

Establishing and Maintaining Wildlife Food Sources¹

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As human populations in the southeastern United States have grown, so have recreational demands for game and nongame 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 next to forestlands. Both “consumptive” uses (hunting) and “nonconsumptive” activities (bird watching, wildlife viewing, photography) will benefit from your 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 seeds and fruits of trees and shrubs—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, chestnuts, beechnuts, walnuts, pecans, and pine nuts. These seeds, commonly produced in fall and winter, are long-lived and typically high in fat, carbohydrates, and protein. As a result, they provide an energy-rich food source important to many wildlife species during colder months when other forms of nutrition are scarce. Soft mast is comprised of soft, fleshy, perishable fruits such as blackberries, cherries, pawpaws, and persimmons. These fruits are often high in sugar, vitamins, and carbohydrates and also provide an important food and energy source for wildlife. Unlike the seeds that comprise hard mast, soft mast fruits are not normally present during the winter. However, their occurrence during spring, summer, and fall is essential to many migrating and reproducing wildlife species.

Acorns are an especially important source of hard mast in many forests because of their substantial contribution to the total wildlife food base. In autumn, the diets of white-tailed deer and wild turkey can be comprised of up to 70% acorns. Acorn production varies by locality, season, year, oak species, and between individual oaks of the same species. Oaks can be divided into two types, “white oaks” and “red oaks,” based on the length of time it takes them to produce mature acorns. The acorns of white oaks mature in one growing season, while those of red oaks take two growing seasons to mature, resulting in different species having different seasonal and yearly acorn yields. Even within a particular oak species, acorn production can fluctuate greatly from

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 and May 2011. Visit the EDIS website at <http://edis.ifas.ufl.edu>.

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year to year. In good mast years, acorns are abundant and available to wildlife well into the winter season, but in bad years supplies are consumed much earlier. Much of this fluctuation is the result of a natural cycle in oaks called “masting.” Most years, oaks produce low or moderate acorn crops. However, every 2 to 5 years they produce an abundant crop. Acorn yield during an abundant crop year may be 80% higher than in a low-production year.

Like oaks, most other hard and soft mast producers have varying seasonal and yearly yields. It is important to have a variety of hard and soft mast-producing species on your property so that wildlife food is available in each season and to compensate for years when certain individuals or species have low production. In addition to variety, the distribution of these trees across your property will also influence wildlife usage. For more information see the following extension publications on mast and increasing mast production:

- Making the Most of Your Mast (<http://edis.ifas.ufl.edu/fr036>)
- Managing Oaks to Provide Food for Wildlife (<http://edis.ifas.ufl.edu/uw293>)
- The Value of Oaks to Wildlife (<http://edis.ifas.ufl.edu/uw292>)

Although animals will tend to favor mast whenever it is available, herbage and browse (leaves, twigs and buds) provide a second major food source. As with mast, it is better to provide a variety of forage types than to rely on a single species or a few species. You can keep these foods 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 that 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, and in strips between different aged plantations. You can plan to scatter several irregular small openings throughout your forest or leave entire old fallow fields unplanted. Two rules of thumb for leaving openings 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. Disk or rotovate to break up compact soils, such as on log decks or old fire lines. Where grass cover is missing, seed clover or grass. Mow regularly to prevent the intrusion of shrubs and trees. Use rotational mowing (mow different areas at different times of the year) to encourage a wider variety of plants and available mast. Disk established ground covers periodically to 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, mow and disk 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. Wildlife abundance and diversity is typically greatest along edges because they contain food and cover resources common to multiple habitat types. Borders between field and forest or forest

stands of different ages or species create edge and are valuable to wildlife because they typically contain a diversity of species from each of the adjacent plant communities. Edge can be further enhanced by planting shrubs, vines, and other herbaceous plants or by managing existing vegetation to benefit wildlife adjacent to 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 surrounding harvested 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 your edge plantings, 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 other fruit- 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, deer, rabbits, raccoons, 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 5 acres.

When creating food plots, one of the most important considerations for many wildlife species is distance to escape cover (brushy, shrubby, and wooded areas). Animals may not use the center of larger plots if they feel they are exposed and too far from shelter where they can hide from predators and human disturbance. Rectangular plots have the advantage of keeping distance to cover relatively short, while size can be increased as needed with added length. Rectangular plots also have far more edge than square or circular plots of similar size. Because wildlife diversity and abundance is typically greater at edges, the more edge you have the more individual animals you are likely to see. In most cases, food plots should be distributed across the property to make them available to as many animals as possible and lessen foraging pressure on any one plot. Well-distributed food plots will also fall within more animals' home ranges and therefore will benefit more individuals. Generally, 1- to 5-acre food plots should comprise approximately 1–5% of your land area.

Generally, it is best to provide food for wildlife year round by planting both cool- and warm-season food plots. Try to plant your cool- and warm-season food plots in different fields or in different sections of a field. That way you will not have to remove available food in preparation to plant the next season's food plot. Each season, make sure you plant a mixture of different plants in each food plot. Mixed plantings reduce the risk of losing entire food plots to poor weather, insect pests, or disease. They also provide a diverse food source and, as different plant species grow at different rates and times even within a season, ensure that new plant species are available to replace those that have matured and died. Diverse food plots also attract a wider variety of insects, which are important to certain wildlife such as turkey and quail, particularly when they are rearing young.

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. For more information on wildlife food plots see the following Extension publications:

- 2010 Wildlife Forages for North Florida—Part I: Cool Season Food Plots (<http://edis.ifas.ufl.edu/ag140>)
- A Walk on the Wild Side: 2010 Cool-Season Forage Recommendations for Wildlife Food Plots in North Florida (<http://edis.ifas.ufl.edu/ag139>)
- Soil Fertility Management for Wildlife Food Plots (<http://edis.ifas.ufl.edu/ss468>)
- Establishment of Food Plots for White-tailed Deer in Central and South Florida (<http://edis.ifas.ufl.edu/uw262>)
- Supplemental Feeding and Food Plots for Bobwhite Quail (<http://edis.ifas.ufl.edu/uw264>)

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 feet by 12 feet. 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.

Use caution when considering species. Some exotic species, such as sawtooth oak and Chinese chestnut mentioned above, have been championed due to their production of abundant mast at a young age. However, a multitude of native fruit and nut producing trees is available in Florida. Planting a variety of native species of fruit and nut trees is considered a superior alternative to planting exotic species.

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 for seedlings until they become established and can withstand some damage.

Enhancing Wildlife Food Production in Existing Forests

Regular forest management practices can also 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 re-sprout from roots and produce more succulent foliage and flower more prolifically than they would in the absence of fire. Fire 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. Some plant species only bloom when they are burned during a certain season. Other plant species will re-sprout if burned in one season but are killed if burned at a different time of year. All of this affects the availability of wildlife food and cover resources. For more information on prescribed fire and wildlife see the following extension publications.

- Effects of Prescribed Fire on Florida's Wildlife and Wildlife Habitat (<http://edis.ifas.ufl.edu/uw132>)
- Benefits of Prescribed Burning (<http://edis.ifas.ufl.edu/fr061>)
- Understanding Fire: Florida's Land Management Tool (<http://edis.ifas.ufl.edu/uw124>)

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 ft² /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 of prescribed burning or fertilization will increase ground cover development and the nutritional value of forage and mast. For more information on thinning and other forest management practices that benefit wildlife, see the following Extension publications:

- Ten Tips for Increasing Wildlife Biodiversity in Your Pine Plantations (<http://edis.ifas.ufl.edu/uw319>).
- Ten Tips for Increasing the Use of Your Pine Plantations by Game Species (<http://edis.ifas.ufl.edu/uw318>).
- Management of Pine Forests for Selected Wildlife in Florida (<http://edis.ifas.ufl.edu/uw098>)
- Management Practices to Support Increased Biodiversity in Managed Loblolly Pine Plantations (<http://edis.ifas.ufl.edu/fr236>)

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 that favors 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, 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 you wish to promote. 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.

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