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# Prairie Falcon

*Falco mexicanus*

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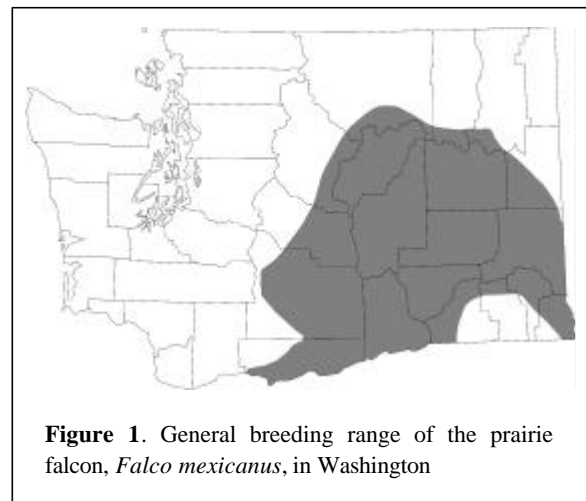
Written by David W. Hays and Frederick C. Dobler

## GENERAL RANGE AND WASHINGTON DISTRIBUTION

The breeding range of the prairie falcon extends southward from central British Columbia through much of the western United States (Snow 1974), and reaches as far south as San Luis Potosi in northern Mexico (Lanning and Hitchcock 1991).

Prairie falcons winter throughout their breeding range, as far south as central Mexico and as far east as the Mississippi River (American Ornithologists' Union 1957).

In Washington, prairie falcons have been known to breed in all central and eastern counties except Pend Oreille County (see Figure 1; Parker 1972). Prairie falcons winter throughout their breeding range in Washington, but the largest wintering populations are found in the central Columbia Basin (Grant, Adams, Franklin, Walla Walla, and Benton counties). Reports of prairie falcons wintering in western Washington have also been reported (Decker and Bowles 1930, F. Dobler, unpublished data).



**Figure 1.** General breeding range of the prairie falcon, *Falco mexicanus*, in Washington

## RATIONALE

Prairie falcons are of recreational importance in Washington, and are vulnerable to habitat loss and degradation. Prairie falcons nest on cliffs, and depend on steppe and shrub-steppe habitats that support abundant prey. There is a limited number of suitable cliffs in Washington, and steppe and shrub-steppe ecosystems in this state are rapidly being converted to agriculture. Human habitation close to cliffs limits their use by prairie falcons, as do agricultural practices that reduce available prey.

## HABITAT REQUIREMENTS

Prairie falcons inhabit the arid environments of eastern Washington and nest on cliffs usually associated with native steppe and shrub-steppe habitat (Denton 1975). Often this habitat is intermixed with agricultural lands (Denton 1975). Typically, the landscape is treeless, but its edges include shrub-land that may contain a few conifers. Prairie falcon habitat in Washington does not differ markedly from other areas described in the literature (Fowler 1931, Skinner 1938, Enderson 1964, Denton 1975).

Prairie falcons use a wide variety of cliffs. Along the Columbia, Snake, and Yakima rivers, they commonly nest on basalt cliffs up to 122 m (400 ft) tall. They also use scant escarpments raised only 6 m (20 ft) above sloping canyon walls. In North Dakota, Allen (1987) found prairie falcons using cliffs ranging from 3-35 m (10-115 ft) tall, with a mean of 11 m (36 ft), and 5-500 m (16-1,649 ft) in length, with a mean of 103 m (338 ft). In Mexico, Lanning and Hitchcock (1991) found the range of cliff heights used by prairie falcons to be between 25 m and 130 m (92-427 ft) tall, with a mean of 65 m (213 ft). Runde and Anderson (1986), summarized data from 8 studies on prairie falcons, and reported a combined cliff height range of 2-154 m (6.5-505 ft), with a mean of 29 m (95 ft). They also summarized the aspect of the cliff lines, and reported that although prairie falcons may use cliffs facing any aspect, they tend to use cliffs with a southerly aspect.

Nest sites are often on a sheltered ledge or in a pothole in the cliff. Runde and Anderson (1986) found that 97% of their sites in Wyoming had overhead protection. Other studies (Enderson 1964, Leedy 1972, Platt 1974, Ogden and Hornocker 1977) generally found this same trend. Use of abandoned stick nests built by other raptors (particularly golden eagle [*Aquila chrysaetos*] or raven [*Corvus corvus*]) is well documented (Decker and Bowles 1930, Bent 1938, Williams 1942, Webster 1944, Enderson 1964, Brown and Amadon 1968, Hickman 1971). Use of artificial nests by prairie falcons has been documented in North Dakota, but long-term successful nesting was limited (Mayer and Licht 1995).

In Oregon, Denton (1975) found that most nest sites were located at elevations between 60 and 2530 m (200-8300 ft), in habitats typified by undulating topography and moderately xeric vegetation. This was comprised of juniper (*Juniperus* spp.), big sagebrush (*Artemisia tridentata*), and bunchgrass (*Agropyron spicatum* and *Festuca idahoensis*) associations, which were sometimes degraded where cheatgrass (*Bromus tectorum*) replaced native grasses. He also reported that of 63 nest sites, 76% were within 400 m (0.25 mi) of a water source, 32% bordered agricultural land, 62% were within 800 m (0.5 mi) of a road, but only 15% were within 800 m (0.5 mi) of human habitation.

Foraging territories surround prairie falcon nest sites, and studies have reported a wide variety of home range sizes during the breeding season. In Idaho, home range size varied between 26-142 km<sup>2</sup> (10-55 mi<sup>2</sup>) (U. S. Bureau of Land Management 1979), in Southern California between 31-78 km<sup>2</sup> (12-30 mi<sup>2</sup>) (Harmata et al. 1978), and in Northern California between 34-389 km<sup>2</sup> (13-150 mi<sup>2</sup>) (Haak 1982). Squires et al. (1993) found that prairie falcons typically foraged within 10 km (6 mi) of nest sites during the breeding season, and that habitats closer to nesting sites were preferred. Males had the larger home ranges and traveled greater distances from their nests while hunting than did females.

Prairie falcons forage on a variety of prey, including birds and small mammals. Prey abundance largely determines diet composition. Some studies have found that prairie falcons foraged primarily on mammalian prey (Ogden and Hornocker 1977), whereas others found that avian prey predominated (Marti and Braun 1975, Becker 1979, Boyce 1985). In Wyoming, thirteen-lined ground squirrels (*Spermophilus tridecemlineatus*) were found in 91% of pellets analyzed, western meadowlark (*Sturnella neglecta*) in 56%, and horned lark (*Eremophila alpestris*) in 23% (Squires et al. 1989). In Idaho, Townsend's ground squirrels (*S. townsendii*) were prey items in at least 98% of the aeries, with western meadowlark and horned lark present in 13% and 22%, respectively (Ogden and Hornocker 1977). Steenhof and Kochert (1988) found ground squirrels to be the primary prey during the breeding season in Idaho's Snake River Birds of Prey Natural Area.

Less is known about prairie falcon food habits during winter, though small mammals and birds continue to play a major role. Horned larks are the main food for prairie falcons in winter wheat areas (Snow 1974, Beauvais and Enderson 1992) and in the Snake River Birds of Prey Natural Area (Prokop 1995). Wintering prairie falcons have

also been observed hunting microtine rodents in harvested hay fields and chasing upland game birds and rock doves (Beauvais and Enderson 1992). The home range size in winter is less than what is reported for the nesting season, ranging between 12-68 km<sup>2</sup> (4.6-26 mi<sup>2</sup>) (Beauvais and Enderson 1992). Prokop (1995) reported that home range size did not vary between sexes in winter.

## LIMITING FACTORS

In Washington, prairie falcons are limited by the availability of cliffs suitable for nesting that are adjacent to steppe and shrub-steppe habitats (Denton 1975). Prey abundance within their home ranges also limits prairie falcons. Ground squirrels, western meadowlarks (*Sturnella neglecta*), and horned larks (*Eremophila alpestris*) are important prey (Marti and Braun 1975, Ogden and Hornocker 1977, Becker 1979, Boyce 1985). Human habitation near nesting cliffs limits prairie falcon use, as do agricultural practices that reduce available prey (Denton 1975). In winter, the availability of avian prey, particularly horned larks, is important to the survival of resident prairie falcons (Snow 1974).

## MANAGEMENT RECOMMENDATIONS

Homes and other sources of human activity should be placed no closer than 805m (2640 ft) from prairie falcon nest sites (Denton 1975). Prairie falcons commonly occur where human habitation is absent. As difficult as it may be to protect existing nest sites, creating new sites suitable for continued, long-term use may be even more difficult (Mayer and Licht 1995).

Native steppe and shrub-steppe habitats should be maintained near prairie falcon nesting sites to ensure falcon survival and nesting success. These habitats are important for maintaining populations of the prairie falcons' prey. Studies of shrub-steppe in Washington indicate that the western meadowlark and the horned lark are the most common shrub-steppe birds (Dobler 1996). They are also the 2 most common bird species in prairie falcon diets (Squires et al. 1989). In addition, *Spermophilus* ground squirrels are commonly associated with native steppe and shrub-steppe habitats, and they also make up a significant portion of the prairie falcon's diet (Ogden and Hornocker 1977, Steenhof and Kochert 1988).

Widespread rodent control should not occur within prairie falcon foraging areas, because ground squirrels are common prey items, and foraging prairie falcons may depend on food located a great distance from the nest (Haak 1982). The foraging area is approximated by using the dimensions of the home range, which can be as large as 389 km<sup>2</sup> (150 mi) (Haak 1982). If rodenticides or other chemical treatments are planned for areas where prairie falcons exist, refer to Appendix A for contacts that can assist in assessing chemical treatments and their alternatives.

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## KEY POINTS

### Habitat Requirements

- Prairie falcons inhabit the arid environments of eastern Washington, nesting on cliffs in arid steppe and shrub-steppe habitat.
- Prairie falcons use a wide variety of cliffs, from those made of basalt that are 122 m (400 ft) tall to scant escarpments raised only 6 m (20 ft) above sloping canyon walls.

- Nest sites are often on a sheltered ledge or in a pothole in the cliff, and prairie falcons often use abandoned stick nests built by other raptors.
- Most nest sites are located over 800 m (.5 mi) from human habitation.
- Most nests occur within one-quarter mile of water.
- Prairie falcon nest sites are located within foraging territories. Breeding home range can be as large as 389 km<sup>2</sup> (150 mi<sup>2</sup>).
- Prairie falcons forage on a variety prey common to shrub-steppe environments. Ground squirrels (*Spermophilus* spp.), western meadowlarks and horned larks are primary prey items during the breeding season.

### Management Recommendations

- Human habitation limits the use of nesting cliffs and should not occur within 800 m (0.5 mi) of known nests.
- Steppe and shrub-steppe habitats should be maintained within the range of prairie falcons to provide a sufficient prey base.
- Widespread control of ground squirrels and other rodents should be limited to areas outside of prairie falcon foraging areas. If rodenticides or other chemical treatments are being considered in areas with prairie falcons, refer to Appendix A for contacts useful when assessing chemical treatments and their alternatives.

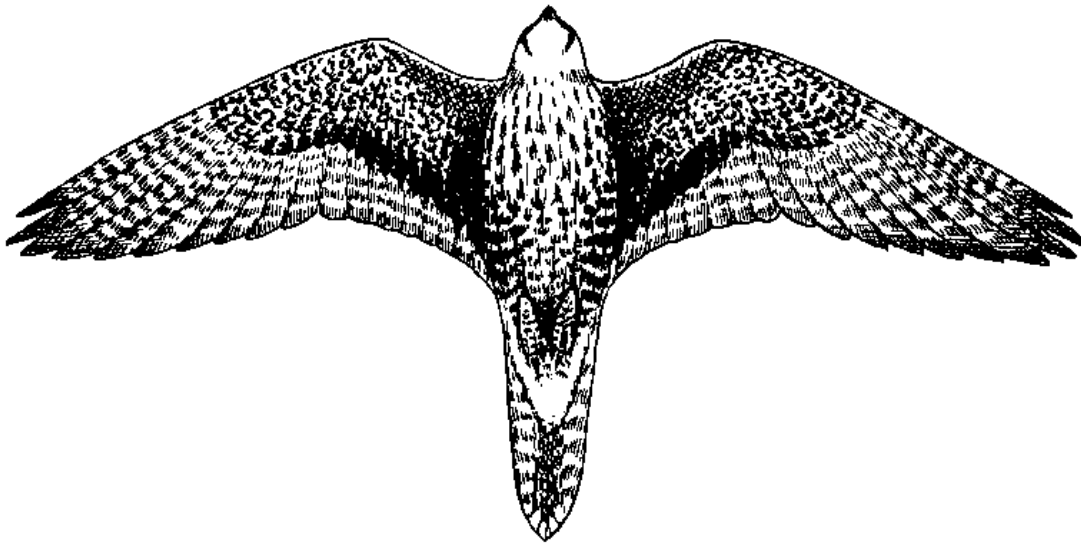


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