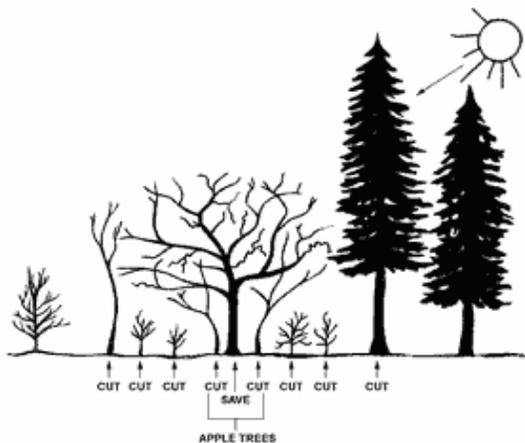# NRCS Natural Resources Conservation Service

Upland Wildlife Habitat Management
Apple Tree Release and Pruning
Vermont Conservation Practice Job Sheet   VT-645

Client Name:	Town:
Land Units:	# Trees to Release/Prune: # Acres:
Planned By:	Date:

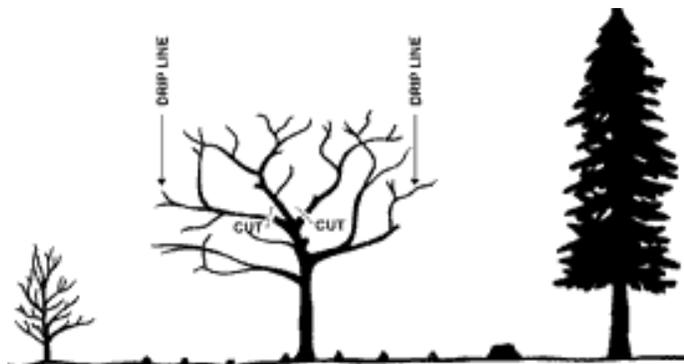**Site Specific Comments and Recommendations**

Figure 1 - Before Release and Pruning[1]

Figure 2 - After Release and Pruning[1]

Background and Purpose

Wild apple trees provide a good source of food (fruit, browse, nectar) and cover for a variety of game and nongame wildlife. A few trees can provide a food source but, an old abandoned orchard with grasses, forbs, shrubs and small trees provide excellent habitat to a variety of species that require early-successional habitat. Early successional habitat is typically transitional and requires different levels of disturbance to be maintained. Examples of early successional habitats include grassland, idle fields, shrubby areas, and young forest.

While there are four native crabapples in North America, there are apparently none native to Vermont. Regardless, this non-native tree is not invasive and is considered an important agricultural crop and important wildlife tree. Wild apple trees can be found throughout Vermont, in field and forest, either as a relict of past home sites and planting or through seeding from wildlife. This provides plenty of opportunity for landowners who want to improve habitat on

1

their property. Generally the apple trees are found in prior open areas such as old clearings, idle fields and field edges because the tree grows best in full sunlight. As the forest matures around the apple trees, they are crowded and shaded and loose their vigor and ability to fruit. In addition, as the apple tree grows, it will 'crowd' itself as internal branches compete for space and sunlight which limits fruiting. By following these simple steps you will be able to improve the growing conditions for these trees, improve flowering and fruiting, and potentially provide early successional habitat.

The most effective way to improve productivity of wild apple trees is to provide for direct sunlight. Like most fruit-bearing trees and shrubs they grow best in full sun. Increased amounts of sunlight can be provided to the apple tree by cutting the surrounding trees and shrubs that are competing for nutrients, water, space and sunlight. This is called 'apple tree release'; it 'releases' the apple tree from competition and improves vigor and fruiting ability. Annual pruning is another way to ensure improved tree health and fruiting.

Tree and Area Selection

When evaluating your property to determine where to focus your efforts, decide where you can provide the best wildlife habitat for the effort. By choosing one or two isolated trees to release it may provide a potential food source but may have limited additional benefits. Selecting old orchards or areas where there are numerous trees together will provide the necessary trees for cross pollination and also provide early successional habitat. A two acre opening around and encompassing the apple trees will provide either food, cover or both for various species such as deer, turkey, grouse, bear, chestnut-side warblers, and other early successional species. Determine what other important habitats (e.g. softwood cover) or mast sources you have on your property and in and around your apple trees. These are all potential cull trees that will be cut if you choose to release those apple trees. You probably don't want to cut multiple trees or shrubs that may be important mast producers (e.g. cherry, serviceberry, viburnums, dogwoods, oak, beech, etc.) just to release a lone apple tree. It is all about making good decisions for your property based upon what is available and your objectives.

Release Techniques and Guidelines

Examine the apple trees and choose the healthiest ones to retain if they are growing in the same general space. Remove any trees that are growing into the tree and all other shrubs and trees growing next to the apple tree or underneath it, within the drip line of the tree's canopy (see Figure 1 and 2). Remember that direct sunlight is critical for restoring apple trees.   Depending on the size and location of the surrounding trees, this may require removal of large over topping trees that are shading the apple tree. In most circumstances, this will require removal of all shading trees to the East, West and South of the apple tree. To increase the use of the apple trees by grouse and other species, it is a good idea to leave thick brushy cover nearby, preferably on the North side.

An alternative to complete removal of shade trees is girdling. Girdling involves the removal of bark and cambium from the target tree through the use of cuts that encircle the entire tree. Girdling destroys the cambium so no growth can occur and disrupts the flow of water and

nutrients in the tree.   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 3). 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 4). Girdling may be easier and safer on large trees and can be beneficial to wildlife because you are creating a snag (dead or dying tree). Snags are important because they can provide feeding, nesting and roosting sites for a wide variety of wildlife.
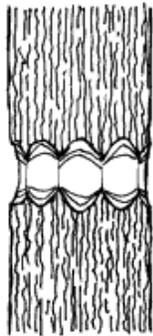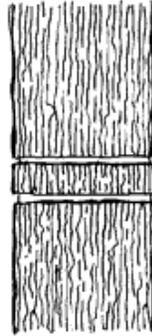
Figure 3   Figure 4
Ax and Chainsaw Girdles[1]

Girdled Black Locust Trees

Pruning Techniques and Guidelines   **Figure 5[1]**

Pruning should be completed in late winter (late February – early April)
and certainly before bud break while the tree is still dormant. 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 Figure 5). Do not cut flush with the
main stem. This collar is needed for proper healing of the pruning cut.

Remove all the diseased and 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. It is advisable to clean pruning tools before
starting another tree to avoid transferring viruses or fungi. Options for
disinfecting are 1:10 bleach to water, rubbing alcohol, or flaming the
tools. Be aware that bleach can be corrosive to some metals. 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.

Remove branches that cross or rub against one another or that are drooping and low. When pruning, it is best to select for strong branches with wide crotch angles (near 90 degrees) to the main stem. Limbs with narrow crotch angles (angle between limb and trunk) are weak, can development bark inclusions, and tend to break under the weight of a crop or snow (see figure 6).
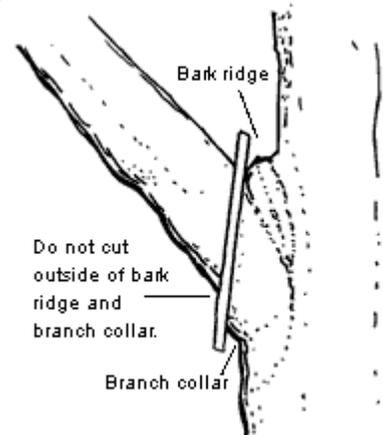
Remove upright growing shoots or 'water sprouts'. Water sprouts are excessively vigorous and rarely fruit well See Figure 7. Many times you will see water sprouts the year after 'topping' (pruning large, upright or vertical branches) or 'tipping' (cutting lateral branches between nodes). Minimize 'topping' and 'tipping' and try to work with the shape of the existing tree instead of trying to shape it to the way you think it should look. These trees do not have to have perfect form to provide fruit for wildlife.
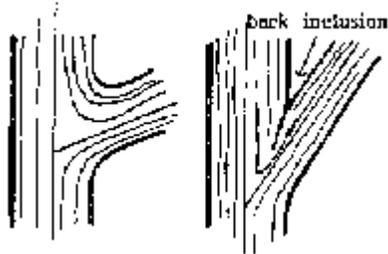
Figure 6 -Wide and Narrow Crotch Angles

If it is desirable to redirect a limb to fill in a gap, prune the limb just above a bud facing in the direction you want the new limb to grow. Be sure to leave the short spur branches that grow on the sides of larger branches because these are the fruit bearing branches. Consider creating brush piles for wildlife from the cull trees and branches from the apple tree.

Maintenance
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 openings around the tree to grow. Prune water sprouts and other branches as needed.

Figure 7

Note the water sprouts that should be pruned

General Pruning Techniques Diagram[2]
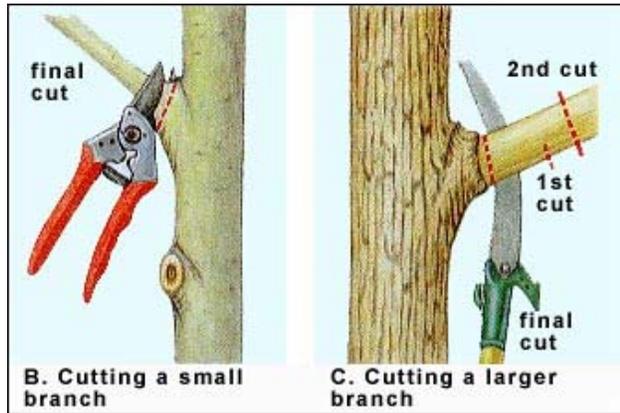
Resources for More Information - Much of the information and figures found in this document were adopted from these publications

[1]Wild Apple Trees for Wildlife - University of Maine Cooperative Extension Bulletin #7126
http://www.umext.maine.edu/onlinepubs/htmpubs/7126.htm

Managing Grasslands, Shrublands and Young Forests for Wildlife – Northeast Upland Habitat Technical Committee, 2006: Managing Abandoned Orchards and Apple Trees
http://www.wildlife.state.nh.us/Wildlife/Northeast_Hab_Mgt_Guide.htm

[2]How To Prune Trees – US Forest Service
http://www.na.fs.fed.us/spfo/pubs/howtos/ht_prune/prun001.htm