



Habitats

A Fact Sheet Series on Managing Lands for Wildlife

Wild Apple Trees for Wildlife Bulletin #7126

Apple trees are important for wildlife in Maine and all the New England states. This region is fortunate to have many apple trees growing in the wild but, for a variety of reasons, a lot of these trees are being lost each year. This fact sheet describes a systematic way to restore and care for apple trees, to enable them to thrive and provide food and other habitat resources for wildlife. We include information on some of the many birds, mammals, and insects that use apple trees and the clearings around them.

Apple trees and crabapple trees are in the genus *Malus*. Only four species of apple, all of them crabapples, are native to North America. No species occur naturally in Maine. Neither apples nor crabapples outcompete native vegetation for space, light and nutrients. They are *not* invasive.

Where Did Apples Come From?

About 80 million years ago, the earth's climate was temperate and good for plant growth. An early form of rose—low to the ground, thorny, with small, white, five-petaled flowers—was one of the earliest flowering plants to develop on earth. Over thousands and thousands of years, many of the fruits that we enjoy today evolved from this early rose. Apples, pears, plums,

quinces, peaches, cherries, strawberries, raspberries and blackberries all belong to the Rose (Rosaceae) plant family. The apple was the result of the cross-pollination of an ancient plum and a plant we call meadowsweet, in the genus *Spiraea*.

The origin of the modern table apple has been, and still is, a topic of much discussion. It was thought that it originally came from Kazakhstan in south central Asia, where wild apple trees, *Malus sieversii*, still exist in vast forests. A second



possible source is the Caucasus Mountains in southwest Asia. The Silk Route, the overland trade connection between the Far East and the Mediterranean, passed through both these locations. Subsequently, people moving into Europe may have brought the apple there.

A third potential source for the ancestor of the modern table apple is *Malus sylvestris*, the yellow and green crabapples indigenous to northern Europe. Recently, the scientific name of the modern table apple was changed to *Malus sylvestris* var. *domestica*, implying that *Malus sylvestris* is favored as the origin of the modern table apple.¹ Wherever the modern table apple originated, wildlife such as birds and mammals most likely played a role in its spread across the landscape. Some of the seeds that they ate and deposited in their droppings would sprout and grow to be trees.

Eventually, European missionaries and colonists brought apple trees and seeds to the Western Hemisphere. The Seneca Nation in New York State, for example, had large apple and peach orchards surrounding their villages, presumably from trees or seeds given to them by the newcomers. Early American settlers used apples primarily for cider, a fermented apple drink that was quite popular. Many British and European apples have been and still are especially suited for cider, because they are bitter and either sweet or tart. Once the apple trees were growing here, planned or natural cross-pollination resulted in many hybrids. Some of these have been cultivated and further refined in the search for new hybrid varieties with desirable characteristics.

¹ "Var." means variety and signifies a botanical variety that perpetuates itself in the wild. This is different from cultivated varieties, known as cultivars, which do not reproduce true to type in the wild. 'McIntosh' is an example of a cultivar.

In 2002, apples were the most important fruit tree crop in Maine, with over 2,000 acres in production. In 1992, twice that number of acres was in production. Many of the abandoned orchards remain in our landscape and provide food and other valuable habitat resources for wildlife. Apple varieties planted after the 1930s are likely to be McIntosh, Cortland, Golden Delicious or Red Delicious. Before 1930, Baldwin was widely planted.

Some wild apple trees may be antique varieties. Hobbyists and commercial farmers are currently cultivating some of these old-time apples. This maintains a great diversity of apple genetic material and preserves part of our cultural history.

Managing Wild Apple Trees for Wildlife

Apple and crabapple trees grow in the landscape untended. We are referring to these trees as "wild." Some were planted singly or as part of an orchard, and then abandoned. Others have grown from seeds deposited in droppings of birds and mammals. Wild apple trees normally become established in clearings or on the edges of fields. As the forests grow up, the apple trees are crowded by shrubs and shaded by over-topping trees. Apple trees that are crowded and shaded for a long time usually do not bear fruit. The life span, vigor and yield of wild apple trees can be improved with a few simple commonly used techniques.

Ensuring that a tree gets direct sunlight is the most effective way to enhance its productivity. Apple trees, like most fruit-bearing trees and shrubs, are best grown in full sun. Annual pruning is another way to ensure consistent fruiting and tree health. Apples on wild apple trees may be smaller than fruit on trees managed for human use. Fruit size does not affect nutritional value.



Cultivating Apple Trees for Wildlife

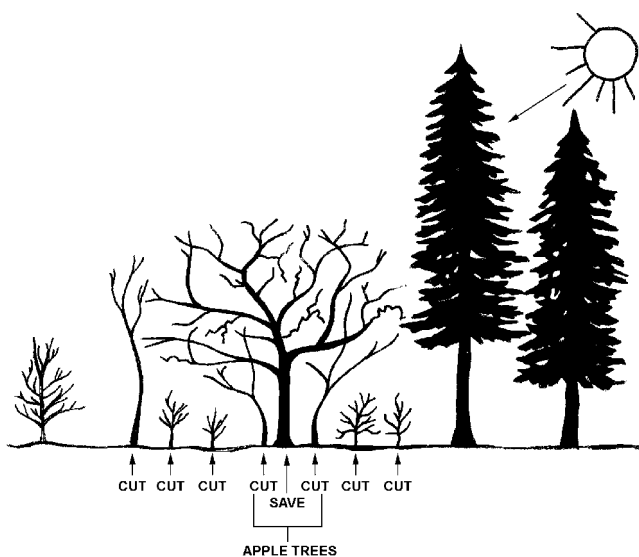
A three-step procedure

Step One: Tree Selection

Carefully examine the apple tree. If there is more than one apple tree to choose from, select the healthiest. Remove any smaller, competing trees that are growing into it. Apples require cross-pollination to fruit, so there must be an apple tree of another variety or a crabapple nearby. When choosing which apple trees to care for, it is a good idea to keep more than one variety for pollination.

Apple trees with diseased wood in the trunk should be removed *only* if they are competing with a healthy apple tree you are restoring. A live but declining apple tree may still cross-pollinate a neighboring apple tree of a different variety. Such trees may still produce fruit and survive a long time, especially if cared for. As it dies, this same apple tree will become a snag. Snags, or standing dead trees, are important features of wildlife habitat.

Do not use chemical sprays on apple tree stumps to prevent sprouting. They may be



Step One

Suggested tools for apple cultivation

A lightweight chain saw, a pruning saw with a 10-foot handle, or long-handled pruning shears are useful tools for working on wild apple trees. Be sure to wear protective gear, such as safety glasses and gloves, and to take the recommended safety precautions when using a chain saw or any other cutting equipment.

connected to the roots of the tree you wish to save. Trees can form root grafts with neighboring trees of the same species. Consequently, chemicals used to kill stumps could kill or weaken any trees connected by a root graft.

Remove all other shrubs and trees growing next to the apple tree or underneath it, within the drip line of the tree's canopy. Direct sunlight is critical for restoring apple trees. Therefore large, over-topping trees that shade the apple tree should be removed or girdled. This involves deciding that the trees being removed or girdled are not as important as the apple tree. At a minimum, remove or girdle all shading trees on the south side, and preferably, on the east and west sides. Large trees on the north side of the apple tree should be left to provide habitat.

Girdling as an alternative to tree removal: It may be easier and safer – and is definitely more beneficial to wildlife – to girdle a large shading tree rather than remove it. Also, you will avoid any damage to surrounding vegetation that a falling tree might cause.

Girdling is the removal of bark and cambium from the tree. The cambium is a single cell layer between the bark and the wood. Each spring, the cambium layer produces both new wood and new bark. Girdling destroys the cambium so no growth can occur and disrupts the flow of water



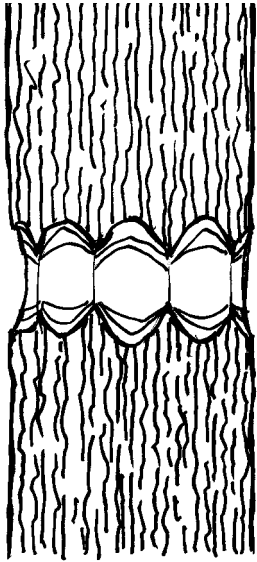


Figure 1

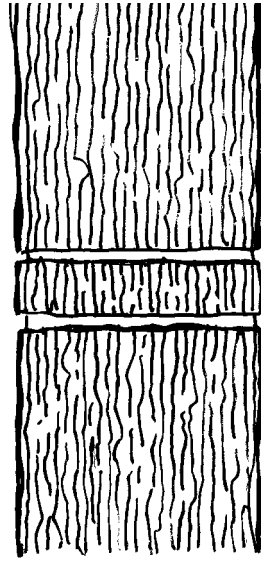
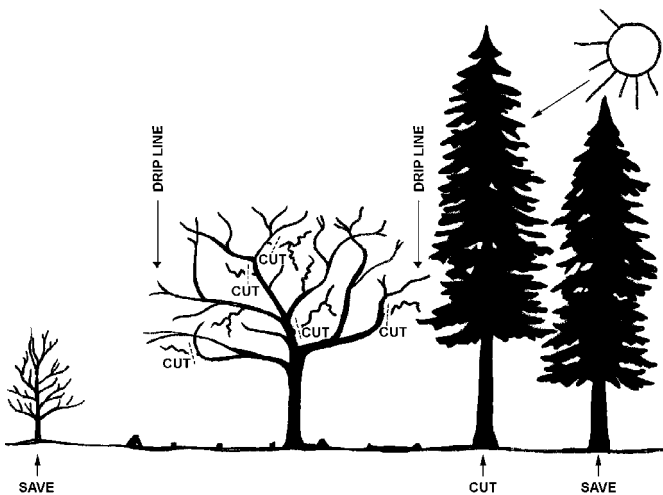


Figure 2

and nutrients in the tree. The tree weakens and eventually dies after a few years, becoming a snag.

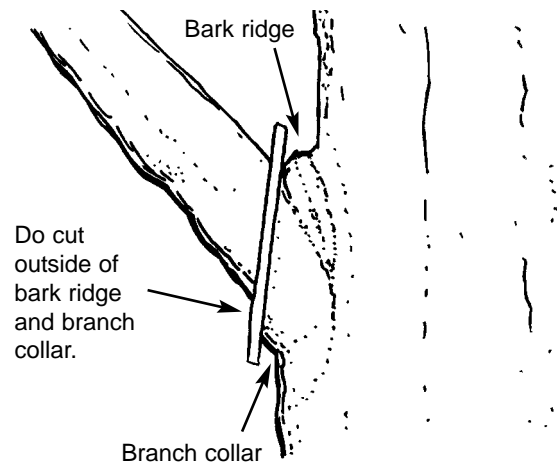
To girdle a tree, remove a band of wood and bark all the way around the trunk. The band should include at least one-half inch of wood and be about two inches wide, if done with an axe. (See Figure 1.) Girdling can also be done with a chain saw: two encircling cuts will be required, to a depth of one to two inches. (See Figure 2.)



Step Two

Step Two: Initial Pruning, Year One

Limbs are the major branches of the tree and originate at the trunk. The tree canopy is made up of all the limbs and branches. When removing a branch or limb, look for the “branch collar,” a ring of tissue around the base of the branch. Cuts should be made at the branch collar, but not farther back (see diagram below). This collar is needed for proper healing of the pruning cut.



Remove all the dead branches and limbs from the apple tree. Cut these off with a pruning saw or pruning shears as close to the living tissue as possible.

Remove one to three limbs to open up the canopy of the tree. This will let more sunlight into the remaining canopy. Don't remove more than one third of the apple tree's canopy, since this would over-stimulate shoot growth. It is better to spread out big pruning jobs over a few years. The best time of the year to prune a fruit tree is in March or April. Prune after the danger of severe cold has passed, but before the tree blooms.

For more detailed information on pruning, see UMCE Bulletin #2169, *Pruning Woody Landscape Plants*.



Step Three: Annual Pruning, Year Two Onward

Try to open up thick clusters of small branches by pruning out some of them. Where several small branches are growing into each other, prune out those that are rubbing against others. Remove no more than one third of the live growth.

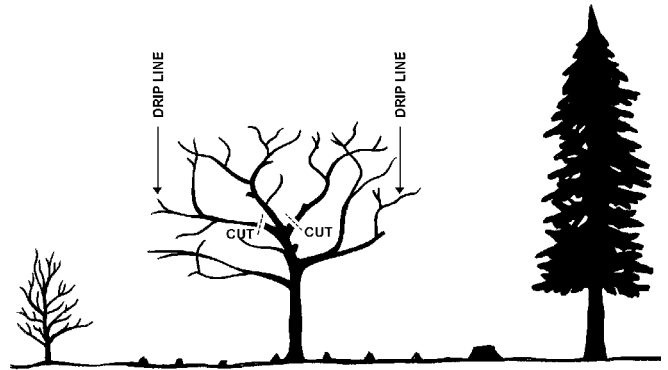
Remove new trees that sprout up beneath and around the apple tree to ensure that they do not shade it. Shrubs beneath the tree should also be removed. However, allow shrubs sprouting in the opening around the tree to grow. These will provide valuable habitat resources.

Fertilizing apple trees is not necessary when they are grown to provide fruit for wildlife. In most cases, the soil will be fertile enough for the tree. Trees for wildlife should be grown with minimum input. Simply provide the tree with direct sunlight and prune each year or every other year. We recommend maintenance pruning each year or alternate years because it promotes a consistent fruit crop every year and makes the next year's pruning job easier.

Crabapples: How Care Differs from Table Apple Trees

Crabapples are closely related to table apples and, aside from smaller fruit, they have much in common. Some species of crabapple are native to North America, but many species from all over the world now grow here. In general, crabapples require less care than modern table apple trees. For crabapples, prune only damaged branches, branches rubbing against another, and suckers at the base of the trees. If the tree is in the home landscape, it can be pruned for shape in the spring.

Crabapples seldom grow more than 30 feet tall and are suitable for many yards. For more information on crabapples in the home landscape,



Step Three

refer to UMCE bulletin #2058, *Flowering Crabapples for Maine*. In this bulletin, cultivars listed for planting in Maine are rated for their resistance to disease. Select cultivars with good or excellent disease resistance. This allows you to avoid disease-control chemicals and protect wildlife and the ecosystem.

Other Ways to Improve Habitat Around Wild Apple Trees

Create Brush Piles

Small mammals, snakes, amphibians and birds use brush piles for escape cover, nest sites and shelter from weather. Branches and trees that were pruned or cut down can be used to form a simple brush pile for wildlife cover. To make a longer lasting brush pile, start with a base of rocks, stumps, or logs and then put the brush on top.

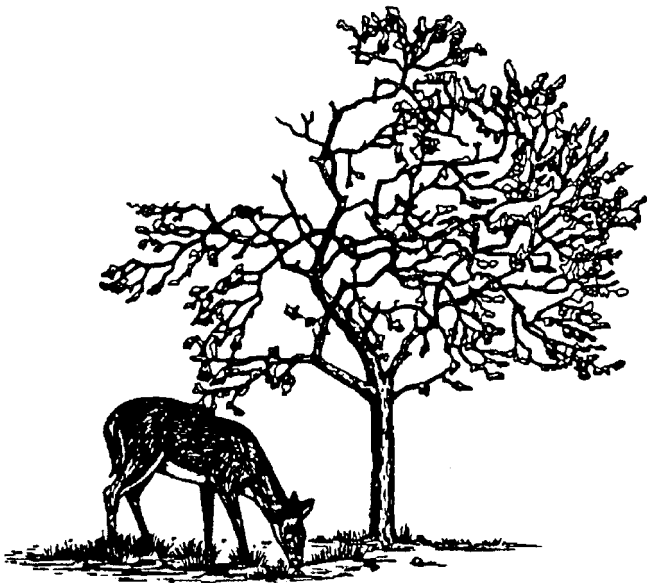


Leave Cover for Grouse

Grouse need escape and roosting cover close to food sources. Leave dense conifer or brushy growth close to the apple tree, but not under it, on at least one side. If possible, this should be on the north side of the tree.

Maintain Brushy Clearings Around Apple Trees

When you open the apple tree to sunlight you create a small clearing. As an area of forest is opened, numerous trees, shrubs and other plants begin to grow. This produces a “brushy” habitat that will be utilized by many species of wildlife. Dense growth is especially valuable as cover, used for hiding from predators, resting, shelter from weather, and nest sites. If fruiting species become established or are planted in the opening, they provide food. As the clearing becomes brushy, birds such as white-throated sparrows may use this habitat during migration, while birds such as cardinals and robins may use the brushy area during breeding. The wildlife species using the clearings around the apple trees will depend on the habitat that surrounds the clearings.



Leave Snags Standing

Snags are dead trees that are still standing. In Maine, almost one hundred species of wildlife, including birds, mammals, amphibians and reptiles, use the cavities in snags for nesting, winter shelter or caching food. Snags are also home to many insects and other invertebrates, which are important protein sources for many wildlife species. Any trees you have girdled to eliminate shading of wild apple trees will become snags. Many of these may eventually develop cavities as branches break from the trunk, decomposers do their work, or primary excavators such as woodpeckers make cavities for nesting or winter shelter. Most species that use cavities are called secondary users, meaning that they use existing cavities and do not make cavities themselves. A larger diameter snag benefits a greater number of species.

How Wildlife Will Use Your Wild Apple Trees

The fruit of wild apple trees is used by many species, including white-tailed deer, ruffed grouse, snowshoe hares, cottontail rabbits and gray squirrels. Deer also browse on the twigs and foliage. Apples or apple seeds have been found in the stomachs of foxes, fishers, porcupines, bobcats and red squirrels. Black bears and opossums use the fruit and bark, as do meadow and pine voles. Prey species, such as red squirrels, rabbits and voles, may attract hawks as well as mammalian predators such as foxes.

An apple tree and the surrounding clearing provide important habitat for woodcock and many other birds, including bluebirds, flycatchers, robins, ruby-throated hummingbirds and orioles. Yellow-bellied sapsuckers often feed on the sap of apple trees, leaving their characteristic grid of sap wells around the bole of the tree and on the branches. Ruby-throated hummingbirds depend on sap from



these sap wells for food, especially when floral nectar sources are scarce. Insects feed on the sap and in turn become food for birds, including ruby-throats. Many species of bees, butterflies, moths and beneficial insects use the nectar of the apple blossoms in spring. They also feed on fallen rotting apples in fall. Branches and cavities in apple trees are common nest sites. Many species of mammals and birds use the cavities in winter for shelter or for food caches.

Crabapples have unique qualities that make them useful in wildlife habitat. Their fruit ranges from one-quarter inch to two inches in diameter, much smaller than modern table apples. Smaller birds may eat smaller fruit whole, as well as peck at the larger. Many varieties of crabapples have fruit that is persistent, meaning it stays on the tree and does not fall to the ground. Birds do not take these fruits early in the fall because they are not as palatable as other fruits usually available at that time. Crabapples that persist on the tree are accessible above the snow. These fruits are an important food source in the fall and winter, when freezing and thawing has made them sweeter. From your window on a snowy day, you can enjoy watching cardinals, cedar waxwings or robins eating the fruit. Crabapples bring the benefits of the apple to wildlife in your yard.

Other Cultivated Fruit-Bearing Trees and Shrubs

Native fruit-bearing plants are essential in wildlife habitat. However, wild and cultivated fruit-bearing plants also improve the quality of habitat for many wildlife species. Some of these plants may benefit from full sunlight and some are tolerant of shade. Pruning is not necessary for many of these species. Be sure to check with your county Extension office, horticultural references

Birds that use apple trees and crabapple trees

* Indicates it is a preferred food of that species

Bird species	Food	Cover	Nest
Ruffed grouse*	fruit		
Bobwhite	fruit, seeds, buds		
Ring-necked pheasant*	fruit, seeds, buds		
Ruby-throated hummingbird	nectar, and sap from sap wells made by yellow-bellied sapsuckers	X	X
Red-bellied woodpecker*	fruit, seeds		
Red-headed woodpecker*	fruit, seeds		
Yellow-bellied sapsucker*	sap, fruit, seeds		
Hairy woodpecker	fruit, seeds		
Downy woodpecker	fruit, seeds		
Great crested flycatcher		X	X (cavity)
Eastern kingbird			X
Blue jay	fruit, seeds	X	X
Gray jay	fruit		
Common crow	fruit		
Tufted titmouse	fruit		
Mockingbird	fruit	X	X
Gray catbird*	fruit	X	X
American robin*	fruit	X	X
Eastern bluebird		X	X (cavity)
Cedar waxwing*	flowers, fruit		
Starling*	fruit, seeds		X (cavity)
Red-eyed vireo		X	X
Common grackle	fruit		
Orchard oriole	fruit	X	X
Northern oriole	fruit, seeds	X	X
Cardinal	fruit		X
Evening grosbeak*	fruit, buds		
Purple finch*	flowers, fruit, seeds		
Pine grosbeak	fruit, buds, seeds		
Red crossbill	seeds		
Rufous-sided towhee	fruit, seeds		

Adapted from Richard M. DeGraff, "Birds that Use Apples," from *Trees, Shrubs, and Vines For Attracting Birds*, pp 37-38 (c) 2002 by University Press of New England, reprinted with permission.



in your local library or horticultural Web sites for plant requirements before taking action.

The fruit of cultivated cherry trees, both sweet and tart, will be eaten by catbirds, purple finches, phoebes, grackles, northern orioles, robins, scarlet tanagers, veeries, red-eyed vireos, hairy woodpeckers, chipmunks, Eastern gray squirrels and other species.

Pear trees are much less plentiful in the Maine landscape than apple trees. However, they provide food for wildlife, and can be just as valuable as apple trees. Ruffed grouse use the buds and fruit. Purple finches, northern orioles and fox sparrows use the fruit, seeds, buds and blossoms of the pear. Gray and red foxes as well as muskrats use the fruit and bark.

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