

## **Establishing and Maintaining Wildlife Food Sources<sup>1</sup>**

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As human populations in the Southeast have grown, so have recreational demands for game and nongame fish and wildlife. Fortunately, southern forests have the potential to be productive wildlife areas, well suited to meet the growing recreational demands. To take advantage of potential economic opportunities, or simply for personal enjoyment, many landowners now include wildlife in their forest management objectives.

Landowners who adopt wildlife management strategies must recognize that each wildlife species requires a specific set of habitat conditions. In other words, animals will frequent your property depending on the condition, type and variety of food and cover that are present. Although proper wildlife management requires both habitat and population considerations, this publication focuses on methods of increasing the abundance and variety of wildlife food sources on, and adjacent to, forestlands. Both “consumptive” uses such as hunting and fishing, and “nonconsumptive” activities (e.g., bird watching, wildlife viewing, photography) will benefit by careful attention to these methods.

### **Food Sources**

Food requirements vary widely among wildlife species and it is beyond the scope of this publication to include all of them. *Mast*—the flowers, seeds and fruits of plants—is probably one of the most important naturally occurring seasonal wildlife food sources on your property. Mast is often separated into two categories: hard mast and soft mast. Hard mast includes hard-shelled seeds such as acorns, hickory nuts, pine seeds and walnuts; soft mast includes flowers, catkins, seeds with a fleshy cover (e.g., berries, cherries) and soft-coated seeds.

Acorns are an especially important source of hard mast in many forests because of their substantial contribution to the total wildlife food base. Many wildlife species rely on these foods to establish fat and energy reserves that help maintain skeletal and muscle mass during seasonal stress periods, when nutritional intake is minimal or body demands are high. However, the contributions of trees and shrubs that produce soft mast may be equally important. Most wildlife species depend on a variety of food types, including the herbaceous parts of many trees and shrubs.

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1. This document is SS-FOR-12, one of a series of the School of Forest Resources and Conservation Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Original publication date July 1999. Revised February 2008. Visit the EDIS Web Site at <http://edis.ifas.ufl.edu>.
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A critical aspect of the food requirements of different animals is the seasonality of flower and fruit production. Fruiting patterns vary among different species and localities, as well as among individual trees of the same species. Using oaks as an example, white oaks produce mature acorns during a single growing season. Red oaks flower and bear fruit during one growing season, but the acorns do not mature until fall of the following season. Important wildlife management objectives will be to have a variety of mast-producing species on your property so that wildlife food is available in each season. In addition to variety, the distribution of these trees across your property will also influence wildlife usage. The Forest Stewardship publication, *Making the Most of Your Mast* (<http://www.sfrc.ufl.edu/Extension/pubtxt/ssfor3.htm>), provides more detail on this subject.

Although animals will tend to favor mast whenever it is available, herbage and browse (leaves, twigs and buds) provide a second major food source, especially when mast is not available. As with mast, a variety of forage types is better than a single, or few, species. These foods are kept palatable and nutritious through forest management practices such as prescribed burning, timber thinning and harvest.

## Openings and Plantings for Wildlife

A variety of wildlife species benefit from open spaces and supplemental plantings. Good examples of these habitat components include managed forest openings, edge plantings, food plots, and fruit and nut plantations.

### Forest Openings

Many wildlife species require and/or benefit from open spaces. These areas provide a variety of foods and cover types which may not occur on forested sites—grasses, herbaceous plants, various insects, berries, small mammals, nesting habitat, and sites for territorial displays and watching for predators. Properly planned openings not only provide important wildlife habitat, but also can add to the attractiveness of your property, serve as firebreaks and increase internal access. Openings may be located along roads, right-of-ways and fence lines, on old log decks, as irregular small openings scattered

throughout your forest, in strips between different aged plantations and even as old fallow fields. Two rules of thumb when planting pines on your property are:

- When planting areas of five to ten acres, leave openings approximately 77 feet wide between the newly planted area and existing forest.
- For areas of greater than ten acres, leave numerous small openings scattered throughout the new plantation.

Various low cost operations encourage the establishment and maintenance of herb and grass cover in these open areas. Disking or rotovating to break up compact soils, such as on log decks or old fire lines, can be followed by seeding clover or grass if grass cover did not previously exist. Regular mowing will prevent the intrusion of shrubs and trees. Rotational mowing, by which different areas are mowed at different times of the year, will encourage a wider variety of plants and available mast than mowing all open areas at the same time. Periodic disking of established ground covers will similarly enhance species and mast diversity. To avoid the disturbance of ground nesting species such as turkey and quail, and to promote the growth of important wildlife foods such as partridge pea, ragweed, and beggarweed, mowing and disking should be conducted during the winter months (December - February).

Landowners planning to create and maintain forest openings for wildlife may be eligible to receive cost-share funding for these operations under the Wildlife Habitat Incentive Program (WHIP). Wildlife plantings also fulfill requirements for enrollment in the Conservation Reserve Program (CRP). Contact your local U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) office for more information about these programs. See <http://offices.sc.egov.usda.gov/locator/app> to find your USDA Service Center.

### Edge Plantings

Other food sources include edge plantings, food plots and fruit/nut plantations. An *edge* is a place

where two or more different habitat types come together. Borders between field and forest, or forest stands of different ages or species, are valuable to wildlife because they typically contain a diversity of species from each of the adjacent plant communities. The value of edge areas can be further enhanced by planting shrubs, vines and other herbaceous plants or by managing existing vegetation to benefit wildlife along the edges of fields, plantations, roads, water bodies or other openings. Besides wildlife foods, these plants can provide shade, nesting areas and hiding cover for many wildlife species and, in some cases, may improve the aesthetics of the property. Additional wildlife food and benefits can be provided by leaving several crop rows along the edges of agricultural fields.

Edge plantings should be at least 20 feet wide and usually contain taller plants than adjacent open areas. Sometimes the only action needed to establish a stand of shrubs, vines, and other wildlife food plants in an edge is to cut existing trees and let succession run its course. If this method fails to produce the plant community you want, it may be necessary to plant. A clever and inexpensive way to seed these areas is to plow the strip, then stretch a wire or cord between poles along its center. Birds resting on the wire will drop seeds to revegetate the strip. Be advised, however, that this may introduce unwanted or invasive weeds.

If you want more control over the plant species in your edge area, transplanting from elsewhere on the property is a relatively inexpensive solution. A more costly alternative is to order nursery stock. Wax-myrtle, native hollies, hawthorn, crabapple, dogwood, wild plum, bicolor lespedeza, sumac, persimmon, cherries, blackberries, honeysuckle, greenbriar and blueberries are some of the species suitable for edge plantings. You can allow these to grow into solid thickets, which will provide both food and cover.

If you remove trees to provide sufficient light to the strips, cut the trees with the least wildlife value. Trees such as cherries, oaks, and nut-producers have high food value, and should be retained scattered throughout the edge strip.

## Food Plots

Food plots are an effective, albeit relatively expensive, method of providing food sources for game birds, rabbits, raccoons, deer and other species. In this method, fields are planted with grains, corn, millet, legumes, sunflowers and other plants with high nutritional value for wildlife. The size of food plots varies according to landowner preferences and the requirements of the target wildlife species, but usually they are a minimum of 1/2 to 1 acre in size, with a maximum of 3 acres.

Entire food plots can be planted annually, but it is usually better to divide a field into strips, plowing and planting a different strip each year (Fazio, 1987). In fields large enough for five strips, the recommended yearly sequence of working the strips is 1-3-5-2-4. This sequence maximizes the age difference between adjacent strips and enhances habitat diversity. As with any crop, the successful establishment of food plots starts with proper soil sampling and depends on good seedbed preparation followed by proper liming and fertilization. Seed selection is important and should be based on your soil type and the wildlife species or groups of species you are targeting.

The Florida Fish and Wildlife Conservation Commission, the Natural Resources Conservation Service (NRCS), or the Cooperative Extension Service can provide advice on which crops to plant for your target wildlife species, the suitability of your soil for these crops, and their cultural requirements. See these Extension publications on wildlife forages:

- 2007 Wildlife Forages for North Florida - Part I: Cool Season Food Plots (<http://edis.ifas.ufl.edu/AG140>),
- A Walk on the Wild Side: 2007 Cool-Season Forage Recommendations for Wildlife Food Plots in North Florida (<http://edis.ifas.ufl.edu/AG139>)
- Comparing Fall Food Plot Blends for Deer: 2006 Update (<http://edis.ifas.ufl.edu/FR167>)
- Soil Fertility Management for Wildlife Food Plots (<http://edis.ifas.ufl.edu/SS468>)

## Fruit and Nut Plantations

Small fruit and nut plantations are another way to attract wildlife. Fast-maturing species like sawtooth oak, red mulberry, honeylocust, persimmon, black cherry and Chinese chestnut should produce fruit by age 10. Large caliper trees (diameter = 2-4 inches) should be stagger planted approximately 50 feet apart in rows 12 feet apart. Bareroot stock can be planted using a spacing pattern of 8 'x 12'. Once these mast producers bear fruit, watch them for about three years and note which trees produce well and which produce poorly. As thinning becomes necessary, remove the poor-producing trees to provide additional light and space for the best-producing trees and understory plants.

In the case of dioecious species such as red mulberry and persimmon (which produce male and female flowers on different trees) only the female trees bear fruit. To provide growing space for fruit-producing trees, you should remove most of the male trees, leaving only a few to pollinate the female flowers.

In areas where deer or rabbits may excessively browse or girdle newly established seedlings, it may be necessary to use some type of protection device, such as a tree shelter. These devices provide physical protection of seedlings until they become established and can withstand some damage.

## Enhancing Wildlife Food Production in Existing Forests

Regular forest management practices can also be utilized to increase diversity, availability and quality of wildlife food. The primary objective of these practices will be to replace older shrub and hardwood cover with younger sprouts and herbaceous vegetation.

### Prescribed Fire

Fire causes many shrubs, grasses and herbaceous plants to resprout from roots with more succulent foliage and more prolific flowering than in the absence of fire. It also recycles nutrients, raises the soil pH and increases germination of seeds that have accumulated in the soil surface. Fire frequency and

season will favor different species. For example, a one- to two-year burning schedule keeps the understory open and creates habitat favorable for quail. A three- to five-year burning schedule allows browse and cover plants to develop, thereby favoring deer. A study in the Alabama Piedmont compared populations of breeding songbirds on sites that received hot burns and sites that received cool burns. Cool fires resulted in a greater abundance and variety of birds while hot fires had more ground-feeding and ground-nesting species (Stribling and Barron, 1995).

### Thinning

Thin dense pine plantations to allow more sunlight to reach the forest floor, which promotes growth of herbaceous plants, grasses, shrubs and vines. Residual pine densities of 50 to 70 ft<sup>2</sup> /ac are a little lower than optimum for timber production, but will favor understory plant development and are a good compromise if wildlife is to be included in forest management objectives. Follow-up treatments with prescribed burning or fertilization will increase ground cover development and the nutritional value of forage and mast.

### Promote Diversity

Forests with a variety of stand ages and/or species mixtures generally support more animals than do forests with little habitat diversity. Pines and hardwoods, although not always economically compatible, are a very good combination for creating habitat diversity. Protect hardwood hammocks or clumps, hardwood stands along streams, and productive, mast-producing individual trees. Also, wildlife populations benefit when stands of different ages are available, because each age represents a different stage of plant succession, favoring different plant and animal species. Balancing the age structure of a forest accomplishes two objectives: (1) sustained yield of forest products, and (2) diverse wildlife habitat.

In addition to the availability of wildlife food plants, it is important that landowners consider the availability of *protective cover*. Many things can be considered cover--tall grass, brush piles, thickets, snags, stands of mature timber--depending on the wildlife species in which you are interested. In the

ideal situation, plants that provide wildlife food will provide cover as well. Many animals often hesitate to stray far from cover; therefore, to obtain the greatest benefit from your wildlife food sources, try to maintain patches of protective cover nearby.

## Conclusion

Mast and forage production for wildlife can be increased on your forest property through the judicious use of open areas, edge strips, food plots, prescribed burning, thinning, and stand diversity, singly or in various combinations. The two most important criteria for the success of your efforts will be the diversity and seasonal availability of food sources.

## Acknowledgments

We gratefully acknowledge the careful review of this publication by Chuck McKelvy, Wayne Harris, and Daniel Coggins, with the Florida Fish and Wildlife Conservation Commission, and Joe Schaefer, University of Florida, department of Wildlife Ecology and Conservation.

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