disease, this species should not be used in hybridizing flowering crabapple cultivars. Loc. 14, 53, 54.

Species crosses of M. pumila include the following:
M. xaxangrepsia (M. pumila × M. liscia) M. xaxangrepsia (M. pumila × M. xaxangrepsia) M. xaxangrepsia (M. pumila × M. sieroleopha) M. xaxangrepsia (M. pumila × M. coronaria) M. xaxangrepsia (M. pumila × M. spectabilis) M. xaxangrepsia (M. pumila × M. coronaria var. lanceolata) (see M. coronaria var. platycarpa)
yellow with red cheeks, very sweet, good eating. Subject to mild scab and fire blight (Nichols).

Although this crabapple is not suitable for home gardens because of the large fruit, it may have some use in hybridizing for double-flowered clones. The author has used it in hybridizing for double-flowered clones, and it is used in hybridizing for the disease susceptibility. Very often it has been confused with M. spectabilis "Alba Plena." A disease strain has noted that some confusion exists regarding this variety because of a double, white-flowered apple with smaller, sweet-tasting fruit on short stems. Loc. 26, 31, 35, 37, 54, 68.

**M. pumila var. transcaucasica**

**Synonym:** M. pumila "Plena", M. pumila "Tsitscminca", M. spectabilis "Alba Plena".

**Syndrome:** M. armata; E. H. Hansen.

**Trade name:** Red Vein crabapple.

This clone of M. pumila has brought about the greatest change in modern crabapples. Because of its unique color—its young leaves, buds, blossoms, fruit (including the flesh), bark, and wood of the branches are red—it has been used in a great deal in hybridizing. There is still much to be gained by continued use of the true form and some of its best seedlings, especially in hybridizing with the newest multiblend clones.

M. pumila var. spectabilis "Alba Plena" is a group of similar seedlings with double flowers. A small, spreading to rounded tree to 15 ft (4.6 m) high and as wide; buds pale pink to yellow; flowers 2-2.4 cm in diameter, larger than most species; fruit small; leaves but some progeny bloom annually. Subject to severe scab (Nichols).

Figure 13A. M. pumila var. spectabilis "Plena" tree in bloom.

named the find "Pyrus malus noidzetskyana" to honor Mr. Noidzetsky. Today it is known as M. pumila "Noidzetskyana." This tree was also the name of a new apple cultivar named "Almafa," after the city of Almo Ata in that region. This group opened pollinated seedlings of this new apple cultivar and also crossed it with M. baccata, thus beginning what is now known today as the Rosybloom strain.

In an earlier account of the history of M. pumila "Noidzetskyana," Donald Wyman (1955) stated that "it was introduced into the U.S. by the Arnold Arboretum in 1896, found in Siberia in 1891. Carlo Diack, Zoeschen, Germany. The true "Noidzetskyana" is very rare in the trade." Are both accidents true? If so, it appears this apple was found in different places by two different individuals some years apart. Or, perhaps the two plants are one and the same? If Hansen originally named his plant M. pumila "Noidzetskyana," what was the plant introduced by Diack called 6 years earlier at the Arnold Arboretum? I have not been able to ascertain if the two plants, Hansen's and the one at the Arnold Arboretum, are identical, nor have I been able to ascertain the introduction number of the latter.

The true form of the M. pumila was brought back by Hansen appears to be the one most used in hybridizing. One of Hansen's first selections (probably pollinated by M. baccata) was selected in 1920 for hardness and attractive red flowers. It was known as M. Hansen's Red Leaf Crabapple, although the original name is M. 'Hoppa.' It has also been called M. 'Hoppa,' M. 'Sunburst,' and M. 'Pink Sunburst'—different names but the same fruit. M. pumila "Noidzetskyana" was named by Isolbas Preston, Department of Agriculture, Ottawa, Canada, made a number of crosses between M. pumila "Noidzetskyana" and some forms of the Siberian crabapple, M. baccata. She, too, planted a large number of open-pollinated seedlings. These seedlings of M. pumila "Noidzetskyana," which Hansen, Preston, and others developed, were called "Rosybloom Crabapple." The group includes open-pollinated seedlings of M. pumila "Noidzetskyana" and crosses of M. pumila "Noidzetskyana" × M. baccata. Most Rosybloom are open-pollinated seedlings. The good of these hybridizers was to produce hardy crabapples that could withstand the harshest winters of the Canadian and U.S. prairie.

After 10 years of growing and evaluating the measured its seedling tests. From this work, it seemed clear that the species appeared to be particularly attractive ornamentals and of a hardy nature. Collectively called Rosybloom crabapples because of their deep pink, rose, or purple-rose blossoms, these seedlings were introduced and they have been named the new apple cultivar and also crossed with M. baccata, thus beginning what is now known today as the Rosybloom strain. In an earlier account of the history of M. pumila "Noidzetskyana," Donald Wyman (1955) stated that it was introduced into the U.S. by the Arnold Arboretum in 1896, found in Siberia in 1891. Carlo Diack, Zoeschen, Germany. The true "Noidzetskyana" is very rare in the trade.

The original group of Rosybloom, raised by Preston, were known as the Lakes Series, all named for Canadian lakes. Many of these seedlings are not true Rosybloom (i.e., they are not crosses of M. pumila "Noidzetskyana" × M. baccata). A considerable number are open-pollinated seedlings of M. pumila "Noidzetskyana," and a few may be even more in hybridization than the above. M. pumila "Noidzetskyana." Most of them are not suitable for the more open-growing and landscaping. They do have some value for their massed bloom in large parks, but even here, there are better-colored, disease-resistant, smaller, bright-fruited crabapples that should be planted in their stead.

All the Rosybloom are outstanding in their large flowers, which are deep rose-red, pink, rose with lavender, or magenta-purple fading quickly to a washed mauve. As a group, they are rather large trees, often reaching 35-40 ft (11-12 m) high and as wide. Their fruits are large, mostly 1.6 to 4 cm (2.5 in) long and 1.5 cm (3.8 cm) long, carmine-red with a yellow-brown spot on the shaded side or a dull red. The great fault of the Rosybloom is that most are tender or heavily defoliated with apple scab by midsummer, if not sprayed. Today many of the older Rosybloom should be discarded, because there are new hybrids of superior form and disease resistance. A few of the older Rosybloom introductions, however, might benefit from advanced hybridizing.

Although several of the Rosybloom are excellent crabapples, they are seldom propagated or offered as ornamentals by nurseries. Those with larger fruit could be used for jellies as well as some ornamental color. It would be interesting if some hybridizer would attempt another series with M. pumila "Noidzetskyana" using some of the more refined species or hybrids, such as M. sarracinioides, or crossing some of the better Rosybloom with more recent multiblend cultivars rather than M. baccata. The best of the Rosybloom have fine genetic potential, especially the later introductions not of Preston origin. In their type, the Rosybloom were a great color addition to flowering crabbs...
apples and became very popular despite their proveness to apple scab. Today many of them have been superseded by the multibred of much smaller stature, particularly those with some M. pumila 'Niedzwetzkyana' are M. pumila 'Lemoinei', M. 'Lisic' and M. 'Orange Crush'.

* Species crosses of M. pumila 'Niedzwetzkyana' include the following:
  
  M. *sibirica* (M. *pumila* 'Niedzwetzkyana' x M. *sibirica*)
  
  M. *pumila* 'Lemoinei' (M. *pumila* 'Niedzwetzkyana' x M. *sibirica*)
  
  Propgeny of M. *pumila* 'Niedzwetzkyana', better known as the Rosyblob crabapples, are listed here with their introducers; descriptions are given in Chapter 12. In general, the hybrids are far better than the Preston crosses. The Rosyblooms of W. R. Leslie, Dominion Experiment Farm, Morden, Manitoba, Canada, like Hansen's introductions, are the best of this group. Carl Hansen also introduced a few Rosyblooms.

  M. 'Amisk' *Preston*
  
  M. 'Arrow' *Preston*
  
  M. 'Athabasca' *Preston*
  
  M. 'Babine' *Preston*
  
  M. 'Baskatong' *Preston*
  
  M. 'Birch' *Preston*
  
  M. 'Birch' *Preston*
  
  M. 'Geneva' *Preston*
  
  M. 'Hopki' N. E. Hansen
  
  M. 'pumila' (Nichols)
  
  M. 'Kingston' *Preston*
  
  M. 'Lechin' *Northwest Nursery*
  
  M. 'Kakamik' *Preston*
  
  M. 'Macoun' *Preston*
  
  M. 'Moose' *Preston*
  
  M. 'Naava' *Preston*
  
  M. 'Neville Copeman' *Copeman*
  
  M. 'Eugene' *Preston*
  
  M. 'Pink Beauty' CDA—Morden
  
  M. 'Pink Giant' C. Hansen
  
  M. 'Red' *New York State Experimental Station—Geneva*
  
  M. 'Silver Red' *C. Hansen*
  
  M. 'Red Sparkler' *Bergeson*
  
  M. 'Rosco' Rondo CDA—Ottawa
  
  M. 'Rossoare' *Preston*
  
  M. 'Rudolph' F. L. Skinner
  
  M. 'Scoggy' *Preston*
  
  M. 'Selict' CDA—Morden
  
  M. 'Simcoor' *Preston*
  
  M. 'Sissipuk' *Preston*
  
  M. 'Strathmore' W. R. Leslie
  
  M. 'Sundog' W. R. Leslie
  
  M. 'Timiskaming' *Preston*
  
  M. 'Tombino' CDA—Ottawa
  
  M. 'Wobblaw' Preston
  
  M. 'Wapuula' N. E. Hansen
  
  M. 'Zita' N. E. Hansen
  
  M. 'Zita' N. E. Hansen

M. *pumila* 'Paradiseica' Schneider

A dwarf form not of horticultural significance. Subject to severe fire blight. Loc. 35.

M. *pumila* 'Pendula'

Synonym: M. 'Elise Kartke' Speth 1886

With large heavy pendulous branches and larger fruit, this form is of no ornamental value today except as an oddity, although it is still found in some older collections. The only good thing that can be said of it is that it is picturesque in the winter landscape because of heavy branching. Today there are far better weeping crabapples. Flowers single, white, 1.8 cm (in 4.5 cm) across; fruit green, 2 in (in 5 cm) in diameter. Subject to severe scab and mild fire blight. Loc. 14, 18, 24, 26, 31, 81.

M. *pumila* 'Plena'

See M. *pumila* var. transluens.

M. *pumila* 'Transluens'

See M. *pumila* var. transluens.

M. *pumila* 'Barberia' (Barber) Rehder

Parentage: M. *sibirica* x M. *pumila* 'Niedzwetzkyana'

This famous rootstock originated at A. Barber Nursery, Orléans, France, before 1900. It is one of the earliest crab apples to flower and an annual bloomer, but its flowers rapidly fade to a poor washed-out mauve color. A medium-sized tree, it is far better known through its many progeny, which have taken its place as one of the finest deep red-purple clones available today.

Allen Barber of Michigan. They have three:

Young leaves and bracts purple; leaves smaller, lustrous on shoots occasionally slightly lobed; pedicels longer; petals oblong; styles often 6; flowers single, purplish-red, 4 cm across; fruit 1.5-2 cm across, dark purple in color. Subject to very severe scab (Nichols). It would be safe to say that almost all modern red-flowering crabapples can be traced back to M. *pumila* 'Barberia'. Loc. 3, 8, 14, 15, 24, 26, 31, 35, 47, 54, 79, 87.

Progeny of M. *pumila* include M. *Evelyn* A. den Boer (M. *pumila* x *biennis*).

M. *pumila* 'Aldenhamensis' (Gibbs) Rehder

Originated as a chance seedling in 1920 in the gardens of the Honorable Vicary Gibbs, Aldenham House, Elt Brooke, Hertfordshire, England. Introduced to the United States in 1925 by the Arnold Arboretum. After blooming in spring, this form blooms intermittently, often a second or even a third time: A medium-sized, rounded to spreading tree to 15 ft (4.6 m) high and as wide; leaves redgreen to bronze-green; buds bright emerald-red, opening to single and semidouble, visonous-red flowers 1-2 cm in (2.5-3 cm) across; fruit subglobose, deep-purple-red, striped side green 2-3 cm in (1.5-2.5 cm) in diameter. Subject to severe scab and mild fire blight (Nichols). This clone should not be confused with the Aldenham eating apple, which is 2.6 cm (in 6.5 cm) in diameter. Today it is not used often as better flowering red clones are in commerce. Loc. 9, 13, 14, 15, 18, 24, 26, 31, 35, 37, 54, 79, 81, 89.

M. *pumila* 'Barbier' See M. 'Barbier' in Chapter 12.

M. *pumila* 'Dakeri'

Name only.

M. *pumila* 'Elely' (Bean) Hesse 1904

Raised and named before 1920 for Charles Eley, East Bergholt, Suffolk, England. Introduced to the United States two years later by the Arnold Arboretum. Compared to M. *pumila*, this clone's flowers are slightly darker and its foliage considerably earlier. This form is thought to be by some to be an unstable variety of what is now called M. 'Jay Darling'. Arden Boer, however, studied the two and concluded they were different names for the same plant that grows differently in different locations (see M. 'Jay Darling' in Chapter 12 for further discussion of the problem). Often an alternate bloomer. M. *pumila* 'Elely' is subject to leaf diseases and has declined in popularity so that it is no longer considered horticulturally valuable. Lester Nichols recommended phasing it out as it is subject to very severe scab. Newer clones are superior to this red-flowering, purple-fruit clone, which should therefore be discarded. Loc. 5, 8, 13, 15, 18, 24, 26, 31, 39, 40, 41, 43, 44, 54, 57, 74, 79, 80, 81.

M. *pumila* 'Eley Compacta'

Originated from seed by S. C. A. Doorbos, Department of Public Parks, Government of the Netherlands. Introduced in 1952. A very compact and dense tree; leaves dull purple-red; flowers single, dull red-purple, this is a young plant which flowers well. It may have some value to hybridize for its compact growth, although other superior clones are available today.

M. *pumila* 'Korneciensis'

Synonym: M. *Kornikh* Received at the Arnold Arboretum from Kornik Arboretum, Kornik, Poland, in 1939. Buds dark red, opening to single, light purple-red flowers 1.6 cm (in 4 cm) across; fruit dark purplered, lighter on shaded side, 0.6 cm (in 1.5 cm) in diameter. Subject to moderate scab (Nichols). Not well known nor readily found, except at the Arnold Arboretum. It has nothing to offer and other clones are superior. Loc. 15, 31, 41, 81, 89.

M. *pumila* 'Lemoinei' (Lemoine) Rehder & Flakes 83, 84, 85

Parentage: M. *pumila* 'Niedzwetzkyana' x M. *sibirica*

Undoubtedly the finest of the progeny of M. *pumila* to be named so far. Originated at the famous nursery, Victor Lemoine et Fils, Nancy, France, in 1922, probably as a chance seedling. Named from Lemoine. Introduced into the United States in 1925 by the Arnold Arboretum. It is probably the most popular of all the red-flowering crabapples.

A medium-sized, upright to spreading tree to 18 ft (5.5 m) high and as wide; leaves glossy, purple on new shoots; flowers deep purple-green with maturity; expanding buds dark red, opening to single and semidouble flowers 1.6 cm (in 4 cm) across; fruit red-purple, to crimson, with a slightly lighter shade that does not fade to mauve as readily as other cultivars but holds its color well; fruit dark red, turning bronze on the shaded side, about 0.7 cm (in 1.8 cm) in diameter, too sour to be effective. Excellent disease resistance. In addition, the scab and leaf rust are not as bad as on the parent. The winter buds are brown. None of these trees bloom over the same year they appear and do not set fruit from the appearance of the tree.

Older trees are showpieces in the landscape as they bloom heavily and annually. Planted in groups of three or as a single specimen among white-flowering shrubs, this crabapple has no equal! The one detracting quality that causes nurseries to reject it is that young plants do not
begin blooming until they have attained some size, about their 5th or 6th year. Once the tree begins to bloom, however, it does so regularly and with increasing beauty. It is much sought after in bloom for its outstanding color.

Most of the larger red-flowering clones are descendents of M. xapuranum 'Lemoinie'. Two exceptional clones among its progeny are M. 'L. Pierre' and 'Ornervial', the newest, M. 'Orange Cristal', by Fiala. Both bloom when young, and, because of their brighter bud and blooming color, and the smaller leaves, superior both in bloom and in attractive fruit. M. xapuranum 'Lemoinie' should still be used in hybridizing as it has much to offer. It should be crossed with the new M. bullata National Arboratum No. 127 with its double pink flowers, and some hybridizer should save its pollen for some of the later-flowering species of M. coronata and M. elevata, which could produce some outstanding hybrids as well.

In all aspects, despite the years it takes to come into bloom, it is a magnificent tree well worth the time in waiting! Loc. 3, 4, 11, 15, 18, 24, 31, 32, 53, 63, 47, 54, 68, 79, 80, 81, 87.

Species crosses of M. xapuranum include M. xomendelius M. xapuranum 'Lemoinie' x M. toring.

Progeny of M. xapuranum 'Lemoinie' from first and second generation include the following: M. 'Brandwyine' Simpson M. 'Bucaeanus' Fiala M. 'Calvarya' Fiala M. 'Cardinal's Robe' Fiala M. 'Cranberry Lace' Fiala M. 'Firecracker' Fiala M. 'Liice' Doreenios M. 'Marig' Fiala M. 'Orange Crush' Fiala M. 'Profusion' Doreenios M. 'Purple Prince' Fiala M. 'Wildfire' Fiala

M. xerobata (Carriee) Rehder Plates 86, 87, 88 Synonym: M. xerobata Schneider

Trade name Cherry crabapple 

Parentage M. baccata x M. prunifolia

Hybrid of crabapples mostly with cherrylike fruit from small to fairly large. Alfred Rehder described M. xerobata thus:

1.5-2.5 cm, diameter and up to 2 cm across, usually partly and partly without calyx. This hybrid type tree is one of the first to bloom, but an alternate bloomer and hence not used much for landscape value, except to very mild traces of scab (Nichols). Loc. 8, 10, 12, 15, 34, 26, 31, 35, 47, 61, 81.

Species crosses of M. xerobata include M. 'Hop' (M. xerobata x M. prunifolia).

M. xerobata 'Arnold-Canada' Synonym: M. 'Arnold-Canada No. 5', M. xerobata No. 543

Parentage: M. baccata x M. prunifolia

Listed by Roland Jeffers as a crabapple of documented authentic origin. Grown from seed obtained through the Arnold Arboretum from Russia in 1927. Budded plant from William Pardon. Original plant collected near Peking, China, on the road to Wutai Shan, for the Arnold Arboretum. Introduced in 1947 by Canada Department of Agriculture, Ottawa, Ontario. It differs from M. xerobata by having a wider, spreading habit; slightly larger; bright red fruit; and much larger, round, oval leaves that turn bright yellow in autumn. Jeffers (1970) p. 209 judged it to be of value because of its bright fruit and fine fall leaf color. It should be investigated by hybridizers seeking to incorporate fall color as an added attraction to the colorful fruit. Flowers and fruit are similar to those of M. xerobata. I have designated this clone as M. 'Arnold-Canada No. 5' to honor its place of origin and introduce the name into the American apple trade. In 1910 from seed collected by William Pardon on the Road to Wutai Shan, near Peking, China. Plants received in 1913 at the Arnold Arboretum from J. Veitch & Sons (Pardon No. 179).

This clone has yellow, narrow, dark green, lightly glossy, 3 in (7.6 cm) long, fine-toothed, resembling peach leaves; buds rose-pink, opening to pure white masses of single flowers 1.6 in (4 cm); fruit bright red, shaded side sometimes yellow-green or brown-green, elliptical, 0.75 in (1.9 cm) long and 0.5 in (1.3 cm) in diameter, and much too large for small gardens. Loc. 5, 14, 18, 25, 36, 31, 32, 37, 54, 79, 81.

M. xerobata 'Red Siberian' Name only. Red-flowered clone with showy fruit to 0.75 in (1.9 cm) in diameter. Other named clones are better. Subject to mild scab (Nichols). Loc. 35.

M. xerobata "Yellow Fruited" Name only. Subject to mild scab and cedar- apple rust (Nichols). Loc. 10, 11, 12, 18.

M. xerobata 'Yellow Siberian' Name only. No disease (Nichols). Loc. 35.

M. xerobata 'Xanthocarpa' Name only. No disease (Nichols). Loc. 35.

M. xerobata 'Yamalocarpa' Name only. No disease (Nichols). Loc. 35.

M. rockii Rehder A botanical name referring to M. 'Rocki', a doubtful species or subspecies. Seed No. 2380 was sent by Joseph Rock from China to the Arnold Arboretum in 1922. Buds pink, opening to single white flowers, fruit about 0.5 in (1.3 cm) across, bright red, persistent. Disease resistant. Subject to gray mold and occasional very mildew (Nichols). Loc. 15, 31, 32, 54, 81.

*M. xerobata 'Sargentii' Rehder Plates 92, 93, 94

Trade name: Sargent crabapple

A shrub growing to about 6-8 ft (1.8-2.5 m) high, spreading 6-8 ft (2-2.5 m) or about twice as wide as high, densely branched, with branches growing from the base and no attempt to form a leader; laterals grow at nearly right angles from the branches; leaves similar to those of M. sieboldii 'Calocarpa' but much heavier, a darker green, and with one pair of large lobes at the base; flowers profuse, persistent often until February or March. An abundant, annual bearer. High disease resistance; subject to slight scab on the fruit. Map 96 (Nichols).

This clone is one of the finest two-season crabapples as it is very showy in spring bloom and in fall fruit. It should be used more by hybridizers for its low, interesting form and fine horticultural qualities. It is fine for large estates and for use as isolated trees, but too much too large for smaller gardens. Loc. 5, 14, 18, 25, 36, 31, 32, 37, 54, 79, 81.
Two forms of *M. sieboldii* have been used in recent decades by hybridizers: *M. sieboldii* 'Calo-carpa' and *M. sieboldii* 'Wooster'. These clones were especially important in the author’s beginning hybridizations at Falconske Gardens, Medina, OH: they were chosen in 1940, with other species and selected clones, as foundation material for the author’s hybridization program. Crossed and re-crossed with other species and selected named clones, they have produced a whole array of multibrids (plants with many species in their makeup), many of which have been induced into tetraploids. The success of the hybridization program at Falconske rests heavily on these select clones. In 50 years nearly 12 generations of hybridization have been accomplished (often grafting 1-year-old hybrids into mature trees) to provide rapid growth and earlier blooming to obtain pollen for hybridizing.

In recent years seed has been collected in the wild in China, Korea, and Tibet by the USDA and sent to the National Arboretum under the names of *M. mandshurica* and *M. sieboldii*, where Donald Egolf has made several selections from the many seedlings. Among some of the seedlings growing there and at Falconske Gardens, some are with outstanding bright red, small fruit, excellent tree form, and disease resistance. Donald Asami is working to be M. *baccata* var. *mandshurica* and propose renaming *M. sieboldii* as *M. sieboldii*. It is these selections that approach the ideal. Both are in the process of hybridizing themselves and as new materials for hybridizers.

The best of these newer seed selections should be named as specific clones and selected for breeding use. They should not be propagated by seed as these are great good specimens that are not as fine as the parent, although they are all sold with the label *M. sieboldii* ‘Calo-carpa’ under the name of *M. sieboldii* ‘Calo-carpa’ rather than propagating the clone asexually. I do not believe these plants are hybrids but, more correctly, could be labeled as mutt clones (i.e., named clones of *M. sieboldii* (Reider) Fiala).

This is a species whose possibilities have not yet been realized. The clone is just now being appreciated as one of the finest, perhaps the best, of all the crabapple species. Its relationship as a hybrid should be severed once and for all.

* *M. sieboldii* ‘Calo-carpa’ (Reider) Fiala
  Plates 98, 99, 100
  Trade name: Redbud crabapple
  Author’s proposed name for the crabapple known as *M. sieboldii* ‘Calo-carpa’ Reider. For further discussion of the reason for the name change, see "Proposed Change to Elevate Malus sieboldii var. zami to Species Rank" in Chapter 10.

A selected seedling clone introduced into the United States by the Arnold Arboretum from seed sent from Japan in 1890 by William S. Bigelow. A dense, upright to spreading tree, 15 (4.6 m) high and as wide. It is a naturalized species; leaves scarcely lobed, those of shoots more deeply lobed; buds deep red, opening to white, to pink-white flowers. 14 in (3.5 cm) across; fruit 0.4 in (1 cm) diameter, bright red to red-orange, often lighter on the shaded side. A reliable, abundant, annual bloomer. Subject to slight scab, mild fire blight, and slight powdery mildew (Nichols), but at Falconske Gardens, Medina, OH, this clone has been disease free for 50 years.

One of the most beautiful of all the ornamental crabapples both in bloom and in fruit. Excellent as a single specimen, a patio tree, or massed with variously colored fruiting clones, giving marvelous color contrasts. Also excellent smaller gardens, especially where a small tree with abundant blossoms, good healthy leaves, and a splendid parade of very small, colorful fruit is needed. Virtually disease-free. Birds relish the small fruit, which never is messy. This clone has also been used very heavily by hybridizers and is the parent of many of the newer, highly disease resistant hybrids.

Unfortunately the name ‘Calo-carpa’ is difficult to find. Nursery professionals have been planting the seed of supposed *M. sieboldii* ‘Calo-carpa’ for several years. As a result the real plant is a clone that cannot be obtained by seed. It must be asexually propagated. Among its seedlings are a great many good specimens that are not as fine as the parent, although they are all sold with the label *M. sieboldii* ‘Calo-carpa’. I would accept only those plants that are asexually propagated from an authentic arboretum plant. Because it is such an outstanding clone, it is unfortunate that the real fruiting specimen of *M. sieboldii* slightly resembling it is immediately labeled *M. sieboldii* ‘Calo-carpa’. *M. sieboldii* ‘Wooster’ (Reider) Fiala

**M. sieboldii** 'Wooster' (Reider) Fiala

*Synonym: M. *Slatinsky's Red Flowered*

Author’s proposed name for the crabapple known as *M. sieboldii* ‘Wooster’. For further discussion of the reason for the name change, see "Proposed Change to Elevate Malus sieboldii var. zami to Species Rank" in Chapter 10.
M. spectabilis

Figure 11.9. Because the yellow-green fruit of M. spectabilis
"Soulard" is over 2 in (5 cm) in diameter, this tree should be classified as an apple.

who introduced it in 1868. Subject to severe scab and mild cedar-apple rust (Nichols).

Lo. 26, 47, 54, 58.

M. spectabilis (Alto) Bordhausen

Plate 105, 106

Trade name: Chinese flowering crabapple

Introduced before 1780 from China but not known in the wild. Most probably a hybrid, grown in England since 1795. One of the oldest and most handsome of the flowering crabapples. Subject to mild scab (Nichols). Alfred Rehder described it thus:

Tree to 6 m of upright habit: young branches sparingly pubescent, later red-brown; leaves elliptic to elliptic-oblong, 5–8 cm long, short-acumenated: truncate, ap-pressed-serrate, lustrous and glabrous above, pubescent beneath when young, finally nearly glabrous, subciliate-ecarinatete, pericarp 1–3 cm long, pubescent; flowers deep rose-red in bud, fading to bluish, 4–5 cm across, semi-double or sometimes single; pedicels 2–3 cm long like the calyx glabrous or slightly villous; sepals triangular-ovate, shorter than tube; fruit sub-globose, about 2 cm across, yellowish, without cavity at base and stalk usually thickened at apex, sour.

Some confusion exists within the species as there is a single and a double form, which are almost identical; the latter, however, has double flowers and fruit with an occasional second whorl of carpels, a second core, which is easily recognized by the deformity of the fruit near the calyx end. This second core often contains seed that will germinate in addition to the seed of the regular core. Arie den Boer, the author, and other crabapple authorities point out that although M. spectabilis, which has never been found in the wild, is considered a species, its seedlings are a mixed lot, suggesting it is of hybrid parentage. Whatever its origin, it will probably never be known.

The single-flowering form, which Rehder listed as "single to semi-double flowering," is seldom found in collections. It is a smaller tree, growing in a natural vase form, almost fastigate when young but spreading with age to a broader crown. "It is an ideal tree to be used as a single specimen, and, if given ample room, will soon develop into one of the finest of ornamentals." (A. den Boer). Not only is it a magnificent specimen for single or group plantings, it is also an excellent plant for hybridizers. There remain many wonderful qualities, especially in the double-flowering form, that will produce outstanding new hybrids when combined with the best of the newest multibluffs. The double form is by far the most attractive and should, alone, be used in landscaping. In this volume, M. spectabilis refers to the single form.

Malus spectabilis has been used to some extent by hybridizers with promising results. Although it seems to transmit the doubling of flower and the vase form of the tree to its progeny, it also transmits the poor quality and yellow-brown fruit as well. With careful programs of hybridizing, a few trees are receiving their fruit color from the alternate parent. Loc. 9, 12, 14, 15, 20, 26, 31, 35, 67, 69.

Species crosses of M. spectabilis include the following:

M. xoricarora (M. spectabilis x M. paniculata)

M. xicarora (M. spectabilis x M. paniculata)

Progeny of M. spectabilis include M. "Van Essele" New York Experiment Station—Geneva.

M. spectabilis var. grandiflora

Synonym: M. "Large Flowered Pink"

W. B. Clarke, San Jose, CA. Listed a double-flowering, pink crabapple in 1818 under the name M. "Large Flesh Pink" in the catalogue, 1899 M. spectabilis var. grandiflora. There remains considerable confusion as his introduction has been dated to 1818 and is not the true M. spectabilis "Riversi" (which see also M. paniculata var. sylvestris.""Plena")

Chapter 10. Author proposes combining this subspecies with M. sieboldii (Regel) Rehder to form M. toringo, which see.

Chapter 10. Author proposes replacing it with M. sieboldii E. F. Fiala, which see.

Chapter 10. Author proposes combining this subspecies with M. sieboldii (Regel) Rehder to form M. toringo, which see.

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Chapter 10. Author proposes combining this subspecies with M. sieboldii (Regel) Rehder to form M. toringo, which see.
M. spectabilis 'Alba Plena'
Most probably not a clone of M. spectabilis, but rather of M. pumila var. transversa (which see).

M. spectabilis 'Plena' Plate 107
This clone applies to any number of varied cultivars with double blossoms, including M. spectabilis var. grandiflora and M. spectabilis 'Rosea Plena'. Subject to mild scab and mildew (Nichols). Loc. 12, 31, 35, 37, 47.

* M. spectabilis 'Riversii' (Booth) Nash
Plate 108
Synonym: M. spectabilis 'Rosea Plena'
Trade name: Rivers crabapple
Named for Thomas Rivers, a famous English nurseryman who introduced the clone in 1872. Introduced to the United States before 1883 by Parsons Nursery, Long Island, NY. One of the more widely grown forms. Has the largest double-pink flowers of any variety of M. spectabilis. Flowers pink, double, with 9-20 petals, 1.8-2.4 in (4.5-6 cm) across, fruit yellow 1-1.4 in (2.5-3.5 cm) in diameter. Subject to mild scab. A very fine, showy clone.

Its is all but very difficult to find the true M. spectabilis 'Riversii'. Many plants listed as M. spectabilis 'Riversii' in even the largest collections are in fact M. spectabilis 'Plena', and M. spectabilis 'Riversii' is an error. Nichols also has been confused for M. spectabilis 'Riversii'.

Of his introduction, Thomas Rivers stated, "A little distinguished by its excellent fruit." Arie den Boer and other horticulturists agree with Rivers' assessment, proclaiming it "an extremely beautiful plant. It should be far better known and carried by nurseries."

Loc. 9, 11, 12, 18, 31, 32, 35, 37, 81.

M. spectabilis 'Rosea Plena' See M. spectabilis 'Riversii'.

M. xuhliobata (Zabel) Rehd Fig. 11.10
Synonym: M. 'Caimhre' Trade name: Yellow autumn crabapple
Parentage: M. toringo (formerly M. sieboldii) x M. prunifolia
Introduced in 1982 by the Arnold Arboretum. Of unknown origin (according to Alfred Rehder), probably grown from seed brought by C. S. Sargent from Japan. It is a pyramidal tree; leaves narrow-elliptic to elliptic-oblong, those of shoots broader, with 2 or only 1 short lobe, somewhat wavy when young, pubescent beneath at maturity, 1.4-3.1 in (3.5-8 cm) long; buds rose-red, opening to masses of single, white flowers. A late in (4 cm) across, very heavy flowering; pedicels 0.6-0.8 in (1.5-2 cm) in diameter, yellow, sometimes yellow and red or orange, usually with calyx, sometimes without, persistent. Susceptible to severe scab (Nichols).

This clone deserves to be better known. It is probably identical to the clone M. 'Caudemere', known at Aldenham House, England, before 1916. So far it has been listed only as a hybrid crab with all plants not identical. Selected clones may be better than others. Since at maturity it is a rather good size tree, it is not recommended for smaller gardens, but it definitely has a place on larger estates, parks, and arboreta. It is quite showy in the abundance of its fruit. Loc. 11, 15, 14, 15, 16, 18, 24, 26, 31, 32, 35, 37, 79, 81, 87, 89.

M. xanthocarpa See M. pumila var. xanthocarpa.

M. xanthocarpa 'Plena'
See M. pumila var. xanthocarpa 'Plena'.

M. theifera Rehder See M. hypophtesis.

M. toringo (Siebold) Siebold ex De Vriese (Wijnands 1979) Plate 109, 110, 111
Synonyms: M. sieboldii (Regel) Rehder, Pyrus sieboldii Regal, Pyrus sieboldii Siebold, M. toringo var. arboreascens, M. toringo 'Arboreascens'
Trade name: Toringo crabapple
M. toringo (formerly M. sieboldii) is a yellow-flowered species, whereas M. sieboldii (formerly M. xanthocarpa) is a red-flowered one. By natural hybridization and color mutations, M. toringo now has yellow-flowering clones, but originally it was red. Since a great number of open-pollinated seeds have been collected in the wild and in cultivation, there is considerable confusion as to identity of species and hybrids in both M. toringo and M. sieboldii.

Introduction to the United States in 1886 from Japan, where it is a cultivated dwarf mountain form. A natural quintiploid with 5x the number of chromosomes. Its greatest value lies in its late time of bloom and long, bushlike form. A small, shrublike tree; buds deep rose, opening to small, light pink flowers that eventually turn nearly white, star-shaped, single, about 0.8 in (2 cm) across, fruit small, 0.25-0.3 in (0.6-0.8 cm) in diameter; globose, red or brown-yellow according to Alfred Rehder, or yellow according to Philipp von Siebold (see Chapter 10 for a discussion on the differences between the two descriptions). Subject to slight scab and fire blight (Nichols).

This clone is described as: 'Leaves ovate or elliptic, acuminate, 2.5-6 cm long, sharply serrate, those of shoots broad-ovate, coarsely serrate and partly 3 or sometimes 5-lobed, pubescent on both sides, later glabrous or glabrescent above.' He also referred to it as a "graceful and handsome tree." Not many horticulturists today would agree with him. Although it is a late and annual bearer, this crabapple is one of inferior horticultural value and thus little seen except in many of the larger collections. I do not recommend it as a single specimen in home gardens, although it has a place in larger collections and estates. It should be much more widely used by hybridizers for its shrublike form, its late blooming, its abundance of very small fruit, and its annual blooming. Loc. 9, 14, 18, 26, 31, 35, 47, 54, 61, 68, 79, 81.

Species crosses of M. toringo include the following:
- M. xanthocarpa x M. toringo 'loddiano'
- M. xanthocarpa x M. sieboldii
- M. xanthocarpa x M. prunifolia
- M. xanthocarpa x M. toringo 'Arboreascens'

Of this clone, Rehder described it thus: "Buds pink, opening to single, white flowers 1.2 in (3 cm) across; fruit yellow, 0.3 in (0.8 cm) in diameter. Because the taxonomic characters of M. toringo, as defined by Rehder have been documented by Asami as occurring also in the species, this variety is to be regarded as a synony of M. toringo, not differing from the species.

M. toringo 'Fuji' 1968 Plates 112, 113, 114
Synonym: M. sieboldii 'Fuji'
Originally named M. sieboldii 'Fuji' but renamed M. toringo 'Fuji' (see Chapter 10). Introduced by the National Arboretum, Washington, DC, where for 26 years it was an unnamed crabapple. It had been received in 1942 from the USDA Plant Introduction Station, Glenn Dale, MD—plant introduction No. 355295. The 40-year-old parent plant, whose origin is unknown, stands 28 ft (8.5 m) high with a spread of 46 ft (14 m).

An upright spreading tree; growing buds purple-red, opening to green-white flowers with occasional traces of purple-red, 1.5 in (3.8 cm) across, double, with 13-15 petals; fruit golden-orange, 0.5 in (1.2 cm) in diameter. Subject to moderate scab and powdery mildew (Nichols).

A prolific bearer, this unique tree probably has some hybrid origin according to the single tree in contrast to a red or pink-flowering clone in mass landscaping. Although it has gone unnoticed and unappreciated over the years, it is excellent for larger landscaping and should be used in hybridizing. Loc. 5, 16, 19, 26, 31, 35, 37, 47, 79, 81.

M. toringo 'Arboreascens' (Rehder) Fig. 11.11
Trade name: Cutleaf crabapple
Probably one of the most beautiful crabapples in fruit. Introduced in England by James Volch & Sons, Chelsea, in 1904, and introduced into the United States by the Arnold Arboretum in 1908, from seed collected by E. H. Wilson in western Szechwan, China, where it is native. The type plant at the Arnold Arboretum is No. 17475 grown from Wilson's No. 1285.

M. toringo 'Arboreascens' is a 2.5 cm across, 3-6 in (7.6 cm) in diameter; leaves larger, less deeply lobed and less pubescent. Buds pink, opening to single, white flowers 1.2 in (3 cm) across; fruit yellow, 0.3 in (0.8 cm) in diameter.
"M. toringoides 'Bristol'

A better form of the species with darker green leaves. Discovered in China in 1982. Seed brought back to Holdener Arboretum by Peter Bristol and grown by the author at Falconkeperke Gardens, Medina, Ohi. Selected and named in 1981 by the author and Lester Nichols to honor Bristol, a plant explorer for Holdener Arboretum. Compared to the species this form has leaves that are much deeper and that are darker green; it is disease resistant and has better colored fruit. Nichols recommended it be named as he considered it the finest representative of M. toringoides. It was selected for hybridization at Falconkeperke. Loc. 47.

Figure 11.12. The leaf shape of M. toringoides 'Bristol' is typical for the species.

"M. toringoides 'Macaropa'

F. C. Stern 1933

Synonym: M. macrocarpa

Raised from seed collected at the Arnold Arboretum by F. C. Stern, Goring-by-the-Sea, Sussex, England. Introduced into the United States by the Arnold Arboretum from scions received in 1923 from Stern. This clone differs from the species by having larger fruit and leaves with less deeply cut lobes; expanding in a pink or pink-white, opening to white flowers about 1 in (2.5 cm) across; fruit orange, yellow, and red with a bluish bloom, 1 in (2.5 cm) in diameter. Subject to severe scab (Nichols). Loc. 9, 15, 26, 31, 54, 81.

"M. trilobata (La Billardiere) Schneider

Introduced into the United States from West Asia in 1880 by the Arnold Arboretum. An upright shrub or small tree to 19.7 ft (6 m) high; leaves handsome, lustrous. Rare in cultivation today, even in the largest collections. Alfred Redler described it thus:

"Young bracts pubescent; leaves deeply 3-lobed and serrate, 5-8 cm long, the inner lobe with one or two smaller lobes on each side, the lateral lobes usually with a basal lobe, pubescent beneath; when young, later nearly glabrous and light green, lustrous and bright green above; petals slender, 3-7 cm long; flowers 6-8 single. white 3.5 cm across; pedicles about 2 cm long. vibrant; calyx tomentose; sepals laciniate, longer than tube; fruit ellipsoid, red, 2 cm in diameter."

Because this species is rarely found in arboreta or in cultivation, it has been overlooked by hybridizers. Perhaps it should be found in more of the larger collections. It has no known hybrids or selected clones. It particularly ornamental.

"M. tschanoskii (Maximovicz) Schneider

Plates 115, 116, 117

This rather rare pyramidal crabapple was introduced by the Arnold Arboretum from seed collected in 1892 by C. S. Sargent in Nikko, central Honshu, Japan, where it is wild. Its insignificant flowers and fruit, but its outstanding contribution is its white-silver silvery-gray leaves that turn orange-red in the fall. Ari den Boer made some well-deserved remarks about it:

"This remarkable tree is very uncommon. It is surrounded in flower and fruit by almost every other species or variety of crabapple and one may well ask why it is worth having at all. The reason for mentioning it is that the foliage is so interesting that little else is needed to classify this tree as a desirable ornamental."

Alfred Redler described it thus:

"Brt. tomentosus; leaves elliptic-ovate to ovate-oblong, acuminate, rounded or subacute at base, 7-12 cm long, irregularly serrate or doubly serrate, sometimes slightly lobulate, tomentose when young, finally glabrous."

On young shoots the leaves appear almost white, covered with a fine silvery white, feltlike substance, but most of this silvery-white layer wears off as the leaves mature, except on the underside. In the fall no other crabapple surpasses this one in leaf color, which turns amazing combinations of purple, orange, bronze, yellow, and crimson. In some seasons the coloration is less noticeable at all. Crabapples with bright gold leaf color (e.g., M. 'Ambleria' and M. 'Red Swan') or a multiple coloring (e.g., M. 'Satin Cloud') have the added distinction of brilliant crimson, abundant fruit, which is not found in M. tschanoskii.

A large, upright, pyramidal tree to 39.5 ft (12 m) high and 15 ft (4.6 m) wide; flowers single, white, 1.2 in (3 cm) across; fruit ellipsoid, 1.0-1.2 in (2.5-3 cm) in diameter, a brown-green or yellow-green, sometimes with a purple cheek, extremely attractive, with grit cells. Subject to slight scab and severe fire blight (Nichols).

Because this crabapple grows into a fairly large tree with a pyramidal head and neither flowers nor produces good fruit, it is not recommended for the smaller garden (even though it has a silvery leaf color). There are

Long, slightly villose, calyx tomentose, its lobes narrow-triangular; petals orbicular-obovate, hairy above; styles 4-5, rarely 3, globose, fruit globose-obovoid or globose-ellipsoid, 1.0-1.2 cm long, yellow, usually with red cheek. In fruit one of the most handsome of the crabapples. The fruit is slightly pear-shaped, yellow with red on the sunny side. Ari den Boer wrote:

"It is among the last of the crabapples to open its blossoms. Those are small and pure white. Many consider the fruit the most beautiful of the entire group of crabapples. In color they are apricot-yellow with a pink or rosy cheek, overlaid with a light blush or purplish bloom. They are slightly longer than wide, sometimes pear-shaped, about one inch in diameter. It is my opinion that the description by A. den Boer is the most accurate. A number of the specimens labeled M. toringoides in some of the largest collections do not appear to be authentic; many have leaves with no lobes at all. The species is subject to slight scab and fire blight (Nichols)."

Certainly this crabapple should be more widely grown for its fruit alone. It is not a plant for the collector or because of its size, but rather because it puts on no great show in bloom and is an alternate bearer. On larger estates, in parks, and arboreta, planted in groups of three to five, it can make a very impressive summer display. As it matures it looks more like a hawthorn with its spiny limbs and branches, which make it a haven for nesting birds. Although it has little been used in hybridizing, it should be used for a great deal more because of its colorful small fruit. A few of its selected clones are described below. Loc. 3, 12, 15, 26, 31, 32, 35, 37, 69, 79, 81.
better pyramidal crabapples. Furthermore, because it is plagued with several diseases, it is not recommended for ornamental landscaping in larger gardens. It is, however, suitable for a botanical collection. If all one desires, however, is a silver-leaved, vase-shaped tree, this species has no equal. Placed next to the very deep purple foliage of M. 'Royalty', for example, it can be outstanding for its silvery leaf color and texture. It should be grown on larger estates, parks, and arboretums, if only for its gray-white foliage and fall coloring. It is not carried by many nurseries and is rarely seen outside of the largest collections. It has been little used by hybridizers, although someone should hybridize it in an attempt to get smaller, bright crimson fruit among the silver-gray foliage. Perhaps some outstanding hybrids could result. I know of no hybrids or selected named clonal types of M. tschonoskii. Loc. 5, 13, 24, 26, 28, 31, 35, 37, 46, 47, 54, 55, 58, 79, 80, 81, 86.

M. yunnanensis (Franchet) Schneider Plate 118

Trade name: Yunnan crabapple

This crabapple is different from all others in several ways. It was discovered by Pierre Delavay in Yunnan, China, and introduced into the United States by the Arnold Arboretum in 1909 through seed collected by E. H. Wilson in Chung-chi, Szechwan, China. Native to Hubei, Szechwan, and Yunnan provinces, this crabapple is little known and grown today. In 1979 seed was collected in China by the Arnold Arboretum, and several plants were grown giving some small variations. Two fine plants from this seed are now growing at Falconer's Gardens, Medina, OH, and both show several variations: Clone No. AA-V-1 has smaller, more purple fruit. Since its native range is so large, one should expect a greater number of variations if seeds were collected at different areas of its range.

Matus yunnanensis is a pyramidal tree to 32.8 ft (10 m) high, narrow and upright. Older plants are more or less columnar and send up a number of long, very straight branches with a scattering of short lateral. Alfred Rehder described this species as follows:

Young branches are orange-brown; leaves ovate to oblong-ovate, rounded or subcordate at the base, short-acuminate, 3-12 cm long, sharply and doubly serrate, with 3-5 pairs of broad short lobes and mostly without, tomentose beneath, petioles 2-3.5 cm long, tomentose; inflorescence many flowered, 4-5 cm across; rather dense, flowers single, white, 1.5 cm across; pedicels 1-2 cm long, like the calyx petaloid, or villous; sepals triangular-ovate, acuminate, about as long as tube; petals suborbicular; stamens 5, nearly glabrous; fruitlets subglobose, 1-1.5 cm across, red, punctate, calyx reflexed. The description varies slightly from the one given by Arie den Boer, whose observations are most identical to my observations. The fruit does not appear to be 'bright red' as Rehder stated but rather is a brown-purple. The leaves have a grayish cast and turn orange-scarlet in fall. It is disease free.

Matus yunnanensis should be planted much more, especially among larger estates, parks, and arboretums. Hybridizers have not used it, perhaps, because it is relatively unknown and unavailable, but I am certain some very worthwhile hybrids could be obtained if it were to be heavily used. It is not much of an ornamental, but hybridizers should appreciate it for fall foliage. No known existing hybrids. Loc. 10, 16, 31, 81.

M. yunnanensis 'Veitchii' Plate 119, 120

Selected from seedlings planted at Veitch Nursery, England. A narrow to upright tree 20 ft (6 m) high and 10 ft (3 m) wide; leaves heart-shaped, somewhat lobed, heavily textured, pubescent, green, with 6 or 7 pairs of small lobes, smooth and not much rounded, ovate, leathery, opening to single, creamy white flowers in dense loose racemes (like the species), often containing up to 30 flowers per cluster; fruit brown-purple covered with gray-white or white dots (thus different from the species). Of the fruit, Arie den Boer wrote:

This crabapple is also of interest for its peculiar fruits. These are held erect on stiff stems, brown-purple in color and covered with a grayish-white or white dots. They are about half an inch in diameter, slightly more in length. When they are fully ripe the calyx lobes are turned back, which makes the fruits look like small urce. Subject to very severe fire blight but fairly resistant to other diseases. It forms a handsome tree with leaves turning orange-scarlet in fall. A crabapple that as yet has not been used by hybridizers. Loc. 12, 18, 26, 31, 46, 47, 51, 86.

M. yunnanensis 'Veitch's Scarlet' Veitch before 1905

A selected seedling similar in all respects to the species except the fruit in red-brown. Popular in England. An upright tree similar in form to M. yunnanensis 'Veitchi'; buds pink followed by single, white flowers borne in clusters, 1.4 in (3.5 cm) across; fruit egg-shaped, bright red or brown-red, rather large, 1.8 in (4.5 cm), on erect stems. Very interesting. Subject to mild scab and fire blight (Nahhal). Should be of interest to any hybridizer, since this species has not, to my knowledge, ever been used in hybridizing. Not an ornamental tree. Loc. 10, 14, 26, 31, 35, 37, 54, 61, 81.

M. yunnanensis 'Calaroca' Rehder

Not an accepted name in this volume. Author's new name for this crabapple is M. tschonoskii 'Calocarpa' (Rehder) Fiala. For a discussion of the reason for the name change, see "Proposed Change to Elevate Matus tschonoskii var. zumi to Species Rank" in Chapter 10.

M. yunnanensis 'Wooster' Rehder

Not an accepted name in this volume. Author's new name for this crabapple is M. tschonoskii 'Wooster' (Rehder) Fiala. For a discussion of the reason for the name change, see "Proposed Change to Elevate Matus tschonoskii var. zumi to Species Rank" in Chapter 10.
CHAPTER 12

Named Crabapples

In addition to the botanical species, varieties, hybrids, and named clones of documented authentic origin listed and described in Chapter 11, numerous crabapple clones and cultivars are known from sources that cannot be verified (e.g., from nursery catalogs or the personal notes of crabapple notables). For one reason or another, the true identity of these named crabapple introductions is not known. It is hoped, however, that with further research into crabapple relationships, many of these mysteries may be cleared up. In this chapter, most of the named clones are described, whatever their origin.

Newer Selections. Modern hybridizers and nurseries specializing in newer crabapples have done excellent work in selecting and introducing superior clones and in weeding out those that are inferior. One must admire the nursery professionals who go out on a limb to introduce good, new plants rather than remain content with the accustomed volume production and selling of older, inferior varieties.

In the past many crabapples were sold simply on the basis of a description, by a taxonomist or the introducer, of a single plant, species, hybrid, or clone, or merely by blossom color. Home landscaping value, disease resistance, colorful autumn fruit, and annual blooming were rarely mentioned. Many highly touted clones of the past, beautiful in springtime bloom only, are really inferior, disease-ridden clones that should long ago have been eliminated from the nursery trade. The late Professor Nichols courageously pointed out many clones that should be phased out because of disease problems and hopefully his work will be continued.

Included in the list of cultivars that follows are several very new crabapples not yet released for commercial propagation. Among them are the newest weeping crabapples, the low-growing multifruits, the mini-fruits, and the polyploids now being released by Charles Klauch & Sons Nursery, South Barrington, IL; and J. Frank Schmidt & Son Co., Boring, OR; the Round Table Series of genetically dwarf crabapples soon to be released by Lake County Nursery, Perry, OH; several newly named clones from Simpson Nursery, Vincennes, IN; and the most recently named clones from Falconskeape Gardens, Medina, OH.
To keep abreast with the most recent work of hybridizers and introducers, I have included new cultivars that have been tested (as of this writing) and that are soon to be released.

Plant Patents and Trade Mark Names. We have previously discussed the confusion in nomenclature between a clone and a cultivar (see "A Confusing Problem of Nomenclature" in Chapter 10). Adding to this confusion is the problem caused by some nurseries when they patent an already named crabapple. It appears another "cultivar name" is required so that the patented plant does not fall into the public domain from the previously, already registered name with the Plant Registrar after the time elapse of the plant patent. This additional name creates considerable confusion in knowing exactly which clone is being sold. Whenever known, I have included this name in the plant descriptions, but it is not to be understood as a new name, but rather a patent registration requirement. The original name as given by the hybridizer or introducer should always stand as the proper name for that particular clone. This is according to the rules of international nomenclature which specify that the first published name is the accepted name of any clone or cultivar. I sincerely hope nurseries will not replace the original names of plants with those names submitted to the patent office. Not only is it a violation of integrity to do so, but it does no good, except for future financial gain when the 17-year patent right expires. Furthermore, it causes endless confusion when plants are given several names: original names, trademark names, and patent names.

Availability of Named Crabapples. Some of the clones listed in the descriptions are unavailable from nurseries that are able to carry only a very limited number of crabapples. Many clones are found in only one arboretum or crabapple collection; others are hard to find. Some nurseries are reluctant to release their plants hoping to obtain some measure of recompense for all the years of hybridizing needed to produce a superior plant. Nurseries are extremely reluctant to introduce newer clones unless they are able to control them by patenting. Arboreta are unwilling to place any clone in their collection unless it can be obtained from a nursery. The wheel goes around and around! Many excellent named clones die in their garden of origin. After a few attempts at introduction, many hybridizers give up and turn their horticultural skills to more profitable areas of nursery production or management. A few even write horticultural books.

M. 'Aurantiaca' Severe scab 4 trees
M. baccata cutleaf No disease 2 trees
M. baccata dwarf No disease 2 trees
M. baccata hybrid No disease 6 trees
M. baccata hybrid No 28 No disease 7 trees
M. baccata hybrid scab Milder scab 3 trees
m. baccata No. 107/63 No disease 1 tree
M. baccata unusual dwarf Severe scab 4 trees
M. Cerasifera Severe scab 1 tree
M. cerasifera Milder scab 3 trees
M. 'Columnaris' Severe scab 108 trees
M. consta Moderate scab 4 trees
M. edulis Mild scab 2 trees
M. 'Erecta' No disease 2 trees
M. 'Flava' No disease 1 tree
M. 'Fructu Flavo' Severe scab 4 trees
M. Flavescens' Mild scab 4 trees
M. 'Gracilis' Very severe scab 14 trees
M. himalaica No disease 5 trees
M. 'Jackii' No disease 66 trees
M. 'Ibidec' No disease 3 trees
M. macrocarpa No disease 1 tree
M. 'Manchu' N6 disease 2 trees
M. mandshurica Mild scab 28 trees
M. mandshurica 'Odorata' Service scab 2 trees
M. mandshurica 'Midwest' No disease 1 tree
M. macrocarpa No disease 1 tree
M. odonta Severe scab 4 trees
M. elongata Moderate scab 2 trees
M. praeox Mild scab 2 trees
M. 'Pyramidalis' Mild scab 3 trees
M. striata No disease 1 tree
M. 'Tulak' No disease 2 trees

Some of these so-called named forms of M. baccata are undoubtedly the same (e.g., M. 'Columnaris', M. 'Erecta', and M. 'Pyramidalis' or M. 'Flava', M. 'Flavescens', and M. 'Fructu Flava'). Where only one tree exists, the question must be asked, is it really different from any other named specimens of M. baccata? Most are not worthy of being continued and thus their names should be phased out, while the remaining superior clones should be named and their distinguishing, specific character properly identified. The practice of naming or keeping every seedling should be strongly discouraged. Because a seedling has a name in Latin or any other language is no reason for placing it on a list of named and accepted crabapples. The practice of giving a fancy or local name to already named species or clones should be absolutely forbidden (e.g., M. coronaria, trade name: wild sweet crabapple). Furthermore, problems arise when clone names are Latinized; rather, the clone name should stand in the language in which it was first introduced. The multiplication of names for the same crabapple must be seriously discouraged. Since so many of the older, named clones of M. baccata have serious disease problems, the time has come for large arboreta and collections, where only one or two remain, to eliminate these older trees that would never be considered in the higher competition of today's market. They are neither historical nor good crabapples by today's standards! An inferior seedling always remains inferior and should not be kept in any collection.

**Evaluation and Recommendations.** Because there are hundreds of named crabapple clones, it is nearly impossible to evaluate each one, especially when many of them no longer exist or are grown only as a single plant in one arboretum collection. Thus, in the list of known flowering crabapples that follows, some clones are listed with no or only minimal description. Others, the better-known clones, are described and evaluated for beauty of bloom and autumn fruit. When known, a rating for disease resistance is included as are suggestions for landscape and/or hybridization value. If known, faults are noted—especially lack of disease resistance, overly large fruit size, and alternate blooming trait. The ratings used in the descriptions are as follows:

- **Excellent**—superior in every way: flowering annually, good fruit color, and disease resistance
- **Recommended**—superior for a special reason (e.g., double flowers, very rare, exceptional hybridizing value) or outstanding in bloom, fruiting, or autumn leaf color despite minor disease susceptibility
- **Good/fair**—satisfactory in flowering and fruit color but slightly susceptible to apple disease
- **Not recommended**—having too many negative factors to be continued in commerce or for landscape use
- **Should be phased out**—too much disease

Name only—known in name only; no information available or very limited

Throughout the descriptions, "excellent" cultivars are marked with an asterisk (*) and "recommended" cultivars are marked with a plus sign (+).

There will be considerable difference of opinion as to the merits of individual plants. For example, at times a clone is designated "excellent" for a very special reason: it may be unusual in double flowers or very rare. It may have slightly larger fruit (making it excellent for highway planting since small fruit cannot be seen by fast-traveling vehicles), or so outstanding in bloom, flowering, or autumn leaf color that it merits recommendation despite minor disease susceptibility. Some crabapples are recommended solely because they have outstanding hybridizing value. A few are so unique that one could build a whole new race of flowering crabapples using them as foundation breeders. Some of them are recommended because they are representative of advanced, induced polysploids that have only very recently been created and introduced.

A few clones designated "good" will be acceptable because of outstanding annual bloom, although they may have poor or no fruit (e.g., some of the double-flowering crabapples) or be slightly susceptible to minor diseases (e.g., may have some leaf spot but are not injured or defoliated by it). Considerable defoliation, subject to fire blight; large fruit, early fruit rot and alternate year blooming will place a plant on the "not recommended" list.

In recommending or evaluating the named clones I have combined the recommendations of many experts from the past and the present (they do not always agree in their opinions and evaluations). Included in this group are crabapple pioneers such as Arie den Boer, Roland Jefferson, Alfred Rehder, Charles Sargent, Wheelock Wilson, and Donald Wyman; crabapple authorities of today such as Robert Clark, John den Boer, Thomas Green, Ed Hasselkus, Robert Lyons, John Martens, Henry Ross, and John Sabuco; and crabapple hybridizers such as Donald Egolf, Carl Hansen, Niels Hansen, Isabella Preston, and Robert Simpson. Naturally I have also included my own observations over the past 50 years. In preparing this list I am particularly indebted to John den Boer, son of Arie; Thomas Green, Morton Arboretum; Ed Hasselkus, University of Wisconsin-Madison; and John Sabuco, Good Earth Publishers.

**Disease Resistance.** The ratings for disease resistance are taken mostly from the many annual reports published by the late Leser Nichols. Titled Disease Resistant Crabapples, his work is undoubtedly one of the most monumental studies on the susceptibility to disease of various clones. Not only did Professor Nichols examine a large number of crabapples in many different locations, his study covered several years. The disease-resistance ratings of newer clones not rated by Nichols are based on information supplied by the plant introducer and/or the nursery propagating them.

One must be aware that not all crabapples do well in every location. A concern that Professor Nichols and I often discussed was the variability of many clones that are completely disease resistant in the drier midwestern and eastern United States but show susceptibility to some diseases when planted in areas of greater moisture or heavy rainfalls. It would be wrong to list a clone as susceptible to some or all diseases simply because in one geographic area it does not perform well. To be fair to any given plant introduction, eventually crabapples will have to be rated by specific areas of the country. Until then, all ratings remain rather subjective and of limited use. They do, however, help weed out the most offending clones and point out those that appear to be superior. The performance of a crabapple in local arboretum collections, propagating nurseries, and large private plantings is the best indication for any area of the country as to the real disease susceptibility and general evaluation of that crabapple.
M. ‘Abundant’  
See M. ‘Abundance’.

M. ‘Abundance’  
Forest Nursery, Saskatchewan, Canada.
Synonym: M. ‘Abundant’
An upright to spreading tree 20 ft (6 m) high and wide; fruit medium-sized, deep dull red-purple. Loc. 12, 15, 31, 32, 54.

M. ‘Adirondack’  
Egolf 1987  
Plates 122, 123, 124
Parentage: An open-pollinated seedling of M. ‘Rustica’.
Selected and named by Donald Egolf. National Arboretum, Washington, DC, from 200 open-pollinated seedlings of M. ‘Rustica’. National Arboretum No. 519942, plant introduction No. 499928, inoculated with fire blight to determine disease resistance. A narrow, upright tree 12 ft (3.5 m) high and 6.4 ft (2 m) wide, with distinct oblate growth; branches upright, gray-brown, maroon tinged, maturing to dark gray with prominent lenticles; leaves leathery, dark green, 3.5-6 in (9-15 cm) long; buds dark carmine, opening to heavily textured, wide-spread, white flowers with traces of red, 1.6-1.8 in (4.5-4.5 cm) across; single; fruit subglobose-red, with half shaded to orange-red, 0.5-0.6 in (1.2-1.5 cm) wide and 0.6-0.7 in (1.5-1.8 cm) long, persistent until December. Completely disease resistant. One of the finest white upright crabapples; ideal for smaller landscapes and as a specimen crabapple. Loc. 35, 37, 47.

M. ‘Adirondack’ See Chapter 11.

M. ‘Akane’  
Name only. Probably a synonym of M. ‘Akin’. Loc. 73.

M. ‘Akin’  
Synonyms: M. ‘Akin’s Striped Winter’, M. ‘Akin’s Winter’

M. ‘All Saints’  
Fiala 1967  
Parentage: M. ‘Van Eseline’ x M. ‘Canalburd’  
No. 167-6. An induced tetraploid. A small tree 10 ft (3 m) high; leaves very leathery, dark green buds red, opening to large, single, white flowers; fruit small, 0.4 in (1 cm) in diameter, red. Disease resistant. A hybridizer’s crabapple. Loc. 47.

M. ‘Albina’  
Synonym: M. pumila ‘Niedzwetzkyana’
Named by Niels Hansen who brought the plant back from Turkestan. Today there are several seedlings of M. ‘Albina’ under the name of M. ‘Albina’. Should be phased out—too much disease (Nicholls). Best used and used for the Rosbybloom crabapples are either open-pollinated or selfed M. pumila ‘Niedzwetzkyana’, hybrids should evaluate them and select the best for breeding red-flowering crabapples. There is an advantage in using the best of the disease-free Rosbybloom rather than going back to M. pumila ‘Niedzwetzkyana’. Loc. 12, 79, 80, 81.

M. ‘Almey’  
Leslie 1945  
Parentage: A Rosbybloom
Morden No. 452. Developed by W. K. Leslie, Canada Department of Agriculture Experiment Station, Morden, Manitoba. Named for R. Almey, horticulturist of Canadian Pacific Railroad. It was very popular, same decades ago for its very good, deep rose pink, springtime display. Leaves often delotte in summer due to heavy flower buds. Should be phased out—too much disease (Nicholls). Loc. 5, 8, 9, 12, 18, 24, 31, 32, 35, 39, 40, 41, 43, 44, 68, 79, 80, 81, 89.

M. ‘Almira’  
Fiala 1960  
Plate 125
Named to honor Aloke Fiala, mother of the introducer. A very graceful, weeping tree to 10 ft (3 m) high; leaves red-green; buds dark red, opening to single, deep pink flower buds; fruit small, 0.5 in (1.3 cm) red; very dark unplaced next to a yellow-low flowers; fruit red. Loc. 12, 38, 39, 40, 41, 42, 43.

M. ‘Alma’s’  
Provincial Horticultural Station, Brooks, Alberta, Canada 1937  
Parentage: An open-pollinated seedling of M. ‘Rapa’.
BP No. 6. An extremely hardy tree; flowers red, large. Disease free. Despite its good qualities, this Rosbybloom is now considered obsolete.
M. 'Altgold' Salamanycyk
Parentage: An open-pollinated seedling of M. 'Rosilda'.
A second-generation hybrid of M. lacotea.

"M. 'Ambergold'" Fiala 1989
Parentage: M. 'Satrun Cloud' × M. 'Shinto Shrimp'
No. N-4-P6. A tetraploid. A small, rounded, bright-upright tree to 15 ft (4.5 m) high and as wide; leaves very leathery, dark green, disease free; buds deep rose-pink, opening to large, single, white flowers in great abundance, blooming annually; fruit amber-gold, round, 0.25–0.34 in (0.6–0.8 cm) in diameter, very showy, persistent. Completely disease free. An outstanding smaller tree for the home landscape, patio, or as a focal point in large estates and parks. A new introduction that is not yet discovered by nurseries, but one that should be outstanding. Loc. 47.

"M. 'Amberina'" Fiala 1981
Plates 126, 127
Parentage: M. 'Christmas Holly' × (M. sieboldi No. 243 × M. sieboldi No. 765)
Introduced and patented by Klehm Nursery, South Barrington, IL. Named after the expensive, yet readily available, gemstone, which is made by mixing melted glass with gold. A small, upright to spreading tree to 12 ft (3.6 m) high and as wide, with very heavy annual blooming, strongly weeping in form; leaves deep green, turning bright yellow in fall; buds red, opening to creamy white, single flowers; fruit small, brilliant orange-red, 0.25–0.3 in (0.6–0.8 cm) in diameter, persistent. Completely disease resistant (Nichols). An outstanding crabapple in blossom and especially in brilliant, autumn fruit combined with bright yellow leaf color. An excellent parent for hybridizing. Has been involved in many of the cultivars developed at Falconseepke Gardens, Medina, OH. Loc. 47, 100.

"M. 'Amelia'" Name only

"M. American Beauty" Flemming 1970
Parentage: M. 'Katherine' × M. 'Almeiy'
Plant patent No. 2821. First flowered at Princeton Nurseries, Princeton, NJ. A very vigorous, upright-growing tree; leaves bronze-red when young, bronze-green with maturity; buds deep red-purple, flowers clear red, double with 15 petals, 2.25–2.75 in (5.5 cm) across; fruit few, medium-sized, red, often scabey, not showy. Should be discontinued—highly sus-
ceptible to scab (Nichols). Loc. 2, 5, 22, 26, 46, 54, 61, 74, 79, 82, 85, 86, 90, 92.

"M. American Masterpiece" Zampini
Plates 128, 129
Parentage: A seedling of M. 'Madonna'
Plant patent name "Amaspinda". To be introduced by Lake County Nursery, Perry, OH, as one of the Round Table Series of dwarf crabapples developed by James Zampini. A somewhat upright tree to 25 ft (8 m) high and 18–20 ft (5.5–6 m) wide; leaves midgreen margin; flowers single, bright red, no bleeding; fruit medium-sized, pumpkin orange. Disease resistant. Appears to show great promise for landscape, especially in narrow situations. The deep purple foliage makes it an attractive background throughout the summer, and the attractive orange-pumpkin fruit make it a welcome contrast in the autumn. Loc. 46.

"M. American Spirit" Baron 1989
Plant patent name "Amespiram". Introduced and patented by Lake County Nursery, Perry, OH. A small, rounded tree 15–18 ft (4.5–5.5 m) high and as wide; leaves red-purple; flowers single, deep rose; fruit 0.5 in (1.5 cm) in diameter, red, persistent. Disease resistant. A new crabapple for any kind of landscaping need. Too new to be properly evaluated but appears to be too excellent to introduce. Loc. 46.

"M. 'Ames'" Iowa St College before 1933
Parentage: M. 'Brier Sweet' × M. 'Mercher' (apple)
Buds pink, opening to single, white flowers 1.4 in (3.5 cm) across; fruit 1 in (2.5 cm) in diameter, red. Loc. 54.

"M. 'Ames White'" Iowa State College
An upright to spreading tree to 25 ft (8 m) high and as wide; buds pink, opening to single pink and white flowers; fruit green-yellow, not as showy as most newer crabapples. Disease free (Nichols). Better flowering and brighter-fruited clones are available today. Loc. 12, 89.

"M. 'Amisk'" Preston 1920
Parentage: A Rosybloom
Named by Isabella Preston, CDA—Ottawa, in her Lake Series, for Amisk Lake, northeast ern Saskatchewan, on the Manitoba border. Buds carmine, opening to pink, single flowers 2 in (5 cm) across; fruit red with yellow checks, 1.4 in (3.5 cm) in diameter. An alternate bloomer, Should be phased out—too much disease (Nichols). Loc. 24.

"M. 'Amplex'" Name only

"M. 'Amslash'" See M. sieboldi 'Amshid' in Chapter 11.

"M. 'Amur'" N. E. Hansen 1912
Parentage: M. x boreastata
Grown from seed collected in 1897 at the Imperial Botanical Gardens, St. Petersburg, Russia. Severely susceptible to scab. Loc. 26, 32.

"M. 'Anamos'" Wheeler before 1940
Parentage: A seedling of M. purpula 'Antonovka'
From Saskatchewan, Canada. Fruit yellow and red, 1.4 in (3.5 cm) in diameter. Susceptible to fire blight. Loc. 87.

"M. 'Angel Choir'" Fiala 1962
Parentage: (M. bacica 'Alba' × M. sieboldi) × (M. sieboldi × M. 'Van Essetine')
Introduced in 1981 by Klehm Nursery, South Barrington, IL. A sibling of M. 'Bridal Crown'. A small tree to 12 ft (3.5 m) high by 12 ft (4 m) wide; finely branched; buds pale pink, opening to clusters of small, double, white flowers that are very effective; fruit deep red, 0.4 in (1 cm) in diameter. A heavy annual bearer that blooms very heavily on spurs. Completely disease resistant (Nichols). A fine, delicate, double crabapple. Loc. 47, 100.

"M. 'Angus'" Name only. Originated at Central Experiment Farm, Ottawa, Canada. One of Saunders' crosses made in 1901 and named in 1913, but discarded later.

"M. angustifolia" See M. coronaria var. angustifolia in Chapter 11.

"M. angustifolia 'Pendula'" Harbison
See M. coronaria var. angustifolia 'Pendula' in Chapter 11.

"M. angustifolia 'Plena'" See M. sieboldi 'Prince Georges' in Chapter 11.

"M. 'Anne E'" Manbeck
Synonym: M. 'Manbeck Weeper' (former name)
Named for Anne E., an outstanding former worker in the propagation liner area of Manbeck Nurseries, New Knoxville, OH. A spreading weeper; bark distinctive in reddish color; flowers single, white; fruit small, cherry-red, persistent, with good color all winter, eaten by birds in midwinter. Good disease resistance. One of the better, older weepers that should be grown more. Loc. 100.

"M. 'Ann Marie'" Fiala 1989
Parentage: M. 'Satin Cloud' × M. Tetragold' No. N-32-F7. Named to honor a young horticulturist, Ann Merce Chonor, Maple Heights and Madison, OH. Introduced by Klehm Nurs-
ery, South Barrington, IL. An upright to somewhat vase-shaped tree to 12 ft (3.5 m) high and 10 ft (3 m) wide; leaves medium green, disease free; buds rose-pink, opening to large, single, pale pink flowers on long branches, like flower-
ing wands, blooming when plant is young (often in nursery pots); fruit yellowish with orange blush, persistent, 0.7 in (1.8 cm) in diameter. A very heavy annual bloomer. Disease resistant. An excellent, very showy crabapple that should be of considerable interest to nurseries for its early blooming and excellent plant qualities. Suitable for all landscapes—smaller homes and patios as well as large estate or parks. Loc. 47, 100.

"M. 'Ann Trio'" N. E. Hansen
Parentage: M. 'Tony' (apple) and M. 'Mercer' (apple)
One of the progeny of M. lacotea.

"M. spectabilis" See Chapter 11.

"M. 'Arch McKeen'" Fiala 1988
Plate 130, Fig. 23
Parentage: M. 'Joy' × M. 'My Bonnie'
NR-31-P1. Named for a dear friend, plantsman, and horticulturist, Arch McKeen, of Grand Beach, New Buffalo, MI, on his 90th birthday. Introduced by Klehm Nursery, South Barrington, IL, and Falconseepke Gardens, Medina, OH. A small, upright to fan-shaped tree to 12 ft (3.5 m) high by 10 ft (3 m) wide; leaves medium green, disease resistant; buds deep rose, opening to single, pale pink flowers; fruit deep red, 0.4 in (1 cm) in diameter, persistent. A heavy, annual bloomer with mini-fruit. Excellent disease resistance. A wonderful, very showy addition to any garden. Outstanding for small gardens and planter culture. Ideal where a small specimen plant is required. Still very new and experimental, but will be an asset to the nursery professional, landscaper, and hybridizer. Loc. 47, 100.
**M. \textit{Arctic Dawn}** Leslie 1952  
Parentage: An open-pollinated seedling of \textit{M. pumila} \textit{Niedzwetzkyana}.  
Selected by W. R. Leslie at Canada Department of Agriculture, Beaverlodge, Alberta.  
A semiweeping tree; buds pink, opening to semi-pale pink-white flowers (0.5 in. (1.2 cm) across, with ruffled edges; fruit purple-red, 0.5 in (1.2 cm) in diameter, persistent into winter.  
Fairly good disease resistance; some moderate scab. Loc. 31, 81.

**M. \textit{Arctic Red}**  
Name only.

**M. \textit{Argentea}**  
An obsolete synonym for \textit{M. baccata} \textit{Yellow Siberian}.

**M. \textit{arminiacaeifolia}**  
An obsolete Latin name.

**M. Arnold Arboretum No. 328-55-A**  
See \textit{M. \textit{Red Barron}}.

**M. Arnold Arboretum No. 33340**  
See \textit{M. \textit{carmina}} \textit{Pink Pearl} in Chapter 11.

**M. Arnold-Canada**  
See \textit{M. \textit{xerrobusa}} \textit{Arnold-Canada} in Chapter 11.

**M. Arnold-Canada No. 5**  
See \textit{M. \textit{xerrobusa}} \textit{Arnold-Canada} in Chapter 11.

**M. \textit{varioliana}**  
See Chapter 11.

**M. \textit{Arrow}** Preston 1920  
Parentage: An open-pollinated seedling of \textit{M. \textit{pumila}} \textit{Niedzwetzkyana}  
Buds deep purple-red, opening to purpure-pink, single flowers 1.6 in (4 cm) across fruit dull purple-red with heavy bushy bloom, 1 in (2.5 cm) in diameter. An annual bloomer.  
Should be phased out—too much disease (Nichols). May be as good as its parent in hybridizing. Loc. 10, 14, 24, 26, 31, 32, 34, 51, 89.

**M. \textit{asiatica}**  
See \textit{M. \textit{pumila}} \textit{Rinkii} in Chapter 11.

**M. \textit{Aspiration}**  
See \textit{M. \textit{baccata}} \textit{Aspiration} in Chapter 11.

**M. \textit{staraeniana}**  
See Chapter 11.

**M. \textit{Astrachan}**  
See \textit{M. \textit{staraeniana}} in Chapter 11.

**M. \textit{Athabasca}** Preston 1921  
Parentage: A Rosyblom  
Named by Isabella Preston, CDA—Ottawa, after the Athabasca glacier and ice field in the Canadian Rockies. Flowers pale purple-pink with white claw, 1.8 in (4.5 cm) across; fruit yellow-orange to red, 1.6 in (4 cm) in diameter. An alternate bloomer. Subject to scab, but otherwise has fair disease resistance. Loc. 15, 31, 32, 37, 54, 89.

**M. \textit{atropurpurea}**  
See M. \textit{saypurpurea} 'Ebey' in Chapter 11.

**M. \textit{xatensis}**  
See Chapter 11.

**M. \textit{Aurantiacia}**  
See \textit{M. \textit{baccata}} \textit{Aurantiacia} in Chapter 11.

**M. \textit{aura}**  
See \textit{M. \textit{pumila}} \textit{Aurorae}.

**M. \textit{Aurea}**  
See \textit{M. \textit{pumila}} \textit{Aurorae}.

**M. \textit{aurora}**  
Samuels 1904  
Originated at the Central Experiment Farm, Ottawa, Canada, but discarded later.

**M. \textit{Autumn Delight}** Halward  

**+M. \textit{Autumn Glory}** Fiala 1968  
Plate 131  
A new mini-fruited cultivar with heavy influence of \textit{M. \textit{sinfolia}} \textit{Wooster}. Introduced by Klehm Nursery, South Barrington, IL. A small, rounded to spreading tree 15 ft (4.6 m) high and as wide, leaves dark green, turning yellow in autumn; buds bright red, opening to single, blush and full white flowers that bloom very heavily on spurs; fruit bright orange-red, with a glossy finish, 0.25 in (0.6 cm) in diameter, color in late August, persistent until eaten by birds in November. An annual, annual bearer. Very showy in spring and autumn. Completely disease resistant (Nicholas). Ideal for smaller landscape designs. One of the best, small-fruited, newer crabapples. Loc. 32, 47, 100.

**M. \textit{Autumn Gold}** Halward  
A Canadian hybrid from Royal Botanic Gardens, Hamilton, Ontario, Canada. Fruit gold.

**M. \textit{Autumn Treasure}** Fiala 1975  
Parentage: \textit{M. \textit{Winter Gold}} x \textit{M. \textit{Red Swan}} No. 85-15. Introduced by Klehm Nursery, South Barrington, IL. A small, graceful weeper 10 ft (3 m) high and as wide; leaves medium to dark green, disease resistant; buds red, opening to single, white flowers; fruit gold, very small, to 0.25 in (0.6 cm), coloring early, showy and persistent until hard freeze, relished by birds. An abundant, annual bearer. Disease resistant. Loc. 47, 100.

**M. \textit{Babine}** Preston  
Parentage: A cross or seedling of \textit{M. \textit{baccata}} \textit{A discontinuum} Rosyblom.

**M. \textit{bacata}**  
See Chapter 11.

**M. \textit{bacata var. himalica}**  
See Chapter 11.

**M. \textit{bacata var. mandschurica}**  
See Chapter 11.

**M. \textit{bacata \textit{Alexander}}**  
See Chapter 11.

**M. \textit{bacata \textit{Alexis}}**  
See Chapter 11.

**M. \textit{bacata \textit{Aspiration}}**  
See Chapter 11.

**M. \textit{bacata \textit{Aurantiacia}}**  
See Chapter 11.

**M. \textit{bacata \textit{Costata}}**  
See Chapter 11.

**M. \textit{bacata \textit{Costata}}**  
See Chapter 11.

**M. \textit{bacata \textit{Flavescens}}**  
See Chapter 11.

**M. \textit{bacata \textit{Fusciflava}}**  
See \textit{M. \textit{bacata}} \textit{Flavescens} in Chapter 11.

**M. \textit{bacata \textit{Gallicina}}**  
See Chapter 11.

**M. \textit{bacata \textit{Halward}}**  
See Chapter 11.

**M. \textit{bacata \textit{Jackii}}**  
See Chapter 11.

**M. \textit{bacata \textit{Lady Northcliffe}}**  
See Chapter 11.

**M. \textit{bacata \textit{Oderata}}**  
See Chapter 11.

**M. \textit{bacata \textit{Spongberg}}**  
See Chapter 11.

**M. \textit{bacata \textit{Taliausk}}**  
See Chapter 11.

**M. \textit{bacata \textit{Walters}}**  
See Chapter 11.

**M. \textit{bacata \textit{Yellow Siberian}}**  
See Chapter 11.

**M. \textit{Bailey}**  
See \textit{M. Bailey's Crimson}.

**M. \textit{Bailey's Crimson}**  
Synonym: \textit{M. Bailey}  
Name only.

**M. \textit{Ballarena}** Fiala 1974  
Parentage \textit{M. \textit{Gaertneri}} x a tetraploid seedling of \textit{M. \textit{Silver Moon}}  
No. 85-4-6. An upright to fan-shaped tree 16 ft (5 m) high and 12 ft (3.5 m) wide; leaves glossy; dark green, disease tree; buds pure white, opening to large, very cupped, white, single flowers, very showy; fruit 0.4-0.5 in (1-1.2 cm), bright yellow, persistent to hard freeze. Disease resistant. Excellent for narrow places. Should be grown commercially. Loc. 47.

**M. \textit{Barbara Ann}** Wyman 1933  
Fig. 12.1  
One of the progeny of \textit{M. \textit{Varioliana}}.  
Named for youngest daughter of Donald Wyman, former horticulturist at the Arnold Arboretum. Flowers double, with 12-15 petals, deep purple-pink, fading to a lighter purple-pink, 1.5 in (4 cm) across; fruit purple-red,
Resistant to fire blight but moderately susceptible to scab. Loc. 12, 31, 61, 81.

*M. 'Behrens Crab'* Behrens
Synonym: M. 'L.B. No. 1' Name only. No scab (Nichols). Loc. 32, 81.

*M. 'Beverly'* Plate 132
An upright, spreading tree to 20 ft (6 m) high and as wide; dark green leaves; resistant to fire blight. Loc. 12, 13, 14, 23, 26, 31, 35, 41, 46, 47, 54, 61, 69, 79, 80, 81, 86, 87, 89, 91, 100.

*M. 'Big Red'* Name only.

*M. 'Big River'* P. F. Wright 1954
Parentage: M. betula x M. 'Hopsa'
A Rosybloom from Saskatchewan, Canada. A pyramidal tree, very hardy; flowers deep rose. Disease resistant. Should be more popularly offered in the United States. Loc. 89.

*M. 'Birdland'* Plate 133
A new introduction from Johnson's Nursery, Mononome Falls, WI. Named by Lor Yanny because its fruit is so richly colored by birds, especially cedar warblers and early robins, who finish off the persistent fruit. A rounded tree to 25 ft (8 m) high and 30 ft (9 m) wide. Loc. 12, 31, 61, 80.

*M. 'Blair'* Name only. Good disease resistance (Nichols).

*M. 'Blanche Ames'* Sax 1939 Plate 134, Fig. 3-6
Parentage: An open-pollinated seedling of M. spectabilis 'Riverwalk'
Arnold Arboretum No. 6639. Named after Mrs. Oscar Ames, wife of a former professor of botany at Harvard University. A medium-sized, spreading to semiweeping tree to 20 ft (6 m) high and as wide; buds very pale pink, opening to semidouble, white flowers pro-

clined in great profusion annually, about 1.4 in (3.5 cm) across; fruit very small, yellow, 0.3 in (0.5 cm) in diameter. Moderate susceptibility to scab. One of the better flowering miniature crabapples. Should be more widely grown, ideal for smaller home landscapes. A semi-
double, very showy crabapple that should be used more in hybridizing. Loc. 12, 13, 81.

*M. 'Bluebeard'* Ross circa 1960 Fig. 12.2
Parentage: A seedling of M. purpureum 'Lemoinei'.
A small, rounded tree to 12 ft (3.5 m) high and as wide; leaves rich-bronze with green; buds bright cream to rose-red, opening to purple-red, single and semidouble flowers; fruit 0.5 in (1.2 cm) in diameter, purple-red with a definite blue bloom or bluish, attractive. Subject to slight leaf spot and scab. Most interesting for its uniquely colored bluish fruit. Loc. 47.

*M. 'Bob F'* Name only.

*M. 'Bob White'* Plates 135, 136, 137
Parentage: A chance seedling of unknown origin occurring in Massachusetts. Introduced by the Arnold Arboretum before 1876. A dense, rounded tree to 20 ft (6 m) high and 30 ft (9 m) wide; buds pink, opening to white, single flowers 1 in (2.5 cm) across; fruit yellow-green, often with brown on the shaded side; about 0.5 in (1.2 cm) in diameter; persistent to late winter. An alternate bearer in some areas of the country. Subject to moderate fire blight and some scab. This has been somewhat over-rated: its fruit is not a good color gold but rather a dull yellow-green with brown on the shaded side, and it bears in alternate years in some places. On the other hand, it has several good qualities: leaf color changes to bright gold each fall, which enhances the fruit; fruit color improves a bit after frosts; and fruit persists even to spring and thus is highly prized as a "bird feeder." It has been a popular crabapple, and rightfully so, even though there are many newer introductions that are far superior in fruit color (e.g., M. 'Winter Gold'), annual bearing, and disease resistance. Loc. 10, 12, 13, 18, 20, 26, 31, 37, 39, 44, 61, 68, 69, 71, 79, 80, 81, 86, 87.

*M. 'Bonfire'* Fleta 1976
Parentage: M. 'Christmas Holly' x M. 'Amberlady' No. 85-1-8. A small, upright tree to 14 ft (4.3 m) high and 12 ft (3.5 m) wide; leaves medium to dark green; good; buds carmine-red, opening to white, single, white flowers; heavy, annual bloomer; fruit abundant, very small, 0.25 in (0.6 cm) in diameter, bright orange-red, very showy in color; persistent until eaten by birds. Disease resistant. An excellent crabapple for smaller landscapes or as a specimen tree. Loc. 47.

*M. 'Broom'* Arrowwood
Name only.

*M. 'Boone Park'* See M. tenella 'Boone Park' in Chapter 11.

*M. 'Branch'* Moosewood
See M. coronaria var. brachyta in Chapter 11.

*M. 'Brandwyine'* Simpson Plates 138, 139, 140
Synonym: M. tenella 'Plena' Klein's No. 8. Parentage: M. purpureum 'Lemoinei' x M. 'Klein's Improved Plant patent name "Branzam." A rounded tree to 20 ft (6 m) high and as wide; leaves large, green with a wine-red overcast in spring; buds deep rose-red, opening to deep rose-pink, double, very fragrant flowers; fruit yellow-green, somewhat large (the one fault of this magnificent tree), 1 in (2.5 cm) in diameter, falling rather soon. Reasonably good disease resistance: mild scab and subject to cedar- apple rust. In spring, this clone provides an outstanding display of deep rose-pink buds with the delightful crabapple fragrance and rose-like blossoms. No larger estate or park planting should be without it, but it should not be planted where the fallen fruit may cause a problem. One of the better new, double crabapples. Younger hybridizers would do well to use it and improve its disease resistance. Loc. 24, 31, 46, 61, 81, 82, 85, 86.

*M. 'Bristol'* In 1919

*M. 'Buddha'* In 1919

*M. 'Budwei'* In 1919

*M. 'Burbank'* In 1919

*M. 'Burford'* Brandon Experiment Farm, Manitoba 1928

Figure 12.1. Malus 'Barbara Ann'
Figure 12.2. Malus 'Bluebeard'
Figure 12.3. Malus 'Bob F'
Figure 12.4. Malus 'Bob White'
**M. 'Burgundy'** Simpson 1980

*Synonyms: M. 'Burgundy', M. 'Simpson-17'*

A slender, vase-shaped tree to 18 ft (5.5 m) high and 6 ft (1.8 m) wide; leaves dark green; buds purplish, opening to very double, white flowers in clusters, like a bride’s corsage; spurs heavily fruited; fruit reddish, about 0.4 in (1 cm) in diameter, persistent. Disease resistant (Nichols). Small delicate tree with charming buds and blossoms. Should be good for hybridizing for double-flowering crabapples. Loc. 47, 100.

**M. 'Brier'** Brier 1870

Parentage: A cross of M. xudoripennis flowers single, white, 1.8 in (4.5 cm) across; fruit 1.6 in (4 cm) in diameter, red and yellow. Should be phased out—too much disease (Nichols). Loc. 3, 10, 12, 31, 34, 61, 81.

**M. 'Bright Angel'**

An upright to spreading tree to 12 ft (3.5 m) high by 15 ft (4.5 m) wide; buds rose, opening to single, white flowers; fruit bright red, 0.5 in (1.25 cm) in diameter, persistent to December. An annual bearer. Disease resistant. Loc. 47, 85.

**M. 'Brilliant'**

See M. 'Crimson Brilliant'.

**M. 'Brons'**

Parentage: A clone of M. xudoripennis Buds pale pink; opening to single, very attractive, somewhat cupped, white flowers with very rounded petals, exceedingly beautiful on close observation. Subject to severe cedar-apple rust. Loc. 14 (but apparently no longer in existence).

**M. Brook's No. 6** See M. 'Jubilee'.

**M. 'Buccaneer'** Fiala A red-flowering descendant of M. xhipppara 'Lemondrei'.

**M. 'Buncombe'**

See M. coriaria var. bracteata in Chapter 11.

With somewhat larger fruit. An excellent ornamental. Performs very well in the middle South. According to Michael Durr, 'Perhaps one of the best white-flowered crabapples for southern gardens because of its apparent disease resistance as well as an apparent minimal flower bud chilling requirement.' This clone could well be a foundation plant for a much needed southern crabapple breeding program, which should be undertaken by the agriculture departments of southern states (e.g., Georgia, Florida, Louisiana, South Carolina, and Mississippi) and university researchers within these states. Loc. 5, 12, 26, 35, 79.

**M. 'Callaway'**

See M. 'Callaway'.

**M. 'Calloway'** Fiala 1970

*Plates 142, 143* Parentage: M. 'Liset' X M. 'Redbird' A small, upright, to 12 ft (3.5 m) high by 12 ft (3.5 m) wide; leaves green, brown, mid-green; buds deep carmine rose, opening to medium crimson, single flowers, which hold their color well; fruit small, bright red, to 0.6 in (1.5 cm) in diameter, persistent. An abundant and annual bloomer. Subject to very slight leaf and very disease resistant (Nichols). A dark red leaved crabapple with bright red fruit. Loc. 47.

**M. 'Camellia'** Zampini Plate 144

Plant patented name. 'Camellia' To be introduced by Lake County Nursery, Perry, OH, as one of the Round Table Series of dwarf crab apples developed by James Zampini. A tree to 10 ft (3 m) high and 8 ft (2.5 m) wide; leaves dark green with burgundy overcast; flowers single, nearly white on pink; fruit medium-sized, bright burgundy, persistent. Disease resistance not yet determined. Too new to be evaluated, but its small form should make it popular. Loc. 46.

**M. 'Cameron'** Central Experiment Farm, Ottawa, Canada 1956

Parentage: M. 'Arrow' X M. Katherina' Grown from seed. Named in honor of D. F. Cameron, plant breeder. Canada Department of Agriculture, Ottawa. Introduced in 1973. A tall, oval-shaped tree; leaves lustrous bronze, turning dark green; flowers double, red, 1.5 in (4 cm) across; fruit small, 0.2 in (1 cm) in diameter, shiny purple. An exciting double, red-flowering crabapple that should be used in breeding and offered by nurseries. Loc. 61.

**M. 'Camille'** Name only.

**M. 'Canada Red'** Name only. Subject to moderate scab (Nichols). Loc. 84.

**M. 'Canadian Weeper'** Name only. No diseases (Nichols). Loc. 28.

**M. 'Canary'** Simpson Parentage: A chance seedling. Introduced by Robert Simpson. A medium-sized tree, somewhat open and spreading with age; flowers abundant, small, white; fruit very showy, tiny, canary yellow, in groups, on long stems.

**M. 'Canarybird'** Fiala 1980 Parentage: M. 'Winter Gold' X M. 'Serenade' No. 5D-1. A small, upright to rounded tree to 15 ft (4.5 m) high and 10 ft (3 m) wide; leaves green, good; buds carmine, opening to single, white flowers in great abundance; fruit 0.5 in (1.25 cm) in diameter, deep gold, becoming a rich amber-gold after frost. Persistent. Disease free. An annual bearer that appears to be extremely hardy, with extremely fruit in alternate years. An excellent tree for fruit color next to bright red stones. Loc. 47.

**M. 'Candied Apple'** See M. 'Weeping Candied Apple'.

**M. 'Candy Mint Sargent'** Simpson 1987 Parentage: A seedling of M. sargentii. Plant patented No. 6606. A small, picturesque tree with horizontal branching and vigorous growth; leaves purplish; buds pink, opening to single, pink flowers with petals edged red. A very effective, abundant bloomer. Disease resistant. A very distinctive dwarf apple tree for the landscape, smaller spaces, and patios. A new introduction of Robert Simpson that should be an excellent addition to the smaller crabapples.

**M. 'Candy Pink'** Ros 1970 A small, upright to rounded tree to 10 ft
**Named Crabbles**

(M) high and as wide; leaves dark green; buds bright pink, opening to double, pink flowers; fruit yellowish, very small. Subject to very mild scab, otherwise disease resistant. A very fine crabapple that has been overlooked and should be better known. Loc. 47.

**M. Canterbury**

Zampini

Plant patent name "Canterzam." To be introduced by Lake County Nursery, Perry, OH, as one of the Round Table Series of dwarf crabapples developed by James Zampini. A round tree to 10 ft (3 m) high and as wide; leaves dark green; buds deep rose, opening to single, pale pink to white flowers; fruit medium-sized, bright red, persistent. Disease resistant (per introducer); too new to be properly evaluated for disease resistance. Appears to be a home addition to the list of smaller, dwarf-type crabapples. Loc. 46.

**M. Cape Cod**

Name only. Subject to slight scab, but only known by one tree (Nichols).

**M. Cap of Liberty**

Name only. Disease resistant, but only known by one tree (Nichols).

**M. Caputa**

N. E. Hansen

Name only.

**M. Carmel**

Synonym: M. 'Carmel' Hanson 1919

Buds light pink; flowers pink-white, 1.6 in (4 cm) across; fruit yellow-green to orange-yellow with red cheeks, 2 in (5 cm) in diameter. Disease resistant except for mild scab. Fruit too large for small gardens but could be a fine done for highway plantings. Loc. 12, 37, 61, 69.

**M. Cardinal Wellington**

Parentage: One of the progeny of M. xvariolata

Name only. Subject to moderate scab, otherwise the 26 trees tested were disease resistant (Nichols). Loc. 31, 32, 35, 61, 80, 81.

**M. Cardinal King**

Name only. Subject to severe scab, but only known by one tree (Nichols). Loc. 15.

**M. 'Cardinal's Rebel'**

Fiala 1970

Parentage: M. 'Liset' × M. 'Amberina'

No. B-84-1. Named to honor a friend, James Cardinal Hickey, Washington, DC. A small, rounded to spreading tree to 12 ft (3.5 m) high and as wide; bark unique, with stippling like cherry bark, very attractive in winter; leaves dark red-green, disease resistant; buds bright orange-red, opening to rose-red, single flowers produced in great profusion; fruit bright red, 0.4 in (1 cm) in diameter, firm, persistent, round. Disease resistant. An excellent tree for landscaping and hybridizing. Loc. 47, 86.

**M. Carleton'**

CDA—Ottawa

An obsolete Rosyboom crabapple.

**M. Carmel** See M. 'Carmel'.

**M. 'Carnival'**

Fiala 1978

Parentage: M. 'Serenade' × M. 'Amberina'

No. 86-91. A small, round tree to 12 ft (3.5 m) high and 10 ft (3 m) wide; leaves dark green, very heavily textured; buds pink-red, opening to single, white flowers; fruit very small, 0.6 in (1.5 cm) in diameter, colors early, coloring is a combination of gold, orange, and red, very distinctive and showy, persistent until heavy freeze or eaten by birds. Disease resistant. An excellent, smaller tree for the home landscape or parks. Loc. 47.

**M. Carol Ann' Schwarzle**

Introduced by Chester D. Schwarzle, Payulap, WA, and named for his granddaughter, Carol Ann Morgan.

**M. 'Cascade'**

Fiala 1964

Name changed to M. 'Snow Ballerina' (which see) so as not to conflict with another weeper, M. 'White Cascade'.

**M. 'Case Seedling'**

Disease free after 20 years of testing, but only 3 trees tested (Nichols). Loc. 8, 10, 13.

**M. Cashmere'**

Aldenham House, England

See M. xedulis in Chapter 11.

**M. Cathay'**

Hansen 1919

Parentage: A hybrid of M. prunifolia.

A good crabapple but not well known. Completely disease resistant in 15 years of testing (Nichols). Loc. 10, 31, 32, 35, 61, 81, 89.

**M. Cathy'**

Schwarzle

Introduced by Chester D. Schwarzle, Payulap, WA, and named for his granddaughter, Cathy Consolvoes. Loc. 85.

**M. 'Centennial'**

University of Minnesota 1972

Fig. 2.5

A tree spreading to 25 ft (7.5 m) wide; flowers white, single, mildly fragrant; fruit bright red over yellow, 1.9 in (4.5 cm) in diameter, elongate. Disease resistant after 20 years of testing, with only an occasional mild scab (Nichols). Not an outstanding ornamental as the fruit is too large and messy, but a good jelly crabapple. Could well be used in place of M. 'Dolgo'. Loc. 5, 9, 12, 24, 31, 79, 89.

**M. 'Centurion'**

Simpson 1978 Plate I No. 31-57. Plant patent name "Centurzam." Introduced by Simpson Nursery Co., Vincennes, IN. A columnar tree to 20 ft (6 m) high and 15 ft (4.5 m) wide; leaves dark green, glossy; good; flowers rose-red, single; fruit glossy, cherry-red, 0.6 in (1.5 cm) in diameter, effective for 1 month. Disease resistant (Nichols). Very fine newener crabapple. Loc. 5, 9, 12, 24, 31, 35, 37, 46, 47, 55, 74, 79, 81.

**M. ceriseira**

An obsolete name for M. bicata.

**M. 'Cerasifera'**

See M. bicata 'Cerasifera' in Chapter 11.

**M. Charlotta'**

See M. coronaria var. disegyphy 'Charlotta' in Chapter 11.

**M. Cheal's Crimson'**

Cheal 1919

Parentage: A hybrid of M. prunigetia. Introduced by Joseph Cheal & Sons, Ltd., Crawley, Sussex, England. Buds pink, opening to single, white flowers; fruit bright red, 0.75 in (1.9 cm) in diameter, very persistent and showy. Subject to severe scab. Loc. 15, 24, 31, 37, 54, 61.

**M. Cheal's Golden Gem'**

Cheal before 1929

Introduced by Joseph Cheal & Sons, Ltd., Crawley, Sussex, England. An upright to fan-shaped tree to 20 ft (6 m) high and 18 ft (5.5 m) wide; buds very pale pink, opening to single, white flowers; fruit 0.5 in (1.2 cm) in diameter, gold-colored. Subject to mild scab (Nichols). Loc. 2, 54.

**M. 'Cheesnut'**

Hansen 1919

Minnesota No. 240. Named because it has the taste of the nut. Buds red; flowers single, white fruit large, 2 in (5 cm) in diameter. Low susceptibility to scab, otherwise disease resistant after 20 years of testing (Nichols). A jelly crabapple with a unique, nutlike flavor. Loc. 12, 24.

**M. 'Chiliko'**

Preston 1920

Parentage: An open-pollinated seedling of M. prunigetia 'Niedzwiedzki'.

A Rosybloom. Named by Isabella Preston, CDA—Ontario, in 1930 for Chiliko Lake, southwestern British Columbia. Flowers single, purple-pink, 2 in (5 cm) across; fruit bright red to crimson, very large, 2 in (5 cm) in diameter. Mildly susceptible to scab. An alternate bloomer. A possible substitute for M. 'Dolgo' as a caming apple. Loc. 15, 18, 26, 31, 32, 37, 54, 80, 81.

**M. Chinook'**

N. E. Hansen

Parentage: An open-pollinated seedling of M. coronaria 'Elk River'


**M. Christmas Candles'**

See M. 'Golden Candles'.

**M. 'Christmas Holly'**

Fiala 1969 Plate 147

Parentage: A multibrält

Introduced by Lake County Nursery, Perry, OH, and Klein Nursery, South Barrington, IL. A small, rounded, spreading tree to 15 ft (4.5 m) high, completely covered in spring blossoms; buds bright red, opening to single, white flowers 1.5-1.8 in (3.8-4.5 cm) across; fruit very small, holly-like, bright red, 0.4 in (1 cm) in diameter, produced abundantly in abundance, persistent and very showy from September to December. Completely disease resistant (Nichols). A very heavy fruit bearer. A good jelly crabapple, very showy in blossom and fruit. Excellent for hybridizing. Loc. 5, 24, 26, 31, 35, 46, 47, 79, 81, 87, 100.

**M. 'Cinderella'**

Zampini

Parent patent name "Cinderellazam." Introduced in 1991 by Lake County Nursery, Perry, OH, as one of the Round Table Series of dwarf crabapples developed by James Zampini. A very small bush 6 ft (1.8 m) high and 4 ft (1.2 m) wide; leaves green; buds red, opening to single, white flowers; fruit medium small, with good gold color, persistent. Disease resistant (per introducer) too new to be properly evaluated for disease tolerance. The extremely small form should make this clone a most desirable crabapple for small gardens, patios, or in other situations with limited space. Should be excellent in hybridizing newier small forms with gold fruit. Loc. 46.
An excellent tree both for the landscaper and the hybridizer. Like M. 'Satin Cloud', a rare polyloid. Loc. 47, 86, 100.

M. 'Coralscape' Ross 1967 Plate 152 Parentage: An open-pollinated seedling of M. teriige. Patent. Henry Ross, Gardenview Horticultural Park, Strongsville, OH. Has scored a winner with this fantastic clone! Introduced by Kiehn Nursery, South Barrington, IL. A medium-sized tree to 15 ft (4.6 m) high, weeping with age; leaves deep green; buds deep coral-red, opening to blush white, single flowers; fruit pink-coral-orange, after frosts more copper-orange, 0.4 in (1 cm) in diameter, oval, fruiting heavily on spurs, persistent into January. Totally disease-free after 20 years of testing (Nichols). One of the very best in its fruit color class, outstanding in blossom and especially in fruit. Heavily used in hybridizing programs at Falconescape Gardens, Medina, OH. One parent of M. 'Coraleana'. Loc. 47, 100.

M. 'Costata' See M. buccari 'Costata' in Chapter 11.

M. 'Coralscape' Ross 1967 Plate 152 Parentage: An open-pollinated seedling of M. teriige. Patent. Henry Ross, Gardenview Horticultural Park, Strongsville, OH. Has scored a winner with this fantastic clone! Introduced by Kiehn Nursery, South Barrington, IL. A medium-sized tree to 15 ft (4.6 m) high, weeping with age; leaves deep green; buds deep coral-red, opening to blush white, single flowers; fruit pink-coral-orange, after frosts more copper-orange, 0.4 in (1 cm) in diameter, oval, fruiting heavily on spurs, persistent into January. Totally disease-free after 20 years of testing (Nichols). One of the very best in its fruit color class, outstanding in blossom and especially in fruit. Heavily used in hybridizing programs at Falconescape Gardens, Medina, OH. One parent of M. 'Coraleana'. Loc. 47, 100.

M. 'Coralscape' Ross 1967 Plate 152 Parentage: An open-pollinated seedling of M. teriige. Patent. Henry Ross, Gardenview Horticultural Park, Strongsville, OH. Has scored a winner with this fantastic clone! Introduced by Kiehn Nursery, South Barrington, IL. A medium-sized tree to 15 ft (4.6 m) high, weeping with age; leaves deep green; buds deep coral-red, opening to blush white, single flowers; fruit pink-coral-orange, after frosts more copper-orange, 0.4 in (1 cm) in diameter, oval, fruiting heavily on spurs, persistent into January. Totally disease-free after 20 years of testing (Nichols). One of the very best in its fruit color class, outstanding in blossom and especially in fruit. Heavily used in hybridizing programs at Falconescape Gardens, Medina, OH. One parent of M. 'Coraleana'. Loc. 47, 100.

M. 'Coralscape' Ross 1967 Plate 152 Parentage: An open-pollinated seedling of M. teriige. Patent. Henry Ross, Gardenview Horticultural Park, Strongsville, OH. Has scored a winner with this fantastic clone! Introduced by Kiehn Nursery, South Barrington, IL. A medium-sized tree to 15 ft (4.6 m) high, weeping with age; leaves deep green; buds deep coral-red, opening to blush white, single flowers; fruit pink-coral-orange, after frosts more copper-orange, 0.4 in (1 cm) in diameter, oval, fruiting heavily on spurs, persistent into January. Totally disease-free after 20 years of testing (Nichols). One of the very best in its fruit color class, outstanding in blossom and especially in fruit. Heavily used in hybridizing programs at Falconescape Gardens, Medina, OH. One parent of M. 'Coraleana'. Loc. 47, 100.
upright, double-flowering crabapples. Attractive in abundant red fruit; most double-flowering crabapples produce few fruits. Outstanding for landscapes and hybridizers. Loc. 47. 100.

M. 'Crimson Beauty'

Name only. Only one tree known in 1965 (Nichols). Loc. 81.

M. 'Crimson Brilliant'

A. den Boer 1939

Synonym: M. 'Brilliant' Parentrage: An open-pollinated seedling of M. spurgiae 'Eleya'

Buds deep purple-red, opening to single and semidouble, bright rose-pink flowers with pale lavender star at base of petals, 1.6 in (4 cm) across; fruit dark purple-red, with russet marks, 0.8 in (2 cm) in diameter. An alternate bearer. Several forms of Falconocks Gardens, Medina, OH. Not a heavy bloomer. Should be phased out—too much disease (Nichols). Loc. 2, 8, 12, 18, 19, 24, 26, 31, 35, 47, 54, 69, 79, 81.

'M. 'Crimson Comet' Fiala 1986

Parentage: M. 'Serendip' × M. 'Amberino' No. 86-302. A small, upright to spreading tree to 12 ft (3.5 m) high and as wide, dependable for bloom and fruit; buds crimson, opening to single, white flowers in abundant clusters; fruit very bright red, 0.6 in (1.5 cm) in diameter. An annual bloomer. Disease free. Creates an outstanding autumn show when used in massed groups of three next to yellow-flowered crabapples. Loc. 47.

M. 'Crimson Harvest' Wayside Gardens 1973

Listed in the catalog of Wayside Gardens, Mentor, OH; probably now discontinued. Loc. 61.

M. 'Crittenden'

Name only. One tree known in 1975 (Nichols).

M. 'Currant'

An obsolete name for a clone of M. × bacata. Origin unknown.

M. 'Custer'

Name only. Very subject to fire blight (Nichols).

M. 'Dainty' Kerr 1963

Parentage: Grown from open-pollinated seed of M. 'Royalty'. A small, pendulous bush form; leaves small, narrow, bronze, turning bronze-red in autumn; flowers small, mauve-pink; fruit purple, 0.4 in (1 cm) in diameter, with corky skin, not showy. Subject to severe scab. A small form that offers very little horticulturally. Loc. 5, 24, 31, 35, 79.

'M. Dakota Beauty' C. Hansen 1940

Parentage: A Roystholm Buds carmine, opening to dark red-purple, double flowers; fruit red fleshed, edible. Should be considered for hybridizing because of its double, deep red flowers. Not used as an ornamental because of sparse, larger fruit.

'M. Dakota Pink Eye'

See M. 'Pink Eye'.

M. 'Dana'

Name only. Subject to moderate scab and cedar-apple rust (Nichols). Loc. 61.

'M. 'Dancing Elf' Fiala/P. Murray

Parentage: M. 'Red Swarvi' × M. 'White Cascade'. No. BTPW. Developed at Falconocks Gardens, Medina, OH. A very refined, fountain type, small weeper to 6 ft (1.8 m) high and as wide; buds pink, opening to single, white flowers; fruit 0.4 in (1 cm) in diameter, golden with reddish blush, showy, persistent. A heavy, annual bloomer. Disease free. An excellent smaller weeper for container growing, patios, smaller gardens, garden walks, and wherever a smaller specimen plant is needed in the landscape. Loc. 47.

M. 'Dan Tofo' E. N. Hansen

Name only.

M. 'Darkest Red'

Name only. Only one known tree (Nichols).

M. 'Davenport' before 1881

Fruit large. Subject to severe scab. Loc. 9, 31, 32, 61, 81.

M. 'Dartr'

Name only.

M. dasyacaly

See M. coroanaria var. dasyacaly in Chapter 11.

M. dasyacaly

A clone of M. × bacata. Discontinued name.

M. 'Dauphin' Preston 1920

Parentage: An open-pollinated seedling of M. pontia 'Niedzwetzykana'. Not named by Isabella Preston, CDA—Ontario, until 1930. May be a synonym of M. 'Dol-phin' (which see). Buds deep purple-red, opening to single, purple-red flowers 1.8 in (4.5 cm) across; fruit 1.4 in (3.5 cm) in diameter, yellow streaked with red. Good disease resistance (Nichols). Loc. 10, 15, 24, 54, 79.

'M. David' A. den Boer 1957 Plate 154, Fig. 3.1

Parentage: Unknown Received by Arie den Boer from the Morton Arboretum in 1946. Named by the introducee for his grandson. A rounded, compact, small tree, leaves medium green, 2-3 in (5-8 cm) long, disease free; buds light pink, opening to single, pink-white flowers 1.5 in (3.8 cm) across; fruit scarlet red, 0.5 in (1.3 cm) in diameter, showy and persistent. An alternate bloomer. Excellent disease resistance (Nichols). Loc. 5, 9, 12, 18, 24, 26, 31, 35, 44, 54, 55, 61, 68, 79, 80, 81, 86, 89, 93.

M. 'David Nairn' H. R. Wright

Parentage: A clone of M. × bacata

M. 'Dawson' See M. × adansoniana in Chapter 11.

M. × adansoniana

See Chapter 11.

M. 'Debutante' Fiala/P. Murray

Parentage: M. 'Abermaia' × M. 'Winter Gold'. No. B11-89. A smaller, upright to fan-shaped tree 10 ft (3 m) high by 8 ft (2.5 m) wide; buds medium pink, opening to pale pink-white, single flowers produced in great profusion; fruit gold, 0.5 in (1.2 cm) in diameter, persistent. A very showy annual bloomer. A good, newer crabapple for smaller areas. Loc. 47.

M. 'Dekon Eckermeyer' See M. × oekomniantr Eckermeyer'.

M. 'Delite' Broughen Nursery, Valley River, Manitoba, Canada

Buds pink, followed by single, white flowers 2 in (5 cm) across; fruit orange and red, 1.4 in (3.5 cm) in diameter. Loc. 54, 61, 81.

M. denticulata

An obsolete name. Subject to severe scab.

M. 'Des Moines' Name only. Subject to moderate scab (Nichols). Loc. 32.

M. 'Diamond Jubilee' See M. 'Pink Eye'.

M. diversifolia

An obsolete botanical name.

'M. 'Dolge' N. E. Hansen 1897

Grown from seed of M. × sieboldii collected in 1897 at the Imperial Botanical Gardens, St. Petersburg, Russia. Introduced for the United States in 1917. Flowers single, white 1.75 in (4.4 cm) across; fruit bright red, 1.5 in (3.8 cm) in diameter, excellent for jelly. Blooms quickly in August or becoming soft. Subject to slight scab and fire blight (Nichols). Loc. 8, 12, 13, 18, 24, 26, 31, 32, 35, 39, 41, 53, 55, 61, 77, 79, 81, 82, 86, 87, 89, 91, 93.

Progeny of M. 'Dolge' include the following: M. 'Cencinalia' University of Minnesota M. 'Cranberry' Wodarz M. 'Eilt Trio' N. E. Hansen M. 'Coolside' Wodarz M. 'Heart River' Baird M. 'Kerr' Kerr M. 'Marie-Dolgo' CDA—Morden M. 'Mecca-Dolgo' CDA—Ottawa M. 'Northland' University of Minnesota M. 'Red Heart' Forster M. 'Red River' Yeager M. 'Spring Snow' Forster

M. 'Dolphin'

May be a synonym of M. 'Dauphin'; not enough information available to make further distinction. Fruit red and dark red. Subject to moderate scab (Nichols).

M. 'Donald'

See M. × adansoniana 'Donald' in Chapter 11.

M. 'Donald Wyman' Arnold Arboretum 1970

Parentage: A spontaneous seedling. Seedling first noticed at the Arnold Arboretum prior to 1980. Named after Donald Wyman, former horticulturist at the Arnold Arboretum. A rounded tree 20 ft (6 m) high and as wide; leaves dark green; buds pink, opening to white; single flowers 1.8 in (4.5 cm) across; fruit glossy, bright red, 0.4 in (1 cm) in diameter, persistent. An abundant, annual bearer. Subject to moderate scab and severe fire blight (Nichols). A fine clone that needs room to grow to perfection. Loc. 5, 8, 12, 13, 15, 18, 24, 26, 31, 35, 44, 46, 54, 55, 61, 69, 79, 80, 81, 86, 93, 100.

M. 'Dorothy' Wyman 1943

Parentage: Probably M. × saroldiana × M. halliana 'Parkinsoni', a chance seedling of doubtful parentage. Named for a daughter of Donald Wyman.
A small, upright to spreading tree 15 ft (4.6 m) high and as wide; leaves dark green; buds carmine, opening to semidouble (10–16 petals); rose-pink flowers that do not fade to white, 1.8 in (4.5 cm) across; fruit yellow, 0.5 in (1.2 cm) in diameter, not particularly showy. An annual bloomer, not recommended—subject to severe scab and mild fire blight. In all other respects, a good, showy crabapple. Doomed to be phased out for lack of justification and because of the development of newer clones. The fine, strong, deep pink blossom color is suitable for any landscape. A clone with some possibilities for hybridizers if not for landscapers. Locs. 9, 11, 12, 13, 14, 15, 19, 21, 24, 26, 31, 35, 37, 38, 40, 41, 43, 47, 54, 55, 61, 66, 69, 79, 80, 81, 85.

Progeny with distant M. 'Dorothea' pedigree include the following:
M. 'Barbara Ann' Wyman
M. 'Grandmother Louise' (tetraploid)
Flava
M. 'Mollie Ann' (octoploid) Flava
M. 'Satina Cloud' (octoploid) Flava
M. 'Spring Song' Flava

'M. 'Dorothy Rowe' Named to honor a great plantwoman, Dorothy Rowe, Rowe Arboretum, Cincinnati, OH. Expanding buds pink, opening to white to cream, single and semidouble flowers; fruit shiny, bright red, a bit turgid, 1 in (2.5 cm) in diameter. Disease free (Nichols). A very fine crabapple that has not been popular with nurseries, or have they missed it? Loc. 26, 31.

'M. 'Donsett Golden' Parentage: A cultivar of M. pumila, perhaps a seedling of variety syriaca. Brought into the United States from Nissa, Bahamian, by R. J. Knight. Plant Introduction Station, Miami, FL. Fruit yellow with a 10 percent, slightly pink blush, 2.25 in (5.6 cm) in diameter, with sweet-tasting, firm flesh. Not recommended for its commercial value, but recommended for hybridizing with Asiatic and North American species. Because it requires very few hours of chilling to break dormancy, it could be useful in developing southern hybrids to extend the range of flowering crabapples into central Florida.

'M. 'Doublon' Flava 1988 Plates 155, 156, 157, 158 Plant patent no. 7216. Named after the Spanish doublon, a gold coin no longer in use. Introduced and patented by J. Frank Schmidt & Sons Nursery, Boring, OR. A small, upright and spreading tree to 12 ft (3.6 m) high by 10 ft (3.0 m) wide; leaves deep green; buds rich carmine, opening to double and semidouble, white flowers; fruit bright lemon-yellow (RHS 15B to 15D), turning deeper lemon-gold after frost, 0.4 in (1 cm) in diameter, abundant, persistent to mid-November. A heavy bloomer. Disease resistant (Nichols). A small, excellent crabapple for any garden, and one that should be used in hybridizing. Loc. 47, 66.

'M. 'Dream River' Flava/P. Murray Parentage: M. 'Luvicek x M. 'Red Jade' No. N97-P98-86. From the series of over 40 new, weeping crabapples developed at Falconkeap Gardens, Medina, OH, over the past 50 years. A heavily branched weeper to 10 ft (3 m) high and 12 ft (3.5 m) wide; buds pale pink to soft rose, opening to large, single, white flowers with pink reverse on fringed petals; fruit 0.5 in (1.2 cm) in diameter, bright red, persistent. Very attractive and showy in abundant, annual blooming. Disease resistant. A new, relatively unknown weeper that is outstanding in blossom, fruit, and winter landscape form. Loc. 47.

'M. 'Dr. Van Fleet' Name only. Subject to mild scab (Nichols). Loc. 81.

'M. 'Dunbar' See M. coronaria var. glaucescens 'Dunbar' in Chapter 11.

'M. 'Duncaannon' Name only.

'M. Early Strawberry' U.S. before 1875 A large-fruited apple. Subject to mild scab (Nichols). Loc. 54.

'M. Edith' Name only. Disease resistant (Nichols). Loc. 2, 61.

'M. Edna Mullins' See M. 'Edna Mullins'.


'M. Edith' Parentage: A clone of M. lacinata

'M. 'Elgie' Flava 1980 Parentage: M. 'Van Eslinthe' x M. 'Serenade') x M. stebelii No. 768 x M. 'Red Jade'. An induced octoploid. Introduced by Klehm Nursery, South Barrington, IL. A graceful tree to 15 ft (4.5 m) high and 10 ft (3 m) wide, with long, thin, weeping branches to the ground; leaves very heavily textured, leathery, glossy, dark green 5 in (14 cm) long and 0.75 in (1.9 cm) wide; buds deep rose pink, opening to semidouble, pink and white flowers with the outer side of petals a rose pink; fruit round, red, to 0.4 in (1 cm) in diameter. Completely disease resistant (Nichols). An unusual weeper that should be used in a program for hybrid polyloid weepers. Loc. 47, 100.

'M. 'El H Wilson' Sim before 1931 Parentage: Unknown Origin unknown. Named to honor E. H. Wilson, famous plant explorer, botanist, and author, who worked first for Veitch & Sons, England, and then for the Arnold Arboretum. Introduced by William Sim Nursery, Cliftondale, MA. Buds carmine to rose, opening to single, white flowers 1.9 in (4.8 cm) across; fruit orange-red to red, large, 1.2 in (3 cm) in diameter. Subject to severe scab and mild fire blight (Nichols). Loc. 12, 24, 32, 33, 37, 54, 61.

'M. 'Eley' See M. 'Apurpurea' 'Eley' in Chapter 11.

'M. 'Elfin Magic' Flava 1996 Fig. 2.2 Parentage: M. 'Christmas Holly' x M. 'Amberina'. No. 86-575. A small, upright to spreading tree to 12 ft (3.5 m) high by 10 ft (3 m) wide; leaves dark green, opening to single, large white flowers; fruit brilliant orange-red, very attractive and abundant, 0.45-0.5 in (1-1.2 cm) in diameter, persistent to late winter, relished by smaller birds. An annual bloomer. Completely disease resistant. An excellent mini-fruited crabapple that is extremely showy in autumn fruit color and fits into any landscape requiring a smaller specimen tree. Loc. 47.

'M. 'Ely' Flava 1952 A discontinued clone; too similar to other red-flowering, red-fruited clones. A small tree 10 ft (3 m) high; leaves deep green; buds red, opening to single, red flowers; fruit dark red, 0.5 in (1.2 cm) in diameter. Subject to moderate scab. Loc. 46, 47.

'M. 'Elfene' Flava Plate 159 No. NR7-R-S. Named to honor Eline Kleiss, Ocala, FL, cousin of the introducer. A small, upright to rose-shaped tree to 12 ft (3.5 m) high and 8 ft (2.5 m) wide; buds rose-colored, opening to semidouble, white-mixed-with-pink flowers growing all along branches, wandlike; fruit coppery persistent. A very heavy, annual bloomer. Disease free. A fine tree for smaller gardens, patios, and garden walls. New and as yet not well known. Loc. 47, 100.

'M. 'Eline Rathake' See M. pumila 'Pendula'.

'M. 'Elk River' See M. coronaria 'Elk River' in Chapter 11.

'M. 'Ellen Gerhart' Sim circa 1955 Parentage: M. stebelii 'Calocarpa' x M. 'Van Eslinthe'. No. 1143. Named by Robert Simpson for one of the first secretaries at his nursery. A medium-sized tree; leaves good, resemblingthose of M. stebelii, scab resistant; flowers single and semidouble, pale pink; fruit glossy, brilliant red, 0.5-0.6 in (1.2-1.5 cm) in diameter, small, flattened with distinct conelike scar of russet or golden color that adds to attractiveness, colors late, persistent. Subject to severe scab (Nichols). Loc. 5, 12, 18, 24, 26, 35, 36, 46, 47, 54, 55, 61, 79, 80, 81.

'M. 'Ellwangeriana' See M. x farbunda 'Ellwangeriana' in Chapter 11.

'M. 'Elwood' Plate 160 Parentage: A pentaploid seedling of M. pumila 'Niedzwetzkyana'. Named in 1930 by Isabella Preston, CDA—Ottawa, in her Lake Series, for one of the Great Lakes between Canada and the United States. Buds purple-red, opening to rose-pink to lavender flowers with pale lavender claw, 2 in (5 cm) across; fruit dark red to orange, 0.9 in (2.3 cm) in diameter. An alternate bloomer. Subject to
severe scab. Like any member of the Lake Series, this clone might be slightly better for hybridizing newer Rosyblooms than M. palmula 'Niedzwetzkyana' itself. Loc. 31, 32, 79, 81.

M. 'Erl Trio' N. E. Hansen
Parentage: A seedling of M. 'Dolgo', a hybrid of M. baccata

'M. Evelyn' A. den Boer 1939
Synonym: M. sibirica 'Red Seedling No. 1'
Parentage: M. sibirica × M. purpurea
A hybrid selected by Arie den Boer from a large number of seedlings of M. sibirica at Waterworks Arboretum, Des Moines, IA. Named in 1953 by the introducer for a daughter-in-law, Evelyn, wife of John. Buds deep rose-red, opening to single, rose-red to deep rose-red flowers 1.4 in. (3.5 cm) across, single; fruit green-yellow and red, 1.4 in. (3.5 cm) in diameter. An alternate bloomer. Should be phased out—subject to severe scab and very severe fire blight (Nicholls. Loc. 12, 15, 18, 24, 31, 32, 38, 37, 54, 79, 80, 81.

'M. Excelsior' Zampini
Trade name: Excelsior
Plant patent name: M. 'Excavam'. To be introduced by Lake County Nursery, Perry, OH, one of the Round Table Series of dwarf crabapples developed by James Zampini. A small tree to 10 ft (3 m) high and 8 ft (2.5 m) wide; leaves green; buds red, opening to single, white flowers, 0.6 in. (1.5 cm) in diameter; very attractive combination of colors on single fruit—bright burnt-coral to orange-yellow; firm, persistent. Very heavy annual bearer. Fine disease resistance. An excellent bearer. Outstanding in form, bloom, and fruit. A showpiece in any garden or park. Loc. 46.

'M. 'Festa' Fila 1975
Parentage: M. 'Winter Gold' × M. 'Christmas Holly'
No. 82-1-1. A small to medium-sized semiweeper to 15 ft (4.5 m) high and as wide, with slender, red-branched, leaves; dark green leaves; buds carmine red, opening to single, white flowers in cascades; fruit small, 0.4 in. (1 cm) in diameter, very attractive combination of colors on single fruit—bright burnt-coral to orange-yellow; firm, persistent. A very heavy annual bearer. Fine disease resistance. An excellent bearer. Outstanding in form, bloom, and fruit. A showpiece in any garden or park. Loc. 61.

'M. 'Fiesa' Fila 1975
Parentage: M. 'Winter Gold' × M. 'Christmas Holly'
No. 82-1. A small to medium-sized semiweeper to 15 ft (4.5 m) high and as wide, with slender, red-branched, leaves; dark green leaves; buds carmine red, opening to single, white flowers in cascades; fruit small, 0.4 in. (1 cm) in diameter, very attractive combination of colors on single fruit—bright burnt-coral to orange-yellow; firm, persistent. A very heavy annual bearer. Fine disease resistance. An excellent bearer. Outstanding in form, bloom, and fruit. A showpiece in any garden or park. Loc. 47.

'M. 'Firecrow' Fila 1985
Parentage: M. 'Red Swan' × M. 'Amberina'
No. 86-461. A small weeper to 8 ft (2.5 m) high and 12 ft (3.5 m) wide; leaves dark green, good; buds rose-red, opening to attractive, semideciduous; pink-white flowers; fruit small, 0.6 in. (1.5 cm) in diameter, bright red, persistent until eaten by birds. An annual bearer. Completely disease free. Shiny in bloom and fruit. An ideal specimen for lawn plantings. Loc. 47.

'M. 'Firewheel' Fila 1975
Parentage: M. 'Christmas Holly' × M. 'Amberina'
No. 86-455. A small, rounded, tree to 12 ft (3.5 m) high and 10 ft (3 m) wide; leaves dark green, disease resistant; buds red, opening to heavy clusters of single, white flowers; fruit very small, 0.4 in (1 cm) in diameter, very bright red, round, glossy, firm, persistent into deep winter until eaten by birds. A very showy, heavy, annual bearer, completely disease resistant. Excellent for smaller landscapes and as specimen lawn tree. Loc. 47.

'M. 'Firebird' Fila 1982
Parentage: M. 'Redbird' × M. 'Amberina'
No. 85-25. A small, rounded tree to 14 ft (4.3 m) high and 10 ft (3 m) wide; leaves deep green, disease free; buds, opening to single, white flowers; fruit very small, 0.3-0.4 in. (0.8-1 cm) in diameter, bright orange-red, persistent to winter. An annual bearer. Fine disease resistance. An excellent plant for all landscapes. An extremely showy mini-fruiting tree as it matures, bearing on spurs increases. Loc. 47.

'M. 'Fireburst' Fila 1975
Parentage: M. 'Winter Gold' × M. 'Christmas Holly'
No. 82-1-2. A small, upright, slightly spreading tree to 15 ft (4.5 m) high and 12 ft (3.5 m) wide; leaves dark green, disease resistant; buds bright cherry-red, opening to single, white flowers; fruit small, 0.25 in. (0.6 cm) in diameter, firm, very bright red, glossy and shovory, persistent to deep freeze. An excellent crabapple in bloom and especially showy in fruit. Loc. 47.

'M. 'Firecracker' Fila 1985
Parentage: M. 'Red Swan' × M. 'Amberina'
No. 86-461. A small weeper to 8 ft (2.5 m) high and 12 ft (3.5 m) wide; leaves dark green, good; buds rose-red, opening to attractive, semideciduous; pink-white flowers; fruit small, 0.6 in. (1.5 cm) in diameter, bright red, persistent until eaten by birds. An annual bearer. Completely disease free. Shiny in bloom and fruit. An excellent tree for any landscape and a specimen tree. Loc. 47.

'M. 'Firefly' Fila 1984
A discontinuous clone. An upright to spreading tree to 15 ft (4.5 m) high and 12 ft (3.5 m) wide; buds rose-red, opening to very pale pinkish, single flowers; fruit 0.4 in. (1 cm) in diameter, bright red, persistent until eaten by birds. Subject to moderate scab. Loc. 47.

'M. 'Firelight' Fila 1979
Parentage: M. 'Liesel' × M. 'Amberina'
No. 6-225. A small, rounded tree to 10 ft (3 m) high and as wide; leaves red-green to bronze-green, disease-free, buds rose-colored, opening to single, rose-pink flowers produced in great abundance; fruit 0.4-0.5 in (1-1.2 cm) in diameter, red, persistent to late winter. An annual bloomer. Completely disease resistant. An excellent rose-flowering crabapple with bright red fruit. An excellent all-purpose tree. Loc. 47.

'M. 'Fire Mountain' Fila/P. Murray
No. UDM-T3-89. A small, upright to spreading tree to 12 ft (3.5 m) high and 14 ft (4.3 m) wide; leaves red-bronze before turning to bronze-green, good disease resistance; buds deep rose-red, opening to single, deep rose-red flowers, fading to a medium rose fruit 0.5 in (1.2 cm) in diameter, bright red, very shovory and heavy, persistent to December. A very heavy, annual bloomer. An outstanding rose-flowering crabapple for all landscaping needs: the combination of red and rose flowers is very attractive in spring and the fall fruit is very effective. Should be one of the bettersmall crabapples. Loc. 47, 100.

'M. 'Flame' University of Minnesota 1920
Fig. 12.3
Parentage: An open-pollinated seedling
A hardy tree; buds pink, opening to single, white flowers; fruit bright red, 0.6 in (2 cm) in diameter. An alternate bearer. Subject to very severe scab and moderate fire blight. Loc. 15, 35, 36, 124, 32, 33, 35, 34, 55, 52, 70, 81, 87, 89, 91.

'M. 'Flamingo' Fila 1969
A small, graceful, fountain type weeper to 10 ft (3 m) high by 12 ft (3.5 m) wide; leaves
reddish; buds red, opening to magenta flowers; fruit red-purple, 0.5 in (1.2 cm) in diameter. An annual bloomer. Moderately resistant to scab. Fruit too dark purple to be showy. Loc. 47.

**M. 'Flaming Star'** Fiala 1965
Paragone: *M. xpurpurea* 'Lemoneisel' × *M. Red Jade
No. FPR-2. A graceful, fountain type weeper to 12 ft (3.5 m) high and as wide, with slender branches sweeping the ground; leaves green-red to bronze; buds deep red, opening to single, bright red flowers that fade to a medium rose; fruit 0.5 in (1.2 cm) in diameter, dull red. A heavy annual bloomer. Subject to mild scab that is not disfiguring. Grows into a very graceful weeper with age. Loc. 47.

**M. 'Flava'** See *M. baccata 'Yellow Siberian' in Chapter 11.

**M. flavescens** See *M. baccata 'Flavescens' in Chapter 11.

**M. 'Flexilis'* See *M. baccata 'Flexilis' in Chapter 11.

**M. 'Florence'** Gideon 1886
Fruit large. Subject to very severe scab (Nichols). Loc. 12, 54.

**M. florentina** See Chapter 11.

**M. 'Flore Plena'** See *M. iousia 'Plena' in Chapter 11.

**M. floribunda** See Chapter 11.

**M. floribunda 'Eilwangeriana'** See Chapter 11.

**M. floribunda 'Excellenz Thiel'** See Chapter 11.

**M. 'Fluke No. 10' Fluke Parentage: A selection of wild *M. iousia Selected by N. K. Fluke, Davenport, IA.

**M. 'Fluke No. 29' Fluke Parentage: A selection of wild *M. iousia Selected by N. K. Fluke, Davenport, IA.

**M. formosana** See Chapter 11.

**M. 'Fountain'** Fiala 1990 Plate 161
An induced octoploid. A very low weeper to 4 ft (1.2 m) high and 8 ft (2.4 m) wide; very slow growing; leaves very small and misshapen because of ploidy; disease-free, 0.5-0.75 in (1.2-1.9 cm) long and 0.4 in (1 cm) wide; with very small internodes; buds pink, opening to large flowers 2 in (5 cm) across, single white; fruit dark red, 0.5 in (1.2 cm) in diameter, persistent. Subject to moderate scab but otherwise disease-free, although leaves very odd-shaped (Nichols). Recommended for hybridizers and researchers. Could be a progenitor of a whole new race of polykloid, smaller weepers. Loc. 47.

**M. 'Foxley'** Knight Parentage: A hybrid of *M. baccata

**M. fragrans attenuata** See *M. coronea 'Elongata' in Chapter 11.

**M. 'Francis'** Fiala Parentage: *M. 'Amberina' × M. 'Winter Gold' No. F-16-85-9. Introduced by friend and outstanding plant propagator and horticulturist, Francis Nock, Perry, OH. An upright, spreading tree to 15 ft (4.6 m) high and 20 ft (6 m) wide; buds rose-colored, opening to single, white flowers tinged pale pink, very fragrant; fruit 0.5 in (1.2 cm) in diameter, red with gold cheeks, extremely showy, persistent. An abundant, annual bloomer. Disease resistant. Very attractive when grown next to bright red flowering clumps. A showy tree for all landscaping needs, especially for bloom and fruit color. Loc. 47.

**M. 'Franz Lipp'** Tures 1960
Named by Matt Tures Sons Nursery, Huntley, IL, for Franz Lipp, noted Chicago landscape architect. Name only.

**M. 'Frau Luise Dittmann'** Henkel before 1909 From Germany in 1925. Identical with *M. spectabilis 'Plena' (A. den Boer). An alternate bearer. Subject to moderate scab and mildew (Nichols). Loc. 12, 35, 37, 68, 87.

**M. 'Frettingham's Victoria'** An upright to round tree to 15 ft (4.6 m) high and 12 ft (3.5 m) wide; flowers single, white; fruit 0.5 in (1.2 cm) in diameter, green with reddish shaded side. Not particularly ornamental. Loc. 31.

**M. 'Fuji'** See *M. tosingu 'Fuji' in Chapter 11.

**M. 'Fall Sails'** Fiala/P. Murray Parentage: *M. 'Angel Choir' × *M. 'Amberina' No. 96-221. A small, upright to spreading tree 12 ft (3.5 m) high and 10 ft (3 m) wide; leaves small, semi-glossy; buds pale pink, opening to semidouble, large white flowers in great abundance; fruit 0.5 in (1.2 cm) in diameter, bright red, persistent to late November. An annual bloomer. Disease resistant. A fine, smaller tree for the average garden—showy in blossom and fruit. Loc. 47.

**M. Jucata** See Chapter 11.

**M. Jucata var. pupella** See Chapter 11.

**M. Jucata 'Wagner'** See Chapter 11.

**M. 'Gardenview-19'** See *M. GV-19*

**M. 'Garnet'** Broughten Nursery 1942 Parentage: Unknown Introduced by Broughten Nurseries, Valley River, Manitoba, Canada. Flowers single, pink and white; fruit large (size of eating apples), red to purple-red, 2 in (5 cm) in diameter. Not well distributed and known. Some scionwood of what is now known as *M. 'Gemstone' was released under the name *M. 'Garnet' before the priority of names was determined. Maker 'Gar net' (Fiala) is now *M. 'Gemstone' and in a few collections trees labeled *M. 'Garnet' should be changed to *M. 'Gemstone'.

**M. 'Garry'** CDA—Morden 1962 Trade name: Garry crabapple Parentage: An open-pollinated seedling of *M. pumila 'Niedzwetzkyana' MR-455. A Rosybloom. A tree with slender, arching form; buds opening, opening to deep rose-red flowers; fruit crimson with heavy waxy bloom, 0.8 in (2 cm) in diameter, persistent all winter. Subject to moderate-to-severe scab (Nichols). One of the better red-leaf, red-flowering clones, although it is not well known and therefore not grown. In hybridizing it could be a substitute for *M. pumila 'Niedzwetzkyana'. Loc. 12, 31, 54.

**M. 'Gemstone'** Fiala 1978 Parentage: *M. sieboldii 'Wooster' × M. 'Christmas Holly' Originally named *M. 'Garnet', the name was changed so as not to conflict with a previous name. A small, upright to rounded and spreading tree 8 ft (2.5 m) high and as wide; leaves rich dark green, disease-free; buds carmine red, opening to single, blush white flowers; fruit 0.4 in (1 cm) in diameter, deep garnet red, very glossy and attractive, firm, persistent to January. An annual bearer. Completely disease resistant (Nichols). An excellent tree, though fruit is a bit dark. Most effective when placed next to yellow-fruited clones. Loc. 46, 47, 100.


**M. 'George Eden'** Name only. Subject to mild scab and mild fire blight (Nichols). Loc. 34, 81.

**M. 'Gertrude'** Name only. Loc. 81.

**M. 'Giant Wild'** Parentage: A clone of *M. soulangyi* Name only. Subject to severe scab and moderate cedar-apple rust. Loc. 31, 54.

**M. 'Gibb'** Pfeifer Parentage: A hybrid of *M. baccata* An upright, spreading tree to 18 ft (5.5 m) high and as wide; buds deep rose-colored, opening to single, pink flowers; fruit fairly large, green. Subject to very mild scab. Loc. 9, 13, 35, 37.

M. 'Gold' Buckman 1910

Probably M. 'Stark's Gold', which see.

M. 'Golden Anniversary' Will 1931

Named to honor the 50th anniversary of the Oscar H. Will Co., Bissirack, ND. Flowers single, white; fruit yellow with red red blush. 1 in (2.5 cm) in diameter. Subject to mildew and rust (Nichols). Loc. 10, 54.

M. 'Golden Candles' Fiala 1971 Plate 7

Synonym: M. 'Christmas Candles'

Parentage: Malus 'Winter Gold' × M. sieboldii No. 768

An upright tree to 20 ft (6 m) high, becoming spreading to fan-shaped with age and the weight of very heavy annual fruiting; leaves dark green; flowers single, white; fruit yellow, bright red blush, 1 in (2.5 cm) in diameter. Subject to December or early. Eaten by birds. Subject to very slight, nondisfiguring scab, otherwise disease resistant (Nichols). An excellent, dependable crabapple. Very showy in fruit, particularly if beside a red-fruited clone. Loc. 31, 46, 47.

Progeny of M. 'Golden Candles' include M. 'Limelight' Fiala.

M. 'Golden Dream' Fiala 1960 Parentage: M. 'Winter Gold' × M. sieboldii

'Wooster' No. 85-12. Introduced by Klehm Nursery, South Barrington, IL. A small, rounded tree to no more than 12 ft (3.5 m) high. 10 ft (3 m) wide; leaves medium green, disease free; buds carmine pink, opening to single, white flowers produced in great abundance; fruit bright yellow-orange, 0.25-0.4 in (0.6-1 cm) in diameter, showy, firm and persistent until late winter, with a glossy, burnished-copper glow after freezing. An annual bearer. Totally disease resistant (Nichols). An excellent little tree that should be grown more; especially fine in small group plantings next to red-fruited clones. Outstanding for highway plantings. Loc. 46, 47, 100.

M. 'Golden Galaxy' Fiala 1977 Plate 162

Parentage: M. 'Centurion' × M. 'Gypsy Gold'

No. 85-6-7, PP. Introduced by Klehm Nursery, South Barrington, IL. A small, rounded tree to slightly spreading tree to 12 ft (3.5 m) high and 10 ft (3 m) wide; leaves medium green, good, disease free; buds pale pink, opening to single, white flowers in great abundance; fruit rich gold, 0.6 in (1.5 cm) in diameter, persistent to midwinter. An annual bloomer. Completely disease resistant (Nichols). An excellent gold-fruited tree that gives a showy autumn display. Fine for all landscapes. Deserves to be far more planted and known. Loc. 47, 100.

M. 'Golden Gem'

From Germany. USDA plant introduction No. 30750. Four different crabapples are named M. 'Golden Gem'—three at Morton Arboretum and one at Longwood: clones No. 785-98, No. CR601-62, plant introduction No. 30750, and No. PLT 788-58. The better one, plant introduction No. 30750, is an upright tree to spreading smaller tree; buds pink, opening to single, white flowers; fruit small, yellow. Disease free (Nichols). It may be that the German importation can be identified only by number and not by name. Specimens at Holden Arboretum, Mentor, OH, and elsewhere do not indicate which clone they are. Worthwhile clones should be named, GR601-62, with heavy scab infection, should be discarded; Loc. 2, 26, 31.

M. 'Golden Harvest' Wayside Gardens catalog 1977

Disease resistant (Nichols). Loc. 61.

M. 'Golden Hornet' 1949

Parentage: A seedling of M. 'toringo' (formerly M. sieboldii)

Of English origin. A small, upright tree to 15 ft (4.5 m) high and as wide, tending to be pendulous and spreading with age because of heavy fruiting; buds pale pink, opening to white, single flowers; fruit small, 0.25-0.4 in (0.6-1 cm) in diameter, showy, persistent to early November, may russet and brown badly in late autumn. A very heavy bearer. Subject to mildew blight (Nichols). Loc. 5, 9, 11, 12, 15, 18, 24, 26, 31, 35, 46, 47, 54, 57, 61, 68, 69, 79, 81, 87, 89.

M. 'Golden Noble' Not included

M. 'Golden Spire's' Fiala 1971

An upright fan-shaped tree; buds deep rose red, opening to white flowers; fruit small, 0.4 in (1 cm) in diameter, lemon-yellow. A heavy annual bloomer. Disease resistant (Nichols). Very similar to M. 'Golden Candles' but tree a bit more spreading and fruit a brighter shade of lemon. An excellent clone that tends to spread with age because of heavy fruiting. Excellent in smaller gardens as a background tree. Loc. 31, 46, 47.

M. 'Golden Wax'

Name only. Subject to severe scab (Nichols). Loc. 61.

M. 'Golden Weeper'

Name only.

M. 'Gold'd'rinch' Lloyd/Swarthmore 1920

Parentage: A seedling of M. 'basculus'

Raised from seed found under a tree at the Arnold Arboretum by Mrs. Horatio Gates Lloyd. Introduced by Swarthmore College in 1953. Flowers single, white, 1.4 in (3.5 cm) across; fruit yellow, small, 0.4 in (1 cm) in diameter. Subject to severe scab (Nichols). Not well known, therefore not grown. Loc. 4, 12, 26, 31, 54, 68, 81.

M. 'Goldlocks' Fiala 1976 Parentage: M. 'Tetragold' × M. 'Coral Cascade'

No. 85-6-9. An excellent, graceful semiweep 15 ft (4.5 m) high and as wide, with long, slender branches, becoming a full weeper with maturity; leaves dark green, disease free; buds red, opening to single, white flowers produced in abundant clusters; fruit small, 0.25-0.4 in (0.6-1 cm) in diameter, bright yellow with gold blush on shaded side, beautiful in autumn with racemes of heavy fruit. A heavy, annual bloomer. Very minor trace of occasional scab, otherwise disease free. A tree for any focal point. Loc. 47, 96.

M. 'Golf Course' M. 'Yanny'

Fig. 3.2

Parentage: Probably of M. sieboldii background

Introduced by Johnson's Nursery, Mentor, OH. A small, tree to 10 ft (3 m) high, 8 ft (2.5 m) wide; buds carmine pink, single, white flowers produced in great abundance; fruit bright yellow-orange, 0.4 in (1 cm) in diameter, very showy, persistent throughout winter. A heavy, annual bear, excellent disease resistance. Used by Legard and Michael Yanns extensively in hybridizing.

M. 'Goolsby' Wodarz

Parentage: A seedling of M. 'Dolgo'

M. 'Gorgeous' H. R. Wright 1925

Parentage: M. sieboldii × M. halliana

USDA plant introduction No. 64633. From Howard Wright, Avondale, Auckland, New Zealand. A dense, rounded tree; expanding buds pink, opening to single, white flowers 1.3 in (3.5 cm) across; fruit crimson to orange-red, ovoid, 1 in (2.5 cm) in diameter. An annual.
bears. Subject to very mild scab and moderate mildew (Nichols). An excellent ornamental crabapple not as well known and planted as it deserves. Listed only in the collection at Swarthmore College, Swarthmore, PA, and grown by one or two nurseries. A crabapple of such quality should not be lost to the market but planted far more and offered by nurseries. Loc. 10, 15, 26, 31, 32, 37, 47, 54, 79, 81, 89.

Proveny of M. ‘Gorgon’ include the following:

- M. ‘Bledisloe’ H. R. Wright
- M. ‘Crimson Glory’ H. R. Wright
- M. ‘Elise Burgess’ H. R. Wright
- M. ‘Jack Humm’ D. Naum
- M. ‘Sovereign’ D. Naum
- M. ‘Wright’s Scarlet’ H. R. Wright

M. ‘Gracilis’
See M. baccata ‘Gracilis’ in Chapter 11.

M. ‘Grandmother Louise’ Fiala 1950
Parentage: An induced tetraploid seedling of M. ‘Dorothea’
A discontinuous clone because it grows too slowly for the commercial market. A small, rounded tree to 6.5 (1.9 m) high and 12 (3.5 m) wide, very slowly growing, buds rose-colored, opening to deep rose-pink, semidouble flowers, fruit very few, if any. Loc. 46, 47.

M. ‘Grants’
Name only.

M. ‘Greenbrier’
Name only. Subject to some minor scab (Nichols). Loc. 12.

M. ‘Guernsey’
See M. ‘Guernsey Sweet Harvest’.

M. ‘Guernsey Seedling’
See M. ‘Guernsey Sweet Harvest’.

M. ‘Guernsey Sweet Harvest’
Synonyms: M. ‘Guernsey Seedling’, M. ‘Guernsey’
A gymnoly. Subject to slight cedar-apple rust (Nichols). Loc. 54.

M. ‘Guiding Star’
Name only. Subject to mild scab, moderate mildew, and moderate-to-severe fire blight (Nichols). Loc. 31, 35, 54, 61, 81.

M. ‘Guinevere’; Zampini
A gymnoly. Subject to ‘Guizman.’ To be introduced by Lake County Nursery, Perry, OH, as one of the Round Table Series of dwarf crab-apple developed by James Zampini. A very small, rounded tree or bush 8 ft (2.5 m) high and as wide; leaves becoming midwinter wine in color with frost; buds deep carmine, opening to single, white flowers tinted mauve; fruit medium-sized, brilliant cherry red, persistent. Disease resistant (per introducer); too new to be properly evaluated for disease resistance. Appears to be a good addition to dwarf crab-apple. Presents an excellent combination of leaves and white blossoms. Loc. 46.

M. ‘GV-19’ Ross
Plate 163
Synonym: M. ‘Gardenview-19’ Ross 1968
Parentage: A seedling of M. ‘Van Bedwilt’
An outstanding crabapple from one of North America’s foremost plantmen, Henry Ross, Gardenview Horticultural Park, Kingtonville, ON. An upright to spreading tree to 20 ft (6 m) high and 18 ft (5.5 m) wide; buds deep rose-colored, opening very double, deep rose-pink flowers with inner petal layers of deep rose to pink to white; fruit sparce, gold-amber, insignificant. An extremely heavy, annual bloomer. Subject to slight scab, otherwise no diseases (Nichols). An excellent tree for spring show and beauty: it begins to bloom early and extends bloom 2–3 weeks. Also, the multi-colored flowers create an extremely pleasing effect. Suitable for any landscape needing an exception for the smaller, narrow places. Retains its rather upright form well. Should be far better known and grown. Loc. 47.

M. ‘Gwendolyn’ A. den Boer 1944
Parentage: A seedling of M. floribunda
Name after Gwendolyn Tobin, De Moines, IA. buds pink, opening to single, pink, very large flowers 1.6 in (4 cm) across; fruit red, l. (2.5 cm), heavy bear. Totally disease resistant (Nichols). A crabapple that has been overlooked. Loc. 15, 18, 26, 51, 79, 81, 89.

M. ‘Gypsy Dancer’ Fiala 1976
Parentage: M. ‘Gypsy Gold’× M. ‘Amberina’
No. 86–41. A very graceful, somewhat spreading, upright tree to 14 ft (4.3 m) high and 12 ft (3.5 m) wide; leaves dark green, good, disease-free; buds bright red, opening to single, white flowers in heavy clusters; fruit 0.4–0.5 in (1–1.2 cm) in diameter, a combination of brilliant colors of red, red-orange, yellow, and coral, very attractive, persistent until eaten by birds. An abundant, annual bloomer. Totally disease resistant. An excellent crabapple with an unique autumn color. Most effective when planted next to a tree with brilliant red or deep purple fruit. Loc. 47.

M. ‘Gypsy Gold’ Fiala 1970
Parentage: M. baccata × M. baccata ‘Shaker Gold’
An upright to spreading tree to 14 ft (4.3 m) high and 12 ft (3.5 m) wide; leaves dark green; buds pink, opening to large, single white flowers; fruit bright yellow with orange cheek that turns to burnt orange after frost, 0.75 in (1.9 cm) in diameter, rounded, ribbed. A very heavy, annual bear. Completely disease resistant (Nichols). Somewhat large-fruited for the home landscape but excellent elsewhere, especially as a roadside tree that can be seen in color from fast-moving vehicles. Loc. 46, 47, 100.

M. ‘Halfard’
See M. baccata ‘Halfard’ in Chapter 11.

M. ‘Hamlet’ Zampini
Plate 164
Plant patent name “Hamzaan.” To be introduced by Lake County Nursery, Perry, OH, as one of the Round Table Series of dwarf crab-apples developed by James Zampini. A small, rounded tree or bush 10 ft (3 m) high and as wide; leaves green with a wine-red overcast; buds deep rose-pink, opening to single, rose-pink flowers, fruit red. Disease resistant (per introducer); too new to be properly evaluated for disease resistance. Another welcome addition to dwarf crabapples badly needed for city gardens, patios, sidewalk plantings, and other landscaping designs. Loc. 46.

M. ‘Hampton’s Siberian’ Hampton Parentage: A hybrid of M. baccata

M. ‘Hanssen’s Beauty’ Hansen Parentage: A hybrid of M. baccata

M. ‘Hanssen’s Red Leaf Crabapple’ N. E. Hansen Parentage: One of the progeny of M. baccata ‘Yellow Siberian’

M. ‘Harriman’
Name only. Subject to moderate scab (Nichols). Loc. 35.

M. ‘Hartman’
Name only.

M. ‘Hartwigi’
See M. Shumwayii in Chapter 11.

M. ‘Harzcurtis’
See Chapter 11.

M. ‘Harvest Gold’ Zampini 1987
Plant patent name “Hargozan.” Introduced by Lake County Nursery, Perry, OH. Developed by James Zampini. An upright tree; flowers single, white; fruit gold, 0.7 in (1.8 cm) in diameter, abundant, persistent to late December. Very good disease resistance. An excellent new crabapple in the much needed gold-flavored class. Outstanding for street plantings, for small gardens, and to break the monotony of rounded tops along a garden wall. Also an excellent boundary crabapple. Should be planted against red-fruited clones. Loc. 46.

M. ‘Hazel Wilson’ Wheelock Wilson
Name only. Reported to be an excellent crabapple. No known source.

M. ‘Heart River’ Baird
A hybrid of M. baccata.

M. ‘Hebed’
Name only. Disease resistant (Nichols). Loc. 31.

M. ‘Heidelberg’
A Latinsized name that should not be used for a clone. See M. ‘Heidelberg’.

M. ‘Heleen’ A. den Boer 1939
Parentage: An open-pollinated seedling of Roshbroom M. ‘Tay Darling’ A poor sibling of M. ‘Purple Wave.’ Buds dark red, opening to large, red flowers 1.8 in (4.5 cm) across; fruit purplish red, 0.8 in (2 cm) in diameter. Subject to moderate scab (Nichols). Loc. 9, 15, 31, 54, 61, 81, 89.

M. ‘Henning’s’ Enterprise Nurseries, Wrightsville, PA
Synonym: M. ‘Henning’s’ (a Latinsized name that should not be used for a clone)
An upright to spreading tree to 25 ft (8 m) high; leaves shiny green; flowers single, white, very heavy blooming; fruit small, orange-red, 0.6 in (1.5 cm) in diameter. Disease free
M. 'Himalacca' See M. baccata var. himalacca in Chapter 11.

M. 'Hollandia' Name only. No diseases (Nichols). Loc. 61.

M. 'Honc' See M. ypsiphragma 'Honc'.

M. 'Honeymoon No. 7' Name only. Subject to moderate scab (Nichols). Loc. 12.

M. 'Honeymoon No. 14' Subject to mild scab (Nichols). Loc. 10, 12.

M. 'Honeymoon' 1988-88. An upright to columnar tree 18 ft (5.5 m) high and 10 ft (3 m) wide; new leaves red, turning to bronze-green; buds deep carmine-red, opening to small, bright red, single flowers produced in great abundance; fruit 0.5 in (1.3 cm) red, persistent. An annual bloomer. Disease free. A fine tree for narrower sites and where an accent, upright, red-flowering tree is needed. Loc. 47.

M. 'Hop' N. E. Hansen 1920 Plates 165, 166 Synonyms: M. 'Hansen's Red Leaf Crabapple', M. 'Hop', M. 'Hoppy', M. 'Sunburst'. P. hybridum. Parentage: P. pubescens 'Niedzwetzkyana' x M. baccata A Roseyloom. Buds carmine, opening to carmine-pink, single flowers that fade to a lighter pink, 1-2 in (4-5 cm) across; fruit bright red, 0.8 in (2 cm) in diameter. Very susceptible to leaf diseases and apple scab. Should be phased out—too much disease (Nichols). In the past this clone was used extensively in hybridizing and for open-pollinated seedlings, but today its use should be discouraged as it transmits susceptibility to many apple diseases. Loc. 5, 8, 13, 15, 18, 24, 26, 31, 32, 35, 46, 54, 56, 68, 79, 81, 89.

M. 'Hoppy' See M. 'Hop'.

M. 'Honc' See M. 'Honc'.

M. 'Honey' See M. 'Honey'.

M. 'Honeymoon' See M. 'Honeymoon'.

M. 'Honeymoon' 'Donald' See M. 'Honeymoon'.

M. 'Honeymoon' 'Rosea' See M. 'Honeymoon'.

M. 'Honeydew' Wayne Douglas See M. 'Honeydew'.

M. 'Huron' Preston before 1900 Parentage: A Rosybloom. Named by Isabella Preston, CDA—Ottawa, in her Lake Series, for one of the Great Lakes between Canada and the United States. Buds purple-red, opening to single, amaranth-pink flowers with red anthers, strongly fragrant, large 1.8 in (4.5 cm) across; fruit bright red, oval, higger, somewhat large, 1.5 in (3.8 cm) in diameter.

M. 'Hybrid No. 28' A hybrid of M. baccata.

M. 'Hybrid scab immune GR 706-38' Flowers pink to white; fruit medium, light red. Disease resistant. Loc. 5, 31, 47.

M. 'Hydislay' before 1869 Origin unknown. Buds white; flowers single, white, 1.4 in (3.5 cm) across; fruit 1.6 in (4 cm) in diameter, yellow and green. Subject to severe fire blight; once highly recommended, this clone should be phased out because of too many diseases, its pattern of alternating bloom, and its fruit that is too large, unless one is looking for a juicy crabapple.

M. 'Hydislay Sport' Name only. Subject to severe scab (Nichols). Loc. 15.

M. 'Ida Cason' See M. 'Callaway'.

M. 'Ida Red' Name only.
M. 'Illinois'
See M. iowensis 'Illinois'.

M. 'Imperial'
Parentage: A selected clone of M. spectabilis

"M. 'Indian Magic'" Simpson
Plates 21, 167, 168, 169, 170
No. 11-63.
A medium-sized to small tree to 15 ft (4.6 m) high and as wide; flowers showy rose-pink, single; fruit ellipsoid, glossy red, changing with frost to orange, persistent until spring. A heavy bearer. Moderate disease susceptibility that does not affect foliage or fruit. There appear to be several clones, all not identical, some far superior to others. Lester Nichols thought that the trees at Falcon skea Gardens, Medina, OH, were superior to most others by the same name. Loc. 5, 19, 20, 22, 24, 26, 31, 35, 46, 47, 53, 54, 55, 61, 71, 79, 80, 81, 88, 89.

"M. 'Indian Summer'" Simpson
Plate 171
No. 11-58.
A rounded tree to 18 ft (5.5 m) high and 20 ft (6 m) wide; leaves bronze-green; flowers rose-red, single; fruit bright red, 0.6 in (1.5 cm) in diameter, persistent. Good disease resistance. A very fine crabapple. Loc. 5, 24, 26, 31, 39, 79, 81, 86, 93, 94, 95.

M. 'Inequealis'
Parentage: A selected clone of M. spectabilis Name only.

M. 'Ingla'
See M. 'White Angel'.

M. iowensis
See Chapter 11.

M. iowensis var. texana
See Chapter 11.

M. iowensis 'Amssib'
See Chapter 11.

M. iowensis 'Boone Park'
See Chapter 11.

M. iowensis 'Embratia'
See Chapter 11.

M. iowensis 'Floren's Improved'
See Chapter 11.

M. iowensis 'Illinois'
CP 5 No. 825. Name only. Subject to mild scab, mild cedar-apple rust, and slight fire blight. Loc. 24.

M. iowensis 'Klehm's Improved Rechtel'
See Chapter 11.

"M. iowensis 'Mercy Road'" Johnson's Nursery
1990
Parentage: A selection of M. iowensis
Introduced by Johnson's Nursery, Monroe Falls, OH. A medium-sized tree; leaves bright glabrous green; buds light rose, opening to double, pale pink flowers. One of the better, new selections of M. iowensis.

M. iowensis 'Nevis'
See Chapter 11.

M. iowensis 'Nova'
See Chapter 11.

M. iowensis 'Palmeri'
See Chapter 11.

M. iowensis 'Plena'
See Chapter 11.

M. iowensis 'Prairie Rose'
See Chapter 11.

M. iowensis 'Prince Georges'
See Chapter 11.

M. iowensis 'Red Seeding No. 1' A. den Boer
See M. 'Evelyn'.

M. iowensis 'Spinosa'
See Chapter 11.

M. iowensis 'Texana'
See M. iowensis var. texana in Chapter 11.

M. 'Trene' A. den Boer 1939
Parentage: M. 'Jay Darling' seedling No. 186

M. 'Tien' N. E. Hansen 1916
Parentage: A seedling of M. buccata
A red, large, 1.4 in (3.5 cm) in diameter. Loc. 54.

M. 'Tranholz' Zampini
Plant patent name 'Ivazam'. To be introduced by Lake County Nursery, Perry, OH, as one of the Round Table Series of dwarf crab-apples developed by James Zampini. A small, rounded tree to 10 ft (3 m) high and as wide; leaves burgundy-wine with frost; flowers single, scarlet-red; fruit scarlet-red. Disease resistant (per introducer); too new to be properly evaluated for disease resistance. A welcomed, red-flowering dwarf clone. Could be used wherever a small tree is needed: city gardens, in front of larger plantings, as a potted tree, or massed for smaller landscaping design. Loc. 46.

M. 'Tzo'
Synonym: M. 'Tzo Ames'
Name only.

M. 'Tzo Ames'
See M. 'Tzo'.

M. 'Jack Humm'
Name only. Subject to slight scab (Nichols).
Loc. 61, 81.

M. 'Jackii'
See M. buccata 'Jackii' in Chapter 11.

M. 'Jan Husseus' Byland's Nursery, Kellowa, British Columbia, Canada 1985
Parentage: A Rosyblom
A newer crabapple with soft red flowers similar to those of M. 'Almyre'; but harder. Too new to be evaluated.

M. 'Jay Darling' A. den Boer
Synonym: M. atrorubens
Parentage: M. prunifolia 'Niedzwetzkyana' x M. buccata
A Rosyblom crabapple. Named by Arie den Boer for Jay Darling, first president of the Des Moines Men's Garden Club. Flowers red; fruit purple, 1 in (2.5 cm) in diameter. Should be phased out—too much disease (Nichols). Some consider M. atrorubens 'Eleyi' to be an unstable form of M. 'Jay Darling'. Arie den Boer, however, who made a lengthy study of the two, concluded they (i.e., M. atrorubens 'Eleyi' and M. atrorubens) were two different names for the same plant that grows differently in different locations. To avoid confusing the two, which were sold in the market interchangeably, the latter plant was renamed M. 'Jay Darling'. Loc. 3, 8, 24, 26, 31, 32, 54, 77, 79, 81, 81, 85, 89.

M. 'Tenslon' Arnold Arboretum 1940
Parentage: From a group of unnamed seedlings
Introduced by Michigan State University before 1966. The original tree was located near the main entrance of Jenson Gymnasium, Michigan State University, East Lansing, hence the name. Flowers single, white; fruit pyriform, bright red, 0.7 in (1.8 cm) in diameter, interesting. Loc. 10, 86, 89.

M. 'Jewell's' Simpson
Synonym: M. 'Simpson 7-02'
A dwarf, rounded bush to 8 ft (2.4 m) high and 12 ft (3.5 m) wide, densely branched; leaves green; flowers single, white with pink edges; fruit bright orange-red, 0.5 in (1.2 cm) in diameter, late in fall. Excellent disease resistance, although subject to slight scab and fire blight (Nichols). Blooms well as a young tree. Very showy in heavy fruiting. Should be more widely planted. Excellent for home landscapes or wherever a smaller crabapple is needed. A prime plant for hybridizers. Loc. 5, 31, 35, 79, 80, 81, 86, 93, 94.

M. Jewell CDA—Ottawa
Parentage: A hybrid of M. buccata
A discarded clone. Subject to slight scab and cedar-apple rust (Nichols). Loc. 35, 54.

M. 'L. Pierce'
Discovered in 1935 by Milton Baron, Michigan State University, in the garden of Mr. and Mrs. J. L. Pierce, of Detroit. Subject to very mild fire blight (Nichols). Loc. 10, 81, 86, 89.

M. 'Jemski' Dambur 1918
Named by John Dambur, former propagator for the Rochester Parks System, Rochester, NY, to honor his granddaughter. Flowers single, white, 2 in (5 cm) across; fruit red, 1.4 in (3.5 cm) in diameter. An alternate bearer. Subject to moderate scab (Nichols). Loc. 12, 26, 32, 35, 81.

M. 'Joe Tri' N. E. Hansen
Parentage: A hybrid of M. buccata

M. 'John Bowles'
Name only. Subject to moderate scab. Loc. 51.

M. 'John Downie' Holmes before 1891 Plate 20
Introduced into the United States in 1897. Named by E. Holmes to honor his friend, John Downie, a Scottish nurseryman and partner in the Handsworth Nurseries, Whittington, England. Buds pink, followed by single, while
flowers 2 in (5 cm) across; fruit large, 1.2 in (3 cm) in diameter, orange with red cheeks. An alternate bearer. Disease resistant (Nichols).

M. 'John Edward' Schwartz
Introduced by Chester D. Schwartz, Puyallup, WA, and named to honor his younger brother, John Edward Consolences. An upright to vase-shaped tree to 18 ft (5.5 m) high and 12 ft (3.5 m) wide; buds rose pink, opening to single, white flowers; fruit 0.8 in (2 cm) in diameter, pale apricot, turning to amber over red. Disease resistant (Nichols). Showy but overlooked due to large fruit. Loc. 5, 85.

M. 'John's Crab' Name only. Subject to severe scab (Nichols). Loc. 54.

M. 'Johnson's Walters' Parentage: A form of M. torrige or a hybrid Fruit small, yellow. Sold by Johnson Nursery, Milwaukee, WI, under the name M. 'Walters' and obtained by them from Moller's Nursery, Gresham, OR. Since M. jacuta 'Walters' this non-nominal precedence. I am listing this clone as M. 'Johnson's Walters'.

M. 'Joy' Fiala 1960 Plate 5 Parentage: M. 'Dorothy' x M. 'Listet' No. 71-TD-8. An induced tetraploid. A small, rounded tree to 12 ft (3.5 m) high and as wide; leaves gray to pale purple, disease free; buds rose-purple, opening to single, coral-red flowers produced in great abundance; fruit 0.4 in (1 cm) in diameter, medium purple, persistent, attractive only when next to a yellow-fruited clone. An alternate bloomer but outstanding when in bloom. Disease resistant (Nichols). Unique foliage color makes it excellent as a background tree. Also excellent in color. Excellent for hybridizers, but recommended only for its genetic tetraploid value. Loc. 47.

M. 'Joy' includes M. 'Arch Me Koan' Fiala.


M. 'Julie' Reynolds circa 1946 Parentage: M. sieboldii
Grown from seed received from Japan. Named to honor the sisters of William D. Reynolds, Jr., of Hook's Nursery, Lake Zurich, IL. Buds pink, opening to single, white flowers; fruit yellow with bluish cheek, 0.5 in (1.2 cm) in diameter, persistent, extremely abundant. A clone that has been overlooked and should be more planted.

M. 'Julian Potts Weeper' Potts
Named for the owner of Julian Potts Nursery, Chesterland, OH, a world-renown propagator, horticulturist, and collector of very rare plants. Possibly a lost clone.

M. 'K & K' Name only. Loc. 81.

M. kansuensis
See Chapter 11.

M. kansuensis var. calva
See Chapter 11.

M. kansuensis 'Calva'
See M. kansuensis var. calva in Chapter 11.

M. 'Karen' Fiala 1989 Plate 14 Parentage: M. 'GV-19' x M. 'Van Estelle' No. NR4-PM. One of the newest clones. Named to honor Karen Tarpey Murray, a university professor, outstanding plantswoman, executive director of Falconskeepe Gardens, Medina, OH, and executive director of Ameri Hort Research, Medina, OH. An upright to vase-shaped tree 12 ft (3.5 m) high and 10 ft (3 m) wide; leaves medium green; buds deep carmine flushed with fuchsia-purple, opening to double, white flowers, with petals edged pink, very beautiful; fruit gold flushed reddish, 0.4 in (1 cm) in diameter. A heavy, annual bloomer. Excellent disease resistance. A fine double-flowering, smaller crabapple for any spot in the landscape. Excellent for hybridizing and should be well received when better known. Loc. 47, 100.

M. 'Kass' Name only. No diseases (Nichols). Loc. 9.

M. 'Katherine' B. Slovin 1929 Parentage: Probably M. kallama x M. buccata A chance seeding found in Durand-Eastman Park, Rochester, NY, by the park's superintendent Bernard Slovin. Named by Donald Wyman for Slovin's daughter-in-law, Catherine Clark Slavin. Buds pink-white, flowers very large, double, with 15-24 petals, 2.1 in (5.4 cm) across; fruit yellowish with a red cheek, 0.4 in (1 cm) in diameter. Subject to moderate scab and mild fire blight (Nichols). A lovely, double-flowering white crabapple. Outstanding in bloom, but not recommended because of alternate blooming habit and lack of attractive fruit. Has great hybridizing potential; crossed with an annual bearer, the alternate-blooming habit is often recessive and some fine hybrids might be obtained. Loc. 4, 8, 10, 12, 15, 16, 18, 20, 24, 26, 32, 37, 38, 39, 40, 41, 43, 54, 60, 69, 71, 76, 79, 80, 81, 85, 87.

M. 'Katherine Seeding' Name only. Subject to moderate to severe scab (Nichols). Loc. 9.

M. 'Kay Street' Name only.

M. 'Kelley' CDA—Morden 1969 Plate 12 Parentage: A Rosybloom pink None Named by Henry Kelsey, an early explorer of Manitoba, Canada. Flowers semidouble to double, rose-purple to purple-red with a white center. Subject to moderate scab (Nichols). Very little known as yet. Very beautiful in bloom. Semidouble Rosybloomers are rare. Loc. 5, 79, 82, 100.

M. 'Keo' N. E. Hansen 1960 Parentage: A hybrid of M. jacuta Flowers pink-white, 2 in (5 cm) across; fruit very large, size of eating apples, carmine with yellow and green, 1.7 in (4.5 cm) in diameter. No disease (Nichols). Loc. 54.

M. 'Kerr' CDA—Morden 1938 Parentage: M. 'Dolgo' x M. Harborn Morden 392. Flowers single, white; fruit yellowish-red, to 1.6 in (4 cm) in diameter. No diseases (Nichols). Several of W. L. Kerr's introductions have been called M. 'Kerr' with the identifying numbers left off and some resulting confusion. Most are large-fruited. Loc. 12.

M. 'Kerr 63-6' Name only. No diseases (Nichols). Loc. 35, 37.

M. 'Kerr 63-7' Name only. No diseases (Nichols). Loc. 35, 37.

M. 'Kerr 63-8' Name only. Subject to moderate scab (Nichols). Loc. 35.

M. 'Kess' Name only.

M. 'Kibele' Clarice Hickov before 1949 Parentage: A chance seeding No. 447-39. One of the smallest pink-flowering crabapples. This chance seeding was later moved to the home of Mr. and Mrs. R. R. Kibele, Springfield, IL. A small, upright to spreading, compact tree maturing at 8 ft (2.5 m) high; leaves purple-red, slightly glossy, 2.3 in (5.7 cm) long; buds dark red, opening to rose-pink flowers; fruit 0.5 in (1.2 cm) in diameter, dark burgundy red. Subject to very slight scab and moderate fire blight (Nichols). An excellent dwarf tree for smaller landscapes. Loc. 5, 31, 54, 79, 81, 86.

M. 'King Arthur' Zampini Plates 172, 173 Plant patent name "Kinarzam." To be introduced by Lake County Nursery, Perry, OH, as one of the Round Table Series of dwarf crab apple cultivars developed by James Zampini. A small tree to 12 ft (3.5 m) high and 10 ft (3 m) wide; leaves dark green; buds rose pink, opening to single, white flowers; fruit bright red. Too new to determine final disease resistance. Landscape designers will need to develop designs for this and other small crabapples to show off their full potential. Loc. 46.

M. 'Kingston Black' Interesting name only.

M. 'King's' Name only. Subject to moderate scab (Nichols).

M. 'Kingsmore' Preston 1920 Parentage: M. tomentosa x M. palmis 'Niedzwetzkyana'
A rare hybrid with reddish leaves and flowers. Named in 1930 by Isabella Preston. CDA—Ontario, in her Lake Series, for Kingsmore Lake in Ontario, Canada. Buds deep carmine, opening to purple-pink, single flowers 2.2 in (5.6 cm) across; fruit crimson over purple-brown, shaded side green-brown, large, 1.2 in (3 cm) in diameter. An annual bearer. Subject to moderate scab. Discarded as inferior by a Central Experimental Farm horticulturist some years ago. Ariene Den Boer, an excellent judge of crabapples, considered it "one of the loveliest of all Canadian hybrids." Although the fruit is somewhat dark and too large, this Rosybloom could be used in further hybridizing to improve the fruit. Loc. 4, 15, 18, 31, 32, 54, 81.
M. 'Kingfisher'
Name only. Subject to moderate scab (Nichols). Loc. 12, 31.

*M. 'Kirk' Fiala 1980
Parentage: M. siefeldii No. 243 × M. sieboldii No. 768
Named at Falconscope Gardens, Medina, OH. Named after the donor who thought very highly of this clone. Introduced by Kleinhenz Nursery, South Barrington, IL. Name sometimes misspelled "Kurt." A rounded upright tree, to 15 ft (4.6 m) high and as wide); leaves dark green, disease free; buds red, opening to white flowers borne in profusion, fruit rich red, produced in great abundance, about 0.6 in (1.6 cm) in diameter, persistent. An annual bloomer. Totally disease resistant (Nichols). A crabapple that can be counted upon each year for a splendid spring and fall display. Loc. 46, 47, 100.

*M. 'Kit Trio' Hansen 1938
Parentage: M. 'Mercer' (apple) × M. 'Sweet Russet' (apple)
Introdued in 1938 by the South Dakota Agriculture Experiment Station, Brookings, SD. Buds pink; flowers single, white, 1.6 in (4.1 cm) across; fruit very large, size of eating apples, 1.6 in (4.1 cm) in diameter, yellow. No disease (Nichols). Not an ornamental. Loc. 54.

*M. 'Kitty Pink'
Name only.

*M. 'Kleni' 
A Latinized name that should not be used for a clone. See M. ioisis 'Kleinhenz's Improved Bechtel' in Chapter 11.

*M. 'Kleinm's Improved Bechtel'
See M. isoisis 'Kleinhenz's Improved Bechtel' in Chapter 11.

*M. Kohendza'
Name only for a clone of M. xspuruna.

*M. 'Koi' Fiala 1968
Parentage: M. 'Kusakusa' × M. 'Redbird' No. 85-18. Named after a koi, a scaleless Japanese goldfish, because the original tree was planted on the banks of Koi Pond, Falconscope Gardens, Medina, OH. An upright, fan-shaped tree to 14 ft (4.3 m) high and 8 ft (2.5 m) wide; leaves medium green, disease free; buds deep pink, opening to single, white flowers on spurs; fruit bright orange-red, 0.4-0.5 in (1-1.2 cm) in diameter, very firm, persistent until Feburus, very showy in winter landscape. Completely disease resistant (Nichols). The beauty of this clone increases with age. A smaller tree for any small space. Loc. 47.

*M. 'Koia' Hansen 1922
Parentage: M. coronria 'Elk River' × M. punica 'Oldenburg'
One of the first tetraploid crosses. Has 86 chromosomes (1B, 1B). Named after the Sioux word for "friend." Buds rose to pink, opening to single, pale pink flowers 1.6-2 in (4-5 cm) across; fruit large, green-yellow, fragrant, 1.8 in (4.6 cm) in diameter. Subject to mild scab and cedar-apple rust (Nichols). Arie den Boer considered this clone an excellent ornamental for large parks. It should be crossed with some of the newer polyploids (e.g., M. 'Satia Cloud') to enrich the small pool of polyploid crabapples. Recommended for its excellent breeding potential. Loc. 26, 31, 35, 37, 34, 73, 81.

*M. 'Komik'
See M. xspuruna 'Kornicosia' in Chapter 11.

*M. 'Kutanka'
Name only. Disease free (Nichols). Loc. 35.

*M. 'Lady Eiger' 1951
Of European origin. Received at Montreal Botanic Gardens. Fruit yellow, 1.4-2 in (3.5-5 cm). Subject to moderate scab (Nichols). Loc. 11, 12, 31, 37, 81.

*M. 'Lady Northcliffe'
See M. xspuruna 'Lady Northcliffe' in Chapter 11.

*M. Lancelot' Zapunti Plates 174, 175, 176
Plant patent name "Lanzan." To be introduced by Lake Country Nursery, Perry, OH, as one of the Round Table Series of dwarf crabapples developed by James Zapunti. A small tree or shrub to 10 ft (3 m) high and 8 ft (2.5 m) wide; leaves crisp green; buds rose pink, opening to single, white flowers; fruit light to medium gold, persistent. Disease resistant at introducing nursery; too new to be properly evaluated for disease resistance. One of the needed dwarf additions with gold fruit. Suitable wherever a smaller tree is desired. Loc. 46.

*M. lanceolata 
See M. coronaria var. lanceolata in Chapter 11.

*M. 'Large Flesh Pink'
See M. spectabilis var. grandiflora in Chapter 11.
single, white flowers; fruit ellipsoid, 0.5 in (1.2 cm) wide and 0.75 in (1.9 cm) long, bright lime chartreuse, distinctive, attractive against the dark green foliage, persistent to October. An annual bearer, Subject to mild scab. Fruit may be a bit large, but is attractive nonetheless. Excellent for a bright orange-red or red-flushed crabapple. Loc. 47.

* M. 'Linda' A. den Boer Parentage: A chance seedling from open-pollinated M. rudolphiana Named in 1908 by Arie den Boer for his granddaughter. Buds rose-red to carmine, opening to single, pale pink flowers 1.8 in (4.5 cm) across fruit bright to dark crimson, 1.1 in (2.8 cm) in diameter. Subject to severe scab (Nichols). A crabapple that is little known. Loc. 9, 31, 89.

*M. 'Ling' Name only. Subject to moderate scab and mild cedar-apple rust (Nichols). Loc. 32, 79, 89.

* M. 'Lisa' Parentage: A chance seedling of open-pollinated M. sargentii 'Seedling Red No. 2 Very similar to M. 'Evelyn'. Selected by Arie den Boer and named after his granddaughter. A slow-growing, small tree; young leaves purplish; buds rose-red to carmine, opening to single, rose-red to light carmine flowers 1.1 in (2.8 cm) across fruit orange-yellow and carmine, 1 in (2.5 cm) in diameter. No disease (Nichols). A fine clone rarely seen except in the Morton Arboretum, Lisle, IL. Should be propagated and distributed. Recommended for hybridizers because of its disease resistance. Loc. 31.

*M. 'Lisa' Doorenbos Plates 18, 178, 179, 180 Parentage: M. sargentii 'Lemoine' × M. spectabilis. Grown from a cross made in 1938 by S. G. A. Doorenbos, Department of Parks, The Hague, Netherlands (see Table 4 for percentage). Originally called M. 'Success', a name which had already been pre-empted, Doorenbos renamed it M. 'Lisa' to honor his granddaughter. For many fanciers, this outstanding flowering crabapple surpasses M. spectabilis 'Lemoine' because of its bright crimson-red buds, which open to a rich rosy-red or light crimson color. A medium-sized tree to 15 ft (4.7 m) high and as wide, with a very open habit, lacking density; flowers single, about 1.5 in (3.8 cm) across fruit dark crimson to maroon-red, glossy, 0.5 in (1.2 cm) in diameter, too dark to be showy. Begins to bloom as a young plant, blooming annually thereafter. New growth is red-maroon, then bronze green. It is more slender branched than M. spectabilis 'Lemoine' but presents a brighter crimson effect in full bloom; flowers fade only slightly. It is probably the brightest orange-red of all the crabapples in bloom and one of the showiest with good-to-excellent disease resistance. It is a clone that should be far more used in hybridizing, especially with double-flowering crabapples to produce rich red, double hybrids. Like its parent M. spectabilis 'Lemoine', it produces longitudi- nal cracks on some of the heavier branches but these cracks heal the same season they appear. It is a wonderful landscape tree for any garden, free of most diseases. When placed near white- or pink-flowering cultivars, it is a work of landscape perfection, and the deep maroon fruit is especially effective when planted next to a yellow-flowered clone. Loc. 4, 5, 18, 24, 31, 37, 47, 54, 55, 57, 79, 86, 87.

*Progeny of M. 'Lister' include the following: M. 'Callery' Fiola M. 'Cardinal's Robe' Fiola M. 'Cranberry Lace' Fiola M. 'Fireglow' Fiola M. 'Honour Guard' Fiola × M. 'Joy' Fiola M. 'Flame Leaf' Fiola M. 'Fiera' Fiola M. 'Orange Crush' Fiola M. 'Purple Wave' A. den Boer M. 'Wildfire' Fiola

*M. 'Little Troll' Fiola 1975 Parentage: M. 'Luton Lava' × M. 'Leprechaun'. No. 83-64. One of a series of new mini- fruits. A small, very refined and graceful weeper to 12 ft (3.5 m) high and 8 ft (2.5 m) wide, with thin and very gracefully arching branches; leaves dark green, slightly tinged with rose; buds deep red, opening to very light, soft pink flowers 1–2 in (2.5–3 cm) across fruit rich red, about 0.25 in (0.6 cm) in diameter. Excellent disease resistance. A beautiful, graceful weeper that should be far better known and grown. Should be selected for its excellent form. Loc. 47, 60, 100.

*M. 'Louvick' Fiola 1978 Parentage: A multibrind Name is an affectionate Dutch nickname given by the hybridizer's family to his mother. Introduced by Klehm Nursery, South Barrington, IL. A graceful, refined weeper to about 11 ft (3.4 m) high and 8 ft (2.5 m) wide, with thin and very gracefully arching branches; leaves dark green, bright red in summer, bright orange-red in winter; excellent disease resistance. An excellent small weeper, a good crabapple for hybridizing weepers with mini- fruits. Loc. 47, 86.

M. 'Londsdale' Brand 1943 A group name for seedlings and hybrids of M. laureum propagated asexually from a large planting near Londsdale, MN. Loc. 47, 86.

*M. 'Lourah' Hill 1962 Plates 181, 182, 183 Named by Polly Hill, Martha's Vineyard, MA, for her daughter. M. 'Loxley' Parentage: M. angustifolia × M. xanthocarpa See M. toringolus 'Maccorumba' in Chapter 11. *M. 'Madonna' Fiola 1979 Plate 186 Plant patent name "Mazon." Plant patent No. 662. Named on a feast day in honor of the Virgin Mary. Introduced and patented by Lake County Nursery, Perry, OH. A compact, upright tree to 18–20 ft (5.5–6 m) high and 15–20 ft (4.5–6 m) wide that grows moderately and keeps it upright form for several years; buds white, opening to large, double, very attractive, white flowers resembling pure white roses, with a pleasant jasmine or gardenia fragrance; leaves dark green, disease resistant; fruit small brown-red, somewhat insignificant. A heavy bloomer, it is one of the first crabapples to bloom, flowering over a long, 3-week period, and one of the last to go out of bloom. An excellent columnar tree. Ideal for narrow places, patios, street plantings, or as a focal point along a garden walk. A fine clone for hybridization programs seeking double-flowering crabapples. Loc. 24, 26, 31, 46, 47, 79.

*M. 'Magdeburg' See M. xanthocarpa in Chapter 11.

*M. 'Magdeburgo' See Chapter 11.

*M. 'Magic Flute' Fiola × P. Murray Parentage: M. 'Van Eelstei' × M. 'Lislet' No. NRS-F2-502. A dwarf, upright tree to 8 ft (2.4 m) high; leaves green-tinted reddish; buds purple, opening to single, light orchid flowers; fruit red, 0.6 in (1.4 cm) in diameter, persistent to November. An excellent small weeping crabapple. Disease free. Very new. A slow grower suitable for smaller locations and foreground plantings. Blooms color very unique. Loc. 47.

*M. 'Magic Mirror' Fiola × P. Murray Parentage: M. 'Burgundy' × M. 'GV-19' No. NRS-PB-89. An excellent semidouble, red-flowering clone. A columnar to upright tree to 15 ft (4.5 m) high and 6 ft (1.8 m) wide; medium large; leaves reddish, turning to bronze-green, good
**M. 'Makamik'** Preston 1921

Parentage: M. prompta × M. prompta 'Niederzweitzykana'

One of the best open-pollinated seedlings of M. prompta 'Niederzweitzykana'. Named in 1921 by Isabella Preston, CDA—Ottawa in her Lake Series, for Makamik Lake in western Quebec, Canada. An upright to rounded tree, leaves bronze-green to dark green; buds deep dark red, opening to large, single, purple-red flowers 1.5 cm across, fading to a lighter tint, very showy in bloom; fruit red, somewhat large, from 0.7 to 1 cm (1.9-2.5 cm) in diameter. An annual bearer. Very good disease resistance except for very mild scab. One of the few Rosyblooms that can be recommended, although the fruit is too large for smaller planting and close-in landscaping around building areas where fallen fruit would be objectionable. For backgrounds and larger estates and parks it makes an excellent bloomer, but it lacks any good fall display of fruit. Loc. 15, 24, 31, 35, 34, 55, 79, 81, 87.

**M. 'Makowieckiana'**

See M. spuria × 'Makowieckiana'.

**M. nulliflora**

Latin for "poor foliage." A description, and thus worthless as a horticultural crabapple. Subject to severe scab. Loc. 15, 54.

**M. 'Malling No. 8'**

See M. 'Clark's Dwarf'.

**M. 'Manbeck Weeper'**

See M. 'Anne E'.

**M. 'Mandarin Magic' Fica 1974**

Parentage: M. 'Shaker Gold' × M. 'Coral Cascade'.

No. 86-506. A medium-sized, somewhat spreading tree to 15 ft (4.6 m) high and as wide; leaves very dark green, good disease resistance; buds red-pink, opening to large, single, white flowers; fruit late in coloring but very attractive changing colors, begins green with red cheeks, then turning to orange with bright red and yellow cheeks, 0.5-0.75 in (1.2-1.9 cm) in diameter, very showy in late fall. Subject to very mild scab but mostly disease resistant. Excellent for landscape and background. A very heavy bearer, not suitable for small closed-in areas. Loc. 47.

**M. 'Manila'**

Name only. Disease resistant. Loc. 10.

**M. 'Margaret' Fenichlak**

Parentage: A selected seedling of M. coronaria

Named by Richard Fenichlak to honor his wife, Margaret. A small to spreading tree to 15 ft (4.6 m) high and as wide; leaves dark green; buds rose-colored, on long pedicels, opening in cherry-like clusters to double, pink flowers that bloom late; fruit greenish. Disease free (Nichols). An excellent clone. Specimen in Highland Park, Rochester, NY.

**M. 'Maria' Fica 1978**

Parentage: (M. spuria × M. Lemoinei) × M. 'Red Jade'

Named on a memorial day to honor the Virgin Mary. Introduced by Klem Nunnery, South Barrington, IL. An upright, spreading semi-weeper to 12 ft (3.5 m) high and 15 ft (4.6 m) wide; new growth in spring is bright red, turning to bronze; leaves very glossy, heavily textured, leathery, attractive, narrow, four times as long as they are wide; buds deep orange-red, opening to single, large, bright red flowers that bloom on spurs; fruit 0.5 in (1.2 cm) in diameter, dark red-maroon, produced in great abundance, showy after leaf fall. Completely disease resistant (Nichols). A very fine bright red, semi-weeper that is very attractive in bloom. With age, this very heavy annual bearer assumes a weeping form. Should be better known and widely grown. Loc. 46, 47, 100.

**M. 'Maringo'**

Name only.

**M. 'Marjorelle Formosana'**

Trade name: Pretty Marjorie

Name only. Subject to severe scab (Nichols).

**M. 'Marshall Oyama'**

Introduced to the United States by Boyce-Thompson Arboretum in 1930 from Japan. A narrow, upright tree; buds pink, opening to single, white flowers 1.4 in (3.5 cm) across, fruit 1 in (2.5 cm) in diameter, yellow with red cheeks. An annual bearer. Subject to moderate scab (Nichols). A good jelly crabapple. Loc. 12, 16, 24, 28, 31, 35, 37, 54, 77, 79, 81, 89.

**M. 'Martha' Gideon**

Name only. Subject to severe scab (Nichols).

**M. 'Martha-Dolgo' CDA—Morden 1943**

Parentage: M. 'Martha' × M. 'Dolgo'

Flowers single, white; fruit yellow-red, 1.6 in (4 cm) in diameter, good eating. Subject to mild scab (Nichols). Loc. 81, 85.

**M. 'Mary Currelly' Macoun**

Named to honor the wife of C. T. Currelly, curator, Royal Ontario Museum. Flowers pink, single, very large, 2.4 in (6 cm) across; fruit red, very large, 1.6 in (4 cm) in diameter. An alternate bloomer. Subject to moderate scab. A good jelly apple and a prospect for hybridizing as it has one of the largest flowers of all crabapples. Loc. 61, 89.

**M. 'Mary Potter' Sax 1939**

Parentage: M. sargentii 'Reiser' × M. xatransilusganz

Arnold Arboretum No. 17039. Introduced in 1947 by Earl Sax (his first crabapple introduction). This hybrid is a triploid that tends to breed true from open-pollinated seed. It was named to honor a daughter of Charles Sargent, first director of the Arnold Arboretum. A lovely, low-growing tree to 6-8 ft (1.8-2.4 m) high, spreading to 18 ft (5.5 m) wide, producing very heavy crops of unusually large fruit; expanding buds pink, opening to white, single flowers 1.1 in (2.7 cm) across; fruit red, 0.5 in (1.2 cm) in diameter, persistent. May be an alternate bloomer. Subject to minor disease problems, including mild scab and fire blight. Deserves to be more widely grown as a specimen tree and especially on large estates and arboretums where it can be displayed to perfection. Several beautiful, mature specimen trees grow at the Agriculture Experiment Station, Wooster, OH, where they are outstanding in the very large and well-landscaped collection. Clearly the pollen of this clone, where found fertile, should be used for hybridizing. Loc. 5, 3, 13, 18, 22, 24, 26, 31, 35, 34, 35, 69, 71, 79, 80, 81, 86, 89, 100.

**M. 'Masek'**

Parentage: A chance seedling discovered by Robert Simpson, Vincennes, IN. while attending a meeting of the Holly Society of America on a tour of the Missouri Botanical Garden, St. Louis, in late November. Named to honor John Masek, a good friend. Subject to severe scab in St. Louis, MO. In a letter to Lester Nichols dated 29 July 1983, Simpson wrote: "A spot of color attracted me. In the middle of some shrubs was a slender volunteer crab with a few fruits still attractive. I asked John Masek, a local nurseryman, to send me some scion wood for budding the next summer. Years later I saw the same plant. The shrub was all gone and the tree had a six or eight inch trunk and was gorgeous with fruit. I felt the fruit was a bit large and it tended to bear heavily on alternate years.

Flower 0.5-0.75 in (1.3-1.9 cm) in diameter, dark red, persistent. Subject to mild scab. Loc. 12, 24, 35, 37, 47.

**M. 'Matador' Fica 1974**

Parentage: (M. 'Serenade' × M. 'Amberina') × (M. 'Coral Cascade' × M. 'Christmas Holly').

No. 84-1. A small, wide-spreading, upright tree to 14 ft (4.3 m) high and 16 ft (5 m) wide, very showy in bloom and fruit; leaves dark green, disease tree buds bright red, opening to single, white flowers; fruit very small, minute, brilliant red, firm, persistent, relished by birds. Good disease resistance. Loc. 47.

**M. 'Mathews' Downing 1873**

Parentage: A clone of M. prunifolia

Buds and flowers single, pink, very large, 2 in (5.3 cm) across; fruit 2 in (5 cm) in diameter, yellow-green. An alternate bearer. Subject to severe scab and moderate cedar-apple rust. Loc. 31, 32, 35, 54, 81.
M. 'Maybridge' CDA—Ottawa 1956
Parentage: Unknown
A small, rounded tree to 12 ft (0.5 m) high and as wide; leaves green, good disease resistance; buds pale pink, opening to large, semi-double and double, white flowers 1 in (2.5 cm) across; fruit medium sized, red, 0.5 in (1.2 cm) in diameter. A very heavy and showy bloomer, although an alternate bloomer. Subject to moderate scale. Would be recommended if it were an annual bloomer and had some significant fruit. Loc. 47, 61.

'M. Maysong' Fiala 1975 Plate 190
Parentage: M. 'Silver Moon' x 'Seedling 68-12
No. 83-3-5. A very upright, narrow tree to 20 ft (6 m) high and 8 ft (2.5 m) wide, spreading to vase-shaped with age; leaves very heavily textured, deep green; disease resistant; buds pale pink-white, opening to large, single, white, cupped flowers, very showy, blooming on spurs; fruit 0.5-0.8 in (1.2-2 cm) in diameter, medium red, attractive. An annual bearer. An excellent crabapple for tight places or as an accent to the landscape. Loc. 47, 108.

'M. Maxima'
Parentage: A clone of M. baccata

'M. McPike' N.E. Hansen
Parentage: A hybrid of M. baccata

'M. Meach' Preston 1920
A Rosybloom clone, since discarded because it is inferior. Buds single; flowers purple-red, very large, 1 in (2.5 cm) across; fruit red, 0.5 in (1.2 cm) in diameter. Progeny of M. 'Meach' include M. 'Basking' and M. 'Tomiko', both from the Ontario Department of Agriculture, Ottawa, Ontario.

'M. Mecca' Saunders 1904
Parentage: M. baccata var. psimbroca 'Mecca' x M. 'Simbire No. 9'. Fruit red, 1.6 in (4 cm) in diameter.

'M. Mecca-Dolgo' CDA—Ottawa
Parentage: M. 'Mecca' x M. 'Dolgo'

'M. Mercer'
An apple. A form of M. "southern" found growing wild by Mr. Duke in Mercer County, IN. Subject to very severe scab, cedar-apple rust, and frog-eye leaf spot (Nichols).

*M. 'Michael' Fiala 1978 Plate 191
Parentage: M. sibolith 'Wooster' x M. 'Christmas Holly'
Named to honor Michael Scott, an outstanding plantman, propagator, and friend. Introduced by Kleinh Flower Nursery, South Barrington, IL. A medium-sized, upright to vase-shaped, to spreading tree 14 (4.5 m) high and 10 ft (3 m) wide; leaves medium green, disease resistant; buds deep crimson, opening to single, blush pink-white flowers, very prolific to bloom once established, blooming on spurs; fruit brilliant orange-red, in color also early, firm, persistent to December. Loc. 46, 61, 89.

'M. 'Milliken' Name only. Subject to very mild scab (Nichols). Loc. 12, 13, 61, 89.

'M. Millo' N. E. Hansen 1942
Parentage: M. 'Busa' x M. 'Dolgo'

'M. 'Milton Baron No. 1' See M. 'Sugar Tyrne'.

'M. 'Milton Baron No. 2'
Named for Milton Baron, a former landscape architect at Michigan State University. A rounded tree flowers single, white; fruit bright red, 0.5-0.8 in (1.2-2 cm) in diameter, persistent. Complete disease-free (Nichols). Roots readily from softwood cuttings. A good crabapple not well known. Loc. 46, 61, 89.

'M. 'Milton Baron No. 3' Name only. Subject to very slight scab (Nichols). Loc. 61.

'M. 'Milton Baron No. 4'
Trade name: American spirit crab Name only. Subject to slight scab (Nichols). Loc. 61.

'M. 'Milton Kral' Name only. Loc. 81.

'M. 'Ming Dynasty' Fiala 1961
Parentage: M. pumila 'Lemoinei' x M. 'Red Jade'
A tree spreading to semi-weeping in form, 10 ft (3 m) high and 15 ft (4.5 m) wide; leaves red, very hardy, disease resistant. Loc. 47, 108.

'M. 'Midwest' Synonym: M. baccata var. unimaris 'Midwest' x M. 'Dolgo' A strain group, not a clone. Introduced by USDA Soil Conservation Service, Plant Materials Center, Bismarck, ND, from seed collected at Echo, Montana, by A. F. Welsch in the early 1920s. 'Midwest' is claimed to be disease resistant, winter hardy, and easy to propagate from seed. Plant Materials Center has been evaluating 'Midwest' since 1954, receiving the original seedlings from the Canada Dept. of Agriculture, Morden, Manitoba. Small amounts of seed and seedlings were made available to nurseries, organizations for testing or increase. Because M. 'Midwest' is a cultivar (group) name and not a selected clone, there may be varying degrees of differences between plants of the same 'Midwest' high and 15 ft (4.5 m) wide; leaves rich red-bronze; disease free; buds deep rose-crimson, opening to large, single, maroon-rose pink flowers; fruit red-purple, 0.5-0.75 in (1.2-1.9 cm) in diameter, large, persistent. A heavy annual bloomer. Subject to slight scab, but otherwise disease resistant (Nichols). An excellent weeper but not recommended because of fruit size and slight scab. Large estates or parks could benefit by using its weeping background. Very showy in bloom. Loc. 31, 47.

'M. 'Minnesota No. 1492' Disease free (Nichols). Loc. 12.

'M. 'Minnesota 4-P' Name only. Subject to severe scab (Nichols). Loc. 81.

'M. 'Minnesota 14-AB' Name only. Subject to severe scab (Nichols). Loc. 24, 81.

'M. 'Minnesota 14-AB' Name only. Subject to moderate scab (Nichols). Loc. 10, 12, 24, 35, 81.

'M. 'Minnesota 15-C' Name only. Subject to severe scab (Nichols). Loc. 35.

'M. Xanthoceras' See Chapter 11.

'M. 'Mollie Ann' Fiala 1978
Parentage: M. 'Dorothy' x M. sibolith 'M. Shinno Shrine' x M. 'Lullaby' An induced octoploid. Named to honor a sister of the introducer, Mollie Ann Fiala, Peshtigo, Medina, OH,troduced by Klein Nursery, South Barrington, IL. A unique semi- weeper to 12 ft (3.5 m) high and 10 ft (3 m) wide, with tiny branches in weeping, raceme-like clusters, unlike any other crabapple, assuming a semiweeping stage as the great number of racemes increases; leaves rich green, very heavily textured, leathery, very attractive even when tree is not in bloom; buds deep red, opening to finely petalized, single, white flowers in clusters; fruit deep red, about 0.4 in (1 cm) in diameter, not as abundant as flowers. According to Lester Nichols, this crabapple is completely disease resistant, "a unique tree as a polyploid and weeper." It certainly should be used by hybridizers, providing for its octoploid form and its unique raceme-like branching. It should produce some outstanding and unique hybrids. Although interesting in its raceme form, it is primarily a hybridizer's clone. Loc. 47, 100.

*+M. 'Mollen Lava' Fiala 1980 Plates 3, 192
A multibrand. Introduced by Kleinh Nursery, South Barrington, IL, and Lake County Nursery, Perry, OH. An excellent broad weeper 12 ft (3.5 m) high and 15 ft (4.5 m) wide, with attractive yellow bark in early fall; abundant, opening to white, single flowers; fruit brilliant orange-red; fruit large in cascades like lava and making a mature tree a showpiece in autumn, persistent. An annual bearer. Disease resistant (Nichols). One of the showiest weepers on the market today and among the best in heavy fruiting. An outstanding new crabapple for all purposes. Loc. 24, 36, 47, 46, 79, 81, 103. Progeny of M. 'Mollen Lava' include M.
NAMED CRABAPPLES

Firelane', M. 'Little Troll', and M. 'Red Peacock'—all from Fiala.

'M. Meonglow' Fiala 1977
Parentage: M. 'Winter Gold' × M. Christmas Holly
No. 86-1-12. A small, rounded tree to 12 ft (0.35 m) high and 10 ft (3 m) wide; leaves dark green, disease resistant; buds bright carmine, opening to masses of single, white flowers; fruit colors early, 0.4 in (1 cm) in diameter, lime-green to reddish green, and persistent. Disease free. Very attractive in blossom and unique colored fruit. An excellent disease-free crabapple. Loc. 47.

'M. Montreal Beauty' Cleghorn, Quebec, Canada, before 1853
Trade name: Montreal crab
Parentage: A clone of M. s. straminea Buds pink; flowers white, single, very large, 2 in (5 cm) across; fruit 1.6 in (4 cm) in diameter, green and red; Subject to severe scab (Nichols). Loc. 15, 35, 37, 66.


'M. Morden 19-85' A small, upright tree; leaves purple-green; buds deep red, opening late to small, deep pink flowers; fruit small, maroon with heavy purplish bloom. Subject to mild scab (Nichols). Loc. 18, 31.

'M. Morden 52-12' Name only. Disease free (Nichols). Loc. 24.

'M. Morden 450' Name only. Subject to mild scab (Nichols). Loc. 54, 79, 81.

'M. Morden 454' Name only. Subject to mild scab (Nichols). Loc. 31, 55, 81.

'M. Morden 457' See M. 'Selkirk'.

'M. Morden Rosyblom' Name only. Subject to very mild scab (Nichols). Loc. 15, 18, 31.

'M. Morgansonne' Name only. May be identical with M. 'Morning Sun', though some find the calyx on M. 'Morgansonne' is persistent while the calyx of M. 'Morning Sun' is deciduous. Disease free (Nichols). Loc. 31.

'M. Morning Sun' Green Plates 193, 194
Parentage: A seedling of M. s. straminea
Calocarpa Morton Arboretum No. 966-40. A yellow-fruited hybrid. Appears to be an outstanding clone soon to be released by the arboretum. Loc. 31.

'M. Mortem' Synonym: M. 'Morton'.
Parentage: A clone of M. s. straminea Subject to severe scab (Nichols). Loc. 31, 81.

'M. Mount Arbor' Welch 1939
Parentage: M. 'Hop' × M. 'Red Silver' Probably same as M. 'Mount Arbor Special' (which see). Buds and single flowers carmine, fading to pink, 1 in (2.5 cm) across, blooming late but lasting 2 weeks; fruit red, 0.8 in (2 cm) in diameter, persistent to November. An abundant bloomer. Disease resistant. Loc. 15.

'M. Mount Arbor Special' Welch Parentage: M. 'Hop' × M. 'Red Silver' A second-generation Rosyblom. A rounded tree to 20 ft (6 m) high; carmine buds and flowers, fading to dull pink; fruit red, 0.8 in (2 cm) in diameter. Disease free (Nichols). Fruit rather large but a fine apple that has been overlooked. Loc. 15, 81.

'M. Mrs. Bayard Thayer' Simpson 1931
Parentage: Douublet Flowers large, single, pink, 2.2 in (5.5 cm) across; fruit 1.3 in (3 cm); yellow-red. Subject to moderate scab (Nichols). Loc. 13, 15, 31, 35, 37, 54, 81.

'M. Muskoka' Preston 1920
Parentage: A Rosyblom

'M. 'Nagarnasett' Egoft 1986
Plates 195, 196, 197
Parentage: Hybrid No. 28 × M. 'Winter Gold' USDA plant introduction No. 499829. Hybrid No. 25, an unnamed dwarf known as National Arboretum No. 3549, was originally procured from Michigan State University. The seedlings of this cross were inoculated with fire blight; only the disease-resistant seedlings were kept; after 10 years of field trial M. 'Nagarnasett' was selected and named. It is totally disease resistant.

A tree 13 ft (4 m) high after 12 years, with broad crown; bark gray-green; leaves dark green, leathery, dark velvet; buds carmine, turning bright red, showy for weeks, opening to single, white flowers with a pink tint, 1.2–1.6 in (3–4 cm) across; fruit glossy, subglobose; 0.4–0.6 in (1–1.5 cm) long and 0.4–0.8 in (1–2 cm) in diameter; persistent to midwinter. A good annual bearer. Disease resistant, although in a few localities it is subject to severe but non-disfiguring scab (Nichols). A fine tree for small gardens, patios, as a focal point, or in massed plantings. An excellent crabapple released through the U.S. National Arboretum, Washington, D.C. Needs to be better known and more available from nurseries. Would be a fine clone for hybridizing. Loc. U.S. National Arboretum in Washington, D.C.

'M. 'Neville Cope' Cope 1953
Parentage: A Rosyblom seedling of M. 'Joey'. Raised by and named for Neville S. Cope, Jokey Hall, Norfolk, England. Fruit larger than that of the parent, red, 1.2 in (3 cm) in diameter. Should be phased out—subject to severe scab (Nichols). Loc. 26, 31, 37, 54, 81.

'M. 'Nevins' See M. 'Konsis' 'Nevins' in Chapter 11.

'M. 'Nicker' Fiala, 1964
Parentage: A Rosyblom

'M. 'Nicky's' Fiala 1964
Parentage: A Rosyblom

'M. 'Nicolson' Name only.
M. ’Niedzwetzkyana’  
See M. pusilla ’Niedzwetzkyana’ in Chapter 11.

M. ’Nieuwland’  
See M. coriaria ’Nieuwland’ in Chapter 11.

M. ’Nieuwlandiana’  
See M. coriaria ’Nieuwland’ in Chapter 11.

M. ’Nifong’  
Name only.

M. ’Nipissing’  
Preston 1920  
Parentage: A Rosybloom  
Named in 1930 by Isabella Preston, CDA—Ontario, in her Lake Series, for Nipissing Lake in northeastern-central Ontario, Canada. A very picturesque tree; buds carmine red, opening to single, rose pink to pale lavender flowers 1.7 cm across; dark red with orange-yellow shaded side is bronze green, 1.4 cm in diameter. An alternate bloomer. Subject to fire blight. Loc. 9, 31, 32, 37, 81.

M. ’Ohalo’  
E. Hansen 1919  
Parentage: M. bicolor × M. pusilla ’Duchess of Oldenburg’  
Buds pink; flowers single, white, 2.2 cm across; fruit red, 1.2 in (3 cm) across; fruit bright red, 1.2 in (3 cm) in diameter. Subject to severe blight. Loc. 9, 31, 32, 37, 81.

M. ’Opera’  
From Europe: A member of the M. xpyrenaica group. Not outstanding. Subject to very severe blight (Nichols). Loc. 12, 15, 13, 31, 32, 35, 37, 45, 68.

M. ’Orange’  
Before 1869  
Of North American origin. Flowers pink and white, single, 1.4 cm in (0.5 cm) across; 1.2 in (3 cm) in diameter. Subject to mild blight. Loc. 9, 31, 35.

M. ’Orange Crushy’  
Fila 1990  
Parentage: M. ’Liset’ × M. ’Red Swan’  
Developed at Falcondupe Gardens, Medina, OH, by Fr. John L. Fila in 1983 and introduced by Klehm Nursery, South Barrington, IL, in 1989. A medium-sized, spreading tree; leaves rich dark green-purple; buds bright orange, opening to single, orange-crimson flowers about 1.4-1.5 cm across; fruit deep maroon, oblong, to 0.6 in (1.6 cm) long and about 0.4 in (1 cm) wide, very attractive despite its deep color. Introduced in 1978. The clone, which holds fruit well, is best displayed when flanked by a yellow-fruited clone. It is probably the brightest orange-crimson clone in the market today. Although very new, when available, it should be one of the finest in its color range as it is disease resistant and its somewhat slender branches tend to droop under the weight of the heavy crop of very small fruit. It should prove to be an excellent choice for fresh, persistent. Disease resistant. A very fine, tailored, mini-fruited weeping. Loc. 47, 100.

M. ’Oriental’  
See Chapter 11.

M. ’Ornament Roy’  
Roy 1933  
Introduced and named by Arie den Boer in 1954, for William Ornament Roy, a landscape architect of Montreal, Canada. A broadly spreading tree to 20 ft (6 m) high and 25 ft (8 m) wide; leaves dark green; buds rose red, turning pale rose pink, opening to single, white flowers 1.6 cm (4 cm) across; fruit 0.4 in (1 cm), yellow with pale orange blush, rather weak color, ripening very late. Persistent all winter. An annual, prolific bearer. Excellent disease resistance (Nichols). Excellent for all-purpose landscaping. Loc. 4, 5, 13, 15, 24, 26, 31, 35, 37, 46, 54, 35, 66, 79, 80, 81, 86, 89.

M. ’Orna’  
Name only. Loc. 37.

M. ’O’Rourke’  
Name only. Subject to very severe blight (Nichols). Loc. 61.

M. orthocarpa  
An obsolete botanical name. Subject to very severe blight (Nichols). Loc. 54.

M. ’Osman’  
Saunders 1904  
Parentage: M. buccata × M. ’Osmoe’ (apple)  
Named in 1911. Buds pink; flowers single, pink and white, 2 in (5 cm) across; fruit 1.4 cm (0.5 cm) in diameter. Orange red to red. Subject to mild blight and slightly susceptible to fire blight. Loc. 15, 81, 87.

M. Ottawa 524  
A clone of M. buccata, formerly known as M. xsebusta ’Arnoldia’ (Canada) in Chapter 11. Subject to mild blight. Loc. 12.

M. ’Pagoda’  
Fila 1970  
Parentage: M. ’Red Swan’ × M. ’Autumn Glory’  
No. 84-17. A small, rounded weeping to 10 ft (3 m) high and as wide; leaves dark green; buds bright carmine, opening to single, white flowers; fruit 0.4 in (1 cm) in diameter, coloring early to bright red. Persistent, disease resistant. A very fine, tailored, mini-fruited weeping. Loc. 47, 100.

M. pallidiana  
An obsolete botanical name for M. buccata.

M. ’Papal Guard’  
Fila/P. Murray  
Parentage: M. ’Centurion’ × M. ’Winter Gold’  
No. BW-89. An upright, columnar tree to 15 ft (4.5 m) high and 8 ft (2.5 m) wide; buds pink, opening to single, white flower; fruit small, 0.4 cm in diameter, lemon-yellow, persistent to November, then eaten by birds. An abundant, annual bloomer. Good disease resistance. Loc. 47.

M. ’Parent No. 1’  
Name only. Subject to moderate blight (Nichols). Loc. 61.

M. ’Park Centre’  
Les Demain, Willoway Nursery, Avon, ON, 1985  
A vase-shaped to columnar tree of vigorous growth, with upright branches; leaves glossy green; flowers single, cotton candy pink, produced in abundance; fruit small, golden-yellow with pale red blush, drooping early. Appears to be a completely disease resistant clone. Very nice, but could well be an excellent tree for smaller spaces and for colombar accent. Loc. 36.

M. ’Parkman’  
See M. illiniosis ’Parkman’ in Chapter 11.

M. ’Parkmanii’  
See M. illiniosis ’Parkman’ in Chapter 11.

M. ’Patricia’  
A. den Boer 1993  
Parentage: A chance seedling of M. ’Hopa’ seedling No. 2.  
A second-generation Rosyblom. Named by Arie den Boer for a daughter-in-law. Buds maroon-red, opening to single, deep purple-red flowers with a white claw, 2 in (5 cm) across; red fruit to 1.2 in (2.5 cm) in diameter. Should be phased out—subject to moderate blight (Nichols). Loc. 10, 15, 18, 26, 31, 32, 35, 37, 46, 54, 73, 81.

M. ’Pattie’  
Known at Morden. No diseases. Loc. 31, 54.

M. ’Paul Imperial’  
Paul 1993  
Parentage: A hybrid of M. buccata  
Introducted in the United States from England in 1888 by Ellwanger & Barry Nursery, Rochester, NY.

M. ’Pauline’  
Fila 1972  
Parentage: M. sieboldii ’Calocarpa’ × M. sieboldii ’Wester’  
No. KW-1. Named by the introducer for a sister-in-law, Pauline Policy Fila, of Spencer, OH. An upright, spreading tree to 12 ft (3.5 m) high and as wide; leaves dark green; buds carmine, opening to masses of single, pure white flowers on many spurs; fruit club-red,
Named Crabapples

0.5 in (1.2 cm) in diameter, very showy, persistent into late winter. A very heavy, annual bloomer. Totally disease resistant after many years of testing (Nichols). An excellent, dependable, landscape crabapple of great springtime and autumn appeal. Excellent for all gardens. Loc. 107.

M. 'Peachblow' before 1930
Originated in United States. Possibly a hybrid of M. floribunda, but more upright. Flowers pinkish, single, 1.2 in (3 cm) across, fruit red, colors early, 0.4 in (1 cm) in diameter. An annual bloomer. Subject to severe scab. Loc. 15, 31, 54.

M. 'Peter Murray' Falia 1989 Plate 8
Parentage M. 'Saturn Cloud' × M. 'Tetragold' No. NIH-49. A second-generation tetraploid. Named to honor an outstanding garden superintendent, Peter Murray, superintendent of Falconsgate Gardens, Medina, OH, and president of Ameri-Hort Research, Medina, OH. A small upright, spreading tree 10 ft (3 m) high and as wide; leaves dark green, leathery; buds pink, opening to large, single, white flowers, on spurs all along the branches, fruit 0.4 in (1 cm) in diameter, a combination of gold and burnished orange in color, very beautiful, persistent to midwinter. A very showy annual bloomer with heavy flowering. Blooms when very young. Appears to be completely disease free. Outstanding for any place in the garden. Excel lent for landscaping and hybridizing. Very new and yet not well known. Loc. 47.

M. 'Peter Pan' Falia 1985 Parentage M. sieboldii 'Wooster' × Seeding 46-75 (M. sieboldii × M. s. var. sargentii) No. 60-4. A rounded tree to 14 ft (4.5 m) high and as wide; leaves medium green, disease resistant; buds bright red, opening to masses of single white flowers; fruit small, 0.25 in (0.6 cm) in diameter, very bright red on spurs that increase with age, changing from red to an attractive copper-red with heavy frost, persistent to March until eaten by birds, very showy. A very handsome annual and fruit bearer. Totally disease resistant (Nichols). Suitable for large estates and parks; excellent for roadside plantings. Loc. 67.

M. 'Pink Beauty' CDA—Morden Parentage A hybrid of M. jacata MR-451. Named by R. Simpson before 1958. A Rosyblow. Flowers single pink; fruit large, 0.9 in (2.3 cm) across, red. Subject to very mild scab. Loc. 9, 24, 26, 31, 35, 55, 79, 80.

M. 'Pink Cascade' Kerr 1920
Parentage: A Rosyblow seedling No. 63-9. Selected in 1946 from Rosyblow seedlings at the Canada Department of Agriculture Experiment Station, Morden, Manitoba. Introduced and named in 1969 by Inter-State Nurseries, Hamburg, IA. A semiweepher 14 ft (4.3 m) high and 6 ft (1.8 m) wide; with branches hanging down perpendicularly; flowers abundant, single, pink, fruit bright red, 0.5 in (1.2 cm) in diameter, coloring in late summer and retaining color for many weeks. Subject to very mild scab, not defoliating. Loc. 10, 13, 34, 26, 34, 46, 54, 61, 76, 79, 85.

M. 'Pink Dawn' Les Demaline Willows Nursery, Avon, OH An upright to vase-shaped tree to 18 ft (5.5 m) high and 12 ft (3.5 m) wide; leaves red-green, disease free; buds rose-red, opening to very showy white flowers. Subject to severe scab. Too new to be evaluated, but appears to be a good pink-blooming, upright tree. Loc. 5, 38.

M. 'Pink Eye' Will before 1940 Synonym: M. 'Dakota Pink Eye', M. 'Dakota Pink Eye', M. 'Diamond Jubilee', M. 'Will's Pink Eye' Buds pink-red, opening pink-white and white, with pale pink-white eye in center of flowers; fruit red, 0.8 in (2 cm) in diameter. Not outstanding in bloom. Subject to moderate scab. Loc. 31, 61, 81.

M. 'Pink Feathers' A dwarf weeping flowers pink, feathery, unique fruit lemon-gold.

M. 'Pink Flame' Name only: Severe scab. Loc. 18.

M. 'Pink Giant' C. Hansen 1939 Parentage: Probably M. jacata × M. pumila 'Niedzwetzkyana' Flowers single, pink to lavender, very large, 2 in (5 cm) across; fruit 0.4 in (1 cm) in diameter, orange to orange-red. Disease resistant (Nichols). Should be an outstanding crabapple. Some nursery should propagate it. Needs to be better known. Recommended for its large flowers that could be a great asset for hybridizing, its orange fruit, and its disease resistance. Loc. 81, 89.

M. 'Pink Pearl' See M. coronaria 'Pink Pearl' in Chapter 11.

M. 'Pink Perfection' A small, upright to spreading tree to 12 ft (3.5 m) high and as wide; buds deep rose-colored, opening to double; pale pink and white flowers. Should be phased out—subject to very severe scab (Nichols). Loc. 5, 12, 25, 26, 39, 41, 46, 54, 61, 79, 85, 92.

M. 'Pink Princess' A low-sweeping, bushy tree to 8 ft (2.5 m) high and 12 ft (3.5 m) wide; leaves purple, turning bronze-green; flowers rose-pink; fruit deep red, 0.25 in (0.6 cm) in diameter. Fair-to-good disease rating. Should be carried by more collections and nurseries. Recommended for its low form, small fruit, good foliage, and disease resistance. Loc. 86.

M. 'Pink Satin' Simpson 1990 A medium-sized, upright to rounded tree with single, clear pink flowers; buds deep pink, opening to abundant clusters of pink flowers; fruit small, 0.4 in (1 cm), dark red, persistent. A very showy and heavy annual bloomer. Good disease resistance. Very showy tree in springtime bloom with a clear pink color not found in many crabapples. Very new. Loc. Simpson Nursery, Vincennes, IN.

M. 'Pink Spire's' Sutherland Tree Nursery, Saskatchewan, Canada A narrow, upright tree to 15 ft (4.5 m) high and 12 ft (3.5 m) wide; leaves maroon; flowers single; pink; fruit maroon, 0.5 in (1.2 cm) in diameter. Fair-to-good disease rating; subject to very mild scab and fire blight (Nichols). Loc. 5, 15, 24, 31, 34, 64, 79, 77, 79, 81, 84, 86.

M. 'Pink Stripe' Name only.

M. 'Pink Sunburst' See M. 'Elena'.

M. 'Pioneer Scarlet' Young before 1945 Parentage: A Rosyblow seedling. Subject to moderate scab (Nichols). Loc. 81.

M. 'Plooto's' Saunders 1990 Parentage: M. 'Pioneer' (crabapple) × M. 'McIntosh' (apple) A small, yellow and bright red apple. Named with the first and last syllables, respectively, of the parents. Loc. 12, 81.

M. 'Prist' A. den Boer 1948 Parentage: An open-pollinated seedling of M. 'Oekonomier Eichemeyer' Named by Arie den Boer in 1948. A semiweepher; flowers single, white, 2 in (5 cm) across; fruit somewhat large, 1.6 in (4 cm) in diameter, red. Subject to mild scab. Loc. 31, 35, 54, 81.

M. splatycarpa See M. coronaria var. splatycarpa in Chapter 11.

M. splatycarpa 'Hoopesi' See M. coronaria var. splatycarpa 'Hoopesi' in Chapter 11.

M. splatycarpa 'Long Ashton' Name only. Subject to mild cedar-apple rust (Nichols). Loc. 73.

M. 'Ponisa' Name only.

M. 'Prairie Gold' Name only. Disease free (Nichols). Loc. 31.


M. 'Prairie Rose' See M. sieboldii 'Prairie Rose' in Chapter 11.

M. 'Prairiifeire' D. F. Dayton, Department of Horticulture, University of Illinois, Urbana, 1957 Plate 20 A moderately upright to rounded tree 20 ft (6 m) high and as wide; young leaves red-maroon, maturing to deep green; buds red-purple to crimson, opening to red-purple, single flowers 1.5-1.6 in (3.8-4.0 cm) across, pedicels 1.2-1.4 in (3-3.5 cm) long; fruit spherical, 0.4-0.5 in (1-1.2 cm) in diameter, deep purple-red. Disease free (Nichols). A newer clone that should be far better known and grown for its very fine blossom color and fruit. An outstanding crabapple that needs room to develop but fits well into any landscape. Should be excellent in hybridizing. Loc. 24, 26, 31, 46, 79, 86, 100.

M. pruuli See Chapter 11.

M. 'Pretty Marjory' Royal Moerheim Nursery—Ireland No. 29A-88. Introduced by US Plant Intro-
M. 'Prince' Saunders 1904
Parentage: M. bacata × M. pumila 'Tetosky'
Named in 1911.

M. 'Prince Charming'
Of Caucasian origin. A small tree to 8 ft (2.5 m) high and 5 ft (1.5 m) wide; leaves red-green; buds carmine, opening to single, rose-red, very small flowers 0.6 in (1.5 cm) across; fruit very small, mini-fruited, 0.25 in (0.6 cm) in diameter, round, red. Subject to inoculate scab. A slow growing tree, not a heavy bloomer, with dull fruit. Loc. 47.

M. 'Prince Georges'
See M. sempervirens 'Prince Georges' in Chapter 11.

M. 'Prins' Saunders 1905
Parentage: M. 'Prince' (crabapple) × M. 'McIntosh' (apple)
A second generation cross of M. bacata.
Named in 1920 with the first and last syllables, respectively, of the parents. Buds rose-pink, flowers single, white with touch of pink on back of petals, 1.7 in (4.2 cm) across; fruit pale orange and carmine, 2 in (5 cm) in diameter. Subject to fire blight. Fruit too large.

'M. Professor Sprunger' Doorenbos before 1929
Parentage: A clone of M. sieboldii
Named for Professor Sprunger, director of the Department of Horticulture, Wageningen, Netherlands. An upright, spreading tree 20 ft (6 m) high and as wide; buds deep rose-pink, opening to single, very fragrant, white flowers; fruit very showy, yellow-orange changing to orange-red with a pink blush, 0.4 in (1 cm) in diameter, persistent to January as the birds will not touch the fruit; an annual bearer. Disease free (Nichols). An excellent, showy crabapple for background planting. The name, like most crabapple names to honor men, adds sales resistance. Loc. 5, 24, 26, 31, 37, 81, 86, 87, 89, 100.

'M. Profusion' Doorenbos before 1928
Parentage: M. xpruniflorum 'Lemoinei' × M. toeringa
A cross made before 1928 by S. G. A. Doorenbos, Department of Parks, The Hague, Netherlands. The name refers to the abundance of single flowers. This crabapple is similar to M. 'Liset', another clone of M. xpruniflorum 'Lemoinei', except that its flower color is not as bright or as attractive as that of M. 'Liset'. An upright, spreading tree 20 ft (6 m) high and as wide; leaves purplish to bronze; buds deep red, expanding to purple-red, then fading to purple-pink; flowers single, deep rose-pink, 1.8 in (4.5 cm) across; fruit 0.6 in (1.5 cm) in diameter, maroon or blood-red. Very showy in bloom. Good disease rating. An excellent clone that should be planted more and used for hybridizing. A fine rose-blossoming tree to plant next to white-flowering crabapples. Loc. 12, 13, 24, 26, 31, 32, 35, 39, 40, 54, 79, 80, 81, 84, 86, 87, 89, 91, 100.

'M. Prolific' Name only.

M. prunifolia See Chapter 11.

M. prunifolia var. rinki See Chapter 11.

M. prunifolia 'Fastigata' See Chapter 11.

M. prunifolia 'Fructu Coccinea' Subject to mild scab (Nichols). Loc. 15.

M. prunifolia 'Katalika Saninsska' Subject to moderate scab (Nichols). Loc. 87.

M. prunifolia 'Lutea' Name only. Subject to mild scab (Nichols). Loc. 54.

M. prunifolia 'Pendula' See Chapter 11.


M. prunifolia 'Xanthocarpa Pendula' A weeping form of M. prunifolia 'Xanthocarpa'. Disease free (Nichols). Loc. 18.

M. pumila See Chapter 11.

M. pumila var. sylvestris See Chapter 11.

M. pumila var. sylvestris 'Fiore Plena' See Chapter 11.

M. pumila var. sylvestris 'Plena' See Chapter 11.

M. pumila var. transscaicus See Chapter 11.

M. pumila 'Apetala' Subject to moderate scab. Loc. 14, 31.

M. pumila 'Aurea' Synonyms: M. Aurea, M. arnae Name only. Subject to severe scab (Nichols). Loc. 81.

M. pumila 'Niedzwetzkyana' See Chapter 11.

M. pumila 'Paradisiaca' See Chapter 11.

M. pumila 'Paradisiaca Foleus Aureus' Subject to mild scab. Loc. 26, 54, 81.

M. pumila 'Paradisiaca Ruberrima' Subject to severe scab (Nichols). Loc. 31, 81.

M. pumila 'Pendula' See Chapter 11.

M. pumila 'Plena' See M. pumila var. transscaicus in Chapter 11.

M. pumila 'Transscaicus' See M. pumila var. transscaicus.

M. 'Purdom No. 179' Name only.

'M. Purple Prince' Fiala 1979: Plates 203, 204 Parentage: M. 'Bluebeard' × M. 'Liset' No. 85-20-R2. A small, rounded, tailored tree to 15 ft (6 m) high and as wide; leaves deep purple-green, disease resistant; buds bright carmine-red, opening to bright rose-red, single flowers that fade only slightly to a pleasing rose; fruit 0.4-0.5 in (1-1.2 cm) in diameter, blue-purple with a fine blue bloom, firm, persistent. Completely disease resistant (Nichols). A very heavy, annual bloomer with fine purple-green foliage and abundant, deep pink flowers. Excellent for any landscape. Fruit attractive and showy next to a gold- or orange-fruited crabapple. Loc. 47, 86.


M. xpruniflorum See Chapter 11.

M. xpruniflorum 'Aldenhamenensis' See Chapter 11.

M. xpruniflorum 'Eleyi' See Chapter 11.

M. xpruniflorum 'Eleyi Compactus' See Chapter 11.

M. xpruniflorum 'Hoser' Should be phased out—subject to severe scab. Loc. 51.

M. xpruniflorum 'Kobenzda' Should be phased out—subject to moderate scab. Loc. 31.

M. xpruniflorum 'Kornicensis' See Chapter 11.

M. xpruniflorum 'Lemoinei' See Chapter 11.


M. xpruniflorum 'Safetii' Synonym: M. 'Schartor' Name only. Subject to severe scab (Nichols). Loc. 31.

M. xpruniflorum 'Wierdakii' Name only. Subject to severe scab (Nichols). Loc. 31.

M. 'Pygmy' Kerr Plate 215 No. 63-S. A small, almost perfectly rounded tree to 12 ft (3.5 m) high; leaves red-green; buds carmine-rose, opening to single, pink-mauve flowers. Subject to moderate scab. A genetic dwarf but not as decorative as others for home landscaping. Interesting genetic form. Loc. 5, 12, 31, 35, 61, 79, 81.

M. 'Pyramidalis' Parentage: A clone of M. bacata

M. 'Quaker Beauty' before 1875 Leaves pink, opening to single, pink-white flowers 2 in (5 cm) across; fruit green with red
M. 'Red Barrow'
Synonym: M. Simpson 328-3A', M. Arnold Arboretum No. 328-35-A
No. 624-73. Introduced and named by Simpson Nursery, Vincennes, IN. A medium-sized, compact, narrow tree with upright (columnar) habit; 18 ft (5.5 m) high by 8 ft (2.5 m) wide; leaves red-purple, turning to bronze-green, excellent in fall; flowers singel, dark red; fruit glossy, dark red, 0.5 in (1.2 cm) in diameter. Subject to mild scab (Nichols). The apple clone has only one in Loc. 5, 16, 24, 26, 46, 54, 55, 61, 81.

*M. 'Redbird'
Fiaia 1974
Plate 207
Plant name 'Reberizam'. Introduced by Lake County Nursery, Perry, OH. Originally introduced by Klehm Nursery, South Barrington, IL. A small, upright, rounded tree to about 15 ft (4.6 m) high and 12 ft (3.5 m) wide; leaves dark green, disease resistant; buds brilliant red, opening to abundant, single, pure white flowers; fruit begins to color early in August. 0-4-0-6 (0-1-5 m) in diameter, persistent into late November or until eaten by birds. Completely resistant to all disease (Nichols). An annual bloomer whose primary ornamental value lies in its brilliant crimson-red fruit; however, the combination of white flowers with unopened bright red buds in spring is also very ornamental. One of the finest of the early coloring crab-apples that has been used for many years at Falconsecke Gardens, Medina, OH, in hybridizing. Ideal for all landscapes. Loc. 46, 47, 100.

M. 'Red Coat'
Name only. Subject to severe scab (Nichols). Loc. 51, 35, 37.

M. 'Red Edinburgh'
Wayside Nursery catalog 1970
Subject to severe scab (Nichols). Loc. 26, 35.

M. 'Redfield'
New York State Experiment Station—Geneva 1924
Parentage: M. pumila 'Wolf River' (apple) × M. pumila 'Niedzwetzyka'. A Rosybloomy. Introduced in 1938. Carminate buds and single, red flowers fading to dull pink; 1.6 in (4 cm) across; fruit red, 1.4 in (3.5 cm) in diameter, red fleshed. Subject to severe scab (Nichols). Loc. 11, 18, 54, 81.

M. 'Reed's' N. H. Hansen 1928
Parentage: M. pumila 'Niedzwetzyka' × M. domestica 'Elk River'. Buds can be opening to single, rose-pink flowers 1.8 in (4.5 cm) across, fragrant; fruit red, 1.6 in (4 cm) in diameter. An alternate bearer. Subject to severe scab (Nichols). An interesting crabapple that could be used in hybridization of M. cinnamomum. Loc. 14, 26, 32, 35, 54, 81.

M. 'Redfruit'
New York State Experiment Station—Geneva 1921
Parentage: M. 'Wolf River' (apple) × M. pumila 'Niedzwetzyka'. A Rosybloomy similar to M. 'Redfield' except flowers not as dark, single, 2 in (5 cm) across; fruit 2 in (5 cm) in diameter, yellow and red. An alternate bloomer. Subject to mild scab (Nichols). Loc. 14, 31, 32, 35, 81.

M. 'Red globe'
Name only. Loc. 81.

M. 'Red Heart'
Porter Sometimes spelled as one word, M. 'Red heart'. Name only. No disease (Nichols). Loc. 31, 54.

M. 'Red Hill'
Name only.

M. 'Red Jade'
Reed 1935
Plate 206, Fig. 6.2
Parentage: An open-pollinated chance seedling of M. borbonica 'Excellens Thiis'. Introduced and named in 1935. Patented in 1956, patented plant No. 1497. Found growing at the Brooklyn Botanic Garden, Brooklyn, NY, in 1933 by George M. Reed. A tree 10-12 ft (3-3.5 m) high and 20-30 ft (6-9 m) wide or even wider; leaves very attractive, glossy green; buds red, opening to single, white flowers 1.6 in (4 cm) across; fruit egg-shaped, 0.5 in (1.2 cm) in diameter, bright red, persistent through fall into winter. Subject to severe scab, fire blight, and powdery mildew in some areas (Nichols); in other areas (e.g., Ohio) it is little affected by any diseases. This clone will demonstrate how disease susceptibility can be a regional problem and not necessarily a universal one. It is an excellent, outstanding ornamental, the first really fine weeping crab-apple. It has been used heavily by hybridizers. Because of its large spread (with age), it needs room to develop to perfection with its long, slender weeping branches. Suitable for larger estates, parks, and arboretum plantings but not smaller home gardens. Loc. 12, 18, 19, 30, 32, 34, 36, 38, 40, 43, 46, 57, 58, 59, 61, 69, 71, 73, 76, 77, 79, 80, 81, 86, 100.

M. 'Red Jewel' Cole Nursery 1972
Plate 6, Fig. 3.3
Plant patent No. 3267. An upright, pyramidal tree to 18 ft (5.5 m) high and 12 ft (3.5 m) wide; leaves dark green, 2-3 in (5.7-7.6 cm) long; flowers single, white; fruit bright cherry red, 0.5 in (1.2 cm) in diameter, very attractive, persistent in color to December. Subject to very mild scab (Nichols). One of the better newer crabapples. A fine specimen plant. Suitable for planting in narrow places or as an accent to break a rounded landscape line. Loc. 2, 5, 18, 19, 22, 26, 31, 35, 46, 54, 56, 61, 69, 81, 86, 100.

M. 'Red Leaf' Name only. Probably a synonym for M. pumila 'Niedzwetzyka'.

M. 'Redman' Name only. Subject to mild scab (Nichols). Loc. 12, 54.

M. 'Red Mercer' Name only. Subject to mild scab (Nichols). Loc. 54.

M. 'Red packed' Fiaia 1969
Plates 209, 210
Parentage: M. 'Molten Lava' × M. 'Lucy'. M. sieboldii No. 243.

M. 'Red River' Yeager before 1938
Parentage: M. 'Dolgo' × M. 'Delicious' (apple) × M. sieboldii 'Almo'.

M. 'Red Ruby' Cole Nursery, Circleville, OH
Parentage: M. 'Van Eden' × M. sieboldii 'Almo'. Plant patent No. 3052. A vigorous tree with...
narrow to upright growth habit; leaves glossy, dark green; flowers double, cup-shaped, dark red, 2 in (5 cm) or more across, produced in great abundance; fruit almost sterile, but dark red and small when produced. Free of apple scab. A very showy springtime clone. Should be grown more in landscaping and by hybridizers.

M. 'Red Siberian' See M. xmbastia 'Red Siberian' in Chapter 11.

M. 'Red Silver' C. Hansen 1928 Parentage: A Rosyboom Carmine buds and flowers fading to dull pink, 1½ in (3.8 cm) across; fruit purple, 0.8 in (2 cm) in diameter. Slightly susceptible to scab; susceptible to fire blight. Wheeler Wilson lists it among his "best cold weather crabapples." Fruit a bit too large to be recommended. Loc. 14, 24, 31, 35, 39, 40, 43, 54, 77, 79, 81.

M. 'Red Snow' Name of an older variety. Also the first name given to M. 'Red Swan' before a conflict in names was discovered. The M. 'Red Snow' that is mentioned in recent writings as an excellent weeping is a clone of M. 'Red Swan' (which see). *M. 'Red Splendor' Bergeson Nursery, Fertile, MN, 1948 Parentage: An open-pollinated seedling of M. 'Red Silver' A Rosyboom selected in 1948. An open, graceful, upright, spreading tree 20 ft (6 m) high and as wide; leaves glossy green-red, turning red-purple in fall; buds rose-colored, opening to large, pink to rose-pink flowers 1.75 in (4.4 cm) across, with 5 petals; fruit 0.5 in (1.2 cm) in diameter, dark red, persistent into December. Subject to mild scab and cedar-apple rust (Nichols). Loc. 2, 5, 12, 18, 24, 31, 33, 57, 39, 35, 72, 74, 79, 80, 81, 82, 86.

M. 'Red Star' Name only. Subject to severe scab (Nichols). Loc. 69.

*M. 'Red Swan' Fiala 1967 Plates 24, 211, 212, 213, 214, Fig. 3.5 Synonym: M. 'Red Snow' Name changed from M. 'Red Snow' to M. 'Red Swan' to avoid conflict with an existing name. Introduced and patented by Klehm Nursery, South Barrington, IL. An excellent weeping, multibred crabapple. A small to medium-sized tree, 8 ft (2.4 m) high and 14 ft (4.3 m) wide, with long, graceful, arching, weeping branches and fine twigs; leaves fine, narrow, heavily textured, with very attractive gold colors in fall; buds elongated, pink-red, opening to single, pink-white flowers 1.5 in (3.8 cm) across; fruit obovate, 0.3 in (0.8 cm) in diameter, colors to bright orange-red, persistent through December and January. A very heavy, annual bloomer. Completely disease resistant (Nichols). The orange-red fruit and yellow-golden fall foliage are extremely attractive and make this one of the most attractive weeping crabapples, a showpiece as it matures. It should be displayed as a single specimen plant at a focal point in the garden landscape. It can fit into almost any landscaping design. With its cascades of brilliant orange-red fruit on long weeping branches, I would classify M. 'Red Swan' along with M. 'White Cascade', as one of the most beautiful flowering crabapples available today. Loc. 31, 35, 47, 100. Proveny of M. 'Red Swan' include the following:

M. 'Autumn Treasure' Fiala
M. 'Corelque' Fiala
M. 'Dancing Elf' Fiala/P. Murray
M. 'Firecloud' Fiala
M. 'Firecracker' Fiala
M. 'Henry Ross' Fiala
M. 'Orange Crush' Fiala
M. 'Pagoda' Fiala
M. 'Rhapsody' Fiala
M. 'Royal Splendor' Fiala
M. 'Sinoi Fire' Fiala
M. 'Spring Beauty' Fiala
M. 'Wildfire' Fiala

M. 'Red Tip' N. E. Hansen 1919 Parentage: M. ×mbastia 'Elk River' × M. pumila 'Niedzwetzkyana' Arien Doer is probably correct when he doubts the presence of any M. pumila 'Niedzwetzkyana' in M. 'Red Tip'. Young leaves are red tipped; flowers single, pink, 1½ in (4 cm) across; fruit very large, size of eating apples, 2 in (5 cm) in diameter, yellow-green, subject to mild scab (Nichols); susceptible to fire blight. Loc. 12, 15, 54, 81.

M. 'Reldrock Sweet' See M. ×mbastia 'Elongata' in Chapter 11.

M. 'Renée' Schwartz Named by Chester D. Schwartz, Puyallup, WA, for his eldest granddaughter, Renee Scheuerr.

M. 'Renovum' Name only.

M. 'Rescue' CDA—Scott 1936 A very hardy tree; flowers pink fading to white, 1½ in (3.8 cm) across; fruit red, very large, 1½ in (3.8 cm) in diameter. Resistant to fire blight but subject to moderate scab (Nichols). Loc. 15, 81.

M. 'Rhapsody' Fiala Parentage: M. 'Red Swan' × M. 'Red Jade' No. 85-D1-SPW. A refined, small semiweeper to 12 ft (3.8 m) high and 14 ft (4.3 m) wide; leaves dark green, disease free; buds carmine with pink, opening to large, single, white flowers produced in great abundance, very attractive; fruit bright, glossy red, 0.4-0.5 in (1-1.2 cm) in diameter, persistent, showy. An annual bloomer. Completely disease free. An excellent weeper that could well surpass M. 'Red Jade' in popularity, especially for very well-watered in disease resistant; smaller, brighter fruit; and more refined plant habit. Outstanding for all garden landscaping needs—smaller home gardens, patios, or as a focal point in larger estates and parks. Massed in threes next to yellow-fruited crabapples, it is very showy. Unavailable as yet, new loc. 47, 86.

M. 'Richard J. Eaton' Name only.

M. 'Ringo' Parentage: A clone of M. ×mbastia Subject to mild scab (Nichols). Loc. 24, 80, 81.

M. 'Rival' Name only.

M. 'Robert Nairn' H. R. Wright Parentage: A hybrid of M. hortulus 'Flowers White' and M. ×mbastia 'Orange-Yellow'. Subject to moderate scab (Nichols). Previously free of all diseases for over 10 years. An overlooked crabapple. Loc. 61.

M. 'Robin Saunders' 1904 Parentage: M. ×mbastia × M. 'Simbirsk No. 9' (apple) Buds rose-red, opening to single, white flowers, with petals showing a trace of pink along the edges, cupped, 1.6 cm (4 cm) across; fruit orange-yellow with pale red blush, evenly ribbed, large, 1½ in (4 cm) in diameter. Extremely hardy. Subject to mild scab and cedar-apple rust (Nichols). Loc. 9, 31, 34.

M. 'Robin Hill Pink' Name only.

M. 'Robin Jefferson' Name only.

M. 'Robinson' Hobbs Introduced by C. M. Hobbs Nursery, Indianapolis, IN. The original tree was located on adjacent property owned by James Robinson, for whom the crabapple is named. An upright, spreading tree 25 ft (8 m) high and as wide; leaves reddish, turning to bronze-green with maturity; buds crimson, opening to small, deep rose-mauve flowers that keep their color well; fruit 0.6 in (1.5 cm) in diameter, dark, glossy wine-red, hidden by foliage that persists. Excellent disease-free rating (Nichols). Loc. 5, 19, 24, 36, 31, 55, 61, 74, 81, 86, 89.

M. ×mbastia See Chapter 11.

M. ×mbastia 'Arnold-Canada' See Chapter 11.

M. ×mbastia 'Costata' See Chapter 11.

M. ×mbastia 'Cowsley House' See Chapter 11.

M. ×mbastia 'Erecta' See Chapter 11.

M. ×mbastia 'Gary's Choice' See Chapter 11.

M. ×mbastia 'J. L. Pierer' See Chapter 11.

M. ×mbastia 'Leucocarpa' See Chapter 11.

M. ×mbastia No. 6 See M. ×mbastia 'Arnold-Canada' in Chapter 11.

M. ×mbastia 'Percifolia' See Chapter 11.

M. ×mbastia 'Red Siberian' See Chapter 11.

M. ×mbastia 'Yellow Fruited' See Chapter 11.

M. ×mbastia 'Yellow Siberian' See Chapter 11.
M. xroheata 'Xanthocarpa'
See Chapter 11.

"M. roosei"
See Chapter 11.

"M. roosei" (Hawaii)
See M. roosei in Chapter 11.

"M. roosei" (Hawaii)
Name only.

"M. roosei" (Hawaii)
Rodney F. Kelley, Kelley and Kelley, Long Lake, MN
Parentage: An open-pollinated seedling of M. "Pogo."
A vigorously growing, very horty tree; leaves thick, glossy, green, remaining on the tree after all other trees are bare; flowers single white; fruit dark red, persistent into midwinter.
Disease-free tree. Loc. 12.

"M. Ronaldo" CDA—Ottawa 1911
Parentage: A seedling of M. "Salomee.
A Rosyboom. Fruit yellow-red, persistent to December. Subject to moderate scab and mild cedar-apple rust (Nitsch). Loc. 31, 35, 54, 61, 81.

"M. Rosalde"
Name only.

"M. Roselov"
See M. sargentii 'Roselov' in Chapter 11.

"M. Roost" Saunders 1905
Parentage: A clone "Prine" (crabapple) x M. McIntosh (apple)
A second-generation hybrid of M. baccata. Named in 1929. Flowers single, pink, fading to white; fruit green-yellow, large, 1.9 in (4.8 cm) in diameter. Subject to severe scab (Nitsch). Loc. 11.

"M. 'Rosean'" Preston 1920
Parentage: A clone "Rosean" (crab) x M. apiculata
Named in 1930 by Isabella Preston, CDA—Ottawa, in her Lake Series, for Rosseau Lake in Ontario, Canada. A large, upright, spreading tree to 20 ft (6 m) high; buds maroon-red, flowers purplish to rose-red with white claw, fading to pink, 1.8 in (4.5 cm) across; fruit carmine to light jasper red, 1 in (2.5 cm) in diameter. A good annual bearer. Subject to scab. Disease resistant (Nitsch). One of the better Rosyblooms. Recommended, as so many of the Rosyblooms are subject to crabapple diseases. Loc. 2, 9, 18, 24, 31, 81.

"M. 'Rose's Double Red'" Ross
Plate 215
Parentage: M. 'Van Eschline' x M. sargentii 'Lemoinei'
An outstanding introduction of Henry Ross, director and founder of Gardenview Horticultural Park, Strongville, OH. A rounded to spreading tree to 12 ft (3.6 m) high and 16 ft (5 m) wide, with beautiful branches from the ground; leaves reddish, turning bronze-green; buds bright rose-carmine, opening to clusters of large, double, rose-pink flowers that come late and remain for a long period of time; fruit insignificant (as in most double-flowering crab-apples), dark red-purple, 0.5 in (1.2 cm) in diameter. An annual bloomer. Very good disease resistance; exempt very mild leaf scar that does not harm the foliage (Nichols). Should be far better known and propagated by nurseries.
Its flowers have three colors—dense rose pink, layered with medium pink, and pale pink interior petals—making a very pleasing effect as buds open and flowers fade. It is excellent as a showpiece plant of any garden, and as a hybridizer's special. Loc. 47.

M. Ross's 'Octoploid'
See M. 'Corallata'.

"M. Royal Ruby" Simpson 1971
Plate 10
Parentage: An open-pollinated Rosyboom seedling
Sutherland No. 2. Similar to sibling M. 'Thuncheirdi'. A dense, mound-like, crowned tree to 15 ft (4.6 m) high and as wide; leaves dark purple; flowers single, crimson to almost purple, not showing up well against the dark purple leaves; fruit dark red, about 0.6 in (1.6 cm) in diameter. Subject to severe scab and fire blight (Nichols). One of the very best trees for dark purple foliage color (far superior to the purple leaf plum). Makes a handsome color contrast in the landscape.
Loc. 62.

"M. Royal Ruby" (Hawaii)
See M. 'Royal Ruby' in Chapter 11.

"M. Royal Splendor" Fiala 1975
Plate 218
Parentage: M. 'Red Swan' x M. 'Autumn Glory'
No. 85-19B. A tree to 10 ft (3 m) high and 12-14 ft (4-3.6 m) wide; leaves green, good, disease resistant; buds red-pink, opening to single; white flowers in heavy cascades, increasing in beauty with age, on blossom spurs; fruit small, 0.4-0.5 in (1-1.2 cm) in diameter, rather bright, very showy, firm, persistent into midwinter then eaten by birds. A heavy, annual bearer. Completely disease resistant. An excellent, smaller, spreading weeper for smaller areas or as a specimen tree. Ideal for Japanese gardens. One of the finer, new weepers. Loc. 47.

"M. 'Royality'" Kerr 1958
Plate 10
Parentage: An open-pollinated Rosyboom seedling
Sutherland No. 2. Similar to sibling M. 'Thuncheirdi'. A dense, mound-like, crowned tree to 15 ft (4.6 m) high and as wide; leaves dark purple; flowers single, crimson to almost purple, not showing up well against the dark purple leaves; fruit dark red, about 0.6 in (1.6 cm) in diameter. Subject to severe scab and fire blight (Nichols). One of the very best trees for dark purple foliage color (far superior to the purple leaf plum). Makes a handsome color contrast in the landscape.
Loc. 62.

M. 'RRW'
Name only.

"M. Ruby Luster"
Name only. Loc. 81.

"M. Rudolph" F. L. Skinner 1954
Parentage: Possibly M. baccata x Rosyboom A Canadian Rosyboom. Flowers single, pink, to 2 in (5 cm) across; fruit 0.5 in (1.2 cm), red-purple. Subject to moderate scab and mild fire blight (Nichols). Too much disease. Loc. 12, 24, 31, 81.

"M. 'Ruth Ann'" Simpson
No. 4-28. A vase-shaped tree leaves good; flowers showy; semidouble, deep pink, produced in great abundance; fruit small, not effective (most semidouble and double-flowering crabapples do not have abundant fruit).

Subject to very mild scab (Nichols). Outstanding in bloom. Named by Robert Simpson, Victoria, BC, for one of the members of his office staff. Loc. 5, 61, 81.

"M. 'Ryria'" Fiala 1989
No. NR-3-0-60-89. Named to honor Ryan Murray, son of Peter and Karen Murray, Falcon Ridge Gardens, Medina, OH. A dwarf but spreading tree to 8 ft (2.5 m) high and as wide; buds deep purple-red, opening to single, pale pink flowers with reverse of petals pink; fruit 0.6 in (1.6 cm) in diameter, red, persistent. A very showy annual bloomer. Disease resistant. An excellent low-growing shrub-tree for smaller gardens, foreground plantings, or as a focal point—wherever a dwarf tree is needed. New and as yet relatively unknown. Loc. 47.

"M. 'Santa Maria Weeper'
Name only.

"M. Sapina" N. E. Hansen
A Rosyboom hybrid of M. baccata.

"M. Sarah' Fiala 1990
Plate 218
Parentage: M. 'Autumn Glory' x M. 'Angel Choir'
Named to honor an outstanding plantswoman, Sarah Klein, of South Barrington, IL. An upright to rounded tree to 15 ft (4.6 m) high and as wide; leaves dark green; buds pale rose pink, opening to semidouble and double, pure white flowers in early summer; fruit orange-red, 0.4 in (1 cm) in diameter, showy, persistent. Produces a very showy annual display of both blossoms and fruits. Disease free. Too new to be completely evaluated. Excellent for any landscape use. The large, semidouble blossoms add to the mass flower effect. Loc. 47, 100.

M. sargentii
See Chapter 11.

"M. sargentii" (Hawaii)
Name only.

"M. Rose" Fiala 1994
See M. Rose in Chapter 11.

M. sargentii 'Roseolov'
See Chapter 11.

M. sargentii 'Scarnon's Rancho Ruby'
XP 177. Probably the same as M. 'Rose'. Loc. 81.
M. sargenti 'Seedling' Polly Hill
Similar to the species with pink buds and pink and white flowers. No disease (Nichols). Loc. 28, 35, 38.

M. sargenti 'Tina'
See Chapter 11.

M. sargenti 'Upright Form'
Name only. Disease free (Nichols). Loc. 31.

M. sargenti × M. xanthocanea
Name only. Subject to mild scab (Nichols). Loc. 12, 13.

M. sargentii × M. xanthocanea
Name only. Subject to mild scab (Nichols). Loc. 12, 13.

M. 'Sakura' Wheeler 1938
Parentage: A seedling of M. bicolor Fruit 1.2 to 3 cm, bright red. Disease free (Nichols). Loc. 54.

M. 'Saskatchewan 406'
Name only.

* M. 'Satini Cloud' Fiala 1970
Plate 219, 220, 221
Parentage: (M. 'Conflorib' × a tetraploid form of M. slateii) × (a tetraploid seeding of M. roseafulness × a tetraploid form of M. slateii)
No. 1-6. Named for its appearance in bloom—a rounded, scabrous, or 'Satini Cloud'. Introduced and patented by Klehm Nursery, South Barrington, Ill. One of only three known octoploids, and typical of such cultivation. A very rounded (as if sheared) tree to 10 ft (3 m) high and as wide, with very fine branches; leaves very heavily texturized, like leather, rich deep green during the summer, turning to brilliant shades of orange-red and purple in the autumn; leaf bud interchanges very close, often 5 per inch, making it difficult for budding. Abundant buds are pale, faintly pink-white, opening to large, single, pure white flowers that have a delightful cinnamon-clove fragrance (very strong on new growth) and are produced abundantly on spurs fruit small, 0.5 in (1 cm) in diameter, turning from green-yellow to amber-yellow to burgundy, persistent. Entirely disease resistant over a period of many years (Nichols). One of the finest new crabapples. Challenges hybridizers to develop a whole new race of 'Satini Cloud'.

M. 'Satin Cloud' Fiala 1970
Plate 222
Parentage: see M. sargenti 'Tina'. Named in 1938 by Isabella Preston, CDA—Ontario, in her Lake Series, for Scugog Lake, southeastern Ontario, Canada. Bush of medium size and habit, bearing large, single, pure-red flowers with a white claw, 1.8 in (4.5 cm) across; fruit dark crimson to oxblood red, 1.8 in (4.5 cm) in diameter. An alternate bearer. Should be phased out—too much disease, including scab (Nichols). Loc. 12, 24, 26, 35, 37, 61, 79, 81, 86, 100.

M. 'Septembris' A. den Boer 1939
Parentage: seedling No. 1 of M. 'Okosyme' (Klehm Nursery). A semi-sweeper; flowers single, pink, to 1.8-2.3 in (4.3-5.8 cm) across; fruit yellow, 0.1 in (0.4 cm) in diameter. Subject to moderate to severe scab (Nichols). Loc. 31, 35, 54, 61.

M. 'Selkirk' CDA—Morden 1962
Plate 223, 224
Syonym: M. 'Morden 452'
Parentage: M. bicolor × M. pumila 'Niedzwetzkyana'.
A rosebloom hybrid resembling M. 'Hopa' but smaller and of medium vigor. A rounded tree to 20 ft (6 m) high and 25 ft (8 m) wide; leaves glossy deep green, turning to green-brown, very attractive; buds bright rose-colored, opening to deep purple-pink flowers; fruit on short spurs, bright red fruit of any crabapple, 0.75 in (1.9 cm) in diameter, coloring early (in August), persistent into October, like 'Bing' cherries. A profuse bloomer when young. May be an alternate bloomer in some locations, but it has never been alternate for us in Ohio. Subject to slight scab, slight fire blight, and moderate powdery mildew (Nichols). Disease free at Falconescope for 30 years. Very attractive although somewhat large. An excellent crabapple, very showy in bloom and especially in its early display of brilliant, chordlike fruit. Loc. 5, 15, 18, 20, 22, 24, 26, 31, 32, 39, 40, 44, 46, 47, 54, 55, 56, 61, 79, 80, 86, 100.

M. 'Scenol's Pink Bud Sargent'
See M. sargenti 'Roseo' in Chapter 11.

M. 'Schafer'
See M. purpurea 'Schafer'.

M. schiedeckeri
See Chapter 11.

M. schiedeckeri 'Aspect'
Name only. Disease free (Nichols). Loc. 54.

M. 'Scott No. T. Tyler Arboretum'
Name only. Subject to very mild cedar-apple rust (Nichols). Loc. 60.

M. 'Scogling' Preston 1920
Plate 222
Parentage: An open-pollinated seedling of M. pumila 'Niedzwetzkyana'.
A rosebloom. Named in 1930 by Isabella Preston, CDA—Ontario, in her Lake Series, for Scugog Lake, southeastern Ontario, Canada. Bush of medium size, bearing large, single, purple-red flowers with a white claw, 1.8 in (4.5 cm) across; fruit dark crimson to oxblood red, 1.8 in (4.5 cm) in diameter. An alternate bearer. Should be phased out—too much disease, including scab (Nichols). Loc. 12, 24, 26, 35, 37, 61, 79, 81, 86, 100.

M. 'Seduloa' Fiala 1970
Plate 225
Syonym: M. 'Seduloa 12-27'
A narrow, upright tree 20 ft (6 m) high and 12 ft (3.5 m) wide; leaves glossy, deep green; buds rose-colored, opening to single, pale pink to whitish flowers, fruit small 0.5 in (1.3 cm) in diameter. An alternate bearer. Excellent disease resistance, although subject to slight scab and fire blight (Nichols). Another very fine crabapple from Robert Simpson, Vinconines, N.B. Should be far better known and grown. Loc. 5, 18, 24, 26, 31, 37, 46, 47, 54, 55, 56, 61, 81, 86, 100.

M. 'September' Cideon before 1888
Yellow-red apple.

* M. 'Serenade' Fiala 1968
Plates 226, 227, 228, 229
A multibudded, introduced and patented by Klehm Nursery, South Barrington, III. A graceful, semi-sweeper to 12 ft (3.5 m) high and as wide, with very fine, arching branches, heavy annual fruiting make it almost weeping with age; leaves dark green, heavily texturized, disease-free; buds deep pink, opening to pale bluish white, single flowers; fruit exceptionally colorful, beginning pale coral, becoming deep coral-orange, with many highlights, finally turning pale orange-gold to deep burnt orange with frosts, elliptical but rounded at base, 0.5 in (1.3 cm) wide to 0.6 in (1.5 cm) long, persistent, very showy. A heavy annual bearer. Completely disease resistant (Nichols). One of the slowest crabapples in growth, but when fully matured there is a delicate, fruit-like crown it is a work of landscaping art! Loc. 47, 100.

M. 'Severs' Bougen 1906
Plate 225
Fruit yellow, to 1.4 in (3.5 cm). Loc. 81.

M. 'Shaker Gold' Ross 1960
Parentage: M. pumila × M. bicolor Discovered by Henry Ross, Gardenview Horticultural Park, Strongsville, OH, growing at Shaker Lake, Shaker Heights, Ohio. A very unique and named at Falconescope Gardens, Medina, OH. A medium-sized, rounded to spreading tree 15 ft (4.5 m) high and 12 ft (3.5 m) wide; leaves dark green, disease-free; buds carmine-pink, opening to single, white flowers, fruit 0.75 in (1.9 cm) in diameter, yellow-orange with bright orange-red cheek, very heavy and effective in fruit, persistent. Completely disease resistant (Nichols). On rare occasions, after an unusually heavy flowering.
season, it may be alternate fruiting the next year. An excellent, showy background tree for the larger garden and parks. Loc. 31, 47, 86, 100.

'M. Shakespeare' Scandlin
Similar to M. x sutoruquin, except Griffith on high standards. The Scandlin Nursery, Clim- sted Falls, OH, was sent to rename older clones when they were grafted on higher standards that changed the tree form, and this often caused considerable confusion. Loc. 100.

'M. Sheila' Fiala 1989 Parentage: M. 'CV-19' x M. 'Serenade'
No. 86-211. Named to honor Sheila Murray, daughter of Peter and Karen Murray, Falcon- coke Gardens, Medina, OH. A small, upright to spreading tree 12 ft (3.5 m) high and 10 ft (3 m) wide. Flowers rose-pink, opening to double, pink flowers; fruit red, 0.6 in (1.6 cm) in diameter, persistent. A very attractive, heavy, annual bloomer. Disease free. An outstanding, newer crabapple for smaller gardens and for all landscaping needs. One of only a few double-flowering crabapples with excellent red fruit. Loc. 47.

'M. Shelley' P. H. Wright 1978 Parentage: A Rosybloom With deep pink flowers. Now considered obsolete.


'M. Shields' Name only; Severe scab (Nichols). Loc. 54.

'M. Shinto Shrine' Fiala 1965 An induced sport. A rounded tree to 12 ft (3.5 m) high and as wide; leaves small, very leathery, dark green, with numerous leaf buds, 6 in per 0.5 cm), buds red, opening to clusters of single, white flowers; fruit small, 0.4 in (1 cm) in diameter, yellow, persistent. Subject to mild scab, but otherwise disease free. Not formally introduced; reserved as a hybridizer's crabapple. Loc. 47.

'M. Shoko' N. E. Hansen Parentage: A seedling of M. coronaria 'Elk River'

'M. Showboat' Fiala/P. Murray
No. NR5-P3-89. A small, vase-shaped to spreading tree; leaves green, good; buds rose-colored, opening to large, semi-doubles, pink-white flowers; fruit 0.5 in (1.2 cm) in diameter, copper-gold, showy for a semidouble flowering crabapple. An abundant, annual bloomer. Disease resistant. An excellent addition to the semidouble-flowering crabapples, and the smaller size makes it a tree for all gardens and landscape needs. Loc. 47.

'M. sieboldii' See M. sieboldii (Rehder) Fiala and M. sieboldii (Regel) Rehder in Chapter 11.

'M. sieboldii' Calocarpa'
See Chapter 11.

'M. sieboldii' Fujii'
See M. toringo 'Fujii' in Chapter 11.

'M. sieboldii No. 243' Formerly M. x zumi No. 243. Involved in the parentage of M. 'Amerina', M. 'Kirk', M. 'Lep- rechaun', and M. 'Red Peacock'.

'M. sieboldii No. 768' Formerly M. x zumi No. 768. Involved in the parentage of M. 'Amerina', M. 'Egret', M. Golden Candle', M. 'Kirk', and M. 'Leprechaun'.

'M. sieboldii' Wooster'
See Chapter 11.

'M. skikimensis' See Chapter 11.

'M. 'Silk Cloud' Fiala/P. Murray Parentage: M. 'Satun Cloud' x M. 'Shinto Shrine'
No. NR9-P3-89. One of the Satin series of polypleated crabapples from Falconcoke Gar- dens, Medina, OH (see M. 'Satin Cloud' above). An octoploid. A small, rounded tree to 10 ft (3 m) high; leaves green, leathery; excellent; buds pale pink-white, opening to large, single, fragrant, white flowers; fruit golden to copper, to copper-orange with fruits. An abundant, annual bloomer. Disease resistant. Very new, showy, and excellent for all landscaping needs requiring smaller trees. Loc. 47.

'M. Silver Drift' Simpson 1987 Synonyms: M. 'Vincennes University' (formerly)

Parentage: Unknown Introduced by Simpson Nursery, Vincennes, IN. resembles M. 'Snowdrift' except fruit is small, red, with good color into December. Disease resistant. Loc. Simpson Nursery.

'M. 'Silver Moon' Simpson 1968 Plates 27, 230, 231, 232 Parentage: Probably M. baccata No. 5-1. Another outstanding crabapple se- lected by Robert Simpson, Vincennes, IN. A strong upright to upright tree to 20 ft (6 m) high and 15 ft (4.5 m) wide; somewhat heavily spurred; leaves green; flowers and buds pure white, single, produced on terminals after tree is in full leaf; fruit 0.5 in (1.2 cm) red, persist- ent. A late, but heavy, annual bloomer. Subject to moderate scab and moderate fire blight (Nichols); entire disease tree of Falconcoke. Because it blooms 10 days after all other crab- apples have faded, it is an excellent addition for extending bloom time. Loc. 5, 24, 30, 31, 35, 37, 47, 54, 55, 61, 79, 80, 81, 86. Progeny of M. 'Silver Moon' include M. 'Ballerina' Fiala and M. 'Maylong'.

'M. Silver Mound' Name only; Subject to very severe scab (Nichols). Loc. 61.

'M. Silvias' Saunders 1904 Parentage: M. baccata x M. pumila Susceptible to scab and fire blight. Loc. 9, 12, 81, 86.

'M. Simcox' Preston 1928 Parentage: M. baccata x M. pumila 'Niedzwedzkiana' A Rosybloom. Named in 1930 by Isabella Preston, CDA—Ottawa, in her Lake Series for Simcox Lake, 40 miles (60 km) north of Toronto, Ontario, Canada. Buds dark red, opening to light pink-red flowers 1 in (2.5 cm) across; fruit carmine and orange 1 in (2.5 cm) in diameter. An alternate bloomer. Loc. 24.

'M. Simpson 4-17' Simpson Renamed M. 'Burgundy', which see.

'M. Simpson 7-62' Simpson Renamed M. 'Jewelberry', which see.

'M. Simpson 12-69' Simpson

'M. Simpson 12-77' Simpson Renamed M. 'Sente', which see.

'M. Simpson 328-AA' Simpson

'Renamed M. Red Barron', which see.

*M. 'Sine Fun' Fiala 1974 Plate 233 Parentage: M. 'Red Swan' x M. 'Amherita' No. 84-101. Introduced and patented by J. Frank Schmidt & Son's Nursery, Boring, OR. A weeper 15 ft (4.5 m) high and as wide, with somewhat unique, downward branching; leaves large, glossy, dark green, leathery; disease resistant; buds brilliant red, opening to large, single, white flowers that cascade in abundance; fruit colors early, bright orange-red, with a waxy sheen, 0.4-0.5 (1-1.3 cm) in diameter, attractive, persistent to November. Excellent disease rating (Nichols). A very fine weeper for the landscape. Loc. 47, 86.

*M. 'Sinse Sunset' Fiala 1990 Parentage: M. 'Amherita' x M. 'Atoll' No. B-5-3. An upright to spreading tree to 15 ft (4.5 m) high and 12 ft (3.5 m) wide, with some- what pendulous branching; leaves green, disease free; buds deep carmine, opening to single, rose-red flowers 1 in (2.5 cm) across; fruit dark red, 0.5 in (1.5 cm) in diameter. A good background tree for spring color and early autumn colored fruit. Disease free.

'M. Sir Galahad' Zampini Plate 234 Plant patent name 'Sirgazam.' To be intro- duced by Lake County Nursery, Perry, OH, in the Round Table Series of dwarf crabapples developed by James Zampini. An upright to vase-shaped tree 10 ft (3 m) high and 8 ft (2.5 m) wide; leaves deep lustrous dark green; buds pink, opening to single, white flowers; fruit gold, turning bright red. Disease resistant. Too new to be properly evaluated. Loc. 46.

'M. Sissingup' Preston 1923 Parentage: M. pumila 'Niedzwedzkiana' x M. baccata One of the best red-flowered Rosybloomers, the deepest red of them all. Named in 1930 by Isabella Preston, CDA—Ottawa, in her Lake Series for Sissingup Lake, 15 miles (24 km) from Columbia, Canada. Buds deep carmine, opening to rose- red, fading to deep pink flowers 1.2 in (3 cm) across; fruit dark maroon-purple to oldblood red, 1.1 in (2.7 cm) in diameter. Disease resistant (Nichols). A late bloomer. Should be used by hybridizers to capture the deep red flower color. Loc. 16, 18, 29, 26, 31, 35, 37, 81.
M. 'Slansky's Red Fruited'
   See M. x sieboldii 'Wooster' in Chapter 11.

M. 'Slocum'
   Discarded by Isabella Preston. Subject to severe scab (Nichols). Loc. 54, 81.

M. 'Smith'
   Name only. Loc. 81.

M. 'Snead's Crab'
   Name only. Subject to mild cedar-apple rust (Nichols). Loc. 73.

*M. 'Snow Ballerina' Fiala 1964 Plate 225
   Synonym: M. 'Cascade'
   Name changed from M. 'Cascade' to M. 'Snow Ballerina' to avoid conflict with M. 'White Cascade'. An excellent small, fleshy type weeper to 10 ft (3 m) high and 15 ft (4.6 m) wide; leaves green; good; buds deep rose-pink, opening to large, white single, yellow-green flowers produced in great profusion in showy cascades; fruit 0.6 in (1.5 cm) in diameter, bright red, persistent, showy for 2 months. An annual bloomer. Disease resistant, but subject to moderate nondefoliating scab. An excellent weeper that can be headed low and will not exceed 4 ft (1.2 m) high. Excellent for rock gardens, small spaces, and home gardens. Original tree at 26 years old is only 5 ft (1.5 m) high and 10 ft (3 m) wide. Loc. 31, 46, 47, 100.

M. 'Snowbank' H. P. Kelsey 1924
   Parentage: A seedling or hybrid of M. floribunda. Buds pink, opening to single, white flowers 1.2 in (3 cm) across; fruit yellow, 0.4 in (1 cm) in diameter. An alternate or weeping. Subject to moderate to severe scab (Nichols). Loc. 13, 15, 26, 31, 32.

M. 'Snowcap' CDA—Alberta 1941
   Received as M. baccata sibirica No. 3201.
   Flowers glowing white, single, 0.5 in (1.2 cm) across; fruit 0.25 in (0.6 cm), bright red, persistent to winter. An annual bearer. Subject to mild scab (Nichols). Very hardy and should be far better known. Loc. 5, 24, 31, 35, 61, 69, 79, 81.

M. 'Snowcloud'
   Should be phased out—too much disease (Nichols). Loc. 2, 5, 10, 12, 24, 26, 39, 54, 61, 79, 81.

M. 'Snowdrift' Cole 1965 Plate 236, Figs. 5.3, 8.2
   Parentage: A chance seedling of unknown parentage
   NORT. A rounded to oval, densely branching tree to 20 ft (6 m) high and as wide; leaves attractive, glossy green; buds pink, opening to single, white flowers; fruit orange-red 0.4 in (1 cm) in diameter. Subject to slight scab and moderate fire blight (Nichols). Outstanding in bloom. Recommended despite fire blight, which can be regional. Loc. 2, 4, 5, 12, 18, 19, 20, 22, 24, 26, 31, 37, 43, 44, 46, 54, 55, 61, 68, 69, 71, 76, 81, 82, 86, 100.

M. 'Snow Flake'
   Name only.

   Plant patent No. 4815. A rounded tree to 15 ft (4.6 m) high leaves dark green; buds pink, opening to abundant single, white flowers; fruit small, red, persistent. Slightly susceptible to scab. A good ornamental. Not as yet well known. Loc. 47, 38, 100.

M. 'Snyder'
   Name only.

M. x xonardii
   See Chapter 11.

M. x xonardii 'Soulard'
   See Chapter 11.

M. 'South Dakota Ben' N. E. Hansen Parentage: A hybrid of M. baccata Subject to severe fire blight (Nichols). Loc. 54.

M. 'South Dakota Bison' N. E. Hansen Parentage: A hybrid of M. baccata Loc. 54.

M. 'South Dakota Bona' N. E. Hansen Parentage: A hybrid of M. baccata Loc. 54.


M. 'South Dakota Jonsib' N. E. Hansen Parentage: A hybrid of M. baccata

M. 'South Dakota Macata' N. E. Hansen Parentage: M. 'Mitchick' (apple) x M. baccata

M. 'Sovereign'
   Name only. No disease (Nichols). Loc. 61.

M. 'Sparkler' University of Minnesota Fruit Breeding Farm 1945
   Parentage: An open-pollinated seedling of M. 'Topsy'. A Rosy bloom crabapple selected in 1947. Commercial introduction 1969. A small, flat-topped tree to 12-18 ft (4-6.5 m) high, with horizontal branching; leaves broadly ovate, acuminate, serrate, 1.5-2 in (3.8-5 cm) long, reddish in spring, turning dark green thereafter; flowers single, rose-red, 2 in (5 cm) across; fruit dark red, 0.25-0.6 in (0.6-1.5 cm) in diameter. Severely subject to scab. Another of the severely disease ridden seedlings of M. 'Hope'. Loc. 5, 16, 24, 26, 31, 32, 46, 54, 61, 69, 76, 77, 79.

M. spectabilis
   See Chapter 11.

M. spectabilis var. grandiflora
   See Chapter 11.

M. spectabilis 'Alba Plena'
   See Chapter 11.

M. spectabilis 'Clark's Flowering'
   Name only. Disease free (Nichols). Loc. 35.

M. spectabilis 'Imperialis'
   Name only. Subject to mild scab and leaf spot. Loc. 54.

M. spectabilis 'Plena'
   See Chapter 11.

M. spectabilis 'Riversil'
   See Chapter 11.

M. spectabilis 'Rosea Plena'
   See M. spectabilis 'Riversil' in Chapter 11.

M. 'Spinosa'
   See M. baccata 'Spinosa' in Chapter 11.

M. 'Spongberg'
   See M. baccata 'Spongberg' in Chapter 11.

M. 'Spring Beauty' Fiala 1988 Parentage: M. 'Red Swan' x M. 'My Bonnie' N. R. S. 1-14. An upright to bushy or fan-shaped tree to 15 ft (4.5 m) high and 10 ft (3 m) wide; leaves red-green; buds deep rose-red, opening to double, rose to pink flowers produced in abundance, very showy; fruit 0.5 in (1.2 cm) in diameter, red, showy, persistent. Disease-free. A fine tree for narrow spaces, for smaller gardens, as a break in the landscape, or in a garden wall. Planted next to white-flowering crabapples it is very attractive. Rather new and yet fairly unknown. Loc. 47.

M. 'Spring Glory' CDA—Morden No. 454. Loc. 81.

M. 'Spring Snow' Porter, Inter-State Nurseries, 1967
   Plant patent No. 2667. A rounded tree to 25 ft (7.5 m) high and 22 ft (6.5 m) wide; leaves bright green; flowers fragrant, single, white; fruit none, almost sterile. Subject to slight scab and mild fire blight (Nichols). A springtime only crabapple, but there are better white-flowering crabapples. Loc. 4, 5, 12, 24, 31, 35, 37, 46, 54, 55, 61, 69, 74, 76, 77, 79, 81, 82, 83, 84, 86.

*M. 'Spring Song' Fiala 1979 Plate 237
   Parentage: M. 'My Bonnie' x M. x sieboldii 'M. 'Dorothée' x M. 'Winter Gold' introduced and patented by Klehan Nursery, South Barrington, IL. A genetically small, upright to vase-shaped tree to 10 ft (3 m) high and 7 ft (2 m) wide; leaves of good texture, medium green; buds deep pink, opening to very large single, light pink flowers about 1.5-2 in (3.8-5 cm) across; fruit yellow-amber, about 0.5 in (1.2 cm) in diameter. A heavy, annual bloomer. Disease resistant (Nichols). A fine pink-bloom-ground crabapple that fits into all landscape needs. Excellent for smaller spaces. Loc. 47, 100.

M. 'Springtime' Fiala 1982 Parentage: M. nattusimonogena x M. 'Oekonomierat Echtermeier'. No. 316. A small, fountain type weeper to 8 ft (2.5 m) high and 10 ft (3 m) wide, long, slender branches; leaves red-bronze; buds deep rose-orchid, opening to single, medium to light lavender-orchid flowers 1-2 in (2.5-3 cm) across, very striking; fruit dull red-purple, 0.5 in (1.2 cm) in diameter, not showy, a very heavy annual bloomer. Highly susceptible to apple scab and thus not recommended for general introduction, though it might be of some use to hybridizers for the unique orchid flower color. Loc. 47.

*M. 'Starburst' Fiala 1987 Parentage: M. 'Van Baeling' x M. 'Maris' No. NRS-174. An upright to vase-shaped or fan-shaped tree to 15 ft (4.6 m) high and 10 ft (3 m) wide; leaves red-green; buds deep rose-red, opening to double, rose to pink flowers produced in abundance, very showy; fruit 0.5 in (1.2 cm) in diameter, red, showy, persistent. Disease-free. A fine tree for narrow spaces, for small gardens, as a break in the landscape, or in a garden wall. Planted next to white-flowering crabapples it is very attractive. Rather new and yet fairly unknown. Loc. 47.
M. 'Stark's Gold'  
Name only. Subject to severe scale (Nichols). Loc. 54, 61, 81.

*M. 'Starlight' Fiala 1980  
Plate 238, No. BSp-W. A small, upright, rounded tree to 15 ft (4.6 m) high and as wide; leaves dark green, good; buds pale pink, opening to abundant clusters of large, white, starlike flowers with prominent yellow anther centers, very showy; fruit 0.4 in (1 cm) in diameter, red, attractive, persistent. A very heavy, annual bloomer and fruit bearer. Appears disease resistant. Suitable for any need in smaller landscapes. New and not yet well known. Loc. 47.

M. 'Strathmore' W. R. Leslie, Alberta Horticulture Research Station, Brooks, Alberta, Canada, 1949  
Parentage A Rosyboom  
A narrow, upright tree; leaves fine, reddish, turning scarlet in autumn; flowers dark pink; fruit 0.8 in (2 cm) in diameter. Should be phased out—too much disease (Nichols). Loc. 3, 12, 18, 24, 26, 31, 32, 35, 37, 69, 79, 81.

M. 'Strawberry Parfait' Flemer, Princeton Nurseries, Princeton, NJ  
Plant patent No. 4620. A vase-shaped, spreading tree 15 ft (4.5 m) high and 20 ft (6 m) wide; leaves red-purple, turning green with maturity; buds red, opening to single, pink flowers in clusters; fruit yellow with red blush, 0.4 in (1 cm) in diameter. Excellent disease rating but not rated for fire blight. Not very ornamental. Loc. 81, 86.

M. 'Striped Beauty' H. R. Wright 1930  
USDA Plant identification No. 88870. Obtained from H. R. Wright, Auckland, New Zealand. Flowers single, white, 0.8 in (2.5 cm) in diameter; fruit dark reddish yellow and red, 1 in (2.5 cm) in diameter, showy. Disease free (Nichols). Loc. 31, 35, 61, 81.

M. xanthobata  
See Chapter 11.

M. 'Sugar Crab' Hansen 1919  
Fruit larger, yellow-green.

M. 'Sugar Tyne' Baron  
In the summer 1986 issue of Mals, Lester Nichols identified M. 'Sugar Tyne' as the same as 'Milton Baron No. 2', but a year later (summer 1990) he identified it as the same as 'Milton Baron No. 1'. Plant patent No. 7674, plant patent name "Sutzyam." First named for Milton Baron, a former landscape architect at Michigan State University. An upright, oval tree 18 ft (5.5 m) high and 15 ft (4.6 m) wide; leaves dark green; buds pale pink, opening to white, fragrant, single flowers; fruit red, 0.5 in (1.2 cm) in diameter, persistent into January. Mostly disease resistant. A good showy tree. Loc. 24, 26, 31, 46, 79, 81, 86, 100.

M. 'Sunburst'  
See M. 'Hopla'.

*M. 'Sundog' W. R. Leslie, Canada Department of Agriculture, Morden, Manitoba, 1947  
Parentage A Rosyboom  
Morden No. 453. Named after a type of rainbow that occurs on the prairie in winter—actually a colored refraction of sunlight on snow and ice that is called parhelion or, more popularly, sundog. A columnar tree; buds rose-colored, opening to single, rose-pink flowers 1.4 in (3.5 cm) across; fruit dark red, 1.2 in (2.5 cm) in diameter. An annual, persistent bearer. Subject to very mild scab, but resistant to fire blight. A fine crabapple that has certainly been overlooked. Loc. 9, 15, 24, 32, 35, 38, 54, 79, 81.

M. 'Sunset' Fiala 1979  
A small, upright tree to 10 ft (3 m) high and as wide; leaves reddish; buds orange-red, opening to bright red-mauve, single flowers that fade very little; fruit deep claret, 0.5 in (1.2 cm) in diameter. Very good disease resistance. Fruit too dark to make a good showing. Discontinued. Loc. 47.

M. 'Susan' Lied's Nursery, Sussex, WI  
A vase-shaped tree; flowers single, white. Subject to slight scab (Nichols). Loc. 31, 79, 81.

M. 'Sutherland' CDA—Sutherland 1955  
Parentage A Rosyboom  
Leaves dark; flowers small, purplered; subject to mild scab (Nichols). Loc. 10, 12, 31, 32, 81.

M. sylvestris  
See M. prunifolia var. sylvestris in Chapter 11.

M. sylvestris 'Plena'  
See M. prunifolia var. sylvestris 'Plena' in Chapter 11.

M. 'Sylvia'  
See M. 'Silvia'.

M. 'Szaferi'  
See M. xprunifolia 'Szaferi'.

M. 'Taliak'  
See M. xacerat 'Taliak' in Chapter 11.

M. 'Tanner' Tanner before 1931  
Parentage Probably a clone or hybrid of M. friesii  
Flowers single, creamy-white, 1.6 in (4 cm) across; fruit 0.6 in (1.5 cm) in diameter, red, persistent throughout winter, very showy. Subject to severe scab and mild fire blight (Nichols). An excellent crabapple for any landscape. Next to a pure white crabapple, the flowers are a distinctive creamy yellow. This crabapple also looks good next to a pink- or red-flowering crabapple. Loc. 4, 12, 18, 24, 26, 54, 61, 77, 79, 81.

M. 'Tayshoeae'  
Sometimes spelled M. 'Tayshoeae'. Name only.

M. 'Teatime' Fiala 1965  
Parentage A selection of M. pubescens No. 85-17. A tetraploid. An upright, vase-shaped tree; leaves deep green, good; buds pale pink, opening to single, white flowers; fruit differs from species in color, fine chartreuse with a red cheek, firm, persistent, otherwise same as species. Excellent disease resistance (Nichols). Loc. 47.

M. 'Teobol'  
Name only.

M. 'Tetragold' Fiala 1950  
Parentage M. 'Winter Gold' x M. sieboldii 'Weeteri'  
An induced tetraploid. An upright, spreading tree to 15 ft (4.6 m) high and 12 ft (3.5 m) wide; leaves dark green, very leathery; buds bright crimson, opening to large, single, white flowers; flowers; fruit bright gold, 0.6 in (1.5 cm) in diameter, persistent. Totally disease resistant. A hybridizer's crabapple. Discontinued in 1975. Loc. 47.

M. 'Thomas Roland' Sim 1931  
Parentage Donnichford  
Introduced by William Sim Nursery, Cliftondale, MA. Buds pink, opening to very large, white flowers 2.2 in (5.5 cm) across; fruit large, 0.8 in (2.5 cm) in diameter, red, subject to severe scab (Nichols). Loc. 12, 35, 54.

M. 'Thoms'  
See M. coronaria 'Thoms' in Chapter 11.

M. 'Thor'  
Name only.

M. 'Thumbelina' Fiala/P. Murray No. NRS-P1-89. An octoploid, dwarf crabapple. A slow-growing tree 6 ft (1.8 m) high and as wide; leaves red to brown-red, small; buds deep red, opening to single, red flowers; fruit red, small, 0.5 in (1.2 cm) in diameter. A showy, annual bloomer. Disease resistant. Excellent for smaller gardens and foragery planting along a garden walkway. Should be an outstanding addition for polyploid hybridizing. Very new. Loc. 47.

M. 'Thunderschild' P. H. Wright 1978  
Parentage An open-pollinated seedling of M. Sutherland. A Rosyboom clone similar to sibling M. 'Royalty', except that it has short internodes which make it denser, more compact form. Leaves dark purple-red, redder than those of M. 'Royalty'. Flowers bright pink-red, small; fruit 0.4 in (1 cm) in diameter, dark purplered, not showy. Moderately susceptible to scab but very resistant to fire blight—far superior in resistance than M. 'Royalty'. A good Rosyboom with prospects for further hybridization. Outstanding leaf color.

M. 'Timiskaming' Preston 1920  
Plate 240  
Parentage A Rosyboom  
Named by Isabel Preston, CDA—Ottawa, in her Lake Series, for Lake Timiskaming, in southwestern Quebec, Canada. Buds deep crimson-red, opening to single, rose-red flowers fading to pink, with a white star, 1.8 in (4.5 cm) across; fruit dark purple-red, 0.8 in (2.5 cm) in diameter. An all-time favorite. Subject to moderate scab and mild fire blight (Nichols). Loc. 14, 54, 61.

M. 'Tiny Tim' Fiala 1989  
Parentage M. 'Leprecuach' x M. 'Winter Gold'  
No. 89-NN. A small, upright to slightly spreading tree to 10 ft (3 m) high and as wide; leaves dark green, disease free; buds crimson, opening to single, white flowers; fruit small, 0.25 in (0.6 cm) in diameter, very glossy, round, brilliant red flushed deep orange; outstanding in fruit color, persistent until eaten by birds. A very abundant, annual bloomer. Very disease resistant. An excellent mini-fruited hybrid for smaller home gardens, patios, or as a focal point in larger estates and parks. Begins to bloom when very young, often in nursery pots. A fine addition to the hybridizer seeking to increase mini-fruited crabapples. Loc. 47, 90.
M. "Tispo" CDA—Morden Parentage: A hybrid of M. haematocheta
A seedling given to Niel E. Hansen in 1934 by Ivan Michurin of Russia. Introduced by South Dakota Agriculture Experiment Station, Brookings, SD, in 1943. Bears freely when only 5 ft (1.5 m) high. Bud rose-pink, opening to single, white flowers 1.4 in (3.5 cm) across; fruit large, red to crimson red, orange-red on shaded side, 1.2 in (3.0 cm) in diameter. Disease free (Nichols). Loc. 10, 12, 18, 51.


M. 'Top-In-Bloom' An upright to spreading tree to 20 ft (6.0 m) high and 15 ft (4.5 m) wide; leaves red-green; buds dark red, opening to single, red flowers; fruit purple, medium-sized. Subject to moderate scab (Nichols). Loc. 10, 12, 13, 31, 35, 61.


M. toringoides See Chapter 11.

M. toringoides var. arborescens See Chapter 11.

M. toringoides 'Arborescens' See M. toringoides var. arborescens in Chapter 11.

M. toringoides 'Fuji' See Chapter 11.

M. toringoides See Chapter 11.

M. toringoides 'Bristol' See Chapter 11.

M. toringoides 'Macroripha' See Chapter 11.

M. toringoides 'Prince' apple See Chapter 11.


M. 'Tissue' Name only. See Chapter 11.

M. 'True Love' Fiala/P. Murray No. 86-233. A fine-leaved, graceful, fountain type weeper to 8 ft (2.5 m) high and as wide; buds rose-pink, opening to single, white flowers produced in great abundance; fruit bright red, persistent until eaten by birds. An excellent bloomer. Disease free. Very showy and refined tree for smaller gardens, patios, or as a specimen plant. Loc. 47.

M. tschonoskii See Chapter 11.

M. 'Tuxen' Matt Tuxen Sons Nursery A spreading tree to 18 ft (6.5 m) high and 15 ft (4.6 m) wide; leaves dark green; buds pink, opening to single, white flowers; fruit 0.5 in (2 cm) in diameter, yellow, red early. Should be discarded—too much disease. Loc. 12, 18, 24, 26, 28, 37, 47, 54, 73, 79, 80, 81.

M. Turkmenorum Name only. Subject to leaf spot (Nichols). Loc. 31.

M. 'Twosome' Fiala/P. Murray No. 86-221. An upright to vase-shaped tree 15 ft (6.5 m) high and 8 ft (2.5 m) wide; buds deep carmine, opening to large, semidouble, white flowers with pink on reverse side of petals, attractive fruit 0.4 in (1 cm) in diameter, bright red, showy, persistent. A very showy, annual bloomer. Disease resistant. An excellent tree for smaller gardens and limited spaces. Loc. 47.

M. 'University' Brand 1943 Parentage: A clone of M. haematocheta One of a large group of seedlings growing near Leduc, AB, Canada. Fruit too large—1.8 in (4.5 cm), Subject to mild scab (Nichols). Loc. 31, 54, 81.

M. 'University of Michigan' Name only.

M. 'Upson Pyne' Name only. No disease (Nichols). Loc. 54.

M. 'Vanguard' L. E. Longley, University of Minnesota, 1940 Parentage: A chance seedling of M. 'Hops' No. 11AA. Introduced in 1965. A Rosbyflower. Flowers single, rose-pink, 2 in (5 cm) across; fruit red, 0.8 in (2 cm) in diameter. Should be phased out—too much disease, especially very severe scab (Nichols). Loc. 12, 24, 31, 35, 40, 54, 79, 80, 81.

M. 'Van Hoffel' Of Dutch origin. Introduced but no longer carried by Nottelet, Ltd., Suffolk, England, as M. Golden Hornet' replaced it and today M. 'Golden Hornet' has replaced it. Flowers single, white; fruit pale yellow, turning deeper yellow. Subject to mild cedar-apple rust (Nichols). Loc. 10, 12, 31, 61.

M. 'Van Eseline' New York Experimental Station, Geneva. Plate 11 Parentage: M. xarmandara x M. spectabilis Crossed by Glen P. Van Eseline in 1930 and initially called M. 'Geneva', after the New York Agriculture Experiment Station, Geneva, NY, where the race was first made. Named in 1942 after the originator. A very fine, narrow, vase-shaped tree to 15 ft (4.5 m) high and 10 ft (3 m) wide, slow growing; buds deep rose-pink to rose-pink, opening to pink flowers. Fruit 0.5 in (1.3 cm) in diameter, medium-sized. Very showy in bloom; fruit has no ornamental value. Subject to moderate scab and fire blight (Nichols). Loc. 10, 12, 31, 35.

M. 'WC-4' Northwest Nursery Co., Valley City, ND A vigorous, medium-sized tree; leaves small, narrow, with purple coat all season (resembling purple leaf plum), but that is not that of M. 'Red Silver'; flowers bright pink, contrasting with expanding foliage, more effective in bloom than M. 'Red Silver'; fruit small, maroon. Subject to mild scab (Nichols). Loc. 18, 32, 35.

M. 'WC-5' Name only. Disease free (Nichols). Loc. 35, 37.

M. 'Weitchek' See M. mascululus 'Weitchek' in Chapter 11.

M. 'Weitchek's Scarlet' See M. mascululus 'Weitchek's Scarlet' in Chapter 11.

M. 'Velvet Pillar' Simpson No. 66-67; Cole No 71-10; plant patent No. 4578. An upright tree to 30 ft (6 m) high and 14
ft (4.3 m) wide; leaves purple flowers single, pink; fruit sparse, reddish, 0.5 in (1.2 cm) in diameter. Fair-to-good disease resistance (Nichols). Suitable as a hedge row tree or a single specimen plant. May be trimmed to any height as a hedge. Loc. 24, 26, 31, 35, 46, 61, 81, 90.

M. 'Victorian' Zampini
Plant parent name: ‘Vicara.’ To be introduced by Lake County Nursery, Perry, OH. Developed by James Zampini. A small, spreading tree 12 ft (3.5 m) high and 15 ft (6.6 m) wide; leaves crisp green; buds mature, opening to double, white flowers; fruit red. Too new to be properly evaluated but good double-flowering crabapples are always in demand. Its smaller size makes it a fine tree for landscaping. Loc. 46.

M. 'Vika's Ornamental' Vikla
Parentage: A chance seedling Found in Vikla's Nursery, Lonsdale, MN.

M. 'Virginia'
See M. 'Virginia Seedless'.

M. 'Virginia Seedless'
Synonyms: M. 'Virginia', M. 'Virginia a' A horticultural oddity of no value. Subject to mild scab (Nichols). Loc. 54, 81.

M. 'Vincent's'
See M. 'Vincent Seedless'.

M. 'Voikler's'
Name only. No disease (Nichols). Loc. 46.

M. 'Volcano' Fila 1961
A medium-sized, rounded tree to 18 ft (5.5 m) high; leaves dark green; buds pink, opening to white; large, single flowers; fruit red, 0.5 in (1.2 cm) in diameter, persistent. Disease resistant; subject to mild scab (Nichols). Very heavily fruited in alternate years, but a discontinued clone because it appears to be an alternate clone (Nichols). Loc. 47.

M. 'Wabiskaw' Preston 1920
Parentage: M. 'jamii' X 'Niedzwetzkyana' x M. 'Jacobsa'
A Rosybloom. Named in 1930 by Isabella Preston, CDA—Ontario. An upright tree; leaves turn red in autumn; buds deep rose-red, opening to single, purple-red flowers 1.8 in (4.5 cm) across; fruit few, carmine-red, yellow-brown to green-brown on shaded side, 1.2 in (3 cm) in diameter. An annual bearer; should be pruned out—to much disease, including very severe scab (Nichols). Branches tend to break badly in storms. Loc. 14, 18, 24, 31, 54, 61, 81.

M. 'Wakonda' N. E. Hansen
Parentage: A seedling of M. tians 'Nevis'

M. 'Wakpo' or M. 'Wafipa' N. E. Hansen 1928
Parentage: A Rosybloom. Buds pink, opening to single, white flowers 2.1 in (5.3 cm) across; fruit yellow and red, 2-2.5 in (6 cm) in diameter. A semi-annual bearer.

M. 'Walker's'
See M. 'Jacobsa' 'Walker's' in Chapter 11; see also M. 'Johnson's Walers' above.

M. 'Walker's Upright'
Name only.

M. 'Walzartije' Fila / P. Murray No. 86-234. A heavy weeper to 6 ft (1.8 m) high and 10 ft (3 m) wide; leaves large, green; buds carmine, opening to single, white flowers; fruit 0.4 in (1 cm) in diameter, orange-red, with good color and persistence until eaten by birds. A showy, annual bloomer. Disease free. A tree for any limited space. Loc. 47.

M. 'Wandessa' Hansen 1938
Parentage: M. carinata 'Elk River' x M. 'Jonathan' (apple).
Sometimes spelled M. 'Wandum'. Buds pink, opening to single, white flowers 1.4 in (3.5 cm) across; fruit red, 2 in (5 cm) in diameter, keeps all year. A very interesting cross of M. carinata. A hybrid of the type M. xaudiflora 'Soulard'.

M. 'Wambelle'
Name only.

M. 'Wanda'
Name only. Subject to very severe scab (Nichols). Loc. 79.

M. 'Wanevy'
Name only.

M. 'Waubaey' Hansen 1933
Parentage: An open-pollinated seedling of M. 'Grimes Golden' (apple)
Fruit red, 1.4 in (3.5 cm) in diameter.

M. 'Wayne Douglas'
See M. 'Superb' 'Wayne Douglas' in Chapter 11.

M. 'Weccia' N. E. Hansen
Parentage: A seedling of M. tians 'Nevis'

M. 'Weeping Candied Apple' Zampini
Synonym: M. 'Candied Apple'
Plant patent name: 'Weepingzam'; plant patent No. 40,808. Developed by James Zampini of Lake County Nursery, Perry, OH. A tree 10-15 ft (3.0-4.6 m) high and as wide, with horizontals to pendulous branches, irregular in form but very artistic and picturesque; leaves heavily textured, dark green with red overcast; buds deep rose-pink; flowers single, with outer side of petals deep pink and inner petal whitish-edged pink—a pleasing contrast that causes the tree, when viewed from a distance, to appear pink in bloom; fruit bright cherry-red, 0.5 in (1.2 cm) in diameter, persistent to December. Subject to very slight disease; otherwise disease resistant (Nichols). An excellent semi-summer for all landscapes. Loc. 46, 81, 86, 100.

M. 'Weiser'
See M. 'Weiser Park'.

M. 'Weiser Park'
Synonym: M. 'Weiser'
Flowers purple-red; fruit large, purple-red; Subject to very severe scab (Nichols). Loc. 5.

M. 'Wellington Bloomless'
Name only. Subject to mild-to-moderate scab (Nichols). Loc. 15, 54.

M. 'Weston No. 474'
Name only. No disease (Nichols). Loc. 54.

M. 'Wetoka' N. E. Hansen
Parentage: A seedling of M. tians 'Nevis'

M. 'White Angel' Inglis 1947
Synonym: M. 'Inglis'
Parentage: A chance seedling of unknown parentage. Introduced by Beno's Nursery in 1962. Originated at the Inglis Nursery. A compact, vase-shaped tree to 20 ft (6 m) high and as wide; leaves dark green, glossy; buds pink, opening to single, white flowers 1 (2.5 cm) across; fruit glossy, red-scarlet, about 0.6 in (1.5 cm) in diameter. Subject to very slight scab, cedar-apple rust, and fire blight (Nichols). A good, dependable blooming and fruiting crabapple. One of the fine white-flowering crabapples. Loc. 2, 3, 5, 12, 18, 20, 24, 26, 28, 47, 54, 53, 61, 69, 79, 81, 82, 83, 86.

M. 'White Candle' Simpson Plate 13 No. 8-15. An upright, compact tree to 15-18 ft (4.6-5.5 m) high; leaves dense dark green; flowers semidouble, pink and white; fruit sparse (which is not uncommon with semidouble- and double-flowering crabapples). Subject to mild scab and very mild fire blight (Nichols). Recommended as there are too few semidouble- and double-flowering crabapples. Loc. 5, 10, 24, 35, 37, 46, 54, 55, 61, 71, 76, 77, 81.

M. 'White Cascade' Ross 1974
Plates 241, 242, 243, Fig. 6.4
Plant patent No. 3644. Developed by Henry Ross at Cedarview Horticultural Park, Strongsville, OH. An excellent, graceful weeper 15 ft (4.6 m) high and as wide, with fine branches; leaves green; buds pink, opening to single, white flowers; fruit green-yellow, 0.4 in (1 cm) in diameter. An abundant, annual bloomer. Excellent disease-free otherwise disease resistant (Nichols). One of the finest and most graceful weepers on the market today. Ideal for small landscapes, patios, or as a focal point. A choice crabapple for landscapers and hybridizers. Loc. 5, 19, 22, 47, 79, 81, 86.

M. 'White Dawn'
Name only.

M. 'White Fox River' P. H. Wright 1954
Synonym: M. 'White Fox River'
Parentage: Probably M. 'Jacobsa' x M. 'Hoppa.' Developed at Moose Range, Saskatchewan, Canada. A Rosybloom. Buds deep carmine-rose, opening to single, purple-red flowers 1.8 in (4.5 cm) across; fruit 2.4 in (6 cm) in diameter. Very hardy to -60°F (-50°C).

M. 'White Gold'
Expanding buds deep carmine, opening to white, single flowers; fruit yellow, about 0.5 in (1.2 cm) in diameter. Moderate disease resistance (Nichols). Loc. 15.

M. 'White River'
See M. 'White Fox River'.

M. 'White Whitney' Whitney before 1869
A European compact crabapple. Flowers single, pink and white, 2.2 in (5.5 cm) across; fruit yellow with red stripes, 2 in (5 cm) in diameter. Susceptible to cedar-apple rust and mild fire blight (Nichols). Loc. 12, 15.

M. 'Wickson'
An apple, not a crabapple. Subject to moderate scab (Nichols). Loc. 26, 61.

M. 'Wierdaki'
See M. xpenzana 'Wierdaki'.

M. 'Wierdaki'
**M. 'Wild Red'**

Parentage: A clone of *M. x scarletii*

Variety: The variety 'Wild Red' is a cross between two known varieties of *M. x scarletii*.

Characteristics: The flowers are dark red, resembling the color of wild cherry blossoms.

**M. 'Wildfire'**

Flora 1975 Plate 244

Parentage: *M. (Conal Cascade) x M. 'Lisette'*)

Variety: The variety 'Wildfire' is a hybrid between the varieties 'Conal Cascade' and 'Lisette'.

Characteristics: The flowers are vibrant orange-red, creating a striking visual appeal.

**M. 'Wickliffe'**

Flora 1964

Parentage: The parentage is not specified.

Variety: The variety 'Wickliffe' is known for its tall, robust growth and large, showy flowers.

Characteristics: The flowers are large and showy, providing a beautiful addition to any garden setting.

**M. 'Wickliffe'**

Flora 1975 Plate 62

Parentage: *M. 'Sulphur' x M. 'Aurea'*)

Variety: The variety 'Wickliffe' is a hybrid between the varieties 'Sulphur' and 'Aurea'.

Characteristics: The flowers are a combination of yellow and green, creating a unique and attractive color scheme.

**M. 'Wisley' Royal Horticultural Gardens, Wisley 1924**

Parentage: *M. 'Wisley' Royal Horticultural Gardens, Wisley 1924*

Variety: The variety 'Wisley' is named after the Royal Horticultural Gardens in Wisley.

Characteristics: The flowers are a distinctive shade of orange, with a slight hint of yellow, creating a vibrant and eye-catching display.

**M. 'Winter Green'**

Flora 1975 Plate 12

Parentage: *M. 'Winter Green' x M. 'Wintergreen'*)

Variety: The variety 'Winter Green' is a hybrid between the varieties 'Winter Green' and 'Wintergreen'.

Characteristics: The flowers are a combination of green and white, providing a fresh and crisp look.

**M. 'Winter Gold'**

Doorenbos 1947

Parentage: *Malus 'sororahtilus' x Malus 'tortiga' or a hybrid of it with Malus 'sororahtilus'*

Characteristics: The flowers are a combination of yellow and orange, creating a warm and inviting appearance.

**M. 'Woolen Gold'**

Flora 1975 Plate 2

Parentage: *M. 'Winter Gold' x M. 'White Cascade' (*M. 'Potter Pine'*)

Variety: The variety 'Woolen Gold' is a hybrid between the varieties 'Winter Gold' and 'White Cascade' ('Potter Pine').

Characteristics: The flowers are a combination of light yellow and white, creating a soft and delicate appearance.

**Niel Hansen, a skillful, observing hybridizer of excellent reputation whose introductions have been mostly overlooked.**

Series should be propagated and offered to home nurseries. Because the series is superior to the species, it should be found in many of the larger collections and offered for estate planting.
M. 'Yellow Fruited'
See M. × ruddii 'Yellow Fruited'.

M. 'Yellow Jewel' Simpson
No. 4-53. No information available, but as an introduction of Robert Simpson, Vincennes, IN, it should be a superior crabapple. Loc. 81.

M. 'Yellow Siberian'
See M. × ruddii 'Yellow Siberian' in Chapter 11.

M. 'Yellow Siberian'
See M. × ruddii 'Yellow Siberian' in Chapter 11.

M. 'Yellow Weeper'
Name only. Subject to moderate scab (Nichols). Loc. 28.

M. 'Yephorus' Cherosonicus'
Name only. No disease (Nichols). Loc. 35.

M. 'Young America'
An apple. Should be phased out—too much disease, especially severe scab (Nichols). Loc. 15, 81.

*M. 'Yuleelite' Flora
Plate 245
Parentage M. 'Tiny Tim' × M. 'Dancing Elf'
No. HE-85. A dwarf, upright to moderately spreading tree or bush to 8 ft (2.5 m) high and 6 ft (1.8 m) wide; leaves dark green, somewhat glossy, excellent; buds carmine-red, opening to single, white flowers borne in great profusion, mildly fragrant; fruit exellent; brilliant red, 0.3-0.4 in (0.8-1 cm) in diameter, very showy, persistent. An annual bearer; blossoms very young, often on second-year growth. Disease resistant. One of the finest mini-fruited trees for very small gardens, container culture, or for the smaller landscapes of rock or Japanese gardens. Ideal for foreground plantings. A newcomer in the dwarf, mini-fruits that should gain rapid popularity with landscape for its spring bloom, fall fruit, and small size. Loc. 47, 86, 100.

M. × ruddii
See Chapter 11.

M. 'Zaffre' N. E. Hansen
An apple.

M. 'Zaza' N. E. Hansen 1933
A clone related to the Rosybloom group. Flowers, single, red, fading to dull pink; fruit red, flesh 1.2 in (3 cm) in diameter.

M. 'Zelma' N. E. Hansen
Parentage: A hybrid of M. baccata

M. 'Zita' N. E. Hansen 1933
Similar to M. 'Zaza'. Related to the Rosybloom with red flesh. Flowers, single; flowers red, fading to dull maroon, 1.5 in (4.5 cm) across; fruit red, 1.6 in (4 cm) in diameter.

'M. 'Zumarrang' An upright, broadly pyramidal to rounded tree; leaves glossy green; flowers white; fruit red, 0.4 in (1 cm) in diameter. Good disease resistance; somewhat subject to fire blight but not enough to not recommend it.

M. × zumi
See M. × ohiense in Chapter 11.

M. × zumi 'Calocarpa'
See M. × ohiense 'Calocarpa' in Chapter 11.

M. × zumi 'Wooster'
See M. × ohiense 'Wooster' in Chapter 11.
APPENDIX I

List of the Best Flowering Crabapples

With the hundreds of crabapples available today, it would be difficult to choose the very best for any given location. Performance, disease resistance, and reliability of bloom and fruiting vary to some degree from place to place across the land. Some crabapples are best for landscaping needs, others for close viewing, color, fragrance, or another desired trait. The lists could be very extensive, yet when one has spent a lifetime with flowering crabapples, some varieties stand out above all the rest. Not many—perhaps only three dozen—are “nearly perfect” crabapples. While they differ considerably from one another, the instant response these crabapples elicit from viewers is almost always, “This one is magnificent!”

My list of best crabapples is further divided into two categories: the best all-around crabapples for planting and the best crabapples for future hybridizing research. I shall give you both my lists. You are certain to have your own, which you will defend, even more than I. In the beginning I admit that I am extremely prejudiced in favor of many of my own introductions. Having nurtured them from generation to generation, I know them better than any others. But that is the nature of all hybridizers; we would not introduce anything unless we truly felt it was better or was some great improvement over what already exists. Bulldog-like, we defend our own to the very last.

Each person has his or her certain favorites based on fragrance, flower color, single or double blossoms, fruit color, or tree form. Here are some astonishing crabapples that will steal your heart. They already have enslaved mine many, many years ago.

THE BEST ALL-AROUND CRABAPPLES FOR LARGE OR SMALL GARDENS

The Best Botanical Species

- *Malus xratsumiensis*—excellent form, buds, and blossoms
- *Malus baccata* ‘Alexander’—very heavy bloomer, excellent in fruit
- *Malus baccata* ‘Halward’—excellent all around, smaller red fruit
- *Malus baccata* ‘Jackii’—outstanding white bloom and red fruit

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M. *coronaria* var. *dasygeza* 'Charlotteae'—fragrant beauty, with fire blight
M. *coronaria* 'Coral Glow'—unique flower color, late bloom
M. *floribunda*—excellent bloom time
M. *halliana* 'Parkmanii'—pink double blossoms, rarely fruits
M. *lutea* 'Kehn's Improved Bechtel'—double blossoms
M. *lutea* 'Prairie Rose'—fragrance and rosebuds
M. *lutea* 'Prince Georges'—double pink, fragrant
M. 'Liset'—top-of-the-list orange-red flowering
M. 'Orange Crush'—outstanding, new orange-red flowers
M. *spp* *form* *Lemont'—outstanding bright red blossoms
M. 'Red Splendor'—excellent bloom, Rosybloom
M. *spp* *form* *loveliness'—double loveliness
M. 'Selkirk'—early red 'cherry' fruit, Rosybloom
M. *spp* *form* *Calconca'—one of the finest
M. *spp* *form* *Beaver'—excellent, early coloring
M. *specialis*—excellent
M. *spendens* 'Vivis'—very fine
M. 'Van Esselte'—shades of pink doubleness

The Best Named Introductions

M. 'Adams'—clear red bloom
M. 'Adirondack'—upright to rounded tree, excellent in bloom
M. 'Amerina'—small rounded tree, fantastic fruits, leaf color
M. 'Anne E.'—good, refined weeper, excellent smaller fruit
M. 'Autumn Glory'—small rounded tree, outstanding red mini-fruit
M. 'Ballera'—upright to columnar, cupped blossoms
M. 'Baskatong'—a fine Rosybloom, good disease resistance
M. 'Blanche Ameis'—semi-double, pink-white, excellent in bloom
M. 'Brandi Wine'—little pink roses, very fragrant
M. 'Burgandy'—upright to vase-shaped, red-flowering, fragrant, early
M. 'Callaway'—single, white flowering, a southern crabapple
M. 'Cardinal's Hope'—rounded tree, deep pink flowers, fine winter bark
M. 'Carnival'—small, rounded tree, wonderful, tri-colored fruit
M. 'Centurion'—upright, columnar, heavy bloomer
M. 'Christmas Holly'—small, rounded tree, wonderful fruit and bloom
M. 'Copper King'—new polyplloid, gold-copper fruit, very showy
M. 'Corallburne'—excellent octoploidy, a crab for any place
M. 'Coral Cascade'—unique colored fruit, semiweeper, outstanding
M. 'Cotton Candy'—masses of double, pale pink blossoms
M. 'Craberry Lace'—semi-double, pink-red flowering, upright
M. 'Doubletree'—double, white flowers, gold fruit, small tree
M. 'Elm Magic'—fantastic orange-red mini-fruit
M. 'Eline'—pale pink, semi-double blossoms
M. 'Fiesta'—small, semiweeper, multi-colored fruit, excellent
M. 'GV-19'—double, pink blossoms
M. 'Golden Candles'—upright, yellow fruit
M. 'Golden Dream'—small, rounded tree, gold fruit
M. 'Golden Galaxy'—small tree, heavy white spring bloom, golden autumn fruit

Best Flowering Crabapples

M. 'Gypsy Dancer'—semi to full weeper, tri-colored fruit
M. 'Henry Ross'—elegant smaller, refined weeper with yellow fruit, very showy
M. 'Hillier'—mounds of pink blossoms, yellow-orange fruit
M. 'Indian Magic'—wonderful fruit and autumn leaf color
M. 'Jewelbark'—elegance supreme in fruit, dwarf bushlike
M. 'Karent'—new double with orchid tones, small, upright tree
M. 'Lemoinei'—red-flowering excellence once tree reaches blooming age
M. 'Lenore'—sheer pink elegance, single blossoms, heavy bloomer
M. 'Leprechaun'—small tree, red mini-fruit
M. 'Liset'—a wonder of orange-red bloom
M. 'Louisa'—excellent pink weeper
M. 'Luwick'—pale pink fountain weeper
M. 'Madonna'—perfection in double, white blossoms
M. 'Maria'—small semiweeper, fantastic red-copper leaves
M. 'Michael'—oval form, brilliant fruit
M. 'Molten Lave'—fantastic in cascading orange-red fruit
M. 'Naragansett'—upright excellence
M. 'Peter Murray'—polyplloid excellence
M. 'Prairie Rose'—pink rosebuds, fragrant, very late to bloom
M. 'Prairie Fire'—excellent fall fruit
M. 'Purple Prince'—abundant, purple fruit, dark rose blossoms
M. 'Redbird'—outstanding orange-red fruit
M. 'Red Jade'—classic red-fruited weeper, fire blights
M. 'Red Jewel'—late form, brilliant red fruit
M. 'Red Peacock'—semiweeping, fire-red fruit
M. 'Red Swan'—finest red-fruited, delicate weeper, magnificent
M. 'Ross's Double Red'—flowering elegance
M. 'Royalty'—deepest purple foliage
M. 'Sedona'—semi-double, pink-white, white flowers, showy in fruit
M. 'Saturn Cloud'—rounded, clipped, octoploidy, sheer elegance
M. 'Selkirk'—early red fruited
M. 'Serenade'—orange-fruited semiweeper
M. 'Silver Moon'—late white flowering, upright form
M. 'Sinai Fire'—red-fruited weeper
M. 'Snowdrift'—rounded form, white abundance
M. 'Spring Song'—small tree, with large, showy, pink blossoms
M. 'Tiny Tim'—delightful mini-fruited
M. 'Van Esselte'—shades of pinks, double
M. 'White Cascade'—one of the finest weepers, truly outstanding
M. 'Winter Gold'—one of the finest bright yellow fruited

There are several other crabapples that could have, and perhaps should have, been added to the above list. But the list is a starting point for anyone who is looking for a certain trait—whether tree form, color, or something else. Is it mere coincidence? I would recommend this same list to those seeking to hybridize yet even better crabapples—with but a few additions.
THE BEST CRABAPPLES FOR HYBRIDIZING IN THE FUTURE

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<tr>
<th>Weepers and Semiweepers</th>
<th>Best Flowering Crabapples</th>
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<td>M. 'Anne E'</td>
<td>M. 'Silver Cloud'</td>
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<td>M. 'Blanche Ames'</td>
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<td>M. 'Color Parade'</td>
<td>M. 'Tipi'</td>
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<td>M. 'Coral Cascade'</td>
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<td>M. 'Dancing Elf'</td>
<td>Dwarf or Shrublike Crabapples</td>
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<td>M. 'Fiesta'</td>
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<td>M. 'Goldilocks'</td>
<td>M. 'Cindereela'</td>
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<td>M. 'Henry Ross'</td>
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<td>M. 'Little Troll'</td>
<td>M. 'Jeweberry'</td>
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<td>M. 'Louisiana'</td>
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<td>M. 'Luswick'</td>
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<td>M. 'Maria'</td>
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<td>M. 'Mollie Ann'</td>
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<td>M. 'Molten Lava'</td>
<td>M. 'Thumebelina'</td>
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<td>M. 'Pink Cascade'</td>
<td>M. 'Tiny Tim'</td>
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<td>M. 'Red Peacock'</td>
<td>M. 'Yuletide'</td>
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<td>M. 'Red Swan' (formerly M. 'Red Snow')</td>
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<tr>
<td>M. 'Serenade'</td>
<td>M. 'Joy'—lavender dappled silver-gray</td>
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<td>M. 'Showboat'</td>
<td>M. 'Marta'—very rich, leathery red-burgundy on new foliage, slightly bronzed by late summer</td>
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<td>M. 'Sinai Fire'</td>
<td>M. 'Royalty'—rich royal, deep purple</td>
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<td>M. 'Spring Beauty'</td>
<td>M. 'Satia Cloud'—deep green, very leathery foliage, turning brilliant gold, orange, red, and deep purple in autumn</td>
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<td>M. 'True Love'</td>
<td>M. 'Ischiasniki'—pale gray-green with silvery pubescent underside</td>
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<td>M. 'White Cascade'</td>
<td>M. 'Velvet Pillar'—deep purple</td>
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<td>M. 'Wildfire'</td>
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<td>M. 'Woven Gold'</td>
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<td>Upright to Columnar Form</td>
<td>New Polyploids—Tetraploids and Octoploids</td>
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<td>M. 'Adirondack'</td>
<td>M. 'Ann Marie'</td>
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<td>M. 'Arch McKeen'</td>
<td>M. 'Copper King'</td>
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<td>M. 'Ballerina'</td>
<td>M. 'Coralburst'</td>
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<td>M. 'Burgundy'</td>
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<td>M. 'Centurion'</td>
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<td>M. 'Cranberry Lace'</td>
<td>M. 'Mollie Ann'</td>
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<td>M. 'Lenore'</td>
<td>M. 'Peter Murray'</td>
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<td>M. 'Madonna'</td>
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<td>M. 'Satin Lace'</td>
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<td>M. 'Park Center'</td>
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<td>M. 'Red Jewel'</td>
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<td>M. 'Robert Clark'</td>
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<td>M. 'Royal Scepter'</td>
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<td>M. 'Sentinel'</td>
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<td>M. 'Shelia'</td>
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<td>M. 'Velvet Pillar'</td>
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<td>Semidouble and Double Flowers</td>
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<td>M. 'Broadway'</td>
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<td>M. 'Bridal Crown'</td>
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<td>M. 'Cameron'</td>
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<td>M. 'Ceramaria'</td>
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</table>
MY FAVORITE TWO DOZEN CRABAPPLES

Many of the newer crabapples would have to be included here, but I cannot list them all.

M. 'Amberina'
M. 'Arch McKeen'
M. 'Blanche Ames'
M. 'Christmas Holly'
M. 'Copper King'
M. 'Coral Cascade'
M. 'Doubloons'
M. 'Elaine'
M. 'Indian Magic'
M. 'Karen'
M. 'Libet'
M. 'Molten Lava'
M. 'Orange Crush'
M. 'Prairie Rose'
M. 'Red Swan'
M. 'Ross's Double Red'
M. 'Sarah'
M. 'Satin Cloud'
M. 'Serenade'
M. 'Showboat'
M. sieboldii 'Calocarpa'
M. 'Spring Boat'
M. 'White Cascade'
M. 'Winter Gold'

APPENDIX 2

Nurseries and Notables Active in Crabapple Research and Development

NURSERIES

Ameri-Hort Research, Inc., Medina, OH 44256
Arboville Farm Nursery, Larry Rawton, Holt, MO 65369
Bald Eagle Nursery, Garry Kopf, Fulton, IL 61252
Billings Nursery, Robert Marble, Billings, MT 59101
Biringer Nursery, Josef Biringer, Marysville, WA 98270
Bonners Ferry Nursery, E. P. Copp, Bonners Ferry, ID 83805
Boyer Nursery, Martha Lower, Biglerville, PA 17307
Brotzman's Nursery, Timothy Brotzman, Madison, OH 44057
Carlton Plants, David Cox, Dayton, OH 45414
Carroll Nurseries, David Carroll, Cochranton, PA 16314
Chagrin Valley Nursery, Victor Mastrangelo, Gates Mills, OH 44040
Clayton Nursery Co., William Clayton, Nampa, ID 83683
Colombie Nursery, Charles H. Grant, Littleton, CO 80123
The Cottage Gardens, Ted Meyer, Lansing, MI 48910
Crow-Hassan Nursery, Thomas Hoverson, Rogers, MN 55374
Deeter Nursery, Dave Deeter, Clayton, OH 45315
Dixie View Nursery, Jerome Biedenharn, Florence, KY 41042
Downham Nursery, Frank Kearney, Strathroy, Ontario, Canada
Eastside Nursery, Richard Wilson, Groveport, OH 43125
Eder Nursery, Kathy Eder, Franstville, WI 53126
Egyptian Nursery, Terry Vogel, Farina, IL 62838
Ferrite Nursery, Aurora, OH 44062
Flett Farm Nursery, Larry Flint, Burghill, OH 44404
Four Seasons Landscaping, George Brenn, Chesterton, IN 46304
Gooding's Nursery, Richard Gooding, Sherrodsville, OH 44675
Goodyear Nursery, Alfred Goodyear, Morton, IL 61550
Green Thumbers, Frank Paaske, Davenport, IA 52803
Halka Nursery, Chester Halka, Englishtown, NJ 07726
Hansen Nursery, Richard Hansen, Sassaamnniaga, PA 19472
Hawks Nursery, John Orton, Watuwato, WI 53226
Hidden Lake Gardens, Thomas Wolf, Tipton, MI 49285
Hillier Nursery, Chris Hillier, Lexington KY 40511
Hillman Nursery, Bernard Hillman, Washington, MO 63090
Hollyidge Nursery, Thomas Palver, Farmington, NJ 07727
Holly Hollow Nursery, Donald Wilczek, Peconic, NY 11958
Holmlund Nursery, John Holmlund, Gresham, OR 97030
Johnson's Nursery, Wayne Johnson, Menomonee Falls, WI 53051
Juddine & Son Nursery, Ben Davis, Smithville, TN 37166
Kankakee Nursery, Robert Worth, Aroma Park, IL 60091
King Nursery, James King, Montgomery, IL 60538
Knehr Nursery, Roy C. Knehr, S. Barrington, IL 60010
Knuck Nursery, James Kneck, Rogers, NE 68059
Krider Gardens, Berrie Krider, Mt. Pleasant, TX 75455
Lafayette Home Nursery, Roger Ingels, Lafayette, IN 47904
Law's Nursery, Tim Power, Hastings, MN 55033
Tom Lett Nursery, Thomas Lett, Cape Girardeau, MO 63901
Lincoln Nurseries, Grand Rapids, MI 49504
London Grove Nursery, J. P. Kaufmann, Avondale, PA 19311
Manbeck Nursery, Alfred Manbeck, New Knoxville, OH 45871
A McGill & Son, A. McGill, Fairview, OR 97024
McIntyre Bros., Pat McIntyre, Long Grove, IL 60047
McKay Nursery Co., Bernard Fournier, Waterloo, IA 52146
McLaren Nursery, John McLaren, Shenandoah, IA 51601
Millard Nursery, Michael Millard, Cromwell CT 06416
Moller's Nursery, Gary Moller, Gresham, OR 97030
Moon Nursery, John Purnell, Yardley, PA 19067
Mosquito Creek Nursery, Mark Damery, Blue Mound, WI 53108
Nappie & Son Nursery, Curtis Nappie, Boring, OR 97009
North Hills Nursery, Robert Danis, Jr., Valencia, PA 14059
Onarga Nursery, Shane Cotre, Onarga IL 60955
Paul Tree Farm, Thomas Paul, Ludington, MI 49431
Pleasant Cove Nursery, John Coller, Jr., Rock Island, TN 38581
Princeton Nurseries, William Flemmer III, Allentown, NJ 08501
Quail Creek Landscaping, Iowa City, IA 52240
Ridge Road Nursery, E. W. Coffman, Bellevue, IA 52031
Roaring Brook Nursery, Dorothy Glazer, Monmouth, ME 04259
Saff's Nursery, New Carlisle, OH 45344
Schichtel's Nursery, Ronald Walkowiak, Orchard Park, NY 14127
J. Frank Schmidt & Son Nursery, J. Frank Schmidt, Jr., Boring, OR 97009
Scioto Nursery, James Wolford, Circleville OH 43112
Sedl Nursery, Richard Sedl, Red Creek, NY 13143
Shadow Nursery, Don Shadow, Winchester, TN 37398
Shady Park Nursery, Dean Miller, Columbia City, IN 46725
Sheridan Nurseries, Oakville, Ontario, Canada L6J 4Z2
Simpson Nursery, Robert Simpson, Vincennes, IN 47591
Speer & Sons Nursery, Patrick Speer, Hillsboro, OR 97123
Stark Bro. Nursery, Joseph Przeckowski, Louisiana, MO 63333
Stonegate Nursery, George and Sue Schuman, Poplar Grove, IL 61065
Sunolde Nursery, Robert Lyons, Madison, WI 53707
Sunny Fields Nursery, Bill Harmon, Detroit, MI 48215
Sylvan Green Nursery, David Nelson, Downers Grove, IL 60525
Thornapple Nursery, Ralph Little, Geneva, IL 60134
Trees for Everyone, Gloria Blatka, Ackerman, NY 14779
Valley Pines Nursery, Warren Molko, Gering, NE 69341
Wade & Gatton Nursery, Brian Wade, Belleville, OH 44813
Weston Nursery, Mrs. Edmund Mezitt, Hipsinton, PA 15748
Williamsdale Nursery, Duane Homs, Columbus, MI 48003
Willoway Nursery, Inc., Lester Demaline, Avon, OH 44011
Wilson Nursery, Roger Pick, Hampshire, IL 60140

NOTABLES

Bickell & Bickell, M/M Robert Bickell, Bickell & Bickell Arboretum, Clinton, IA 52732
Bristol, Peter, Holden Arboretum, Mentor, OH 44060
Brooklyn Botanic Gardens, Brooklyn, NY 11225
Bubelis, Walter, Horticulture Department, Edmonds Community College, Lynnwood, WA 98046
Carpenter, Edwin, University of Connecticut, Storrs, CT 06265
Chadwick, E. L., Columbus, OH 43214
Clark, Professor Robert B., Birchwood Gardens, Meredith, NH 03253
Cochran, Kenneth, Secret Arboretum, OARD, Wooster, OH 44691
Collins, William, Columbus, OH 43213
Cook, Alan, Dawes Arboretum, Newark, OH 43055
Cummins, James N., New York State Agriculture Experiment Station, Geneva, NY 14456
den Boer, John, Millen, AL 36054
Egolf, Donald, National Arboretum, Washington, DC, and Marlboro, MD 20772
Flemmer, William, Princeton Nurseries, Allentown, NJ 08540
Flint, Harrison, Department of Horticulture, Purdue University, W. Lafayette, IN 47901
Foote, Ronald, Michigan State University, East Lansing, MI 48824
Gleason, Mark, Iowa State University, Ames, IA 50011
Green, James, Department of Horticulture, Oregon State University, Corvallis, OR 97331
Green, Thomas L., Morton Arboretum, Lisle, IL 60532
Hartman, Ronald, Department of Plant Pathology, University of Kentucky, Lexington, KY 40506
Hasselkus, Edward, University of Wisconsin, Madison, WI 53706
Herald, Glenn, Central College, Creve Coeur, IL 61611
Hill, Joseph, Clinton, IA 52732
Hill, Mrs. Julian, Wilmington, DE 19805
Holloway, Patricia, University of Alaska, Fairbanks, AK 99775
Huckles, Charles, Mt. Vernon, VA 22121
Hyland, Robert, Longwood Gardens, Kennett Square, PA 19348
Jardin Botanique, Montreal, Quebec, Canada PQ H1X 2B2
Appendix 3

Landscape Architects Specializing in Flowering Crabapples

Aube, Donald, Aube Landscape, Inc., Bloomfield Hills, MI 48013
Browner, Robert, Hidden Lane Landscaping, Oxonol, VA 22124
Calvia, D. & K., Earthworks, River Falls, WI 54022
Daniak, Robert, North Hills Landscape, Valencia, PA 16059
Dimmen, Alan A., Lincoln Landscape, Harvard, IL 60033
Finger, Mark, Landscape Architect, Hickory Hills, IL 60457
Furman, L., Landscaping Inc., Dayton, OH 45427
Gilmore, Gary, Gilmore Design Land., Cortland, OH 44402
Hill, Pat, Hill Landscape Designs, Elgin, IL 60120
Hoy, George, Hoy Landscaping, Northbrook, IL 60062
Hund, Walter, Classic Landscape Ltd., Addison, IL 60101
Lingren, Mark, Band Landscape, St. Charles, IL 60174
Melka, James, Melka Landscaping, Orland Park, IL 60462
Migdal, Fern, Garden Consultants, Highland Park, IL 60035
Miller, Ken, Horticulture Consultants, St. Louis, MO 63122
Morby, Karen, Classic Landscaping, Evanston, IL 60202
Palmer, Barbara, Landscape Designs, Chicago, IL 60625
Paxton, William, Earthforms Landscape Design, Greensburg, PA 15601
Realstad, Ronald, Midwest Landscape, Maple Grove MN 55369
Saburo, John, Good Earth Publication, Flossmoor, IL 60432
Scheibe, Marshall, Scheibe Landscape, Brookfield, WI 53005
Somalski, Richard, Bay Landscaping, Esseville, MI 48732
Strider, John, Landscape & Design, Brighton, CO 80601
Van Scoy, Douglas, Landscape, Loves Park, IL 61111
Wilbrant, Douglas, BIDO Landscaping, Crystal Lake, IL 60014
Hybridizers, Introducers, and Originators of Crabapple Progeny

As many of the leading introducers, originators, or hybridizers of crabapples are long deceased, the place of their work is listed rather than a home address. For living contemporaries, a residence is listed, if known.

Adams Nursery, Westfield, MA
Aldenham House Gardens, Elstree, Hertfordshire, England
Andrews, Charles, Marengo, IL
Arrowood, James, Navis Trail Breeding Station, Park Rapids, MN
Baird, W. P., U.S. Northern Great Plains Field Station, Mandan, ND
Barbière Nursery, Orleans, France
Baron, Professor Milton, Michigan State University, Lansing, MI
Bay State Nurseries, Farmington, MA
Bechtel, E. A., Staunton, IL
Bergeson (Berguson) Nursery, Fertile, MN
Boughen Nursery, Valley River, Manitoba, Canada
Boyce Thompson Arboretum, Yonkers, NY
Brand, A. M., Brand Peony Farm, Faribault, MN
Brandon Experiment Farm, Manitoba, Canada
Brier, B. B., Baraboo, WI
Brooklyn Botanic Garden and Arboretum, Brooklyn, NY
Buckman, Benjamin, IL
Canada Department of Agriculture, Beaverlodge, Alberta
Canada Department of Agriculture, Morden, Manitoba
Canada Department of Agriculture, Ottawa, Ontario
Canada Department of Agriculture, Rosehill, Saskatchewan
Canada Department of Agriculture, Scott, Saskatchewan
Canada Department of Agriculture, Sutherland, Saskatchewan
Cheal, J., & Sons, Ltd., Crawley, Sussex, England
Clarke, Walter Bosworth, San Jose, CA
Cleghorn, Robert, Montreal, Quebec, Canada
Copeeman, T. N. S., Roydon Hall, Diss, Norfolk, England
Currelly, C. T., Royal Ontario Museum, Ontario, Canada
den Boer, Arie, Des Moines Water Works, Des Moines, IA
De Wilde, Roland, Shiloh, NJ
De Wolf, Charlotte, Waukegan, IL
Dieck, George, Zeitsch, Germany
Doorenbos, S. G. A., Department of Parks, The Hague, Netherlands
Dunbar, John, Monroe County Parks System, Rochester, NY
Egolf, Donald, U.S. National Arboretum, Washington, DC, and Upper Marlboro, MD
Eley, Charles, East Bergholt, Suffolk, England
Ellwanger & Barry, Rochester, NY
Eitler, Albert, Eitlburg, CA
Fenicchia, Richard, Monroe County Parks Department, Rochester, NY
Ferrill's Nursery, Salem, OR
Fiala, Fr. John Lee, Paleonkiwage Gardens, Medina OH
Fothergill, John, Carr End, Yorkshire, England
Gideon, Peter M., Excelsior, MN
Hampton, William C., Hardin County, OH
Hansen, Carl A., Hansen Nurseries, Brookings, SD
Hansen, Niels E., Agricultural Experiment Station, Brookings, SD
Harbison, T. G., Asheville, NC
Heard, Clyde, 4727 Beaver Ave., Des Moines, IA
Henkel, Heinrich H., Germany
Hill, Polly, Martha's Vineyard, MA
Iowa State College, Ames, IA
Jack, J. G., Arnold Arboretum, Jamaica Plain, MA
Jennings Nursery, Shipston-on-Stour, S. Warwick, England
Kelsey-Highlands Nursery, East Bayfield, MA
Kerry, W. L., Forestry Farm Park, Sutherland, Saskatoon, Saskatchewan, Canada
Klein, Roy and Sarah, Charles Klein & Sons Nursery, South Barrington, IL
Knight, Thomas A., Elton, Hertfordshire, England
Kornik Arboretum, Kornik, Poland
Laxton Brothers, Bedford, England
Lemoine, Emil, Victor Lemoine & Sons, Nancy, France
Lemoine, Victor, Victor Lemoine & Sons, Nancy, France
Leslie, W. R., Canada Department of Agriculture, Morden, Manitoba
Lyman, H. M., Excelsior, MN
Machin, Thomas, Devonian Botanic Garden, Sherwood Park, Alberta, Canada
Macoun, W. T., Canada Department of Agriculture, Ottawa, Ontario
Matthews, B. A., Knoxville, KY
Minnesota, University of, State Fruit Farm, Excelsior, MN
Montreal Botanical Gardens, Sherbrooke St. East, Montreal, Quebec, Canada
Morton Arboretum, Lisle, IL
Murray, Karen and Peter, Paleonkiwage Gardens, Medina, OH
New York State Agricultural Experiment Station, Geneva, NY
Nairn, Robert, Nairn's Nurseries Ltd., Christchurch, New Zealand

APPENDIX 4
Hybridizers, Introducers & Originators

Wyman, Donald, Arnold Arboretum, Jamaica Plain, MA
Yannie, Michael and Lori, Johnson’s Nursery, Milwaukee, WI
Yeager, A. F., Agricultural Experiment Station, Fargo, ND
Young, A. L., Bonnie Brooks Farms, Brooks, Alberta, Canada
Zampini, James, Lake County Nursery, Perry, OH

Nock, Francis, 4826 Middle Ridge Rd., Perry, OH
Oakes, William, Glenelm Nursery, Miami, Manitoba, Canada
Parsons, S. B. & Sons, Flushing, Long Island, NY
Paul, Paul & Son, Cheshunt, England
Pefler, George P., Pewaukee, WI
Porter, A. J., Parksiaide, Saskatchewan, Canada
Potts, Julian, Julian Potts Nursery, Chesterland, OH
Presl, Isabella, Canada Department of Agriculture, Ottawa, Ontario
Provincial Horticultural Station, Brooks, Alberta, Canada
Rael, George M., Brooklyn Botanic Garden, Brooklyn, NY
Rivers, Thomas, Rivers Nursery, Sawbridgeworth, England
Ross, Henry, Gardenview Horticultural Park, Strongsville, OH
Royal Botanical Gardens, Hamilton, Ontario, Canada
Royal Botanic Gardens, Kew, England
Royal Horticultural Society Gardens, Wisley, Surrey, England
Salaman, William, Red Deer, Alberta, Canada
Sargent, Charles S., Arnold Arboretum, Jamaica Plain, MA
Saunders, William, Canada Department of Agriculture, Ottawa, Ontario
Sax, Karl, Buesey Institute and Arnold Arboretum, Jamaica Plain, MA
Scheiderer Nursery, Munich, Germany
Sibley, H. A., Dayton, OH
Sim, William, Cliftondale, MA
Simpson, Robert C., Simpson Orchard Co. Inc., Vincennes, IN
Skinner, Frank Leith, Draper, Manitoba, Canada
Slavin, Bernard H., Monroe County Parks, Rochester, NY
Souland, James C., Colena, IL
Spith, Ludwig, Spith Nurseries, Berlin, Germany
Stern, Major F. C., Goring-by-the-Sea, Sussex, England
Swarthmore College, Swarthmore, PA
Tanner, J. A., Palo, IA
University of Minnesota, St. Paul, MN
USDA, Division of Plant Exploration and Introduction, Bureau of Plant Industry, Washington, DC
Van Eseltine, G. P., New York State Experiment Station, Geneva, NY
Veitch, James & Sons, Ltd., Chelsea, England
Waller, John & Sons, Bagshot, Surrey, England
Wayside Gardens, 1 Garden Lane, Hodges, SC
Welch, E. S., Mount Arbor Nurseries, Shenandoah, IA
Wellington, Richard, Geneva, NY
Wheeler, Seager, Canada Department of Agriculture, Reston, Saskatchewan
Whitney, A. E., Franklin Grove, IL
Will, Oscar H. & Co., Bismarck, ND
Wilson, E. H., Arnold Arboretum, Jamaica Plain, MA
Wilson, Wheelock, Minnesota State Arboretum, Excelsior, MN
Wodarz, R. L., Wyndmere, ND
Wood, A., Barrie, Canada
Wright, Hayward R., Auckland, New Zealand
Wright, Percy H., Moose Range, Saskatchewan, Canada
APPENDIX 5

Key to Crabapple Locations

Many descriptions of species and cultivars in this volume include numbers corresponding to locations where specimen trees can be found. The numbers for these locations are identical to those numbers used by Lester P. Nichols in his monumental work covering the disease ratings for flowering crabapples. Numbers omitted from the following list refer to locations eventually dropped by Nichols from the study for various reasons.

2 Longwood Gardens Nursery, Kennett Square, PA
3 Longwood Gardens, Kennett Square, PA
4 Swarthmore College, Swarthmore, PA
5 Rock Springs Test Plot, Rock Springs, PA
8 Case Estates, Arnold Arboretum, Weston, MA—street trees
9 Case Estates, Arnold Arboretum, Weston, MA—fields
10 Case Estates, Arnold Arboretum, Weston, MA—nurseries
11 Case Estates, Arnold Arboretum, Weston, MA—Ash Street
12 Arnold Arboretum, Jamaica Plain, MA—Peter’s Hill
13 Arnold Arboretum, Jamaica Plain, MA—hillside
14 Arnold Arboretum, Jamaica Plain, MA—Bussey Street
15 Arnold Arboretum, Jamaica Plain, MA—along By Road
16 Arnold Arboretum, Jamaica Plain, MA—listing
18 Davies Arboretum, Newark, OH
19 Cole Nursery, Circleville, OH
22 Studebaker Nursery, New Carlisle, OH
20 Docter Nursery, Clayton, OH
24 Secret Arboretum, Ohio Agriculture Experiment Station, Wooster, OH
26 Holden Arboretum, Mentor-Kirtland, Mentor, OH
28 Dugan Nursery, Perry, OH
30 Busch Nursery, Pittsburgh, PA
31 Morton Arboretum, Lisle, IL—East
32 Morton Arboretum, Lisle, IL—West

U.S. National Arboretum, Washington, DC—main collection
U.S. Plant Introduction Station, Glenn Dale, MD
U.S. National Arboretum, Washington, DC—Bladenburg Road
Lester Nichols Residence
Eisler Nursery, Butler, PA—Rt. 528 East
Eisler Nursery, Butler, PA—Rt. 528 West
Eisler Nursery, Butler, PA—Rt. 528 N.E.
Eisler Nursery, Butler, PA—Rt. 528, back of barn
Eisler Nursery, Butler, PA—back of greenhouse
Lake County Nursery, Perry, OH
Falconskeape Gardens, Medina, OH
Adams Nursery, Westfield, MA
Snipes Garden Center, Morrisville, PA
Arie den Boer Arboretum, Water Works Park, Des Moines, IA
Purdue Horticultural Park, West Lafayette, IN
Willoway Nursery, Avon, OH
Michigan State University, Beaumont Nursery, East Lansing, MI
Tyler Arboretum, Media, PA
Winston Nursery, Hopkinton, MA
London Grove Nursery, West Grove, PA
Manbeck Nursery, New Knoxville, OH
Arnold Arboretum Nursery, Jamaica Plain, MA
Research Fruit Farm, Pennsylvania State University, Biglerville, PA
Campbell’s Nursery and Garden Center, Lincoln, NE—Pine Lake Road
Campbell’s Nursery and Garden Center, Lincoln, NE
Nebraska Nurseries, Inc., Lincoln, NE
Marshall Nursery, Arlington, NE
Pruso Nursery Inc., Omaha, NE
University of Wisconsin Arboretum, Madison, WI
Municipality of Delevan, Delavan, WI
Boerner Botanical Gardens, Hales Corner, WI
Pioneer Gardens & Nursery, Pioneer St., Lincoln, NE
Hendrick’s Sodding & Landscaping, Lincoln, NE
Westside Nursery, Omaha, NE
Chester Schwartz Nursery, Puyallup, WA
J. Frank Schmidt & Son Nursery, Boring, OR
University of Washington Arboretum, Seattle, WA
Hoffman Nursery, Stow, PA
Michigan State University, Campus, East Lansing, MI
Stonegate Farm Nursery, Poplar Grove, IL
John Peplinski residence, Fairbrook, PA
Win and K. Hock residence, Boalsburg, PA
Ted Kaufmann residence, Panorama Village, PA
Klehm Nursery, S. Barrington, IL
Glossary

Clone. A plant identical in all its parts to the original plant. A plant specially selected for certain unique characteristics that can be reproduced only by asexual propagation (e.g., by tissue culture, budding, cuttings, or grafting) whether that plant originated in the wild (i.e., as a species) or in cultivation.

Cultivar. A cultivated plant. Any unselected cultivated seedling, whether a member of a group of unnamed seedlings or a member of a group of similar seedlings of the same hybrid background (e.g., Rosyblooms).

Decabrid. A plant resulting from the cross of ten species.

EMLA. A series of virus-free rootstocks from the Paradise apple stocks of Europe. The series is named for the East Malling and Long Ashton research stations in England, which introduced these dwarfing rootstocks.

Hybrid. A plant resulting from the cross of two species.

Minitruit. Any miniature crabapple whose fruit has a diameter less than 0.25 in (0.6 cm).

Multibrid. A plant with many species in its makeup. Multibrids are so intercrossed it is impossible to determine their progenitors.

Nonobrid. A plant resulting from the cross of nine species.

Octobrid. A plant resulting from the cross of eight species.

Quatrobrid. A plant resulting from the cross of four species.

Quintobrid. A plant resulting from the cross of five species.

Rosyblooms. A group of open-pollinated seedlings of Malus pumila ‘Niedzwetzkyana’ or crosses of M. pumila ‘Niedzwetzkyana’ × M. baccata. Rosyblooms crabapples are characterized by red leaves, red buds, red flowers, and red fruit. All are outstanding in deep rose-red, pink, rose with lavender or magenta tones of springtime bloom. Their fruit is rather large and a dull red-purple. Their great fault is that most are leafless or heavily defoliated by mid-summer with apple scab. As a group they are rather large trees often reaching 35–40 ft (10.6–12.2 m) high and as wide.

Septobrid. A plant resulting from the cross of seven species.

Sezobrid. A plant resulting from the cross of six species.

Strain. A seedling group.

Tribrid. A plant resulting from the cross of three species.
Bibliography

Arnold Arboretum. 1990. Computer Listing of all Flowering Crabapples at the Arboretum, Jamaica Plain, MA.
Falconekeap Gardens. 1990. Computer Listing of all Flowering Crabapples at Falconekeap, Medina, OH.
Goble, H. W. 1971. "Insects and Mites of Ornamental Trees and Shrubs." Department of Environmental Biology, Ontario Agriculture College, University of Guelph, Ontario Department of Agriculture and Food Production 93.
National Arboretum. 1990. Computer Listing of all Flowering Crabapples at the National Arboretum, Washington, DC.


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