

Improving Habitats for Eastern Wild Turkeys on Your Property

Conducting a Habitat Evaluation

The eastern wild turkey (*Meleagris gallopavo silvestris*) is one of Missouri's most valuable and popular wildlife species (Figure 1). Populations exist across the state and provide landowners and hunters



Figure 1. Wild turkeys provide Missourians with a combination of recreational and wildlife-viewing opportunities.

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alike with enjoyable outdoor experiences that include observing wild turkeys and hunting during the fall and spring seasons. Many Missouri landowners are interested in managing their land to improve habitats for wild turkeys and other wildlife species.

This guide provides an overview of important habitat components that wild turkeys require and two evaluation tools that landowners can use as they make plans to enhance habitats on their property. An understanding of wild turkey biology and their habitat requirements is a first step for successfully implementing management practices on a property. To learn more, refer to MU Extension publication G9526, [Wild Turkey Biology and Habitat Management in Missouri](#) (extension.missouri.edu/publications/g9526) and [information on wild turkeys from the Missouri Department of Conservation](http://mdc.mo.gov/wildlife/mdc-management-plans/turkey-habitat-initiative) (mdc.mo.gov/wildlife/mdc-management-plans/turkey-habitat-initiative).

Wild turkeys use grasslands, forests, woodlands, croplands and other areas that provide suitable conditions for their survival. Known as opportunistic omnivores, they consume a wide variety of foods. Their diet — which includes grasses and forbs (i.e., broad-leaved flowering plants), hard and soft mast (i.e., nuts, seeds, fruits and berries), and insects — changes seasonally and contributes to their adaptability.



Figure 2. Wild turkeys can be found in a variety of habitats.

Turkeys have a relatively large home range of several thousand acres and generally do best in landscapes that are about half forested and half open. Open-canopied forests and woodlands provide escape cover, places to roost and loaf, and food in the form of soft and hard mast. Openings provide areas for courtship display, nesting and brood-rearing cover, grasses and forbs for adult food, and insects for poults (Figure 2).

Important habitat components required by eastern wild turkeys

Although wild turkeys have adapted to use a diversity of habitats throughout the year, research has shown that turkeys require specific conditions for producing a successful nest and for broods to survive. These habitat components are briefly described below.

Quality nesting cover

Eastern wild turkeys nest on the ground and lay a clutch of eggs within clumps of grass, leaf litter, downed tree tops, brushy areas or any type of thick understory vegetation. Hens create a shallow depression for a nest bowl. Although a variety of locations can provide nesting habitat, most nest locations are selected based on their ability to provide concealment cover. Woody plants, herbaceous vegetation, brushy areas, vines and fallow crop fields that are at least 18 inches in height can provide this type of concealment cover that may reduce the incidence of nest predation.

Figure 3 provides some examples of this type of habitat. The vegetation that provides this cover type typically occurs two to three years after a disturbance and generally consists of early successional plant communities that are either in the understory or intermixed with forest and woodland habitats.

Quality brood-rearing cover

For brood-rearing cover to be most beneficial — especially for poults — it must be located in close proximity to nesting cover. Quality brood habitat for eastern wild turkeys consists of three main elements:

- Vegetation that contains high densities of insects
- Vegetation that is tall enough to provide adequate overhead cover for poults but short enough to allow hens to see above it
- Vegetation that allows thermal cover for poults with enough bare ground so dewy or rain-soaked vegetation can be avoided when it is cold and provides enough shade to be cooler during the heat of the summer

Brood-rearing cover has been found to be one of the most limiting habitat components in the eastern wild turkey's range. This type of cover typically occurs about one to three years after a disturbance and consists of early successional plant communities that are less than 3 feet in height and dense enough to provide protective cover for poults but not so dense as to impede their movement in search of food. **Please note: The highest quality of brood-rearing cover often occurs during the first year after a disturbance.** After that first year, vegetation is often too thick to be considered high-quality brooding cover. By the third year after disturbance, the site is, in most cases, not quality brood-rearing cover. Rotating disturbance on a three-year cycle is, therefore, ideal for providing nesting and brooding cover on a property.

During the first few weeks of life, wild turkey poults are dependent on protein obtained from invertebrates. Many insects, such as grasshoppers and beetles, are associated with new, tender vegetative growth that occurs after a disturbance. Patchy winter burns and other types of disturbances, such as strip disking and timber



Figure 3. Quality nesting cover for wild turkeys can be found (from left) in forest and woodland habitats that have an open understory coupled with overhead protective cover and in fields made up of native grasses and forbs or fallow crop fields.

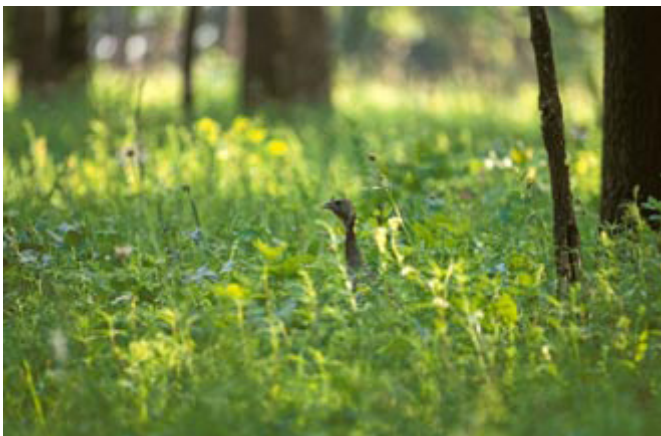


Figure 4. These photos depict the attributes of quality brood-rearing cover: open understory within forest and woodland habitats that provide protective overhead cover for the poults to locate food. This type of cover is most beneficial and primarily occurs after a recent disturbance, such as prescribed fire or another management practice that encourages early successional vegetation and promotes areas that are accessible for hens and poults.

stand improvements, can produce a mosaic of these insect-production areas, serving as both nesting and brood-rearing habitat. Figure 4 provides examples of the type of cover required for broods.

Quality roosting cover

Adult wild turkeys depend on a certain amount of woodland and forest habitat for roosting cover. In

addition, as poults begin to fly, tree roosts with lower limbs, such as trees in the midstory, are important for their survival. Trees are found within most landscapes in Missouri, and thus this habitat component is not usually limiting within their home range.

Take action to improve habitat

Habitat and the diversity of vegetation on a property that wild turkeys require, regardless of its size, can be enhanced by conducting a variety of management practices to help ensure these habitat components are in place (Figure 5). One of the first steps is to evaluate the current habitat conditions to identify any deficiencies, or

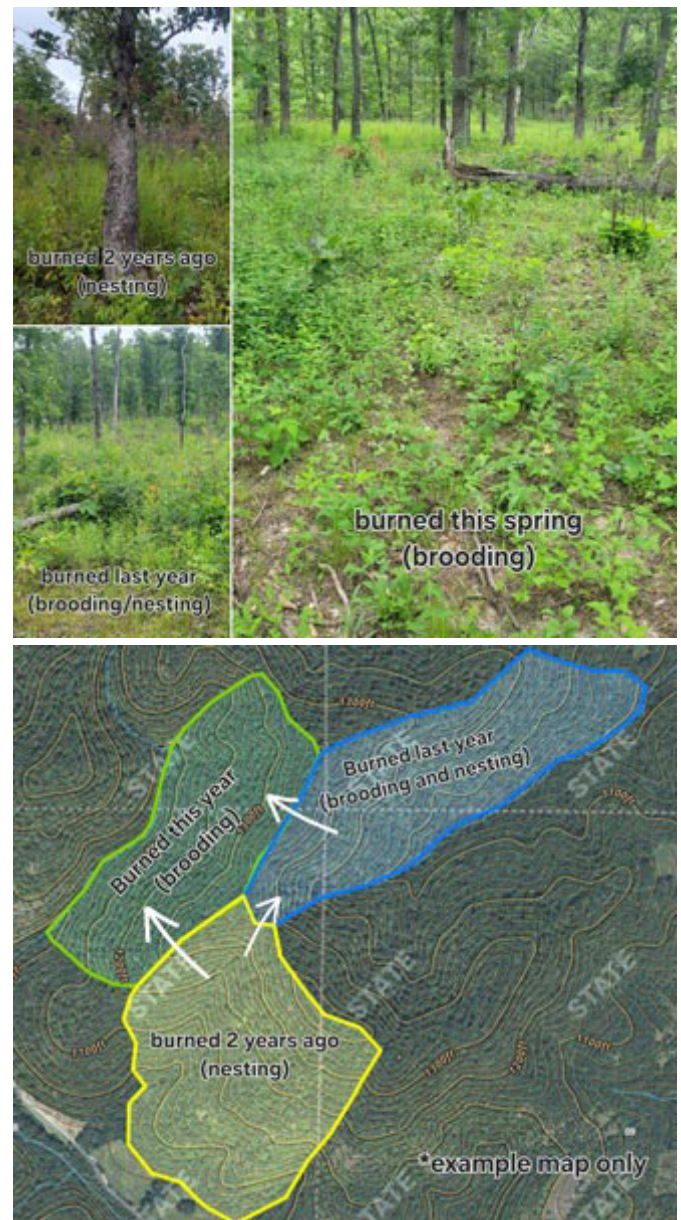


Figure 5. These photos depict examples of early plant succession resulting from a disturbance, such as a prescribed burn, and the nesting and brood-rearing habitat that is created one to two years after the practice is conducted.

limiting factors. This evaluation will help to determine the appropriate management practices to implement for wild turkeys.

Limiting factors are habitat components that may be in short supply and, as a result, restrict a population's size or geographical range. The purpose of a habitat evaluation is to identify limiting factors on a property or landscape so they can be addressed and habitat can be enhanced.

Importance of evaluating habitat conditions

The habitat components required by eastern wild turkeys are often a byproduct of land use, whether it be forest or agricultural production. However, food and cover for turkeys can be enhanced through various habitat management practices, such as conducting timber stand improvement practices or managing grasslands that promote native grasses and forbs through the appropriate use of disturbance regimens such as prescribed fire or managed grazing. A habitat evaluation helps to determine what may be lacking and helps guide the implementation of management practices that will improve the area and accomplish management objectives.

The habitat evaluation worksheets rate the current condition of the property for its ability to provide suitable habitat for wild turkeys and identify the habitat components that are in short supply — the limiting factors. This information will help determine what management practices to conduct to improve conditions in areas where habitat is lacking or limited quality.

This information can help guide the development of a habitat management plan not only for wild turkeys but also for numerous other wildlife species that benefit from similar management. As previously mentioned, wild turkeys have a home range of several thousand acres. Thus, a property may not be large enough to provide all the important habitat components that wild turkeys require. However, maps can be used to evaluate the larger landscape of which the property is a part. Evaluating habitat and working with neighboring landowners can be an effective approach to improving habitats across larger acreages of land.

Note that it may not be realistic or possible to conduct habitat management for wild turkeys on small acreage properties that are located within extensive areas of extremely poor wild turkey range. The habitat evaluation will likely indicate that the landowner will not receive an adequate return on investment for making habitat improvements due to the poor habitat condition on the

surrounding land nor significantly influence wild turkey populations.

Successful evaluation of habitat requires an aerial photo of the property or area being managed and observation of the existing habitat conditions on the area. Aerial photos can be obtained through these websites:

- [MU Center for Applied Research and Environmental Systems](http://allthingsmissouri.org/missouri-map-room) (allthingsmissouri.org/missouri-map-room)
- [Google Earth](http://earth.google.com) (earth.google.com)

Use your observations and the information obtained from the aerial photos and maps to assess the overall condition of existing habitat. On the habitat evaluation worksheets, rate the habitat components on the property and rank their current condition using the point values provided.

Wild turkey habitat evaluation worksheets

The following two habitat evaluation worksheets were developed to help assess the current conditions of a property to provide quality habitat for wild turkeys. Each of these worksheets can be used to identify important habitat components that wild turkeys require throughout the year and to identify those components that may be limiting. One or both worksheets can be used to evaluate specific tracts of land or the overall landscape in the area at the turkey home range scale of at least 5,000 acres.

Each of these worksheets will serve to identify important habitat components that may be in short supply and need to be addressed. Please note that the attributes of nesting and brood-rearing habitat may significantly overlap. However, the criteria identified in the habitat evaluation worksheets should help to determine the quality of each of those components on the property or within a defined landscape. The optimal time of year for conducting a habitat evaluation is in the spring and summer months, as rating certain habitat criteria — insect abundance, vegetative height, etc. — may be easier to accomplish.

Habitat scale within a defined landscape

The purpose of conducting a habitat evaluation is to identify limiting factors on a property or defined landscape so they can be addressed and habitat can be enhanced. Wild turkeys typically range over several thousand acres; thus, habitat scale becomes a necessary consideration. It is important to determine how the habitat components on the property fit into habitat provided at a larger landscape scale of 5,000 acres or more.

Wild Turkey Habitat Evaluation Worksheet 1

This habitat evaluation worksheet rates a property's current habitat condition for wild turkeys based on certain habitat-type categories and descriptions. The results will express a point total for each of the three important habitat components — forest/woodland, nesting habitat and brood-rearing cover. Once each of the habitat components has been assessed, sum the total point value for each to obtain a habitat rating for the property. In addition, a cumulative point value for the overall habitat quality rating of the property can be obtained.

Condition of the forest/woodland habitat and its proximity to agricultural land uses (14 points maximum)

1. Percent of the forest/woodland comprised of mast producing trees (food) (5 points maximum)

Less than 25% (0 points)

25% to 50% (3 points)

Greater than 50% (5 points)

The availability of hard mast provides a valuable food source and woodlands/forests provide an important habitat component.

2. Diversity of hard mast producing trees (food) (5 points maximum)

Red and white oak species present (5 points)

Mast producing trees are primarily of one oak species (3 points)

No diversity of oak species (0 points)

Oaks are certainly the preferred species for producing hard mast and having both red and white oaks is beneficial. White and red oaks flower at different times during the spring and drop their acorns at different times during the fall, thus it is advantageous to have a diversity of oak species as an insurance policy against a mast failure.

3. Proximity of forest and woodland habitats to fields of large-seeded grain crops with at least 5 acres of the crop left standing (food) (3 points maximum)

1 mile or less (3 points)

Greater than 1 mile (0 points)

Crop fields provide a favorable winter food source; pastures used for forage and hay also provide important sources of foods.

4. Percent of the property in mature trees (roost sites) (1 point maximum)

Greater than 25% (1 point)

Less than 25% (0 points)

Trees provide important roost sites and, although they are seldom a limiting factor in Missouri, they are still an important habitat component to consider.

Habitat quality rating for forest/woodland habitat and proximity to agricultural land uses

Excellent: 11 to 14 points | **Good:** 9 to 10 points | **Poor:** 0 to 8 points

Availability and condition of nesting cover (31 points maximum)

1. Percent of the property forested (thermal cover, nest sites) (5 points maximum)

Less than 25% (1 point)

25% to 75% (5 points)

Greater than 75% forested (2 points)

A mixture of woodland, forest and open land distributed across a large landscape provides optimal conditions for wild turkeys.

2. Percentage of the open field acres that is in row crops, a food plot, or a cool-season or sod-forming grass, such as tall fescue or brome pasture (cover) (5 points maximum)

Less than 25% (5 points)

25% to 50% (2 points)

50% to 75% (1 point)

Greater than 75% (0 points)

Open field habitats include pastures, grasslands, fallow areas and old field habitats that do not contain trees and shrubs. Row crop fields are not included in this designation.

3. Percentage of open field acres that have a woody vegetation component (cover) (3 points maximum)

Less than 25% (2 points)

25% to 50% (3 points)

50% to 75% (1 points)

Greater than 75% (0 points)

4. Percentage of field edges that transition directly from forested to open habitat (hard edge) versus transitioning from forest to shrubs or brushy habitat and then to open habitat (soft edge) (cover) (3 points maximum)

Less than 25% in a soft edge (0 points)

25% to 50% in a soft edge (1 point)

Greater than 50% in a soft edge (3 points)

Turkey nests are often located near field edges and diverse early successional vegetation in these areas is beneficial.

5. Percent canopy cover within the forested area (3 points maximum)

Less than 25% (1 point)

25% to 75% (3 points)

Greater than 75% forested (0 points)

Canopy cover directly impacts the amount of sunlight that reaches the forest floor. More sunlight leads to a more robust and diverse plant community on the forest floor, which is generally beneficial to turkeys and poults.

6. Time since disturbance within forested or woodland acreage (cover)

Includes practices such as timber stand improvement and prescribed fire in forested areas and disking, herbicide application, prescribed fire and haying and grazing in open areas.

Forested and woodland areas (7 points maximum)

1 to 2 years (7 points)

3 to 4 years (3 points)

5 or more years (0 points)

Grassland fields, pastures and other open areas (5 points maximum)

1 to 2 years (5 points)

3 to 4 years (3 points)

5 or more years (0 points)

Management practices that create a disturbance help maintain an early successional plant community which provides habitat for nesting.

Habitat rating for nesting cover

Good: 26 to 31 points | **Fair:** 12 to 25 points | **Poor:** 0 to 11 points

Availability and condition of brood cover (55 points maximum)

1. Percentage of property in a woodland or forest (thermal cover, escape cover) (5 points maximum)

Less than 25% (3 points)

25% to 75% (5 points)

Greater than 75% (1 point)

Recent research indicates that wild turkey hens may seek forested areas as thermal refuge from heat, more so than cold weather. If unmanaged, however, forested areas provide relatively poor brood cover.

2. Average percentage of forest canopy cover (food, cover) (5 points maximum)

Less than 25% (3 points)

25% to 75% (5 points)

Greater than 75% (0 points)

3. Percentage of open field acreage that have a woody vegetation component (cover) (5 points maximum)

Less than 25% (5 points)

25% to 50% (2 points)

Greater than 50% (0 points)

4. Median vegetation height within the open field acreage (cover) (5 points maximum)

- Less than 10 inches (2 points)
- 10 to 36 inches (5 points)
- Greater than 36 inches (0 points)

5. Time since disturbance within the forested and open land acreage (cover)

Disturbance with a forested area, such as timber stand improvement, timber harvest, prescribed fire, etc. (10 points maximum)

- 0 to 1 year (10 points)
- 1 to 2 years (2 points)
- 3 or more years (0 points)

Disturbance within open acreages, such as herbicide application, disking, prescribed fire, livestock grazing etc. (10 points maximum)

- 0 to 1 year (10 points)
- 1 to 2 years (2 points)
- 3 or more years (0 points)

The plant community that provides the greatest quality brood-rearing habitat typically occurs during the year after a disturbance, thus given the highest rating.

6. Percentage of property accessible, within 100 meters, by road/path (connectivity) (5 points maximum)

- Less than 25% (1 points)
- 25 to 50% (2 points)
- 50% to 75% (3 points)
- Greater than 75% (5 points)

Trails, especially those that are covered in grass and forbs (see No. 7 below), provide safe travel routes between nesting and brooding sites. They also function as fire breaks, which will help facilitate future habitat management.

7. Percentage of trail system covered in grass/forbs (cover, food) (5 points maximum)

- Less than 25% (0 points)
- 25 to 50% (2 points)
- 50% to 75% (3 points)
- Greater than 75% (5 points)

8. Habitat features found at the landscape level (5 points maximum)

Percentage of the 3,000 to 5,000 acres surrounding the property in a woodland or forest habitat.

- Less than 25% (1 point)
- 25% to 75% (5 points)
- Greater than 75% forested (2 points)

Habitat quality rating for brood-rearing cover

Good: 45 to 55 points | **Fair:** 22 to 54 points | **Poor:** 0 to 21 points

Overall habitat quality rating

Sum the ratings of the three habitat components.

Forest/woodland/ag land uses + Nesting cover + Brood-rearing cover

Excellent: 75 to 100 points | **Good:** 41 to 74 points | **Poor:** 0 to 40 points

In this worksheet, the value of the **brood-rearing cover habitat** component carries the greatest weight in terms of point value because brood-rearing cover has been found to be a critical habitat component and is often the most limiting across many landscapes in Missouri. The value of the **nesting cover habitat** component is next in terms of importance. **Roosting cover** is important but is not usually a limiting factor in most locations.

Wild Turkey Habitat Evaluation Worksheet 2

This habitat evaluation worksheet is organized around several key habitat components that are required by wild turkeys. It assumes that these habitat components — nesting, brood-rearing and roosting — are available on the property and provides a process for rating each of them based on specific criteria. This worksheet also provides a process for rating the availability of additional resources that wild turkeys require — food, water and accessibility to habitats that provide escape and thermal cover. Some of the criteria identified, such as insect availability within brood-rearing habitat, will require that the habitat evaluation be conducted during the spring and summer months.

HABITAT COMPONENTS

Nesting habitat (20 points maximum)

- 1. Vegetation density at the ground-level (5 points maximum)
Assess the amount of cover at the ground-level to 36 inches in height.
Bare ground or very sparse cover (0 points) _____
Moderate cover: 25% to 50% ground cover (2 points) _____
Higher levels of cover: 50% to 75% ground cover (5 points) _____
Thick cover: 75% to 100% ground cover (2 points) _____
- 2. Vegetation height (10 points maximum)
Vegetation height of 12 to 18 inches (5 points) _____
Ideal nesting cover heights of 18 to 36 inches (10 points) _____
Vegetation height of more than 36 inches (0 points) _____
- 3. Proximity to edge (5 points maximum)
Score based on proximity to open grassy cover less than 36 inches in height.
Quality nesting cover is located within or adjacent to a field edge or is a managed woodland with greater than 40% herbaceous cover (5 points) _____
Available nesting cover is not located near — within 30 feet of — or adjacent to a field edge, or is a woodland with greater than 60% woody cover (0 points) _____

Quality rating for nesting habitat

Brood-rearing habitat (40 points maximum)

- 1. Insect availability within brood-rearing habitat: presence of insects for poults (10 points maximum)
No insects observed (0 points) _____
Some insects but not widespread (2 points) _____
Adequate insect availability, insects observed within two paces (5 points) _____
Abundant insect availability, insects observed during each step (10 points) _____
- 2. Vegetative diversity within brood-rearing habitat: mix of grasses, forbs and shrubs (15 points maximum)
Pastures and fields are primarily composed of cool-season grasses and legumes with little shrubby cover (5 points) _____
Pastures and fields are composed of a monoculture of cool-season grasses such as tall fescue with no shrubby cover available (0 points) _____
Pastures and fields are primarily composed of forbs and mixtures of native grasses that include shorter-statured grasses, such as little bluestem and side oats grama, as opposed to switchgrass and Indiangrass (15 points) _____
- 3. Degree of open space within brood-rearing habitat: openings of vegetation at ground-level for easy movement of poults (15 points maximum)
One to two year disturbance regimen is conducted to maintain early plant successional communities with open ground cover (15 points) _____
Four or more years since a disturbance, or little or no management has been implemented to maintain early stages of plant succession (0 points) _____

Quality rating for brood-rearing habitat

Roosting habitat (5 points maximum)

Presence of large mature trees suitable for roosting across the area (5 points) _____

Large mature trees are not present on the area (0 points) _____

Quality rating for roosting habitat

AVAILABILITY OF IMPORTANT RESOURCES ON THE PROPERTY

This section of the worksheet provides a process for evaluating important resources that wild turkeys require, including food and water, and vegetation that they avoid, including thick, brushy stands. Each can be rated on a scale of 0 to 5 points.

Food resources (15 points maximum)

Hard mast availability: presence of oak trees and other mast-producing species (0 to 5 points) _____

Diversity of food sources: variety of seeds, soft mast (i.e., fruit) or agricultural crops (0 to 5 points) _____

Foods are available during each season: consistent food supply throughout the year (0 to 5 points) _____

Quality rating for food resources

Water sources (5 points maximum)

Present (5 points) _____

Absent (0 points) _____

Quality rating for water sources

Shrub cover (5 points maximum)

Evaluate the density of shrubs for usable turkey space (not including hardwood trees less than 15 feet tall)

More than 50% of the stand/property is comprised of woody cover greater than 36 inches tall (0 points) _____

Less than 25% of the stand/property is comprised of vegetation taller than 36 inches in height (5 points) _____

Quality rating for shrub cover

Overall habitat component and important resource availability rating

Sum the ratings of the habitat components and availability of important resources.

Nesting habitat + Brood-rearing habitat + Roosting habitat + Food resources + Water sources + Shrub cover

Excellent: 70 to 80 points | **Good:** 45 to 69 points | **Poor:** 0 to 44 points

Address the limiting factors

After using the habitat evaluation tools to rate the quality of existing habitat for wild turkeys, action can be taken to conduct management practices that address the limiting factors that have been identified. Here are two examples of how to use the evaluation results to identify potential deficiencies on an area.

If the property consists primarily of woodland or forest, consider these questions:

- Does the area have enough openings that provide the early successional vegetation ideal for wild turkey nesting and brood-rearing?
- Does the forest and woodland contain a diversity of mast-producing oaks and not an overabundance of lower-quality elms, maples and thick, brushy cover?
- Has a disturbance regimen, such as timber stand improvement or prescribed fire, been adopted to maintain the quality of the forest or woodland habitat for wild turkeys?

If the area consists primarily of pastures and cropland, consider these questions:

- Are adequate amounts of vegetative cover located nearby that can provide nesting and brood-rearing habitat and hard mast that provide sources of food?
- Are trees and shrubs needed to provide food and cover?
- Do management practices need to be conducted in grasslands to address a lack of brood-rearing cover?

Considering these types of questions will help to determine the appropriate combination of management practices that will enhance the overall habitat quality for wild turkey on the property and the larger landscape.

Conclusion

Wild turkeys typically have a large home range, using habitats across several thousand acres. Although many Missouri landowners do not own or control large enough properties to effectively manage for a population of wild turkeys, they can manage their smaller acreages to provide quality habitat and take in consideration how their property fits into the larger landscape. Where landownership patterns consist of many small parcels, managing for wild turkeys can be effective when neighbors work together toward similar management goals. Managing a large area provides

additional opportunities to implement beneficial management practices on a larger scale. Many of these habitat practices may also benefit other wildlife species of interest, such as white-tailed deer, bobwhite quail, cottontail rabbits and numerous songbird species.

Developing a habitat management plan for your property is an important step in improving the conditions for wild turkey and other wildlife. Before you can develop an effective plan, you need to know and identify the habitat conditions that currently exist. Habitat can be evaluated in several ways. This guide provides two worksheets that landowners can use to assess the quality of habitat for wild turkeys on an area.

Contact a private land conservationist with the [Missouri Department of Conservation](https://mdc.mo.gov/contact-us) ([mdc.mo.gov/contact-us](https://mdc.mo.gov)) or a specialist at your local [MU Extension center](https://extension.missouri.edu/locations) (extension.missouri.edu/locations) for more specific information or assistance in evaluating habitat and developing a wildlife management plan that features wild turkeys for your property.

Additional resources

Missouri Department of Conservation, [Turkey Habitat Initiative](https://mdc.mo.gov/wildlife/mdc-management-plans/turkey-habitat-initiative) (mdc.mo.gov/wildlife/mdc-management-plans/turkey-habitat-initiative)

Missouri Department of Conservation, [Turkey Management](https://mdc.mo.gov/your-property/improve-your-property/wildlife-management/turkey-management) (mdc.mo.gov/your-property/improve-your-property/wildlife-management/turkey-management)

MU Extension publication G9414, [Managing Oaks for Acorn Production to Benefit Wildlife in Missouri](https://extension.missouri.edu/publications/g9414) (extension.missouri.edu/publications/g9414)

MU Extension publication G9415, [Integrating Woodland and Wildlife Management Practices on Your Property](https://extension.missouri.edu/publications/g9415) (extension.missouri.edu/publications/g9415)

MU Extension publication G9526, [Wild Turkey Biology and Management in Missouri](https://extension.missouri.edu/publications/g9526) (extension.missouri.edu/publications/g9526)

[National Wild Turkey Federation](https://nwtf.org) (nwtf.org)

Photographs for Figures 1 through 4 are courtesy of the Missouri Department of Conservation, and Figure 5 is courtesy of Will Rechkemmer with the Wild Turkey Federation.