

## **Flammulated Owl (*Otus flammeolus*)**

### **Description:**

Flammulated owls are small (6-7 inches) with dark eyes, indistinct ear tufts, a grayish back, and a lighter belly and reddish and dark gray markings (Peterson 1990, Udvardy 1977). Stokes and Stokes (1996) comment that reddish brown feathers present from the shoulders to the rump form a "V" on a grayish back. Brown feathers are found near the bill, above the eyes, and at the outer edge of the facial disk (Udvardy 1977, Stokes and Stokes 1996). The feet are yellowish (Stokes and Stokes 1996). Flammulated owls could be possibly confused with the more common small owls in this part of Idaho, the saw-whet owl and western screech owl. Saw-whet owls are slightly larger, have yellow eyes, whitish eyebrows, breast, and belly (Peterson 1990). The belly of saw-whet owl also has vertical rusty markings and has more brown on the back (Peterson 1990, Udvardy 1977). Western screech owls have yellow eyes and a gray and black facial disk.

### **Distribution:**

The winter distribution of the flammulated owl is from central Mexico south to Guatemala and El Salvador (Ehrlich et al. 1988). Flammulated owl breed from eastern Washington to northwest Montana south through the Sierra Nevada and Rocky Mountains to Southern California, Arizona, New Mexico and western Texas (Udvardy 1977). Stephens and Sturts (1991) do not show the flammulated owl occurring in southwest Idaho, however, the Jarbidge District of the Humboldt National Forest has reports of flammulated owls north of Jarbidge, Nevada. The Twin Falls District of the Sawtooth National Forest has at least one observation of a flammulated owl near Magic Mountain Ski Hill south of Twin Falls. To date no flammulated owls have been observed within the Jarbidge Resource Area.

### **Habitat:**

Flammulated owls are found in coniferous forests of ponderosa pine (Reynolds and Linkhart 1987a), Douglas-fir and mixed conifers (Howie and Ritcey 1987), and mixed conifer/deciduous forest (McCallum and Gehlbach 1988, Dobkin 1994). Aspen communities are also potential flammulated owl habitat according to Johnsgard (1988). Flammulated owls south of Twin Falls were observed in a lodgepole pine/subalpine fir mixed forest. A flammulated owl was observed near Jarbidge, Nevada in a cottonwood riparian zone.

### **Biology:**

In the southern portion of its range, the flammulated owl may be a year round resident, however, in the northern portion of its range flammulated owls are migratory (McCallum 1994). Migration routes for this species are poorly understood, but are likely influenced by prey availability (McCallum (1994). Following in the spring (late April - early May [McCallum 1994]), male flammulated owls begin calling to attract a mate and to defend their nest territory (Balda et al. 1975). Males arrive before females (Linkart and Reynolds 1987a) and females return to the same nest territory if it was currently occupied by a male. Female flammulated owls locate unpaired territorial males by flying through an area uttering food begging calls (Reynolds and Linkhart

1987a). Courtship or reestablishing pair bonds may take until early June for some flammulated owl pairs (Reynolds and Linkhart 1987a). Unpaired males sang throughout the summer (Reynolds and Linkart 1987b). Breeding usually occurs after the male feeds the female, then they may preen each other (Reynolds and Linkhart 1987b). Female flammulated owls lay 2 to 4 white to slightly cream colored eggs in a cavity nest in early to mid June (Reynolds and Linkhart 1987b). Male flammulated owls feed the female while she incubates the eggs which hatch in 21 to 24 days (Reynolds and Linkhart 1987b, Johnsgard 1988, McCallum 1994). Young flammulated owls fledge in 22-23 days (Canning and Canning 1982). Young owls begin foraging with the adults about 10 days following fledging and are mostly independent of the adults 5 to 6 weeks later (Linkhart and Reynolds 1987, Johnsgard 1988). Flammulated owls nest in abandoned woodpecker holes, especially those made by northern flickers, pileated woodpeckers, or sapsuckers (Bull and Anderson 1978, McCallum 1994), or natural cavities in snags or live trees (Ehrlich et al. 1988, Johnsgard 1988, Dobkin 1994). Tree species used by nesting flammulated owls include western larch, Douglas-fir, grand fir, ponderosa pine, cottonwood, and aspen (Bull and Anderson 1978, Reynolds and Linkhart 1987b, Johnsgard 1988, McCallum and Gehlback 1988, Dobkin 1994). Reynolds and Linkhart (1987a) found that some flammulated owls reused nest cavities in subsequent years and that males exhibited more fidelity to the nesting territory than females. Flammulated owls diets are nearly all arthropods (moths, beetles, crickets, grasshoppers, spiders, centipedes, caterpillars and other invertebrates) (Reynolds and Linkhart 1987b, Johnsgard 1988, McCallum 1994), but may contain very few small birds and small mammals (Johnsgard 1988, Dobkin 1994). McCallum (1994) writes that consumption of vertebrate prey by flammulated owls is poorly documented. Flammulated owls hunt exclusively at night. They catch insects on the wing or glean them from branches, foliage or occasionally from the ground (Ehrlich et al. 1988, McCallum 1994). Reynolds and Linkhart (1987b) commented that foraging strategies also included hover gleaning and drop-pouncing. Johnsgard (1988) mentioned that young flammulated owls leave their natal area in late summer after the adults stop feeding them and fall migration occurs sometime in late September into October. Reynolds and Linkhart (1987a) hypothesized that male flammulated owls may not be able to gain and defend suitable a breeding territory until they are 2 to 3 years old. Flammulated owls are known to live at least 7 years in the wild (Reynolds and Linkhart 1990).

#### Status:

In the fall of 1996 this species was added to the Idaho BLM Sensitive Species list. Flammulated owls do not frequently occur on BBS routes. Saab and Groves (1992) could not locate adequate data to determine a population trend for flammulated owls. Dobkin (1994) commented that based on limited data it appeared that flammulated owls are significantly declining. Stokes and Stokes (1996) reported that the trend for flammulated owls was unknown.

#### Threats:

Habitat fragmentation and the reduction in the size of old-growth forests were considered threats to the habitat of flammulated owls (Mannan and Meslow 1984, Bull et al. 1990). Stands younger than 100 years old or cut over areas are avoided by flammulated owls (Reynolds and Linkart 1987b). Old-growth forest provides this species with the large diameter trees it needs for nest cavities excavated by woodpeckers. Mannan and Meslow (1984) comment that managed forests

under the current rotations will not meet the habitat requirements for most old-growth dependent species. McCallum (1994) writes that silvicultural practices and firewood cutting are threats to the nesting habitat of flammulated owls and that recruitment of snags and healthy woodpecker populations are essential to the conservation of this species. McCallum (1994) comments that the impacts of deforestation of the flammulated owl's winter habitat is unknown. The only potential threat to flammulated owls in the Jarbidge Resource Area is unauthorized firewood cutting in the Jarbidge River Canyons.

### **Northern Pygmy Owl (*Glaucidium gnoma*)**

#### **Description:**

Northern pygmy owls are small (7 inches) with yellow feet, eyes, and bill (Johnsgard 1988, Stokes and Stokes 1996). The head and hindneck are brown and speckled with numerous roundish pale tan spots. Two large black spots, highlighted with a light collar, are located on the back of the neck (Udvardy 1977, Peterson 1990, Stokes and Stokes 1996). The flanks and belly of the pygmy owl are whitish with long brown streaks, whereas the chest is nearly solid brown (Peterson 1990, Stokes and Stokes 1996). There are two color phases, gray and red. In both phases the pygmy owls have the markings described above, but tinged gray in the gray phase, whereas, the red phase is more cinnamon colored (Johnsgard 1988). Northern pygmy owls lack ear tufts and have a relatively long tail (Johnsgard 1988, Stokes and Stokes 1996). Owls of similar size in the Jarbidge Resource Area include the flammulated owl, screech owl, and saw-whet owl. Flammulated owls have dark eyes, lack the black "eye" marks on the neck, are more gray in appearance including the bill, and ear tufts. Western screech owls are larger, much grayer, lack any light speckling on the head, lack the neck "eye" spots, have a dark gray bill, and have ear tufts. Saw-whet owls are more of a dark or chocolate brown, with a white "V" that extends from the dark bill to over the center of the eyes. Saw-whet owls have light streaks on their head rather than speckles. Saw-whets also have blotchy dark brown marks on a light belly and breast, and lack the "eye" marks on the neck (Peterson 1990).

#### **Distribution:**

Johnsgard (1988) depicts the distribution of the northern pygmy owl as extending from British Columbia to western Alberta, south to California and from western Montana along the Rocky Mountains to New Mexico, then south through Mexico and into Honduras. An area across southern Idaho and northern Utah lacks pygmy owl observations (Johnsgard 1988). Stephens and Sturts (1991) showed the northern pygmy owl did not occur in southwestern Idaho, but note that it winters and breeds in many locations in Idaho. Northern pygmy owls have been detected in the South Hills southeast of Twin Falls. This small owl does not appear to migrate.

#### **Habitat:**

Ehrlich et al. (1988) list habitats for the northern pygmy owl as open montane coniferous and deciduous forest. Johnsgard (1988) commented that this species was more common in the vicinity of meadows, large openings in forests, and lakes.

### Biology:

Although pygmy owls are not considered migrate south for the winter, they are known to move to lower elevations in the winter (Johnsgard 1988). Courtship likely starts in March (Johnsgard 1988). Males call to advertise for a female and defend their territory with a series of monotonous, repetitive hoots or toots (Johnsgard 1988). Other courtship behaviors include: courtship chasing of the female by the male, courtship feeding of the female by the male, and dual vocalizations (Ehrlich et al. 1988). Following courtship, the female lays from 3 to 6 white eggs in the nest (Ehrlich et al. 1988, Stokes and Stokes 1996). Egg laying varies between geographic locations and with elevation, but occurs between late April well into June (Johnsgard 1988). Pygmy owls use old woodpecker nests or natural cavities for nesting (Johnsgard 1988, Stokes and Stokes 1996). The nest hole is usually over 30 feet high in a snag (Bull et al 1987). Bull et al. (1987) reported that northern pygmy owls used old northern flicker and Williamson's sapsucker nest cavities. Nest trees are known to include pine, Douglas-fir, fir, oak, alder, and cottonwood (Bull et al 1987, Johnsgard 1988). Incubation takes about 4 weeks, with the young hatching on different days (Johnsgard 1988, Stokes and Stokes 1996). Nestlings fledge about 4 weeks following hatching (Stokes and Stokes 1996). Northern pygmy owls forage on a variety of prey including small mammals, birds, reptiles, and insects (Gashwiler 1960, Ehrlich et al. 1988, Johnsgard 1988, Stokes and Stokes 1996). Pygmy owls have been documented to prey on California quail which are twice their size (Balgoolyen 1969, Johnsgard 1988). Prey species commonly taken by this owl species include voles, deer mice, shrew, sparrows, and insects. Northern pygmy owls hunt primarily in the morning and evening (Gashwiler 1960, Ehrlich et al. 1988), but have been observed foraging during the day (Johnsgard 1988). Northern pygmy owls hunt by gliding from a perch, then dropping on the prey (Gashwiler 1960, Johnsgard 1988). Northern pygmy owls are known to cache prey for later consumption (Johnsgard 1988). McCallum (1994) commented that in small owls, species which were carnivorous typically were nonmigratory e.g northern pygmy owl, whereas, those that are primarily insectivorous are migratory e.g. flammulated owl. Northern pygmy owls do not appear to have received much attention from researchers.

### Status:

Little is known about northern pygmy owls in Idaho. Saab and Groves (1992), Dobkin (1994), and Ritter (1996) did not address the status of this species because it is nonmigratory. Stokes and Stokes (1996) indicated that populations of northern pygmy owls are increasing in the West based on BBS routes. Idaho BLM placed the northern pygmy owl on the Watch list because of the lack of data on this species.

### Threats:

Johnsgard (1988) comments that northern pygmy owls are dependent upon woodpeckers to excavate nest cavities. He also speculates that opening up dense stands of forest would benefit this species. There appears to have been no research on the impacts of logging on this species (Hutto et al. 1993). Hutto et al. (1993) did not include the northern pygmy owl as a old-growth forest habitat specialist. Forest management needs to incorporate the needs of this and other cavity nesting species into silvicultural plans, to recruit and maintain snags, and provide habitat

for woodpeckers (McCallum 1994). Grazing impacts to birds in coniferous forests are poorly researched (Bock et al. 1993).

### **Sage Grouse (*Centrocercus urophasianus*)**

#### Description:

Males are large (4-6 lbs, 26 to 30 inches), mottled gray on the back, have a black belly, and chin, and throat, and a white breast (Udvardy 1977, Johnsgard 1983a). Females are smaller (2-3 lbs, 19 to 23 inches) with a mottled gray back and breast, black belly and some white between the breast and belly (Peterson 1990, Udvardy 1977, Johnsgard 1983). Both species have a relatively long spike-shaped tail which opens when flying. Sage grouse are the largest of the grouse species in the North America (Johnsgard 1983a).

#### Distribution:

Historically, sage grouse were found throughout the West wherever sagebrush was found (Aldrich 1963). However, sage grouse have been extirpated from British Columbia, New Mexico, Oklahoma, and Nebraska (Aldrich 1963, Johnsgard 1983a). Johnsgard (1983a) noted populations are greatly reduced in Washington, Oregon, California, Arizona, South Dakota, and North Dakota. Idaho, Utah, Nevada, Oregon, Montana, Wyoming and Colorado still hunt sage grouse (Johnsgard 1983a). Stephens and Sturts (1991) indicate that sage grouse are found primarily in the southern half of Idaho. Sage grouse are usually not considered migratory, but are known to travel over 60 miles between seasonal use areas (Dalke et al. 1963). Sage grouse are most commonly found in the southern half of the Jarbidge Resource Area.

#### Habitat:

Sage grouse are found primarily in sagebrush/grass communities which are essential for winter survival (Dalke et al. 1963, Johnsgard 1983a). Sage grouse do occasionally nest in grassland habitats, but these nests usually fail (Connelly et al. 1991, Klott et al. 1993). Sage grouse avoid aspen and mountain mahogany communities and rarely use mountain shrub habitats (Klott and Lindzey 1990, Klott et al. 1993). Good sage grouse nesting and brood rearing habitat contains adequate sagebrush cover (15- 25%), and a variety of perennial native grasses and forbs (Dalke et al. 1963, Klebenow 1969, Klott et al. 1993). During drought, summers and into the fall, sage grouse tend to congregate near meadows, hay fields, and other areas where there is succulent vegetation and water. During the winter, sage grouse frequent wind swept ridges, south facing slopes, or flats with sagebrush exposed above the snow (Beck 1977, Johnsgard 1983a, Hupp and Braun 1989). Sage grouse seem to avoid deep narrow canyons, but are known to use flat, rolling topography or steep open hills as long as sagebrush cover is present.

#### Biology:

Sage grouse populations may exhibit two types of movement behavior, resident and migratory behavior. Resident sage grouse remain in the same general area all year long. Migratory sage grouse move considerable distances between breeding, nesting, brood rearing, and wintering areas (Dalke et al. 1963). In March male sage grouse move to leks also called strutting grounds, to display for females and defend a territory (Rothenmire 1979, Johnsgard 1983a, Emmons and Braun 1984). A dominant male on each lek breeds the majority of the females (Johnsgard 1983a).

In the Jarbidge Resource Area females have been observed on leks in early April into May, with the peak of female lek attendance in mid to late April. Males show fairly strong fidelity to a lek (Rothenmire 1979, Emmons and Braun 1984). Males continue to display into late May, although fewer males are usually present during this time. Females show fidelity to nesting areas (Fischer et al. 1993). Females make a 'scrape' type nest usually located under a sagebrush which she may slightly line with grass or sagebrush leaves (Udvardy 1977, Connelly et al. 1991). Female sage grouse lay from 6 to 13, usually 9 or less, olive to cream colored eggs speckled with brown (Ehrlich et al. 1988). Some females, less than 20%, renest if their first nest is unsuccessful (Connelly et al. 1993). In the Brown's Bench area, southwest of Rogerson, no renesting was documented and about 50% of the females did not even make a nesting attempt (Klott et al. 1993). Females incubate the eggs for about 4 weeks and the hatchlings are able to leave the nest soon after hatching (Ehrlich et al. 1988). Sage grouse diets vary seasonally. Young chicks require a high number of insects for the first 10 days (Johnson and Boyce 1990, Drut et al. 1994) then switch to more forbs, grasses, and sagebrush leaves as they age (Klebenow and Gray 1968, Drut et al. 1994). Adult sage grouse eat a variety of foods during the spring and summer, but switch to a diet composed primarily of sagebrush leaves in the fall and winter (Remington and Braun 1985, Ehrlich et al. 1988, Hupp and Braun 1989). Ravens and black-billed magpies are the most common avian nest predators. Mammals that destroy sage grouse nests include ground squirrels, skunks, badgers, and coyotes. Young sage grouse are prey to variety of hawks and eagles.

#### Status:

Sage grouse were added to the Idaho BLM Sensitive Species list in the fall of 1996. Saab and Groves (1992), Dobkin (1994), and Ritter (1996) did not address population trends for sage grouse, because they did not consider this species to be a migratory landbird. Stokes and Stokes (1996) indicated that BBS data show sage grouse populations were increasing in the West but decreasing along the eastern portion of the range. However, recent Idaho Fish & Game data indicate that sage grouse populations are declining throughout Idaho. Oregon placed sage grouse on its Species of Special Concern list. Sage grouse populations in Colorado and portions of Utah and Montana are reported to be declining. In the Jarbidge Resource Area there are records of over 120 lek locations, but less than one third are still active. Harvest records from a check station near Salmon Falls Creek Dam shows the sage grouse harvest has declined over 80% since the 1950's.

#### Threats:

In lower precipitation zones reasons for the decline of sage grouse are most likely due to the conversion of native range to exotic grasslands of primarily crested wheatgrass following fire rehabilitation efforts or cheatgrass if the fire is not rehabilitated. Even when sagebrush is included in the fire rehabilitation mix, it may take 10 or more years for the habitat to be suitable for nesting and 20 or more years to support wintering sage grouse. In areas with more precipitation large wild fires still remove sagebrush for long periods of time. Another factor that may influence sage grouse nest success is livestock's consumption of herbaceous cover (Connelly et al. 1991). Grazing utilization levels which are compatible with nesting sage grouse over large areas needs researched. Degradation of meadows, due to heavy grazing, leads to stream entrenchment and a lowered water table which increases shrubs or trees (Vankat and Major 1978), or increases exotic