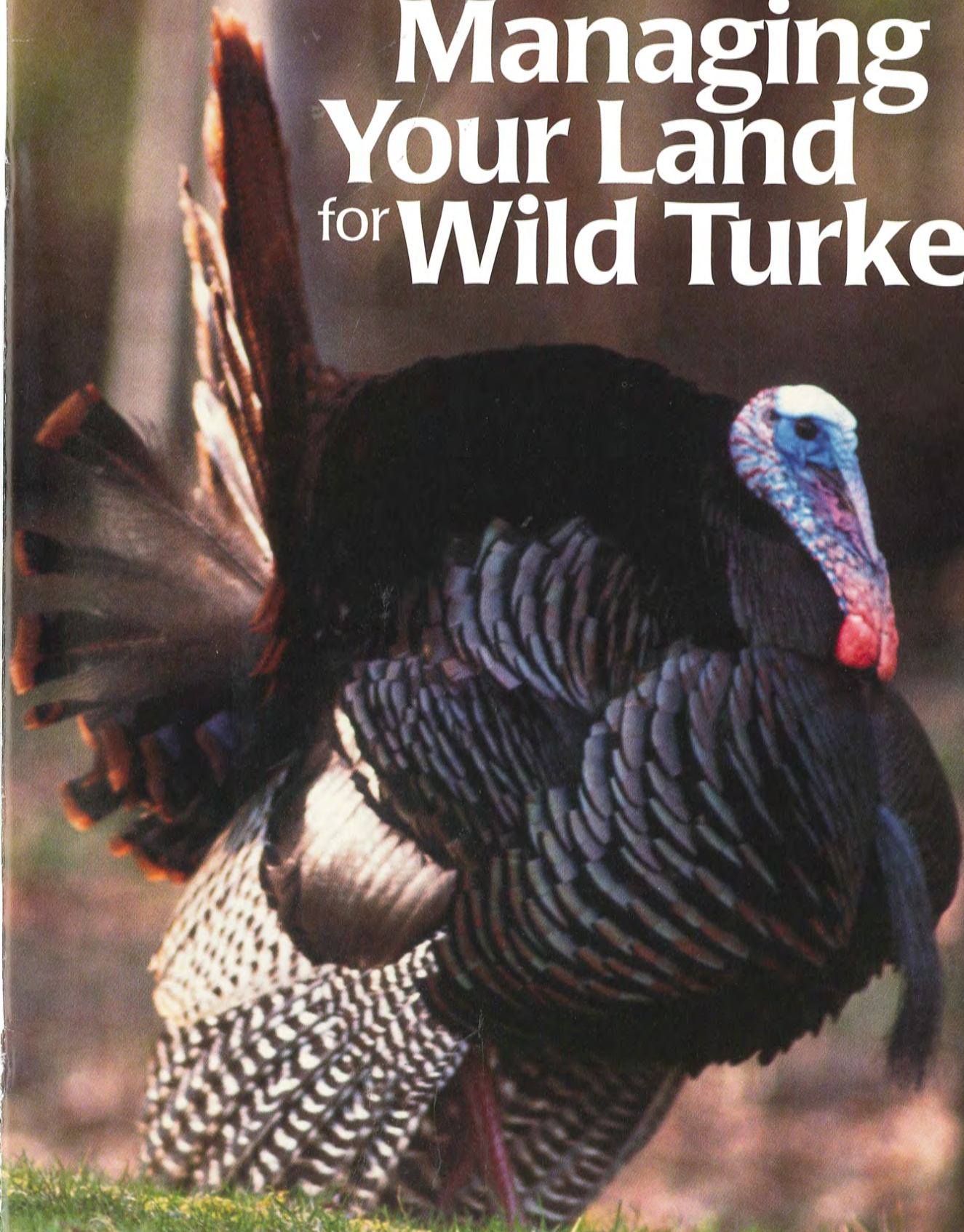
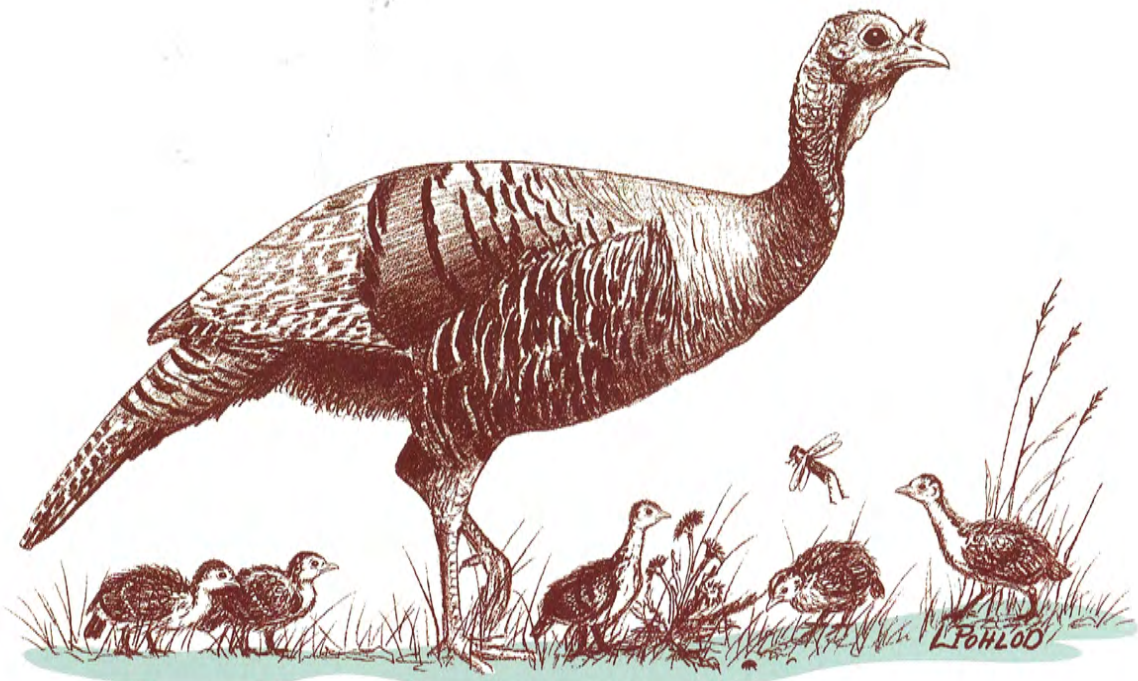


Managing Your Land for Wild Turkeys





About This Brochure

Wisconsinites have enjoyed a widespread wild turkey comeback through one of the most dramatic success stories in Wisconsin wildlife management history. This success is largely due to favorable changes in habitat, cooperation of private landowners and hunters, extensive transplants of wild trapped turkeys, and carefully regulated hunting. Most of the prime turkey habitat in Wisconsin is in private ownership where land use influences habitat quality and its suitability for turkeys. The continued success of the wild turkey in Wisconsin will depend in part on the management decisions landowners make today. This brochure describes land management practices that can benefit not only wild turkeys, but other wildlife as well. These practices may also help landowners achieve better timber production, greater wildlife diversity, soil and watershed protection and provide more recreational opportunities. Although this brochure covers many basic wildlife habitat improvement principles, it does not pin-point area specific situations on your property. As a result, landowners are encouraged to seek additional technical assistance and cost-sharing for habitat management from one or more of the many sources listed at the end of this brochure. Your local wildlife biologist will be able to recommend specific steps that you can take to improve your property for the eastern wild turkey.

Edited by Eric Lobner

Wisconsin Department of Natural Resources

Madison Wisconsin

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Design by Jeanne Gomoll

Segments written by Bill VanderZouwen, Randall Hetzel, Keith Warnke, Tom Howard, and John Kubisiak

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Adult tom strutting for an attentive hen.
Photo by J. Kubisiak

Wild Turkey Background

The largest game bird in North America, the wild turkey has influenced the cultures of various groups of people. Turkeys were important to Native Americans by providing a major food source and tools made from their feathers, bones, and spurs. Settlers also depended on turkeys as an important food source.

Turkeys belong to a family of “gallinaeous,” or chicken-like birds, that includes quail, pheasants, grouse, and partridge. Their body plumage is an iridescent bronze, with wing and tail feathers that have alternating light and dark bands. Similar to many other gallinaceous birds, males and females are easily differentiated. The adult male turkey, called a “gobbler” or “tom,” can be identified by spurs on their legs, and a long tuft of hair-like feathers, or “beard,” that hangs from their breast. A tom’s head has fleshy adornments that vary in coloration from red, white and blue, depending on the season. Iridescent, black-tipped body feathers give gobblers an overall darker appearance than female turkeys. Wisconsin gobblers average over 20 pounds and appear even more impressive when they are displaying by puffing up their feathers and fanning their tail. Adult females, called “hens,” usually lack spurs and a beard, and have a gray-blue head with buff-tipped body feathers that produce a dull brown appearance. Hens are also considerably smaller than gobblers weighing around 12 pounds.

Of the five subspecies of wild turkey in North America, the eastern subspecies, which inhabits Wisconsin, is the most widespread, ranging over most of eastern North America south of the Great Lakes. Although turkeys were once abundant throughout the eastern United States, numbers declined in the 1800’s with unrestricted hunting, disease introduction from domestic poultry, and extensive logging of the mature forests. As a result, the wild turkey disappeared from Wisconsin in the late 1800’s.

Following their extirpation, many attempts were made to return the wild turkey to the state, but none were successful. Wild turkeys were successfully reintroduced to Wisconsin in 1976 when a total of 334 wild trapped turkeys from Missouri were released, first in Vernon County, with subsequent releases occurring in Buffalo, Iowa, Trempealeau, Jackson, LaCrosse, Dane, and Lafayette Counties. These reintroductions were so successful that in 1979, wildlife managers trapped and transplanted turkeys from these flocks to additional release sites around the state in an effort to expedite range expansion. Restocking with wild trapped birds throughout turkey range has been a phenomenal success with more than 3,000 turkeys relocated throughout the southern two-thirds of Wisconsin from 1979-93. The state’s wild turkey restoration program has become a great wildlife management success story thanks to habitat improvement, intensive restocking efforts by the WDNR, and support from landowners, dedicated sportsmen, and conservation organizations such as the National Wild Turkey Federation.

Turkey distribution



Wild Turkey Habitat Requirements

Wild turkeys are adaptable creatures that prefer mature hardwood forests, specifically oak, that are interspersed with openings, both agricultural and non-agricultural. Key habitat requirements include quality roosting and nesting cover, brood-rearing habitat, and dependable food sources. Roosting habitat includes large trees with horizontal limbs such as open-grown oaks and red and white pines. Nesting habitat is dominated characteristically by moderately dense understories that conceal the nest but allow the hen to view her surroundings. Hens also will frequently search out deep grass, tangles, or fallen tree tops to conceal the nest site. Ideal brood-rearing habitat consists of agricultural fields and other grassland areas, as well as periodically burned oak woodland or savanna-like habitat that provide an abundant source of insects for the young-of-the-year turkeys, or poults, to feed on. Not only do these areas provide an ample supply of insects, but periodic burning makes it easier for poults to move about and typically decreases the number of obstructions that hide predators. All of these habitat components will provide the greatest benefits to turkeys if they are interspersed in mixed blocks of forested and agricultural land.

As you read through the different habitat types, think about the habitat on your land and which of these basic turkey habitat requirements it satisfies. Then think about the habitat on your neighbors' properties, and the habitat throughout your area, on a larger landscape scale. It is recommended that you get aerial photos that are available from your county Farm Services Agency (FSA) office. Which of the turkey habitat requirements are met in your area? Which are limited? Which can you most effectively provide? Understanding these needs will help landowners effectively manage their property for wild turkeys.

Where are these components located in your area? Do any of these components need to be improved in your area? What element of turkey habitat is your land best suited to provide? Does your area have the components best suited for turkey habitat management or is it better suited to be managed for another wildlife species? (i.e. If the area is mostly climax maple and basswood forest or treeless grassland or cropland, managing for turkeys may be fruitless.)



Strutting tom with hens. Photo by J. Kubisiak

Hen on nest. Photo by Mike Hopiak for Cornell Lab of Ornithology



Breeding Habitat: The mating season begins in late March with the toms vocalizing, displaying, and competing with other gobblers for the hens' attention. Although hens and toms may roost together during this period, the gobblers will sound off from their tree roosts in an attempt to initiate mating. In order to perform their mating display and attract additional hens, strutting zones are established and defended by each gobbler. Gobblers will strut in areas that allow them to be seen for a considerable distance, such as in open woodlands or grassy fields, on trails, or along the edges of hayfields. Since hens may visit more than one gobbler throughout the day, these areas need to be open, yet allow the toms to feel secure and close to escape cover. The majority of the gobbling and strutting wraps up in late May after much of the mating has taken place. Are there any secure open areas or strutting zones on or around your property?

Nesting Habitat: Hens select nest sites in a variety of cover types including both field and woodland habitats, typically on the edge of the forest near field openings. Although nesting occurs in a variety of habitats, open oak forests with overhead cover are often preferred. Hens frequently use dense forest brush, deep grass, tangles, fallen tree tops, or other forms of ground cover to conceal themselves from predators during incubation but still allow the hen to view her surroundings. Hens will also nest in grass/forb openings in woodlands, hay fields, or other idle areas. Forbs are a broad category of wildflowers



Birds feeding. DNR photo

that includes goldenrod, yellow cone-flower, black-eyed susan, etc. If a turkey nest is destroyed, hens will typically select an area with additional vegetative cover for a second or even third renesting attempt.

Brood-rearing Habitat: After hatching, the hen leads her poults to habitat that provides food, cover, and little ground obstruction. Poults require a high protein diet of insects, spiders, and other invertebrates for rapid growth. Small, secluded openings near open oak woodland cover are the best brood habitats. Other areas suitable for brood-rearing habitat may include prairies, savannas, old fields, meadows, pastures, grain fields, fallow fields, and hayfields that are close to woodland cover. Adult hens with broods can frequently be seen feeding in agricultural fields during this period in search of the abundant insects. Recently cut hay or oats fields are the most attractive because insects thrive in these areas and are easily accessible. Prairies, grasslands and savannas that are burned in the spring or the previous fall, can also function as ideal brood-rearing habitat.

Hens and poults catching insects in an ag field. Photo by Scott Beckerman





Maturing oak forests provide abundant mast as well as roosting trees for turkeys throughout the year. DNR photo



Leaving corn fields unplowed until spring provides turkeys with a reliable food source most of the winter. Photos by Robert Wright.

Post-Breeding Habitat: Gobblers usually gather in small flocks following the breeding season. As poults grow, the young males eventually leave and form their own flocks. Female poults form a strong bond with the adult hens, and will join with other hen/female groups to form mixed-age flocks of females. Hens that have lost their brood, or clutch, often join up with a hen/brood group at this time and it is not unusual to see more than one family of turkeys together. In good turkey range, cover and food are abundant in summer and fall as turkeys prepare for winter. Seeds, berries, acorns, and nuts provide a diverse diet in oak woodlands and cropland edges.

Winter Habitat: Since Wisconsin is on the northern edge of turkey range, winter habitat quality is one of the biggest factors affecting turkey abundance. Turkeys may move substantial distances to wintering areas that provide accessible food and adequate thermal cover. South facing slopes and springs have less snow cover, and turkeys readily exploit this resource. Open oak woods with available acorn mast are critical in high quality turkey habitat. Standing corn, unplowed corn stubble, and spread manure are also attractive to wintering turkeys. Fallow fields and native prairies and savannas provide grassland forbs which are an important seed source during years of low acorn production. In severe weather, turkeys will occasionally eat tree buds like grouse.

Roosting Habitat: Turkeys spend most daylight hours on the ground, but at night they roost in trees to avoid predators. Favorite turkey roosting sites include clumps of large pine, groups of large-limbed, open-branched trees, similar to those found in mature oak forests. Conifers and oaks that retain their leaves, may be preferred in winter because they provide additional thermal protection and concealment. Southern and eastern exposures are often favored because decreased snow depths in these areas allow birds to move about and forage more easily near roosting sites.



*Aerial photo of driftless area farm country.
Photo by John Nelson*

Land Management for Turkeys

Now that you know the basic turkey habitat requirements, the next step is to take a look around your area and assess which of these requirements are present and which are absent. What habitat management steps can you take to provide the habitat that is absent or in short supply in your area?

Turkeys can have a large home-range that averages about 1500 acres. Since their home-range is so large, the best management plans consider habitat needs on a landscape scale, covering several sections. Although this guide was developed with turkeys in mind, many of the techniques used to improve turkey habitat also benefit ruffed grouse, deer, songbirds, squirrels, small mammals and many other wildlife species.

The first step to effectively manage your property for wild turkeys is to identify what elements already exist in your area and what aspects are missing. As mentioned earlier, it is important to look beyond your individual property, and take a large-scale approach that includes your entire section (640 acres). This can be accomplished by obtaining an aerial photo of your section from your county Farm Services Agency (FSA) office. With a little assistance, this photo will help you assess the distribution of various habitats throughout your area and hopefully pin-point future projects. Although an aerial photo will tell you what the area looked like

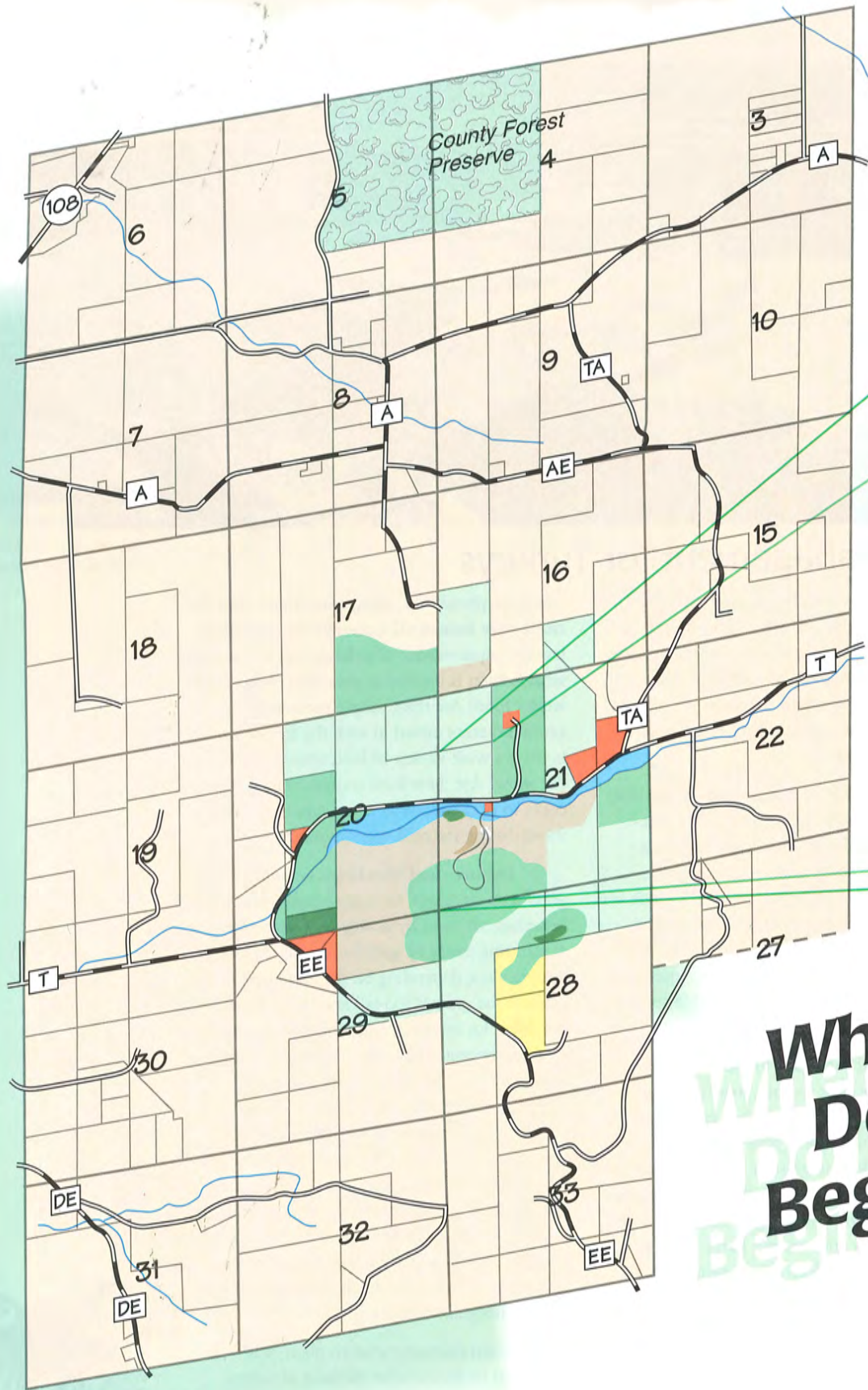
when the photo was taken, what about after the crops were harvested? Consider the year-round habitat requirements of turkeys, and try to assess what habitat is limited in your area. What about winter food? Are there ample permanent grassland areas mixed in with the forested areas? Is there a wide variety of food sources left above the snow? Are there food sources close to thermal cover to help decrease the amount of necessary travel during the cold winter months?

Pastures and Meadows: Grasslands and grass-forb openings, including native prairies and savannas, are used by turkey broods for foraging, as strutting zones by gobblers and by hens for nesting sites, depending on the condition of the grass. If the grass is too tall and thick, broods will not use it for foraging, and toms will not use it for strutting because they are not visible enough during the mating season. If these areas are absent, openings can easily be created by choosing a site that has fewer trees. Use of openings is determined by what is planted and where. The size of the opening should be large enough to allow sunlight to penetrate to the floor to promote forage growth. Unless the shape of the opening has already been determined for you, it is recommended that the shape be long and linear with an irregular boundary.

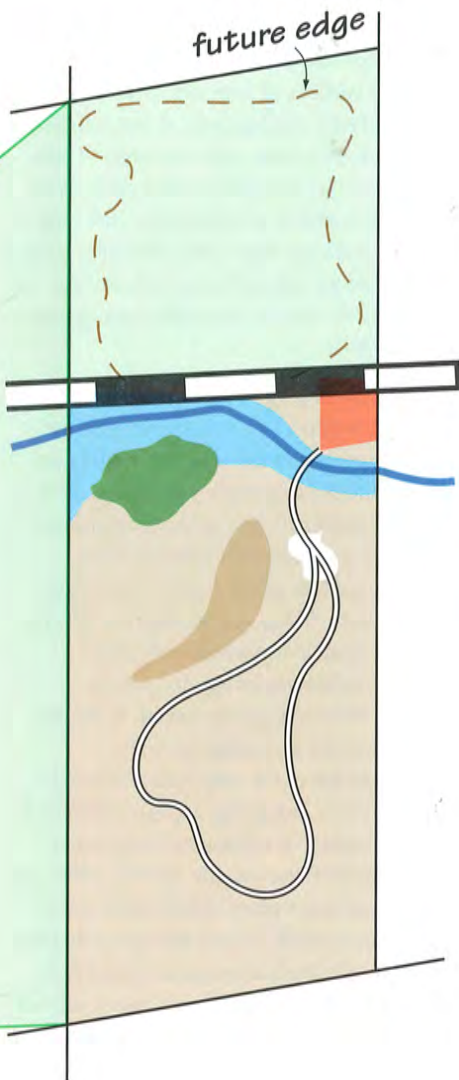
When choosing what to plant, it is important to decide what element of turkey

Continued on page 8





**Where
Do I
Begin?**



- Agricultural fields
- Sedge marsh
- Mixed evergreens
- Ridge of oaks, suitable for roosting
- Mature, mixed oak woodland
- Open area created log landing
- Mixed oak/maple forest
- House lots
- Idle crop fields

The following is an example of proper wild turkey habitat management. Is this your property?

Property History and Description

This 120 acre property was recently purchased by a new owner. The area north of Hwy. T has been in agriculture for many years and the area south of the road has not been actively managed, other than occasionally cutting firewood. The well drained, silty soil is prone to erosion due to the steep slopes on the property.

Management Action

As stated throughout this brochure, when analyzing your property, it is necessary to look beyond your property and evaluate what habitat is on your neighbors property. Although the agricultural fields provide open grassland areas, under the current crop rotations, these areas are frequently disturbed and not permanently established. Planting the majority of the field to permanent warm season grass cover, such as big bluestem, switchgrass, and indiangrass, with a border of soft-mast producing shrubs such as serviceberry, dogwood, hawthorn, and smooth sumac, will provide secure cover and a reliable food source through winter.

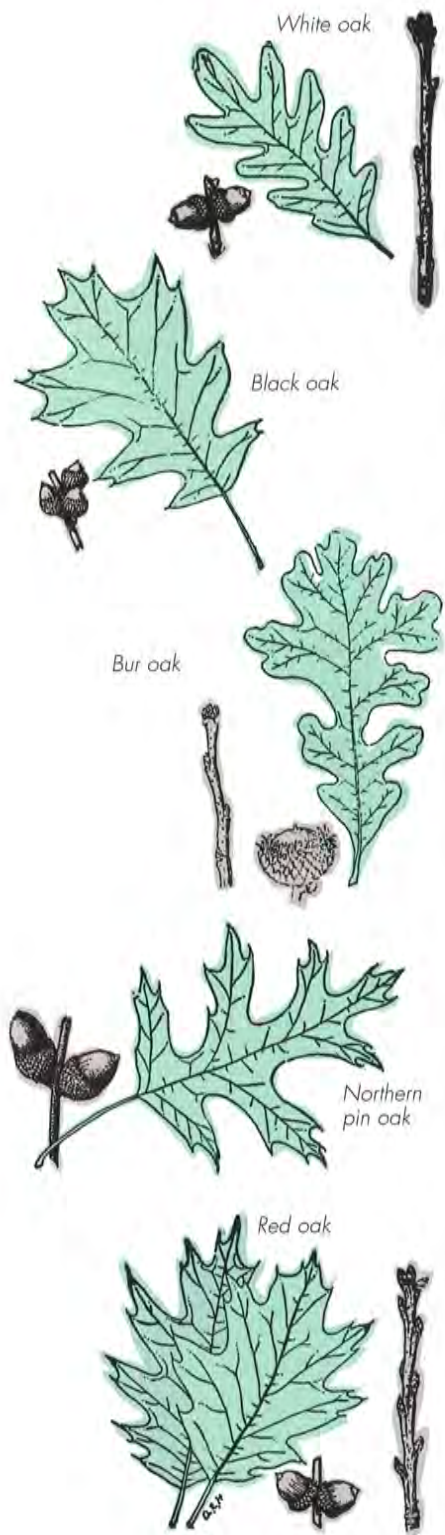
Conduct a shelterwood harvest throughout the mixed oak/maple forest to promote the oak saplings. Cutting and treating the stumps of the Maples and Buckthorns will help promote the oak component of the forest. It is important to remember that this technique will only work if oak saplings are present in the understory.

Remove single trees or groups of trees on the oak ridge to help maintain the large mature oaks for roosting and acorn production. Harvesting single trees or groups of 1-4 trees will allow the oak saplings to shoot up and eventually control the overstory after the existing large oaks are removed.

In the mature, mixed oak forest, consider harvesting the mature oaks with small 4-5 acre patch clearcuts spread over a 15-20 year period. Leave large, mast-producing trees, 1-3 per acre, for future or existing roosting trees as well as a reliable acorn source.

It all takes time

When conducting management practices, remember that it will take several years to formulate a plan and develop your property, especially the warm season grass component. It is important to plan long-term and have a vision for what you would like your property to look like in the future. Give the management practices time to take hold.



habitat you are interested in providing and how much maintenance you are willing to put into your opening. Planting a mixture of grain crops utilized in winter, along with a legume crop such as clover or alfalfa, provides ideal habitat for brood rearing in the spring and general foraging areas during the winter and summer. Incorporating mast producing shrubs into your opening can also be beneficial by providing a consistent, year-round food supply but may decrease its value as brood habitat.

Frequently, openings such as prairies or permanent grassland areas, require active management to develop and keep them productive as turkey habitat. Limited rotational grazing can improve pastures for turkeys but heavily grazed pastures frequently have reduced numbers of desirable grasses and forbs. Moderate grazing can be used in tall, thick grass to improve travel for foraging poults. Annual mid-summer mowing or burning every 3-5 years is recommended to preserve grasslands and prevent brush and tree growth. Not only does burning eliminate invasive woody vegetation, but it also removes forest litter and increases the amount of sunlight reaching the soil, resulting in a stimulation of growth and increased flowering and seed production. Burning and mowing should be planned to limit the amount of disturbance occurring to the nesting hens. When conducting a burn on a large area, greater than 60 acres, plan on burning it in sections, possibly burning half one year and half the next, to leave some nesting habitat for the current year. WDNR wildlife biologists can provide specific, on-site assistance and recommendations for establishing and maintaining grassland openings.

Woodlands: The most important type of turkey habitat in Wisconsin is the open oak woodland which satisfies many of the year-round habitat needs of the eastern wild turkey. Oak woodlands provide a wide variety of food and cover, shelter from weather, and habitat for nesting, breeding, roosting, and loafing or resting. Acorns, nuts, seeds or fruits from various trees, shrubs, and ground-layer plants, are a ready source of food in this habitat type. It is important that steps be taken to enhance or develop the oak habitat type in your area to attract and sustain a healthy turkey population. If your area has few oak woodlands, is dominated by large blocks of

pine or seasonally flooded bottomland timber, management for mature oak forests will improve conditions for turkeys. If your oak forest is developing a dense undergrowth of red maples or similar shade-loving trees, you may need to take steps to remove them so oaks (which need more sunlight) have a chance to regenerate. Oak crop trees may need release from other crowding trees for better crown growth and acorn production. Contact a WDNR forester or wildlife manager for site specific advice.

When developing or managing your oak woodlands, it is important to keep in mind the physiological aspects of the oak family. Oaks are divided into the red and white oak groups, and although they both produce acorns, the production process is quite different between them. Acorns of the red oak group require 2 growing seasons to mature. These acorns begin to develop in the spring, drop in the second fall, and germinate the following spring. In contrast, acorns of the white oak group mature in the first growing season and germinate soon after dropping in the fall of the same year. Although acorns of the white oak group are more preferred by wildlife, planting or enhancing a mixture of members from both the red oak and the white oak families will provide a more reliable food source every year. For example, if you have an early frost one year that kills the budding acorns and you have a pure stand of red oaks, your forest will not have any acorns in two years. Had there been white oaks mixed into the stand, there would have at least been a reduced crop of acorns for that year.

Woodland management practices favoring open oak forests can secure quality habitat for turkeys for many years to come. Selective thinning, shelterwood cuts, clearcuts, post-cut treatments, or prescribed and controlled burning are individual prescriptions for individual woodlots. It is important to know which of these techniques is the right method to use on your property. Again, consult your WDNR forester or wildlife manager for advice. Forests that are not properly managed, or not managed at all, can become less attractive to turkeys and other wildlife.

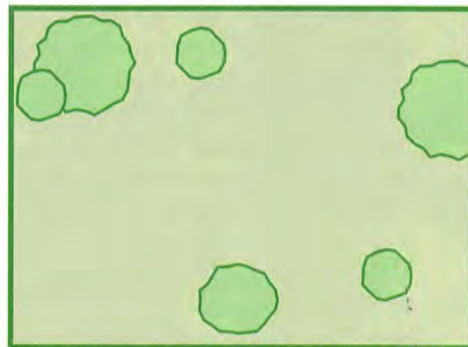
Follow these oak forest management steps when developing your turkey habitat.

Tree Harvest Considerations

- ◆ Do not high grade timber stands to eliminate oak. High grading is the process of cutting only the highest lumber grade trees from the forest and leaving the rest behind. This activity selects against oak and other valuable species, leaving behind low value trees to reproduce and compete for growing space.
- ◆ When clearcutting, avoid large cuts over 20 acres. Several small 5 acre clearcuts are much better for turkeys. Clearcuts with irregular edges and long, narrow shapes (i.e. powerlines) are more attractive to turkeys and other wildlife.
- ◆ Plan timber harvest and other management activities over time to provide a diversity of habitat types from openings to mature timber. Various age classes, 0-25, 20-50, 51-75, and 75+ years, should be interspersed in nearly equal proportions throughout a management area, retaining at least 25% of an oak forest in mature trees at least 75 years of age.
- ◆ Leave some mature oaks following harvest for sustained acorn production

and possible roost sites. Small groups of mast trees left standing will not appreciably affect timber production. Large crowned "wolf" trees often have low timber value, yet are good acorn producers. Oaks retained on upper slopes will ensure against the possibility of a mast failure, as late frost often destroys oak blossoms on low or perennially wet sites.

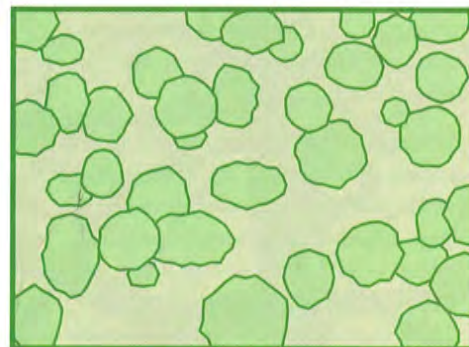
- ◆ Leave forest corridors of older trees uncut to link blocks of mature woodland.
- ◆ Promote oaks in mixed woodlands through shelterwood harvests which first concentrate on removing other tree species like maple, basswood, and elm. This will open up the woodland and allow more light to enter, which oak seedlings need. Leave the best quality, large oaks for at least another five to ten years to produce acorns for re-seeding the site. Additional work with cutting, herbicides, controlled fire, or mechanical disturbance to remove small non-oak stems and herbaceous vegetation, such as blackberry briars, may also be needed. The more moist and fertile the soils are, the more difficult it will be to renew oaks.



Clearcut

(sun-loving trees)

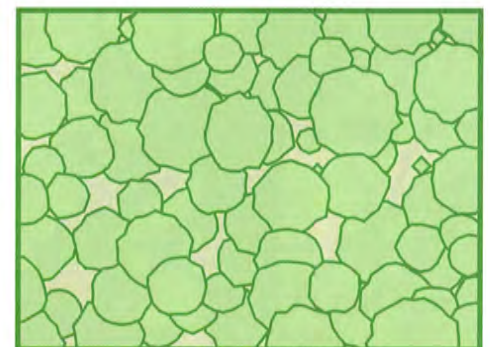
Aspen, Birch, Tamarack, Jack Pine, Red Pine, Black Spruce



Shelterwood

(Partial sun-loving trees)

Oak, White Cedar, White Spruce, Hickory



Selection

(shade-loving trees)

Ash, Basswood, Maples, Balsam Fir



Large trees with horizontal limbs make ideal roosting sites. Leave some pockets of these behind when harvesting timber. Photo by Jeff Engel

- ◆ On drier sites, like south facing slopes and sandy soils, the best harvest method to renew oaks are “even-age” cutting methods. Even-age cutting means that most of the overstory is eventually removed to favor sun-loving seedlings which all become re-established at about the same time (even-aged). Shelterwood cutting that removes the overstory in two or three harvests, a few years apart, is one even-age method. Another technique is small group selection cutting where patches up to four acres in size are clearcut. Seed comes from the adjoining uncut patches. Additional groups of trees would be cut a few years later. The third even-age harvest method is clearcutting. Clearcuts are effective for renewing oaks on drier sites where oak seedlings are common or where oaks are likely to resprout from the stumps.
- ◆ Delay normal harvest rotation of oaks in some areas to optimize acorn yields. Currently, the average harvest age for oaks in Wisconsin is around 90 years, which coincides with acorn production. Longer growth cycles (150-200 years for white oak and 100-140 years for red oak) for some trees will help maximize acorn production while they remain vigorous. Health monitoring of trees on extended rotations is important as the risk of loss from age-related pests increases, especially on less favorable sites. Another trade-off in growing older oaks is that larger diameter trees are less likely to produce stump sprouts, an important source of oak seedlings. (So don't put all of your acorns in one basket!)
- ◆ When planning a timber harvest, reserve known roosting trees. If you are not sure where turkeys are roosting, protect large, broad-limbed, open-branched hardwoods on south or east facing slopes, preferably at higher elevations. These trees are another potential source of acorns and can provide dens for squirrels, raccoons, and other wildlife.

- ◆ Remove or thin trees competing for growing space in a densely stocked forest to optimize acorn yields and favor oaks. Approximately 40-50 oaks per acre are probably optimal for acorn production. The more crown space an individual tree has, the greater its acorn production. That means spacing oak crop trees about 30 feet apart.
- ◆ Leave seed trees with good acorn production as parent stock where possible, because vigorous acorn production is affected, in part, by genetic quality.

Oak Regeneration

- ◆ Encourage oaks through natural regeneration, plantings, or a combination of these.
- ◆ Make sure enough oak regeneration is present before cutting the overstory so that oaks will grow back in the next stand. (Consult a forester.) Harvest should be delayed to coincide with a good acorn yield to improve prospects for regenerating oak.
- ◆ Encourage oak by reducing competition for growing space before and/or after harvest to improve oak survival. Thinning techniques that use chainsaws, axes, herbicides, prescribed fire or some combination of these methods, can be applied.
- ◆ Protect oak saplings from browsing or girdling by deer, rabbits and rodents. In open settings, tree shelter tubes made of translucent plastic *may* provide protection from feeding as well as improved tree growth. Grass and weed control can be effective to minimize mice and meadow voles which nest and hide in dense ground cover and tree tubes. Chemical repellents that deter animal browsing can be applied to saplings. In some situations, animal-proof fencing is also useful.
- ◆ Remove competing trees in young stands to favor oaks and other desirable species. This will improve timber

production as well as wildlife habitat by allowing more sunlight to encourage growth of trees and understory vegetation. Depending on the situation and tree species, it may be necessary to treat the stumps with a herbicide to prevent them from resprouting.

- ◆ Encourage various oak species to insure more consistent acorn yields. As mentioned earlier, planting a variety of oak species that produce acorns every year and every other year, will provide a more consistent food source.
- ◆ Avoid pruning of oaks during May-July when they are susceptible to oak wilt. Oak wilt is a fungus that can be spread from infected trees by insects (especially "picnic beetles"), air-borne spores, or connecting root systems. Healthy trees that are damaged by a windstorm, scarring, or otherwise injured are susceptible to infection. Trees in the red oak group are also more susceptible to infection.
- ◆ Avoid over-grazing of woodlands by livestock to protect oak regeneration, and various other woody and ground-layer plants that are valuable for wildlife.
- ◆ Discourage maple, ash or other woody species that compete with oaks for growing space and sunlight.
- ◆ Uncontrolled fires should be prevented, but a carefully and properly planned prescribed burn can benefit an oak woodland. Consult your local forester or wildlife biologist before conducting any burning in your oak woodland.

Conifers: Conifers, or evergreens, provide very little food for turkeys, but can provide good thermal cover during adverse weather. Conifer plantings should be kept under 5 acres in scattered clumps, or belts, and situated along the edge of old fields or natural openings, or in open park-like woodlands. They can also be used as links or travel corridors between oak woodlands and should be planted close to known feeding areas. Red and white pines are recommended, but spruce, fir and cedar are also suitable.

Trails and Openings: Openings are an important part of turkey habitat because they provide insects for broods in summer and fall, and seeds throughout the year. Openings also provide a reliable source of forage and are frequently used as strutting zones for toms and nesting areas for hens. Habitats in this category include trails, lanes, powerlines, and log landings. It is recommended that there should be at least 3 to 5 acres of openings for every 100 acres of forest. This typically isn't a problem in Wisconsin but where they are limited, openings can be created. Ideally, the best openings are small, well distributed throughout the landscape, and secluded. Openings should be 1/2 to 2 acres in size to provide adequate sunlight for plant growth. Openings that have irregular edges and long, narrow shapes are more attractive to turkeys because they provide additional "edge." Planting a mixture of warm and cool season grasses, forbs, and legumes in newly created openings will provide additional food and nesting cover, while still providing the strutting zones for the toms. Various species recommended for planting are given in this guide.

A variety of mast bearing trees and shrubs can be planted around openings to supplement the natural vegetation or to reforest large clearings and provide additional seclusion. Incorporating a variety of hard and soft mast producing trees around an opening will increase the diversity of the area and attract birds throughout the entire year.

Tips for Planting Trees and Shrubs:

Trees and shrubs are usually quite small when planted. To improve their chances of survival it is important to:

1. Obtain stock adapted to Wisconsin's climate.
2. Use bare root stock with good root systems.
3. Manage the planting site to discourage competing vegetation. This can be done with herbicides, mulch, mowing, burning, or grazing.
4. Manage the planting site to reduce browsing by deer. This can be done by using tree shelters. Adequate harvests of antlerless deer during the hunting seasons are also recommended.

Following timber harvest activities, planting logging trails and landings to a mixture of clover and grasses, provides secluded strutting and feeding areas for turkeys. Photo by Randall Hetzel



Species to Plant to Improve Turkey Habitat on Your Property

Common Name	Scientific Name	Habitat Specifications
Trees, Shrubs, and Vines		
White Oak Family		
Oak, White	<i>Quercus alba</i>	Grows 60'–100'. Prefers deep, moist soils with good drainage.
Oak, Bur	<i>Quercus macrocarpa</i>	Grows to 80'. Prefers moist, well-drained soils. Grows well in the open.
Red Oak Family		
Oak, Red	<i>Quercus rubra</i>	Grows 70'–90'. Grows throughout Wisconsin on the better sites.
Oak, Black	<i>Quercus velutina</i>	Grows 50'–75'. Prefers dry uplands. Susceptible to oak wilt.
Oak, Pin	<i>Quercus ellipsoidalis</i>	Grows 60'–80'. Widely distributed but grows well on wet clay soils.
Hickory, Shagbark	<i>Carya ovata</i>	Grows 60'–100'. Prefers moist, rich soils and well drained hillsides.
Hickory, Bitternut (Yellowbud)	<i>Carya cordiformis</i>	Grows 50'–75'. Prefers well-drained fertile soils in southern 1/2 of state.
American Hornbeam (Blue Beech)	<i>Carpinus caroliniana</i>	Grows to 30'. Prefers rich, moist soils and well-drained soils in the shade.
◆ Hazelnut, American	<i>Corylus americana</i>	Low growing shrub. Will grow in a variety of habitats.
Hazelnut, Beaked	<i>Corylus cornuta</i>	Low growing shrub. Will grow in a variety of habitats.
✱ Cocksaur Hawthorn	<i>Crataegus crus-galli</i>	Shrub or small tree with long thorns. Widely adapted to different soil types.
Mountain Ash, American	<i>Sorbus americana</i>	Small shrub or tree. Grows 45'–65'. Widely adapted to different soil types.
✱◆ Dogwood, Grey	<i>Cornus racemosa</i>	Small to medium shrub. Grows to 10'. Widely adapted to different soil types.
Dogwood, Red-osier	<i>Cornus stolonifera</i>	Small to medium shrub. Grows to 10'. Widely adapted to different soil types.
Dogwood, Alternate-leaf	<i>Cornus alternifolia</i>	Small to medium shrub. Grows to 10'. Prefers well-drained, moist soils.
✱ Nannyberry	<i>Viburnum lentago</i>	Tall shrub or small tree growing to 30'. Widely distributed on forest edges.
Mapleleaf Viburnum	<i>Viburnum acerifolium</i>	Short shrub growing 3'–6'. Prefers moist to dry forest areas.
Downy Arrowwood	<i>Viburnum rafinesquianum</i>	Grows 10'–15'. Prefers southern dry mesic soil types.
✱◆ Sumac, Staghorn	<i>Rhus typhina</i>	Small tree growing to 30'. Widely adapted and grows well in poor, dry soils



Cocksaur Hawthorn. Wild fruits (called soft mast) are relished by wildlife like turkeys. Fruits that persist into the winter are especially good. Photo by Randall Hetzel

Wild grape. Photo by Randall Hetzel



Common Name	Scientific Name	Habitat Specifications
Sumac, Smooth	<i>Rhus glabra</i>	Small tree growing to 15'. Widely adapted and does well in poor soils.
Hackberry	<i>Celtis occidentalis</i>	Small tree growing 30'–40'. Prefers rich, moist sites.
◆ Cherry, Black	<i>Prunus serotina</i>	Grows 50'–70'. Prefers rich, deep, and moist soil types.
Cherry, Pin	<i>Prunus pennsylvanica</i>	Grows 20'–30'. Prefers dry or moist woods and forest clearings.
Cherry, Choke	<i>Prunus virginiana</i>	Grows 20'–25'. Widely adapted throughout Wisconsin. Prefers edges.
* Crabapple	<i>Pyrus ioensis</i>	Widely adapted to different soil types but does well in wet soils.
◆ Raspberries, Blackberries, etc.	<i>Rubus spp.</i>	Widely distributed. Will grow in open areas along forest edges.
Serviceberry (Juneberry)	<i>Amelanchier arborea</i>	Small shrub or tree. Widely adapted to different soil types.
Apple	<i>Pyrus malus</i>	Grow to 20'–30'. Widely adapted to different soil types.
Wild plum	<i>Prunus americana</i>	Grows 15'–25'. Grows best on rich soils or in moist locations.
*◆ Wild grape	<i>Vitis aestivalis</i>	High-climbing vine. Prefers moist soil types. Can smother small trees.
* Winterberry	<i>Ilex verticillata</i>	Shrub growing to 15'. Prefers swamps and wet woodlands.
Lowbush Blueberry	<i>Vaccinium angustifolium</i>	Slow growing shrub. Prefers acid soils in relatively open woods or clearings.



Mountain Ash. Photo by Randal Hetzel

Smooth Sumac. Photo by Mary Salwey



- * These shrubs may provide fruits and/or seeds in winter, a desirable feature for wildlife.
- ◆ These species occur often in the wild, so that planting may not be practical.
- ⊕ These species are non-native to Wisconsin or are frequently used as crop species

Nesting cover and Brood forage

Forbs and Legumes

⊕ Alfalfa	<i>Medicago sativa</i>	Prefers well-drained soils. Mid-summer mowing will enhance new growth.
⊕ Red Clover	<i>Trifolium pratense</i>	Prefers sandy loam clay soils. Inoculate seed prior to planting.
⊕ White Clover	<i>Trifolium repens</i>	Does better in wet, acidic soils. Grows 1'–3'.
⊕ Hairy Vetch	<i>Vicia villosa</i>	Prefers moderate to well-drained soil types. Excellent cold hardy reseeders.
⊕ Buckwheat	<i>Fagopyrum esculentum</i>	Widely adapted to many soil types. Difficult to grow with high deer numbers.
Bush Clover	<i>Lespedeza capitata</i>	Low growing annual that does well on all soils except sands. Grows to 18."
Lupine	<i>Lupinus perennis</i>	Low growing plant. Prefers dry or moist sandy soils.
⊕ Soybeans	<i>Glycine max</i>	Difficult to grow in small plots due to deer. Prefers fertile, well drained soils.
⊕ Sorghum	<i>Sorghum vulgare</i>	Shorter, grain varieties are better for wildlife. Doesn't grow well on acid soils.
Sunflower	<i>Helianthus annuus</i>	Grows to 2'–4'. Widely adapted throughout Wisconsin.



[above] Berries that persist into winter are a good source of food when the snow gets deep. Photo by Robert Queen

[below] Native grasses, such as this Big Bluestem, provide excellent nesting cover. Photo by Mary Salwey



[right] Conservation tillage practices frequently leave large amounts of waste grain at the surface throughout fall, winter and early spring. DNR photos

Common Name	Scientific Name	Habitat Specifications
Grasses		
Big Bluestem	<i>Andropogon gerardi</i>	Widely adapted to differential types. Good for nesting cover.
Little Bluestem	<i>Andropogon scoparius</i>	Grows well on dry, sandy soils. Grows 2'–5'. Good for nesting cover.
Indiangrass	<i>Sorghastrum nutans</i>	Grows 3'–6'. Prefers fertile, well-drained soils. Good for nesting cover.
Switchgrass	<i>Panicum virgatum</i>	Grows 3'–5'. Prefers well or moderately well-drained soils. Good for nesting cover.
Smooth Brome	<i>Bromus inermis</i>	Prefers deep, fertile, well-drained silt or clay soils. Greens up early in spring
Kentucky Bluegrass	<i>Poa pratensis</i>	Widely adapted to different soil types. Short to medium height.
Orchardgrass	<i>Dactylis glomerata</i>	Prefers fertile, heavy textured soils. Does well in cool temperatures.
Wild Rye	<i>Elymus canadensis</i>	Prefers fertile, well-drained soils. Grows to a height of 1'–2'.
Millet, Japanese	<i>Setaria italica</i>	Well adapted to wet soils. Grows 2'–4'. Used during the fall and winter for food.
Grains		
Corn	<i>Zea mays</i>	Shorter varieties work better. Plant in square blocks rather than long strips.
Oats	<i>Avena sativa</i>	Widely adapted to various soil types. More cold sensitive than other small grains.
Sorghum	<i>Sorghum vulgare</i>	Grows 4'–15'. Use shorter, grain varieties for turkeys. Doesn't do well in acid soils.
Rye	<i>Elymus canadensis</i>	Prefers fertile, well-drained soils. Grows to a height of 1'–2'.
Wheat	<i>Triticum aestivum</i>	Widely adapted to many soil types. requires little attention and easy to grow.

- ✦ These shrubs may provide fruits and/or seeds in winter, a desirable feature for wildlife.
- ◆ These species occur often in the wild, so that planting may not be practical.
- 🌐 These species are non-native to Wisconsin or are frequently used as crop species

Different tilling techniques



Soil tilled but not turned over



Soil cover tilled under

Besides the woodland habitat improvement techniques mentioned, normal crop management practices can also provide many benefits to turkeys. Steps to take include:

- ◆ Using minimum or no-till practices that leave waste grains at the surface of the field. Avoid fall plowing to leave weed seeds available to turkeys, and prevent soil erosion.
- ◆ Using an integrated pest management system can reduce herbicide and insecticide use and decrease the negative impacts on wildlife populations.
- ◆ Planting or leaving food plots of corn, sorghum or other grains and legumes over winter, close to forest or brushy cover. The best food plots are square or nearly so. Leaving only a few corn rows results in the “snow fence” effect, and the food plot becomes essentially out of reach to wintering wildlife.
- ◆ Lightly disc idle areas, avoiding remnant prairies, to encourage annual weeds that produce seed. These same areas may be planted to white clover.
- ◆ Mixed plantings of corn and legumes in the same field provide food and cover for broods, in addition to winter food, if planted in large blocks.

Food plots may or may not be needed depending on the abundance of natural foods, waste grains left in crop fields, and expected snow depths. Food plots are probably more important in the northern portion of the turkey range because they may provide forage if deep snows persist. Food plots should be located near woodland cover and planted in square blocks rather than narrow strips. One to two-acre plots are usually sufficient, but up to ten acres may be necessary where deer numbers are high. Planting corn and sorghum are good choices when selecting what to plant because they withstand blowing and drifting snow and provide a food source above the snow during winter.

Artificial Feeding: Artificial feeding of wild turkeys is not recommended. At a population level, it is nearly impossible to make a substantial impact by feeding turkeys during



Concentrating birds at a feeding station makes them more susceptible to disease transmission. Photo by Neal Paisley

winter. Concentrations of turkeys are vulnerable to disease transmission through feces and close physical contact at feeding stations. Not only do feeding stations frequently promote disease transmission, but they are expensive to maintain. Since some over-winter mortality is likely to occur regardless of the amount of artificial feeding taking place, it is important to focus your efforts on habitat improvement to provide a reliable nutrition source. One good breeding season will completely counter the effects of a harsh winter. The most important thing landowners can do to attract turkeys is to provide adequate habitat with proper land management.

Water Sources: Water availability is rarely a problem for turkeys in the Midwest. Surface waters are readily available in most areas, and turkeys can survive without open water where foods and dew contain adequate moisture.

Predator Control: Predators do kill some turkeys, but in good habitat, this impact is greatly reduced. Predator control is not a feasible, cost effective option, and many predators, such as hawks and owls, are federally protected and may not be killed. An adequate availability of high quality habitat that provides escape cover, is the best defense against predators.

Stocking Game Farm Turkeys: In the past, well-intentioned groups and individuals

Food sources should be planted close to thermal cover to decrease travel in winter. DNR photo



Caged birds frequently lack the characteristics necessary to search out food and escape predators once released. Photo by Eric Lobner

By providing the proper habitat for wild turkeys, strutting toms will be calling Wisconsin home for many years to come. Photo by Herbert Lange



have stocked captive-reared wild turkeys in an attempt to re-establish turkeys in Wisconsin. These pen-reared birds lacked the necessary parental and genetic influences to develop the proper response to predators and other dangers. In addition to poor survival, game farm birds often carry diseases that can harm wild populations. Released pen-reared turkeys may also breed with wild turkeys resulting in future generations that are less adapted to the rigors of the wild. It is illegal to release turkeys without a permit from the Department of Natural Resources.

Domestic Poultry Concerns: Intermingling of captive, commercially bred turkeys or other poultry with wild turkeys, should be avoided. Poultry can appear quite healthy while carrying diseases that may be deadly to wild turkeys. Although medicated foods protect the captive birds, they may still carry diseases that can easily be transmitted to the wild turkey flock. In order to decrease the spread of disease, care should be taken to avoid spreading poultry manure in areas used by wild turkeys.

Support Conservation Organizations: Besides managing your land, you can also support the wild turkey program by joining a conservation organization that raises funds for turkey management. The National Wild Turkey Federation has more than 50 chapters in Wisconsin that raise funds for the turkey management program. Revenues are used for landowner and hunter education, landowner appreciation days, rewards for catching poachers, research, turkey restoration, equipment, food plantings, and cost-sharing for habitat improvements on public and private lands in Wisconsin and throughout the country.

Turkeys and You

Wild turkeys are an element of the original North American environment. They attract considerable interest among farmers, hunters, and landowners because they are large, conspicuous animals. Most Wisconsinites have welcomed the return of turkeys. However, some have a perception that turkeys may have a negative impact on agricultural crops and other wildlife in their area. Others are concerned about potential problems associated with hunters, such as trespass violations and property damage.





Raccoon tracks in mud



Agricultural Impacts:

Although turkeys are frequently seen in agricultural fields, they seldom cause any substantial crop damage since most of the foods eaten are waste grain or remains of unharvested crops. Turkeys, mostly hens with broods, are attracted to these areas due to the availability and abundance of insects in agricultural fields. In addition, turkeys are opportunists and eat crops damaged by deer, squirrels, raccoons, crows, and other wildlife. In an attempt to evaluate turkey crop damage, wildlife managers investigated many crop damage complaints that implicated turkeys, but only a few of those cases were confirmed to be caused by turkeys. In most cases, there is no crop damage at all, even though turkeys were noted in the area, and in other cases, turkeys were a secondary cause with the original damage caused by other wildlife such as deer, raccoons, squirrels, and meadow mice. For

example, turkeys consume corn that is knocked down by deer or raccoons during the night. The landowner sees the turkeys in the cornfield during the daylight hours and assumes that turkeys are responsible for damaging the crop when it actually occurred during the night. For more information, see the University of Wisconsin Agricultural Extension Publication: *Wild Turkeys; A Problem for Wisconsin Farmers?*, which is available at your local DNR Service Center.

In cases where turkeys may be causing damage, abatement measures can be taken. Landowners detecting crop damage caused by any species of wildlife should contact their local WDNR wildlife manager or personnel from the U.S. Department of Agriculture—Animal and Plant Health Inspection Service—Wildlife Services Section for assistance (800-433-0688).

Deer damage in corn field [above left], Raccoon damage in corn field [top], Early deer damage in corn field [above], Raccoon damage to corn [below], USDA Aphis-WS photos.





*Hen and brood in hay or oat field.
DNR photo*

Turkeys and Other Wildlife: Even though turkeys were once common in Wisconsin, their reintroduction has generated concern among some people that they may displace other wildlife. While it is true that turkeys, deer, ruffed grouse, squirrels, and other wildlife eat some of the same foods and occupy similar habitat, each species has specific needs. In some areas, turkeys increased to high levels following reintroduction, but populations have either declined or stabilized at lower densities. Occasional interaction does occur, but

turkeys do not force other animals out of their range or limit carrying capacity of other species in the same area.

Turkey Hunting: The tremendous success of the turkey reintroduction program has provided new opportunities for Wisconsin hunters through a spring hunting season that was initiated in 1983. By prescribing low hunter densities, maintaining conservative harvests, and allowing only the harvest of bearded turkeys, this season allows the turkey population to expand while still giving



Secluded fields are favorite locations for hens and broods in summer and flocks of turkeys in winter. Photo by Randal Hetzel



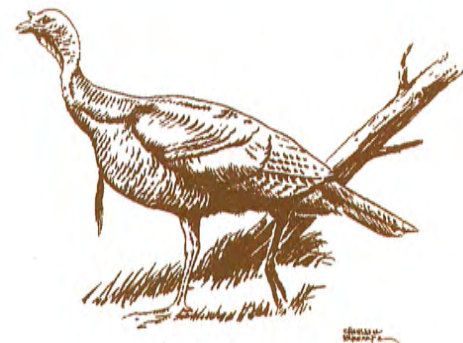
An abundance of ag crops and native fruits provide ample food sources for a variety of wildlife. Photo by Randal Hetzel



The reward of a successful day afield.
DNR photo

hunters an enjoyable experience. Since one gobbler can mate with many hens, harvesting only bearded turkeys does not affect the reproductive potential of the population. As the population continues to expand, the number of hunting permits increases and new zones are opened annually. In addition to the spring season, a fall either-sex hunting season began in 1989 to provide additional hunting opportunities. Since both toms and hens can be harvested during this season, permit numbers are limited to ensure that there is no negative effect on the population.

In general, turkey regulations in Wisconsin emphasize a quality hunt while optimizing hunter opportunity and safety. The spring season is designed to provide a high quality hunting experience by keeping hunter conflict at low levels and success rates at higher, biologically acceptable levels. The fall hunt also emphasizes quality while minimizing impacts on the next year's breeding population.



Old fields provide an abundance of insects for summer broods with a diversity of seeds used by turkeys in winter. Photo by Randal Hetzel



Crop edges near cover are attractive to turkeys. Hay is favored in summer while waste corn is used through winter and spring. Turkeys do minimal crop damage despite their numbers. Photo by Eric Lobner

For More Information:

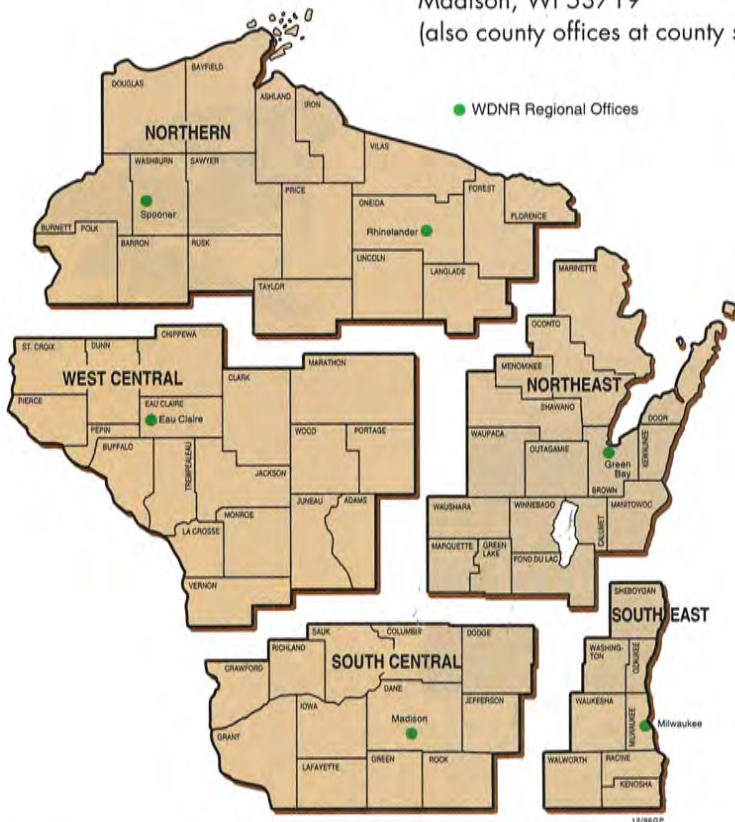
Where can I find additional help managing my land for turkeys?

For assistance in identifying the site specific habitat characteristics you can best manage for and which would most benefit turkeys, contact a professional forester or wildlife manager for advice. Many landowners are eligible to participate in the Managed Forest Law, a tax reduction program, if they agree to implement a management plan for their forest. Cost-sharing may be available for turkey management practices from sources such as the Turkey Stamp revenues.

Technical Assistance	TA
Cost-Sharing	CS
Plant Materials	PM
Equipment	EQ

(FSA) Farm Services Agency (CS)

U. S. Department of Agriculture
6515 Watts Rd.
Madison, WI 53719
(also county offices at county seat)



Extension Service (TA)

Dept. of Forestry or
Dept. of Wildlife Ecology
Russell Labs
University of Wisconsin
Madison, WI 53706
(also county offices at county seat)

Land Conservation Committee (TA, EQ sometimes)

(Located at each county seat)

The National Wild Turkey Federation (TA, PM)

National Office
P.O. Box 530
Edgefield, SC 29824
(803) 637-3106 (TA)
1-800-THE-NWTF (PM)

The Wisconsin Chapter of the National Wild Turkey Federation (TA, CS)

Regional Office
Route 1, Box 108
Westby, WI 54667
608-634-3886

Regional Office
18470 W. Michaels Rd.
New Berlin, WI 53146
414-543-6989

(NRCS) Natural Resources Conservation Service (TA)

U.S. Department of Agriculture
6515 Watts Rd.
Madison, WI 53719
(also county offices at county seat)

Wildlife Managers and Foresters (TA, CS, PM)

Department of Natural Resources

- South Central Region**
Fitchburg (608) 275-3266
- West Central Region**
Eau Claire (715) 839-3700
- Northern Region**
Rhinelander (715) 362-7616
- Northeastern Region**
Green Bay (920) 492-5899
- Southeastern Region**
Milwaukee (414) 263-8500





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