

Wild Turkey

Meleagris gallopavo

Last updated: 1999



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GENERAL RANGE AND WASHINGTON DISTRIBUTION

Wild turkeys (*Meleagris gallopavo*) are native to North America. They have been successfully introduced into approximately 10 states outside of what is thought to be their ancestral range. They currently occur in 49 states, three Canadian provinces, and northern Mexico (Kennamer et al. 1992).

Three subspecies of wild turkey have been introduced in Washington. Merriam's turkeys occur in the northeastern and south-central part of the state, eastern wild turkeys occur west of the Cascades, and Rio Grande turkeys occur in the southeastern corner and scattered locations in the central part of the state (see Figure 1).

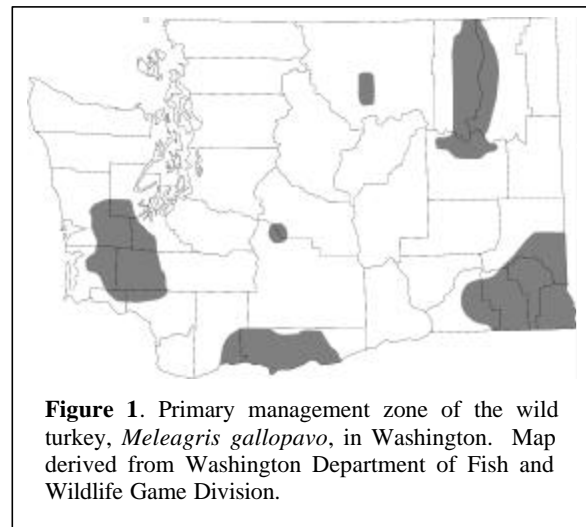


Figure 1. Primary management zone of the wild turkey, *Meleagris gallopavo*, in Washington. Map derived from Washington Department of Fish and Wildlife Game Division.

RATIONALE

Wild turkeys are a state game species and have high recreational value both for consumptive and nonconsumptive purposes. They are vulnerable to habitat loss or degradation.

HABITAT REQUIREMENTS

Wild turkeys are habitat generalists, adapting to a variety of conditions across their range (Dickson et al. 1978). However, the 2 habitat features wild turkeys depend on are trees and grasses. Trees provide food, escape cover, and roost sites, while grasses provide food for adults and an environment that allows poults (juvenile turkey) to efficiently forage for insects (Porter 1992).

Turkeys have been introduced to Washington and are established in a variety of habitats, though each population exists in habitat similar to that from which it came. Turkeys in western Washington are from the eastern subspecies, and occur in forests with open understories interspersed with agricultural areas and natural openings. Turkeys in

northeast and southern Washington are native to the southwestern United States (Merriam's subspecies), and use hardwood draws and riparian areas associated with mature ponderosa pine. They are also associated with pine-oak habitats in south-central Washington. Turkeys in southeast and central Washington are from the Rio Grande subspecies, which originated in the south-central United States. They have become established in very open areas, such as open ponderosa pine, grasslands, and shrub-steppe interspersed with agricultural areas.

Nesting

Turkeys nest in a variety of habitats, though the key component appears to be lateral or horizontal cover (Porter 1992). Horizontal cover includes terrain and/or dense woody and herbaceous vegetation that helps conceal the nest (Beason and Wildon 1992, Hurst and Dickson 1992, Lewis 1992, Shaw and Mollohan 1992, Wunz and Pack 1992). These conditions are found in timbered stands with a dense understory, fields, clearcuts, utility right-of-ways, young pine plantations, and some agricultural fields. In south-central Washington, Mackey (1982) noted that turkey nests were typically found at the base of a tree, partially covered by dead limbs or understory vegetation, in oak, oak/pine, or oak/fir forest types.

Shaw and Mollohan (1992) described Merriam's turkey nest sites as having complete protection on one side (either dense vegetation or terrain), dense cover on the remaining 3 sides between 0.0 m and 0.5 m (0-1.5 ft), and unrestricted visibility on 3 sides from 0.5 m to 0.9 m (1.5-3.0 ft). Also, nest sites had relatively solid cover 2.4-3.7 m (8-12 ft) above the nest and a forest canopy overhead. In south-central Washington, turkeys were found nesting in areas with understory height averaging 63 cm (25 in), understory canopy coverage of 36%, and forest canopy coverage of 70% (Mackey 1982). In parts of Washington without oak, turkeys nest in stands of other timber species with characteristics similar to that found by Mackey (1982) in south-central Washington.

Brood Range

Porter (1992) described three ingredients essential for brood habitat during the first 8 weeks after hatch. First, there must be an environment that produces insects and in which poults can efficiently forage. Additionally, good brood habitat must have features to permit frequent foraging throughout the day. Lastly, brood habitat must provide enough cover to hide poults while simultaneously allowing the adult female an unobstructed view to avoid predators. All of these must occur within a relatively small area because the weekly home range of a turkey brood has been reported as only 30 ha (75 ac) and a total summer home range of 100 ha (250 ac) (Speake et al. 1975, Porter 1980).

Brood habitat for wild turkeys consists of timbered areas adjacent to grassy openings. Grassy, herbaceous areas provide poults with insects for forage and cover from predators. Trees are also needed for thermal cover to protect poults from cold, wet conditions, particularly during the first 2 weeks after hatching, and as escape cover once poults can fly (10-12 days after hatching). Ideal brood habitat in Minnesota has been described as a 4:1 field-to-forest ratio (Porter 1980). Vegetation approximately 30-70 cm (12-28 in) in height allows poults to hide while allowing females to see predators (Porter 1980). Edge is important because broods usually remain near the field-forest ecotone during the first 2 weeks after hatching and later venture further into openings. Habitats meeting such conditions include forest stands interspersed with pastures and hayfields, utility right-of-ways, savannas, and cutover lands in early stages of succession.

In south-central Washington, broods were found to prefer oak and pine/oak habitats over open rangeland habitats during the first 2 weeks after hatching (Mackey 1982). This was probably because these forest types are very open (51-60% canopy coverage) and can provide an adequate insect prey base as well as cover. In parts of the state with denser forest canopy, interspersed of open areas will be much more important for brood habitat.

Roosting

Stands providing good roosting habitat are sheltered from prevailing winds and contain tall, large diameter trees with sizable horizontal branches, high canopy coverage and basal area (Hoffman 1968, Boeker and Scott 1969, Crockett 1973, Hauke 1975). Single large trees are apparently not used for roosting unless they are associated with a stand (Phillips 1980, Mackey 1984). In south-central Washington, Mackey (1982) found that only Douglas-fir stands met the criteria of good roosting habitat as listed above, though he did find smaller sized ponderosa pine and oak trees used as well. In Oregon, roosts are typically located in multi-layered, mature, mixed-conifer cover types, specifically ponderosa pine and Douglas-fir in the winter and ponderosa pine in the spring (Lutz and Crawford 1987a). In Montana, Jonas and Eng (1964) found that turkeys most often used mature ponderosa pine communities for roosting.

Fall and Winter

During fall and winter, turkeys switch to habitats that offer the best food resources, environmental conditions, and thermal cover for protection from colder temperatures and snow. Typically, this means greater use of stands of larger trees with greater canopy coverage and basal area; springs, seeps, and other riparian areas with denser vegetation; and areas with more abundant hard mast. It also means a decreased use of open areas (Beasom and Wilson 1992, Hurst and Dickson 1992, Shaw and Mollohan 1992, Wunz and Pack 1992). Turkeys may also exhibit an increase in flocking behavior during winter, particularly if available food is concentrated in specific areas (Thomas et al. 1966, 1973; Wunz and Pack 1992).

Food

Poults feed exclusively on high protein invertebrates in the first and second week after hatching, and by the third week they have switched to a diet dominated by plants (Jonas and Eng 1964, Rumble 1990, Hurst 1992, Rumble and Anderson 1996). The diet of both juvenile and adult turkeys is comprised of 75-85% plant matter and the remainder animal matter (Hurst 1992). Important year-round food items include fruits, grains, hard masts, insects, and the green leaves, flowers, and seeds of grasses, forbs, and sedges (Jonas and Eng 1964, Smith and Browning 1967, Burke 1982, Mackey 1982, Wise 1987, Rumble 1990, Hurst 1992, Rumble and Anderson 1996). During spring and summer, wild turkeys often prefer natural grassy meadows and agricultural fields due to the abundance of insects found within them (Burke 1982). Mast-producing tree and understory species are also an important food source (Wunz and Pack 1992). In fall and winter when green vegetation becomes scarce, turkeys switch to a diet composed more of grass seeds, fruits, ponderosa pine nuts, acorns, and other hard mast. Agricultural crops (wheat, barley, oats, legumes) also can serve as a valuable fall/winter food source. During the winter months, turkeys have been observed feeding on cow manure spread on croplands, corn stubble, and hay strips bordering fields of stubble corn (Vander Haegen et al. 1989).

Water

Turkeys can meet their needs for moisture through berries and other succulent vegetation when available. Whether or not turkeys drink water appears to depend on its availability and the ability of food items to provide moisture (Wunz and Pack 1992). When forage cannot meet their needs, turkeys obtain water from pools, ditches, streams, rivers, lakes, wetlands, snow, and dew. Turkeys in moist environments need less free water than those in more arid areas (Beasom and Wilson 1992, Hurst and Dickson 1992, Shaw and Mollohan 1992, Wunz and Pack 1992). Thus, turkeys in the eastern U.S. probably rely less on open water than those in the southwest or plains states. However, during times of drought or in drier eastern environments, open water may be important. Likewise, in more mesic western habitats, open water may be less important.

LIMITING FACTORS

Turkeys are limited by a number of natural and artificial factors. The northern natural range of turkeys in the east seems to be limited by the condition, depth, and duration of snowfall (Healy 1992). In the mid-west, central, and southwest United States, the range of the turkey is limited by the availability of trees. Nest and poult predation may significantly impact wild turkey populations when natural (predation, disease) and human-related (hunting, habitat change) mortality occur in conjunction (Miller and Leopold 1992). Because turkeys need an interspersed forest and open areas, any management activities that disrupt this habitat diversity or degrade the habitat may impact local turkey populations. For instance, timber operations to open up areas for development or agricultural expansion may eliminate too much of the forest cover and food resource. On the other hand, forest thinning or creation of small openings may benefit turkey populations in some situations. Heavy grazing of grassy openings and understory vegetation may limit turkey populations by reducing food for adults and cover for nests and poults.

MANAGEMENT RECOMMENDATIONS

Regardless of subspecies or location in the state, the basic habitat requirement for wild turkeys is adequate quality, quantity, and distribution of forested and open areas. This can be achieved in mature, mast-producing forests with appropriate brood (open areas) and winter range (dense forest) areas. The actual density of forest cover, species composition, and proportion of forest and open areas will vary in different parts of the state. In areas with limited mast-producing trees, such as western Washington, agricultural fields and/or artificially constructed food plots may be needed to maintain turkey populations.

Mast Producing Vegetation - Wild turkey habitat should be managed so that 50-75% of the area is composed of mature, mast producing tree species. In Washington, this would mean maintaining species such as oak and ponderosa pine. Mackey (1982) found that the forest component of his study area in south-central Washington accounted for 74% of the landscape. Pine/oak habitat was the most preferred type for daytime use by turkeys during all seasons. In areas where food sources are scarce, mast-producing shrubs and small trees should be planted as orchards or as edges in clearings. When reseeding, sow a mixture of grasses and forbs that provide both food and cover for turkeys.

Forest Cover - Forest cover should be maintained in areas where wild turkeys exist. Forested areas are used extensively for nesting, roosting, escape and thermal cover, and even brood rearing in more open forest types. In stands lacking pine and oak, protection of mature timber is still important for cover and roosting habitat. Mackey (1982) noted that Douglas-fir stands were used extensively as roost sites. Sites used by roosting turkeys averaged greater canopy coverage (74%), greater canopy height [19 m (62 ft)], and greater basal area [34 m²/ha (148 ft²/ac)] than control plots (Mackey 1982). To maintain such characteristics in areas inhabited by turkeys, it is recommended that timber harvesting be done selectively and that clearcuts >12 ha (30 ac) should be avoided. Where logging is unavoidable, maintain a tree basal area 20 m²/ha (87 ft²/ac) (Mackey 1984). Turkeys frequently use access roads and trails. Therefore, roads created for timber harvest should be closed, gated, seeded, or tank-trapped following timber operations.

Brood Habitat - Brood-rearing habitat can be achieved through maintenance or creation of open timbered areas and/or natural and artificial openings in denser forest. Open areas can be created or maintained through selective timber harvest, prescribed burns, periodic mowing, and chemical treatments (Wunz and Pack 1992).

Livestock Grazing - Livestock grazing also may be used to maintain natural openings. Continuous light grazing seems to be compatible with wild turkey management (Beasom and Wilson 1992). Various types of grazing rotation systems have been described as providing for turkey food production but not as being good for nesting (Merrill 1975). To reduce the negative impacts of livestock grazing in turkey habitat, provide grazing exclosures within existing grazing systems. Blakey (1944 in Beasom and Wilson 1992) recommends that 40-200 ha (100-500 ac) be excluded from grazing within each 1,200-2,000 ha (3,000-5,000 ac) of rangeland for 24 months. As an alternative or in addition to constructing exclosures, roadside and railroad rights-of-ways or other fenced-out exclosures can be managed for turkeys. Where ungrazed areas are available, provide moderate grazing intensities on remaining areas to stimulate food plant growth (Beasom and Wilson 1992).

Land Management Activities - Turkeys are sensitive to disturbance at their nest sites (Lutz and Crawford 1987b); therefore, major land management activities in nesting habitat should be minimized during April, May, and early June. Construction of houses within turkey habitat should be restricted to nonforested areas that are larger than 2 ha (5 ac) in size (Mackey 1982).

Water - In more arid landscapes, a source of free water should be provided for turkeys. Suggestions from Beasom and Wilson (1992) include: providing water through ground-level ponds or catchments as opposed to standard livestock water troughs; fencing small, ground-level watering sites to exclude livestock; in rotational grazing systems, maintaining water in deferred pastures; in short-duration grazing sites, maintaining a fenced-out water site at least 0.4 km (0.25 mi) from the main livestock watering facility; and constructing gallinaceous guzzlers in more arid regions. Gallinaceous guzzlers collect rainfall on an impermeable apron and store the water in underground tanks that have access ramps for the birds.

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KEY POINTS

Habitat Requirements

- Trees and grass are prominent features of wild turkey habitat.
- Wild turkeys use a combination of forested and open habitats, including conifers, hardwoods, mixed woodlands, riparian areas, open grasslands, and edges of agricultural fields.
- Wild turkeys nest in timber stands with dense understories, weedy fields, clearcuts, utility rights-of-ways, young pine plantations, and agricultural fields. Typical vegetation provides dense cover up to 0.5 m (1.5 ft), unrestricted visibility from 0.5-1.0 m (1.5-3.0 ft), and a canopy of understory and forest trees above the nest.
- Brood range includes open forested areas and natural and artificial openings within close proximity to timbered areas. Ground vegetation should be 30-70 cm (12-28 in) in height to protect poults.
- Good roosting habitat includes stands of timber that are sheltered from prevailing winds and that contain trees that are larger in height, canopy cover, diameter at breast height, and basal area than trees in other stands.
- In climates with more severe winter conditions, turkeys will decrease their use of open areas and will increase their use of stands of larger trees with greater canopy coverage and basal area. Springs, seeps, and other riparian areas, as well as areas with more abundant hard mast, are also used during the winter.
- Poults feed exclusively on high protein invertebrates in the first and second weeks after hatching.
- The diet of juveniles and adults is comprised of 15-25% animal matter and 75-85% plant matter, including green vegetation, grasses, forbs, sedges, fruits, grains, and mast.
- Good turkey range has an adequate supply of water.

Management Recommendations

- Wild turkey habitat should be managed so that 50-75% of the area is composed of mature, mast-producing timber species.
- Timber should be managed through selective cuts in pine and oak habitats, and through selective cuts or small clearcuts [<12 ha (30 ac)] in Douglas-fir habitats. Avoid logging within known roost sites.
- Natural openings should be maintained and created where lacking. Unused logging roads should be closed and reseeded with grasses and legumes, and planted with shrubs and small trees.
- In areas inhabited by turkeys, grazing should be managed through light, continuous use, or with a deferred-rotation system. Provide grazing exclosures within any grazing system.
- Livestock and other disturbances to nesting habitat should be restricted from April to early June.
- Housing development should be restricted to non-forested areas larger than 2 ha (5 ac) in size.
- Sources of free water should be provided in more arid landscapes.

