A bird of disappearing landscapes

Sharp-tailed Grouse

Photo © Jim Williams

Description

The sharp-tailed grouse (*Tympanuchus phasianellus*) is one of ten species of North American grouse. Sharp-tailed grouse historically inhabited a broad range, covering much of central and northern North America. Within this range they occupied large open habitat types that are dominated by grasses and shrubs. There are six recognized subspecies of sharp-tailed grouse (Figure 1). The prairie sharp-tailed grouse subspecies (*T. phasianellus campestris*) is a year-round resident of Wisconsin. Its current range extends from southeastern Manitoba, southwestern Ontario, and the Upper Peninsula of Michigan to northern Minnesota and northern Wisconsin.

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The sharp-tailed grouse is characterized by a round body and short legs, short rounded wings and elongated central tail feathers, which is how it gets the name "sharptail." Male and female sharptails are nearly identical in plumage and size. Sharptails are mottled in appearance, with a heavily barred head, neck, back and wings, white upper belly feathers with small brown V-shaped marks and white undertail feathers. This mosaic of white, buff, brown and black provides good camouflage. Adult sharptails are 16-18 inches long and weigh about 2 pounds. Both sexes have a small yellow headcomb, or "eyebrow," over each eye.

The main difference between the sexes is the pinkish to pale violet patches of bare skin on each side of the male's neck. These patches, along with the headcombs, are expanded during the male's courtship display.

In Wisconsin, sharp-tailed grouse are non-migratory and considered a game species. They are listed as a Species of Greatest Conservation Need as well as a Species of Special Concern by the WDNR and a Regional Forester's Sensitive Species by the US Forest Service.

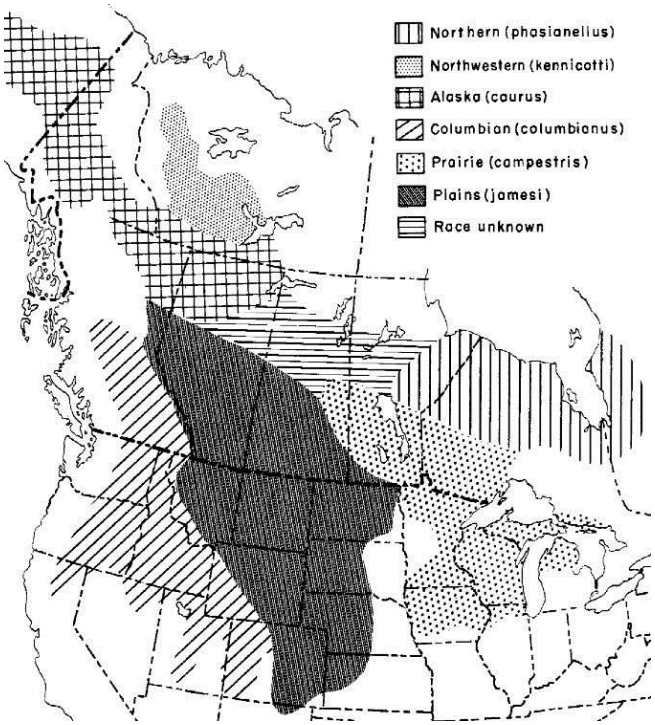

Figure 1. *Historic distribution of sharp-tailed grouse subspecies (Aldrich 1963).*

Crex meadows

History

The sharp-tailed grouse was once found statewide. Prior to European settlement, habitat for sharp-tailed grouse in the Upper Great Lakes region included pine/oak barrens, burned forest areas, brushy grasslands in the prairie-to-forest transition zone and non-forested wetlands. Pine barrens covered approximately one million hectares in Wisconsin, or 7% of the state's pre-European settlement landscape. Oak barrens covered approximately 1,800,000 acres, or 5% of the pre-European settlement landscape. Native grasslands were also dominant on the landscape and once covered 2,100,000 acres throughout the state. Extensive sedge meadows also occurred in central and northern Wisconsin prior to European settlement, with more than 1,111,000 acres present in the early 1800s. In fact, open habitat types at this time was much more widespread, and it was estimated that these habitats would have covered 13.2% of northern Wisconsin.

Sharp-tailed grouse populations expanded and contracted in response to natural disturbance events such as fire. Recently, however, lack of large scale disturbances that renew sharptail habitat have caused the population to decline. Much of the original pine and oak barrens found throughout Wisconsin have grown to mature forests. Grasslands, savanna habitats, and sedge meadows have also largely been lost to conversion and lack of fire disturbance. The management that has occurred is mostly small in scale, contributing to fragmented barrens and forests. This fragmented landscape creates habitats that are too small for sharp-tailed grouse and other wildlife needing large spaces.

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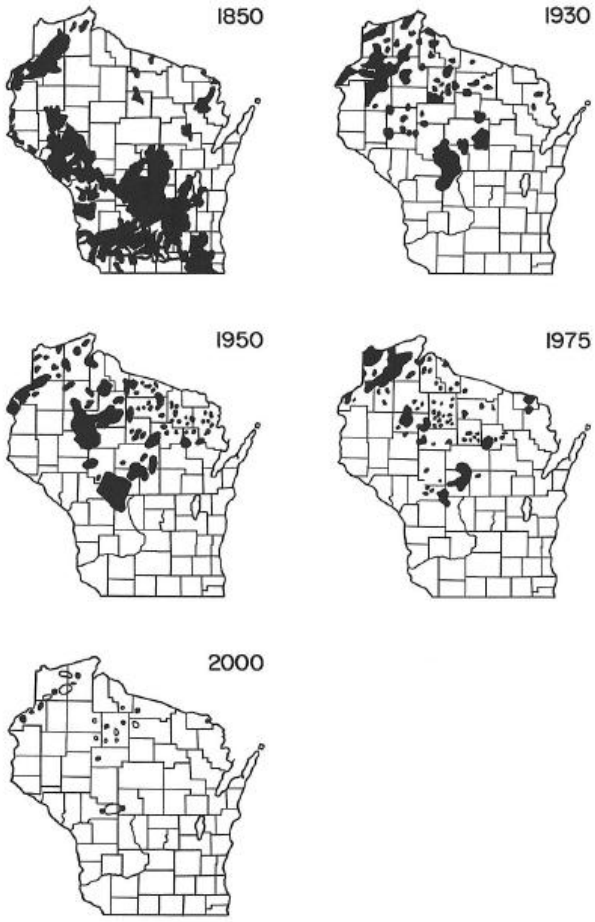

Figure 2. *Distribution of sharp-tailed grouse in Wisconsin from 1850-2000.*

Sharptails Today

Since European settlement, there have been sweeping landscape and land use changes. Those having a greater impact on sharp-tailed grouse habitat and populations include the loss of native barrens, savanna, and grassland habitats, the shift to intensive agricultural practices, fire suppression, major changes in forest land ownership and management, and increased human development. Estimates of habitat loss indicate that less than 1% of the original pine and oak barrens remain, in addition to less than 1% of original native grasslands and approximately 3% (30,000 acres) of moderate to high quality sedge meadow habitat. Major changes in forest management have also resulted in fragmented habitat, with smaller harvest regeneration areas. These smaller blocks of habitat are not big enough to support sharptails.

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Today, sharp-tailed grouse use a variety of large open habitat types in Wisconsin including brush prairie, pine/oak barrens, cut or burned-over regenerating forests, wet meadows, pine/oak savannah, and abandoned farmland. In northwestern Wisconsin, vegetation types heavily used by sharp-tailed grouse vary by season but typically include brush prairie, shrub, pine barrens, sedge meadows, shrub marshes, and croplands. Dense herbaceous cover and shrubs are important habitat components. Fire has long been thought to be the key disturbance process for creating and maintaining sharp-tailed grouse habitat.

Sharp-tailed grouse in Wisconsin exist primarily on a core group of managed public properties and scattered private lands. This has resulted in at least two distinct regional populations in the Northwest Sands Ecological Landscape and the North Central Forest Ecological Landscape (Figure 3). A third possible regional population may exist in the Central Sand Plains Ecological Landscape. In 2014 surveys of dancing males found 184 male sharptails on 8 core management areas.

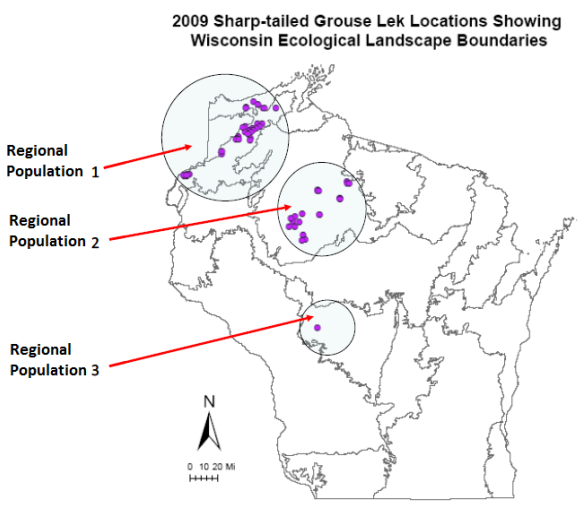
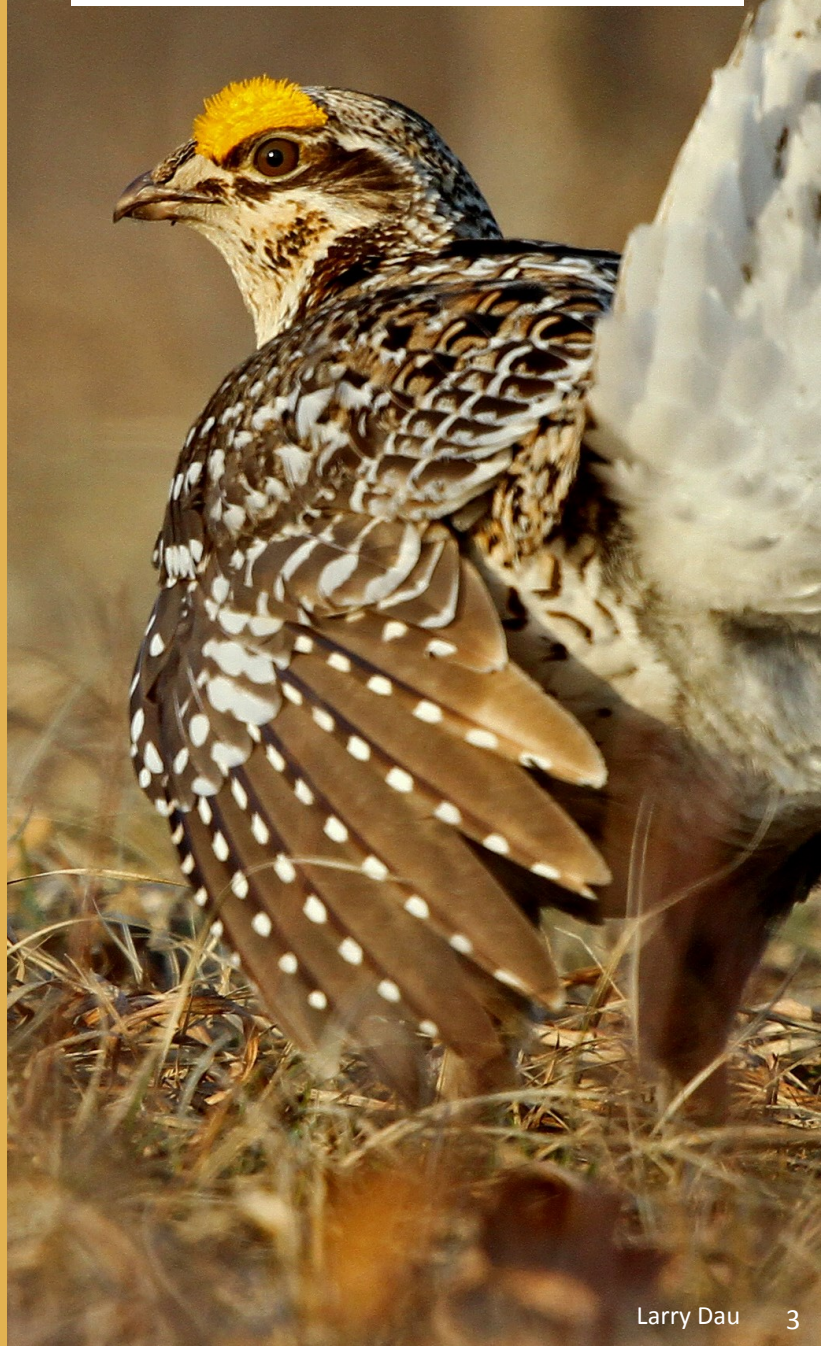


Figure 3. *Estimated 2009 sharp-tailed grouse lek and regional population locations within Wisconsin Ecological Landscape Boundaries.*



Larry Dau

Management

Sharp-tailed grouse management in Wisconsin began during the 1940s in response to population declines. As a result, sharp-tailed grouse management areas were designated throughout northern Wisconsin. Management is typically a combination of prescribed burning, timber harvest, mowing, or other mechanical manipulations. Currently, most managed properties are primarily maintained by repeated prescribed burns. Burning is used to control woody vegetation, maintaining an open landscape beneficial to sharp-tailed grouse and other species requiring this habitat. Depending on fire intensity and weather patterns, fires can create a mosaic of burned and unburned areas. Coarse woody debris, unburned "islands" of habitat, snag trees, and increased diversity of understory vegetation are beneficial outcomes of a wildfire regime, and have been shown to benefit sharp-tailed grouse.

Most properties use prescribed burns to maintain an open landscape, which benefits sharptails and other species requiring this habitat.

Hunting of sharptails is closely monitored by the WI DNR. With the recent declines, the season has been closed or highly restricted to allow for sustainable populations. While factors such as over-harvest and disease may negatively influence sharp-tailed grouse populations, regional and local population declines can be largely attributed to the loss and continued fragmentation of suitable habitat.

sharp-tailed grouse are considered area-sensitive, which means they require large open blocks of habitat to support viable populations. The exact amount of habitat needed to sustain a viable population likely varies by ecological landscape and state. Sharptails can benefit from a matrix of open patches connecting large tracts of suitable areas. Having "stepping stones" of open habitat around 1280 acres in size will improve sharptail movement between large tracts of habitat that act as core areas. Landowners can help create this matrix through consecutive timber harvesting and regeneration.

Current sharp-tailed grouse management and survey efforts occur primarily on a core set of managed properties that have known, current or historically active dancing grounds.

Core properties currently include:

- Crex Meadows Wildlife Area
- Douglas County Wildlife Area
- Kimberly Clark Wildlife Area
- Moquah Barrens Wildlife Management Area
- Namekagon Barrens Wildlife Area
- Pershing Wildlife Area
- Riley Lake Wildlife Management Area
- The Barnes Barrens, Bayfield County Forest

Looking to the Future

The sharp-tailed grouse population in Wisconsin is not contiguous, and suitable habitat currently exists in scattered patches within a primarily forested matrix in the northern half of the state. Most of this habitat is found on approximately a dozen county, state, or federally managed areas. As a result, dispersal among habitat patches and colonization of new habitat is likely necessary to maintain overall population size and genetic viability. However, sharp-tailed grouse dispersal appears to be limited by significant habitat barriers. As a result, genetic exchange among subpopulations is also limited.

The Northwest Sands Corridor Plan was created in 2012 to identify opportunities to create habitat corridors or stepping stones between existing pine barrens habitat patches. This habitat corridor plan is built around the habitat needs and configuration of sharp-tailed grouse. Because of their area sensitivity and requirements of large blocks of habitat, focusing a habitat corridor model on the needs of sharp-tailed grouse should also provide suitable habitat for most other species of special concern that rely on the same habitat.

Sharp-tailed grouse habitat is largely dependent on disturbance to maintain an open landscape and appropriate vegetative cover. As an area-sensitive species, habitat management for sharp-tailed grouse also requires a landscape-scale perspective by which large tracts of open land are maintained. Given that there are multiple landowners across the landscape, there is a significant challenge in managing for sharp-tailed grouse habitat on the landscape scale.

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There has also been increasing pressure to convert agricultural land to housing and other human development. In approaching sharp-tailed grouse management it becomes evident that management and protection of private lands is imperative. Habitat protection will require consideration of both existing and potential sharp-tailed grouse habitat, and involve strong partnerships with multiple partners and private landowners.

While a recently burned area may seem barren (left), plants will regrow and soon flourish (right).

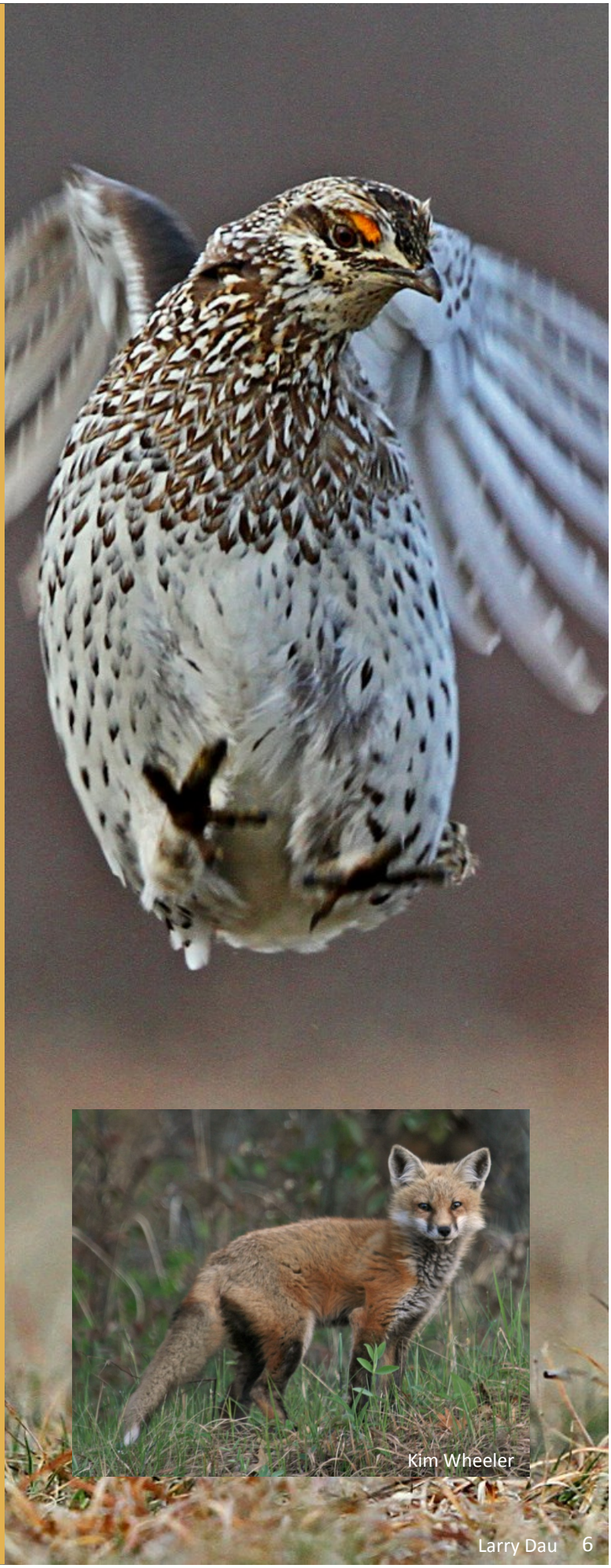
Life as a Sharptail

Life isn't easy for sharp-tailed grouse. While the maximum documented life span is 7.5 years, most sharptails do not live that long. Predation, hunting and weather all affect survival and recruitment in sharp-tailed grouse populations. Sharp-tailed grouse broods experience roughly 47% mortality, primarily within the first month of hatching. During this period chicks are especially susceptible to influences of cool weather, predation, and starvation. Winter mortality of sharptails varies with severity. A study in Idaho found winter mortality as low as 14% during mild winters and as high as 71% during severe winters. Even during severe winters, much of the mortality can be attributed to predation.

Proper habitat provides food and shelter from predators and the elements. Sharptails rely on different habitats depending on the season, and move between them as the seasons change. They can move up to 10 miles to reach certain seasonal areas, although this is uncommon. Sharp-tailed grouse travel much more extensively than other upland game birds, and may move 2 or more miles per day depending on habitat quality and available resources.

Adult sharp-tailed grouse feed on approximately 90% vegetative matter and 10% insects, and their diets change with the seasons. During spring, they feed mainly on seeds, leaves, and sprouts. Preferred summer foods include flowers, leaves, fruits and insects. Sharptails feed on a variety of seeds and fruits in the fall, and they eat twigs and buds in the winter. Paper birch, aspen, and hazel buds and catkins are especially important winter food items.

In the following pages we will follow the sharptails as they move through the seasons.


Kim Wheeler

Larry Dau

Sharp-tailed grouse have a variety of predators, including red fox (right), coyote, red-tailed hawk, northern goshawk, peregrine falcon, great horned owl, and northern harrier. Nest predators include striped skunk, ground squirrel, raccoon, American crow, common raven, and weasels.

The Spring Dance

Beginning in April, male and female sharp-tailed grouse gather on the grassy opening, called dancing grounds or leks. The lek is a communal display area where males gather to attract and mate with females. Two to 40 males may gather at a single lek, each defending a small territory. Males return to the same lek each year. Male grouse use several displays to show aggression toward other males and also fight to defend their territory. Males "dance" to attract females in early morning and in the evening. The dancing display consists of a series of rapid stepping motions performed with the tail erect, the head held forward and the wings outstretched. After assuming this stiff posture, the male "dances" in a small circle or arc. While dancing, he vibrates his tail feathers, which makes a clicking or rattling sound. Male sharptails often perform this "tail-rattling" in synchrony and frequently stop to "pose" before the females. When the male has successfully attracted a female, they mate and the female leaves the dancing ground area for her nest site. The nest site is typically within a half mile of the lek in structurally diverse habitat, dominated by dense herbaceous cover and often under or near shrubs or small trees which help protect the nest.

A male dances with rapid steps (header). Males frequently fight to defend prime dancing turf (top right). A female watches males perform their dance before choosing a mate (right center). Before fighting, Males will often try to intimidate each other first (bottom right).

Summer, Fall, & Winter

The female lays a clutch of 10-14 eggs and incubates her eggs for around 24 days. There is usually only one clutch per year, although female sharp-tailed grouse may renest if a first clutch is destroyed. Following hatching, the brood remains in open habitat with a high diversity of herbaceous cover and some shrubs where they feed on insects and plants. Shrubs provide important cover from predators.

The young grouse begin to fly in about 10 days, and by six to eight weeks they are fully independent of their mother. At this time, the broods begin to disperse and the young sharptails often move several miles from their hatch sites.

During the fall, sharptails begin to move from open areas to their winter habitat: forested or marsh cover. These habitats include deciduous and open coniferous forests, woody draws and riparian areas characterized by small trees and shrubs. Sharp-tailed grouse primarily forage on the ground, except in winter when they frequently feed in shrubs and small trees on food such as buds and catkins. Trees and shrubs also provide escape cover and roosting areas.

A study in Wisconsin found increased snow depth caused sharp-tailed grouse to move larger distances in search of winter food and cover. During snowless periods, birds preferred dense marshy vegetation while upland forests and black spruce bogs were used during deep snows.

For more information on sharp-tailed grouse and their habitat please visit the DNR website: dnr.wi.gov.

A sharptail nest after the chicks have hatched (above). Sharptails typically feed on the ground, but in winter they feed on buds and catkins in shrubs (below).

Partners in Sharp-tailed Grouse Habitat

Wisconsin Sharp-tailed Grouse Society: www.wisharptails.org

Friends of the Namekagon Barrens Wildlife Area: www.fnbwa.org

Friends of Crex: www.crexmeadows.org

Friends of the Bird Sanctuary: www.fotbs.org

Chequamegon-Nicolet National Forest (Moquah Pine Barrens): www.fs.usda.gov/cnnf/

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