

Arkansas Forestry Technical Note 2

Rational for Forest Stand Improvement Practice

September 2014

When we manage a forest, we manage the light. All plant species must have light to live and regenerate. Many think Mother Nature knows best and want to have a “hands off” approach to forest management. Mother Nature does know best, and left to do what comes naturally, good things happen. The problem is; our society does not allow Mother Nature to do what she wants to do. Before we settled the land, all land had natural disturbances every few years (usually from wild fire). In the “good old days”, our forests were open and the plants and animals in the forest evolved with periodic disturbance (periodic fire). Healthy forests and good wildlife habitat go hand in hand and is dependent on periodic disturbance. The only difference now is Man and not Nature has to create the disturbance.

Sunlight has to touch all living things in some way for them to live. Sunlight has to reach wild life’s food source and the plants they use for cover. Animals can only eat what they can reach. Tree species like pine and oak cannot survive in shade for very long. Where sunlight does not reach the ground, over story trees must die for quail, turkey, deer, young tree seedlings (oak or pine) to survive. Periodic disturbance is necessary.

Without this periodic disturbance, the forest has health issues (low vigor, insects and disease) and the wildlife habitat deteriorates. For sure, the wrong thing to do is nothing. We know land left wild is not best for wildlife. Forests with low grade, undesirable trees, with poor wildlife habitat will not grow into desirable habitat or high value trees on their own. It takes proper management to have desirable, high value trees and good habitat in the forest.

Landowners should actively manage their forest land to meet their objectives. Unfortunately, most landowners do not manage their forest. Most landowners have objectives like aesthetics, legacy, wildlife, recreation, etc. Timber production (even though they occasionally sell timber) is not high on most forest landowners list of priorities. If you like big, pretty trees, you should manage for big, pretty trees. Forests are dynamic and constantly changing. It takes work to maintain a forest in a desirable condition. Left alone, a desirable forest will

eventually grow into an undesirable forest.

Good forest management for whatever objective has multiple benefits. It is not necessary to completely exclude one objective for another. For example, oak is a keystone species for wildlife management in the hardwood forests. It is also one of the preferred species for timber production. An open or young well-managed pine forest has many wildlife benefits. A well-managed forest is like having your cake and eating it too. It is possible for an aesthetically pleasing forest to have good habitat and timber value.

To manage forests and their wildlife habitat, some trees have to be cut or killed periodically. It is always best when this can be done with a timber sale. Timber sales allow landowners to make a dollar instead of spending a dollar. The goal for management is always to adjust the species composition, the density, and/or the quality of the trees in the forest. If a timber sale is not possible, then the landowner must pay to complete the management operation. Such a practice is called Forest Stand Improvement or Wildlife Stand Improvement (depending on the objective). Keep in mind, no matter if it is a commercial timber sale or a noncommercial improvement practice, the day after the operation is complete, the forest should have better species composition, better quality, and a larger average diameter. If this is not true, most likely, the operation was not compatible with the landowner’s objectives. Remember, it takes a very long time to heal mistakes with trees. Landowners need a management plan to make sure these operations are consistent with objectives.

Prescribed fire (burning under controlled conditions) is a management tool to be used in addition to timber harvests and noncommercial improvement practices. It is another way to create a disturbance and mimics historic natural disturbance. Good forest management usually includes prescribed burning to some extent. Usually, multiple burns are necessary to get desired results. Wildlife objectives call for more burn events than timber objectives. Prescribed burning is cost effective and has a lot of bang for the buck. However, liability issues can be great. Burning should only be done with proper planning by those trained.

Forests managed for wildlife objectives tend to have fewer trees (more open) and have more species diversity. Such forests should have hard mast, soft mast and light seeded species in the forest.

Examples of hard mast species are: oak, hickory, walnut and pecan. Examples of soft mast species are: persimmon, red mulberry, sugarberry, black cherry, locust, water tupelo and black gum. Examples of light seeded species are: pine, cottonwood, black willow, sweetgum, sycamore, green ash, red maple and bald cypress. Grade and form of the trees is not particularly important for wildlife objectives. Some snags, logs, den and cavity trees are desirable. On the other hand, forests managed for timber production tend to have more trees and favor only the species with the highest timber value. Grade and form of the trees is an important consideration for highest economic returns. Such considerations are important when deciding which trees should be removed to meet the objectives of the stand.

Rarely, is a forest managed exclusively for one objective. Those interested in wildlife usually give timber values some consideration. Conversely, those managing for timber usually give wildlife some consideration. A forest management plan has to be site specific to the opportunities given by the existing conditions and tailored to the landowner objectives.

Generally, all forests have areas that favor different opportunities for management. They are rarely completely uniform from border to border. Diversity is created by the inclusion of special areas like glades, wet areas, stream side management zones, or open areas. All of these unique areas present the opportunity for special management considerations.

No matter the objective, a forest allowed to stagnate is never good. For sure, a forest without periodic disturbance will eventually stagnate. Such a case creates a situation that is the "survival of the fittest." When this is true, some trees must die so others can live. Usually, the kind and numbers of trees dying is not best for the objectives of the landowner. In a stagnated forest every plant is struggling for life and little light is getting to where it is needed. In this case, wildlife as well as trees suffer.

Keep you forests and wildlife happy, disturb you forest periodically. Forestry is an art and a science. Most technical recommendations are tempered with personal opinion. For certain, many similar practices can accomplish the same goal. In the final analysis, landowner objectives are the driving force behind choosing the correct forest stand improvement or timber sale activity.