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# Greater Sage-Grouse Field Indicator Guide

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Produced in cooperation with:

Bureau of Land Management

Montana Grazing Lands Conservation Initiative

Montana Fish, Wildlife & Parks

SAGE GROUSE MONTANA LOCAL WORKING GROUPS

*Helping People Help the Land*

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# Greater Sage-Grouse Field Indicator Guide

**This** brochure is offered to the public to further outreach and education about sage-grouse; a species being considered for listing under the Endangered Species Program.

The Montana Sage-Grouse Local Working Groups (MSG-LWG) produced *Montana Sage-Grouse Management Plan & Conservation Strategies for Sage-Grouse in Montana* (Montana SG-LWG 2005) in 2005.

The overall goal of the plan is to "Provide for the long-term conservation and enhancement of the sagebrush steppe/mixed-grass prairie complex within Montana in a manner that supports sage-grouse and a healthy diversity and abundance of wildlife species and human uses." This brochure contributes to that effort.

## Greater Sage-Grouse Identification

**Sage-grouse**
(*Centrocerus urophasianus*)

Illustration by Ron Jenkins. Used with permission from Montana Fish, Wildlife & Parks.

## Similar Birds that Can Be Seen in Sage-Grouse Habitat

**Ring-necked pheasant**
(*Phasianus colchicus*)

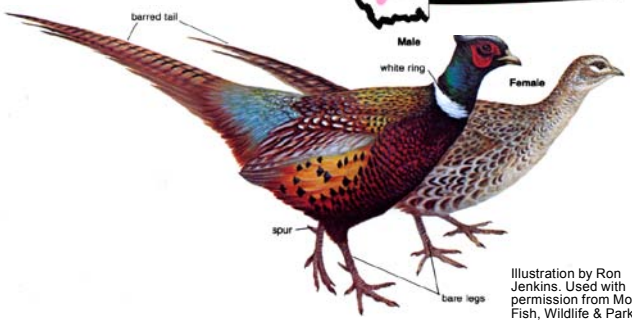
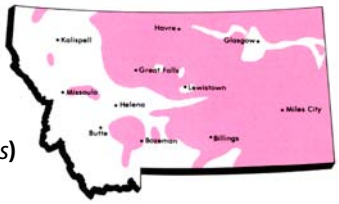



Illustration by Ron Jenkins. Used with permission from Montana Fish, Wildlife & Parks.

**Hungarian (gray) partridge**
(*Perdix perdix*)

Illustration by Ron Jenkins. Used with permission from Montana Fish, Wildlife & Parks.

**Sharp-tailed grouse**
(*Pedioecetes phasianellus*)



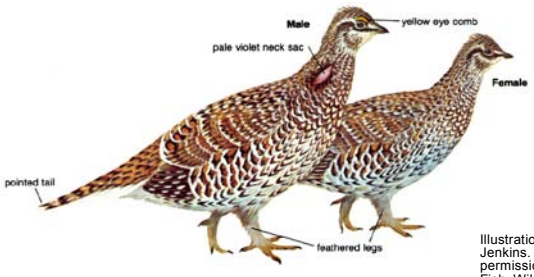




Illustration by Ron Jenkins. Used with permission from Montana Fish, Wildlife & Parks.

**Blue grouse (now referred to as dusky grouse)**
(*Dendragapus obscurus*)

Dusky grouse can be seen in sage-grouse habitats in Southwestern and South Central Montana.

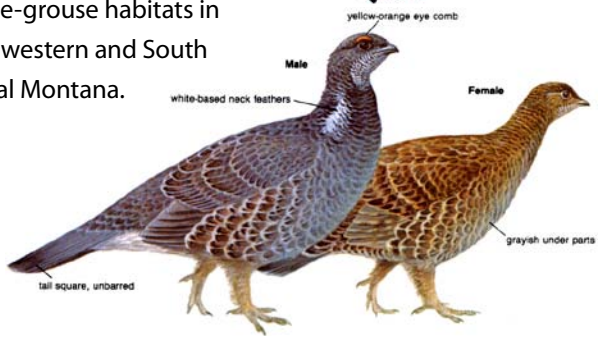



Illustration by Ron Jenkins. Used with permission from Montana Fish, Wildlife & Parks.

**Sage-grouse** are the largest grouse in North America and exhibit the most sexual dimorphism; the males are nearly twice the size of females. In other grouse species males and females are nearly indistinguishable in size. The male shown here is in full display.

## In Flight

### Sage-grouse

Male and female - big difference in size
Male L 28" W 38" Female L 22" W 33"

© Daniel J. Cox/NaturalExposure.com

*Male sage-grouse: chocolate brown belly band, broad wing span, long pointed tail, and large size are diagnostic. Sage-grouse have slower wing beats than other grouse.*

### Sharp-tailed grouse

Male and female similar
L 17" W 25"

Illustration by Ron Jenkins. Used with permission from Montana Fish, Wildlife & Parks.

*Male and female sharp-tailed grouse are similar: pale under belly; short pointed tail. Sharp-tails wobble in flight.*

### Hen pheasant

L 21" W 31"

Illustration by Ron Jenkins. Used with permission from Montana Fish, Wildlife & Parks.

*Hen pheasant has a long, pointed tail.*

### Sage-grouse

*Female – casual pose, black belly*

*Male – casual pose, black belly, black throat*

*Displaying males' folded wings are drawn across stiffened feathers at the sides of the neck, producing a brushing sound. Olive green inflated skin patches on the breast bulge repeatedly to create a dramatic and unusual sound (plopping) and visual display.*

### Sharp-tailed grouse

*Alert pose – pale belly*

Photo courtesy Drake Burton

*With their tails erect, displaying males "rattle their tails" and coo.*

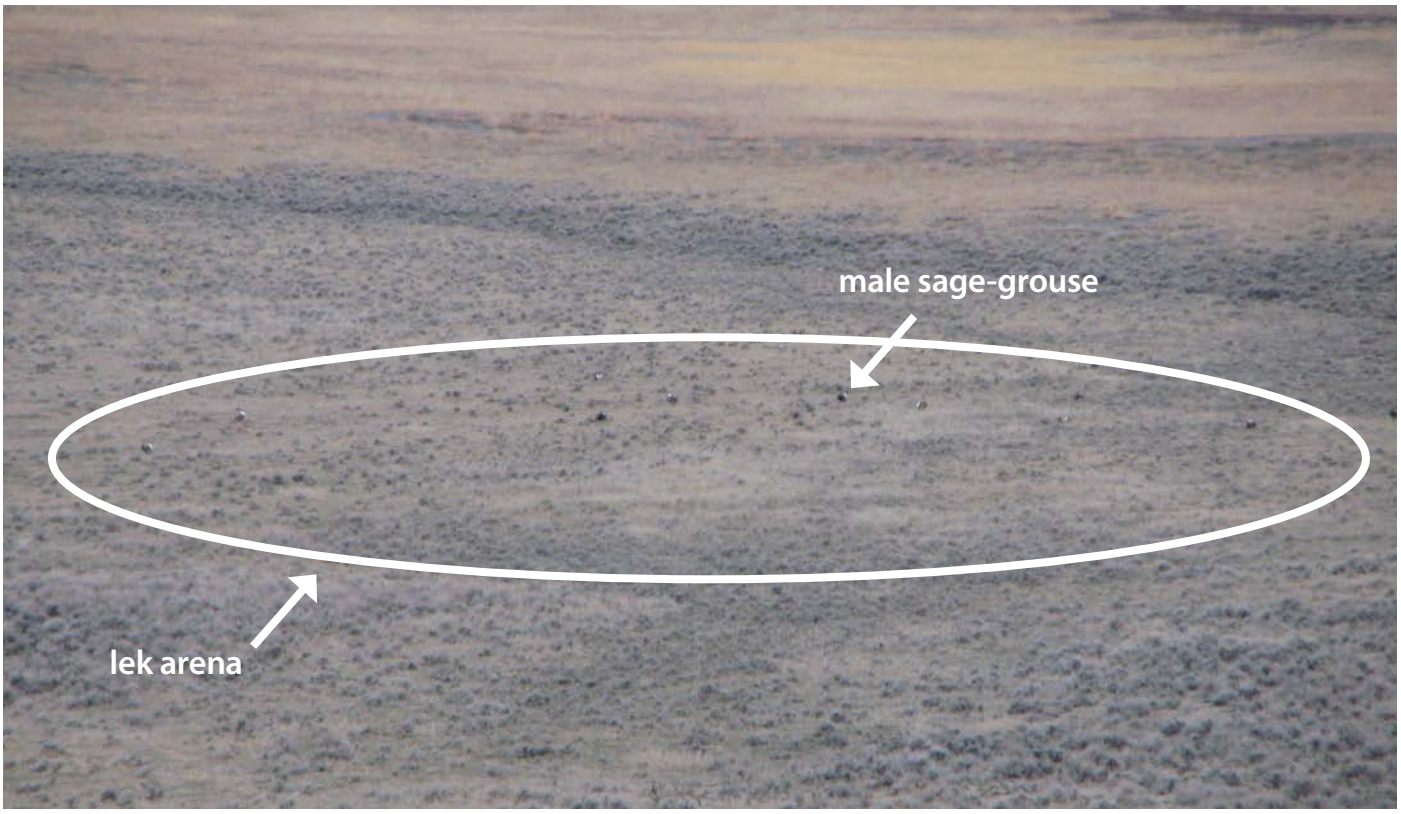
## Sage-Grouse Do Not Roost in Trees

Sharp-tailed grouse commonly forage in trees during winter

*Sharp-tailed grouse eat cottonwood buds (left) and Russian olive fruits (right).*

## What Is a Lek?

A lek is a gathering of males for the purpose of competitive display (strutting) and mating. The same males attend a traditional place that can be active for decades. Males commonly roost overnight near the lek and, before sunrise, will move to the lek and display. This will continue for a couple of hours following sunrise, March through May. Note lek arena with 11 displaying males – topography is typically wide-open and flat with escape cover (shrubs) nearby.



## Sage-grouse nest

- Eighty percent of hens nest within 4 miles of the lek they attend.
- Hens lay 2 eggs in 3 days; clutch size ranges from 7 to 9.
- Incubation is 28 days.
- Nesting dates ranged from April 22 to July 10 in one study in Montana.

**Successful hatch**

The chick chips its way through the eggshell with an egg tooth, a temporary tip on its bill that helps the chick break the shell. The chick hatches after 1 to 2 days of pecking circular fractures around the large end of the egg, finally penetrating it.

- Circumference of large end is broken.
- Membrane remains behind.

**Unsuccessful hatch**

Shell is pushed in from outside.

- Membrane is gone.
- Eggs are broken at center, pushed in from outside, or in the case of snakes, swallowed whole leaving no evidence.
- Shells are scattered around.

## Sage-Grouse at Different Ages

© Cameron L. Aldridge

*Chicks walk upon hatching and can fly short distances within weeks.*

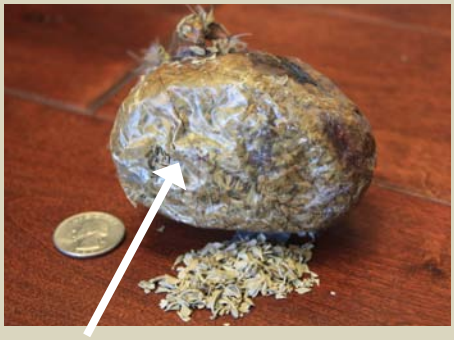
*In five weeks, chicks are similar in size to a meadowlark and can fly longer distances.*

*Juveniles under 1 year resemble females in size but are paler. This juvenile was photographed in August.*

**Sage-grouse diets** change from insects and forbs in the spring and summer to 99% sagebrush leaves in the fall and winter.

Fresh contents from the crop of a juvenile sage-grouse hit on a road as it was leaving an alfalfa field in August. Note that it was full of grasshoppers.

**Sage-grouse winter diet is 100% sagebrush**



*Sage-grouse winter crop*

*Crop emptied of contents - 100% sage leaves*

*Cecal tar*

Winter scat shows evidence of a uniquely designed digestive system that processes a diet of 100% sagebrush leaves. Terpenes contained in sagebrush leaves are segregated in the gut (cecal) and excreted separately.

No other animal can live on 100% sagebrush. Sheep, elk, and antelope mix it with other vegetation.

## Scat Identification by Season and Feeding Activity

*Scat piles of several birds roosting together.*

**Clockers**

Incubating females leave the nest twice a day and excrete large scat piles nearby called "clockers". Clockers indicate that a sage-grouse nest is close by.

**Cecal tar**

Cecal tar is common in winter when birds are eating 100% sage leaves and their digestive systems are separating volatile oils from digestible parts.

**Spring, summer or fall foraging scat**

A single dropping indicates sage-grouse are on the move as they forage.

**Winter scat**

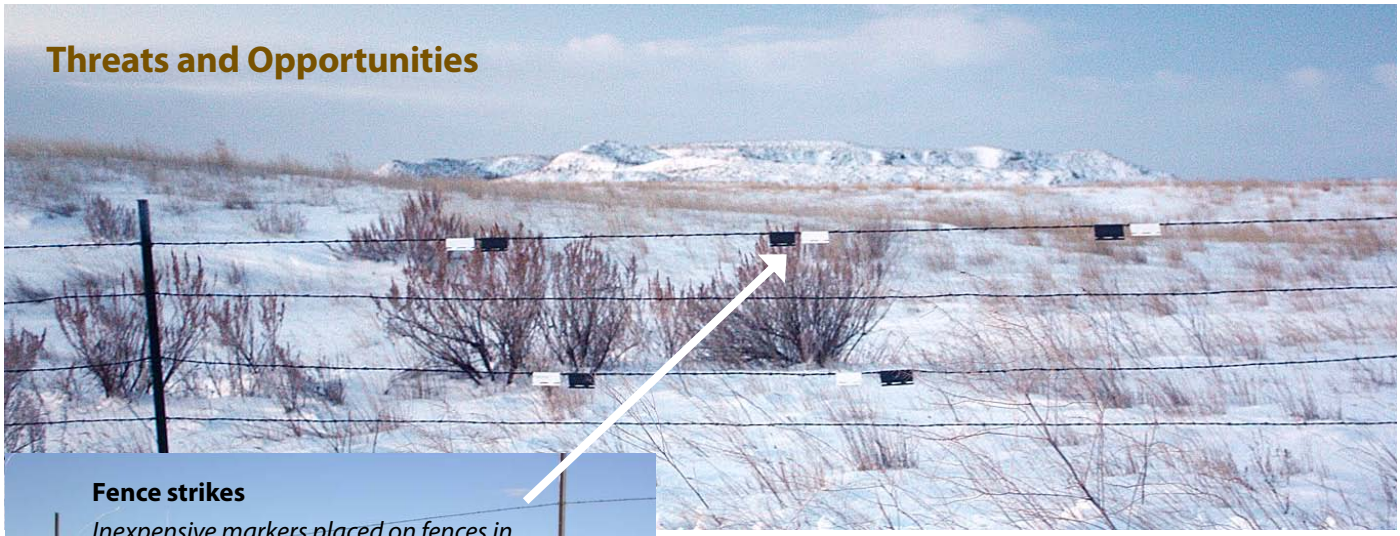
Winter scat is generally shaped like a Cheeto™ and, upon examination, is exclusively digested sagebrush leaves.

Photo courtesy Big Horn Environmental Consultants

Photo courtesy Big Horn Environmental Consultants

Photo courtesy Big Horn Environmental Consultants

## Threats and Opportunities



**Fence strikes**

*Inexpensive markers placed on fences in problem areas can make a difference.*

**Wildlife escape ramps**

*New livestock watering tanks are now manufactured with built-in wildlife escape ramps to prevent sage-grouse drowning.*

*Old livestock tanks can be retro-fitted with escape ramp inserts.*

**Conifer encroachment negatively affects habitat for both sage-grouse and livestock**

Even at low densities, conifers (shown here) can cause sage-grouse abandonment of otherwise excellent habitat and, if unchecked, the range value for livestock grazing is reduced as grass and forbs are out-competed by conifers.

Before conifers were removed, sage-grouse did not use the area shown because conifers harbor predators. Following conifer removal, sage-grouse have reoccupied this site and the range production has improved.

*Before conifer removal*

*After conifer removal*

## Sagebrush Canopy Cover

Sagebrush canopy cover is the amount of the land surface covered by sagebrush. Sage-grouse use a wide range of sagebrush canopy cover amounts to meet their seasonal requirements. Having diversity in sagebrush canopy cover is important to provide suitable habitats year round. The photographs below are examples of how different canopy cover values look in the field.

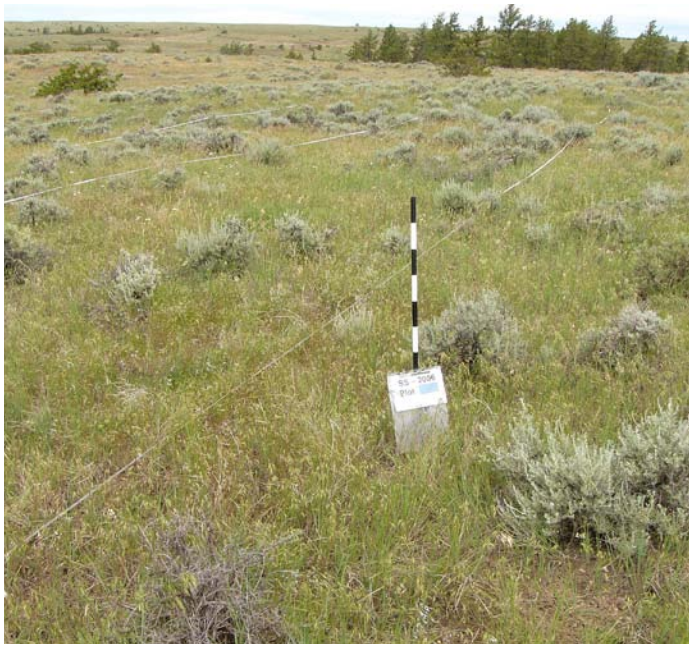


Photo courtesy S.V. Cooper, MTNHP

10% sage canopy

Photo courtesy S.V. Cooper, MTNHP

15% sage canopy

Photo courtesy S.V. Cooper, MTNHP

26% sage canopy

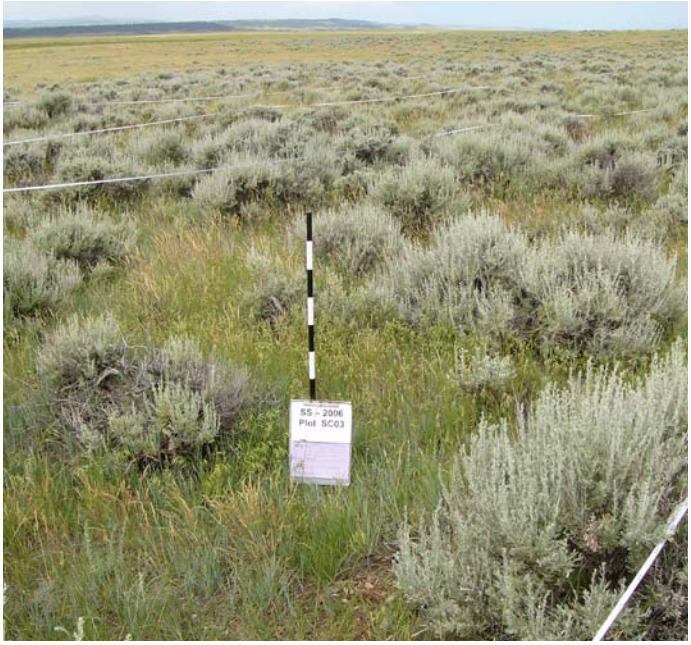


Photo courtesy S.V. Cooper, MTNHP

33% sage canopy

## Predators

Predator kills of sage-grouse are difficult to assign to a perpetrator, unless witnessed. This sage-grouse was killed by an avian predator or raptor. Raptors pick at the meat and don't crush the bones. Sage-grouse have always evolved with predators. However, predators can have an advantage if cover components are reduced.

Most predators specialize in taking either eggs, young, or adults. Some, however, are capable of taking birds at all life stages.

Photo courtesy Big Horn Environmental Consultants

**Avian predators**

- Golden eagle
- Common raven
- Black-billed magpie
- Northern harrier
- Prairie falcon

**Ground predators**

- Coyote
- Badger
- Bobcat
- Red fox
- Raccoon
- Weasel
- Skunk
- Bull snake

**The Montana Sage-Grouse Local Working Groups identified twelve potential risk factors for sage-grouse in Montana:**

- Range fire
- Poor grazing
- Harvest (hunting)
- Noxious weeds
- Mining and energy development
- Outreach and education (needs)
- Power lines and generation facilities
- Predation
- Recreational disturbance
- Roads and motorized vehicles
- Vegetation (past practices)
- Other wildlife in sage-grouse habitat (wild ungulates reducing habitat quality)

## What's Good for Cows is Generally Good for Grouse

For the most part, the same factors that negatively affect sage-grouse also negatively affect the health, productivity, and sustainability of native grazing lands. Therefore, improvements to benefit sage-grouse also benefit grazing lands and the ranches that depend on them. Below are points of mutual interest shared by sage-grouse and livestock.

**Beneficial for both**

- Rangeland plant diversity
- Healthy rangeland
- A well-designed grazing plan
- Healthy forb component
- Perennial native grass cover
- Weed and invasive species management
- Removal of encroaching conifer (juniper/Ponderosa pine)
- Healthy, productive springs and seeps
- Unfragmented rangeland
- Healthy, productive sagebrush grassland with a healthy perennial grass understory

**Negative for both**

- Overgrazing by livestock
- Urbanization
- Range infrastructure developments such as roads or power lines that fragment the range and spread weeds
- A dominance of club moss and blue grama
- Stock water tanks that drown wildlife and foul stock water

*This native sagebrush/bluebunch wheatgrass range provides excellent grazing for livestock as well as high quality sage-grouse habitat.*

## We can help

For more information on sage-grouse contact your local NRCS office or visit the web at:
http://www.mtnrcs.gov

or your local BLM office or visit the web at:
http://www.blm.gov/mt/st/en.html

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