

Rough-legged Hawk

Buteo lagopus

Spanish name: Ratonero calzado, Gavilán oscurado

French name: Buse pattue

Other names: Roughleg, Rough-legged Buzzard

Size: Length from head to toe 46-59cm; wingspan 122-143cm; weight 745-1380g



Type migrant: complete

Introduction

The Rough-legged Hawk is a large, long-winged *Buteo* of open habitats. The species, named for its feathered legs, breeds throughout the arctic and sub-arctic regions of North America, Europe, and Asia. In North America, roughlegs typically breed in the open tundra and semi-open taiga of Alaska and Canada. Their breeding range can extend south into boreal regions in years when prey are abundant.

In autumn, almost all Rough-legged Hawks leave the breeding grounds and migrate to wintering grounds in southern Canada and the northern United States. Wintering roughlegs typically select open habitats similar to those on the breeding grounds. Expansive agricultural lands and airports are often used in the East. In winter, roughlegs often concentrate in large numbers in areas where food is plentiful.

Identification

Like other *Buteos*, Rough-legged Hawks have long, broad wings, a chunky body, and typically soar with their tails fanned. Overall, this species has a longish tail, small feet, and a small beak for its body size. Rough-legged Hawks soar and glide with their wings held in a dihedral or "V" shape, and they often hover while hunting. In flight the dark carpal patches of light-morph birds serve as good field marks for identifying the species. In North America, several distinctive plumages are reported. Both light and dark morph Rough-legged Hawks occur in North America, but dark morphs are found nowhere else. Dark morphs are more common in the East where they make up 25% to 40% of the population, whereas in the West they make up only 10% of the population. Adult males and females exhibit different plumages, and adults and juveniles differ in appearance as well.

Plumages are variable in the species. Adults have dark eyes, a wide black subterminal band on the white tail, and a black band on the trailing edge of their underwings. Light-morph adult males have grayish-brown backs and wings, and brown markings on their whitish underparts. These markings typically are heavier on the breast than on the belly, and there is a well-defined light U-shaped area between the breast and belly. The tail has multiple dark incomplete bands and a wide, dark subterminal band. Light-morph adult females have more brownish backs and wings than adult males, and their bellies are more heavily marked than those of males. The lower half of a female's whitish tail is usually dusky, and females have one wide, black subterminal band. Dark-morph males are usually black overall except for the undersides of their flight feathers, which are silvery with dark bars and

dark tips. Their tail feathers are dark with three or four thin white bands near the base that are visible from above. Dark-morph females are dark brown overall and like males, the undersides of their flight feathers are silvery. The tail feathers of females are all dark above and silvery below with a dark terminal band. Juveniles of both morphs have light eyes, dusky bands on the underside of the tail, and a dusky band on the trailing edge of their underwings. Light-morph juveniles are similar to light-morph adult females and dark-morph juveniles are similar to dark-morph adult females.

Breeding Habits

Rough-legged Hawks are monogamous, and pairs raise only one brood per year. Pairs do not perform extensive courtship displays. Roughlegs call while circling and soar together or individually. In addition, males sometimes perform "sky dance" displays. "Sky dances" include undulating flights, during which males dive downward with their wings drawn in, climb back up steeply, and hover briefly before repeating the sequence.

Rough-legged Hawks prefer to nest on cliffs, and the absence of suitable nest sites restricts the species' breeding distribution. Nests are typically placed at sites that offer a broad view of the surrounding area. The species also nests on the ground along eroded river banks. Roughlegs rarely nest in trees, on level ground or on man-made structures. Nests in trees usually are placed close to the crown.

Nests, which are 60 to 90cm across and 25 to 60cm deep, are constructed of sticks and are lined with feathers, hair, moss, grass, and other greenery. Although additional material may be added during incubation and brooding, the majority of nest-building occurs in the three to four weeks following a pair's return to the breeding grounds and prior to egg-laying. Males generally select the nest site and bring most of the nest material whereas females undertake most of the nest construction.

Rough-legged Hawks lay clutches of three to seven eggs. Replacement clutches are sometimes laid, particularly if the first clutch is lost before hatching. Females do most of the incubating during the more than 30-day incubation period, although males cover the eggs for brief periods when females leave the nest. During incubation females are fed exclusively by their mates. Males are intercepted in mid-air by females as they return to the nest with prey, and females consume prey at feeding sites away from the nest. After the eggs hatch, the female broods the nestlings continually for 17 to 22 days. Throughout this period, the male continues to provide food to the female, both for her and the developing young. Thereafter, females begin to hunt on their own. The young, who leave the nest when they are about 40 days old, continue to rely on their parents for most of their food for two to four weeks after fledging. Fledglings often remain near the nest and are dependent on their parents until migration begins.

Feeding Habits

Rough-legged Hawks hunt almost exclusively in open habitat and the species hunts on the wing more commonly and with greater success than do most *Buteos*. The roughleg regularly hovers when hunting on the wing. Although Rough-legged Hawks

often hunt aerially, they also hunt from perches, particularly in winter. Potential perch sites include trees, utility poles, fence posts, and hay stacks. Factors that play a role in determining which hunting method is used include the presence of suitable perches and weather conditions. Rough-legged Hawks use updrafts created above hills and cliffs when hovering. They are also more likely to hunt on the wing as wind speeds increase because the energetic costs of hovering decrease at such times. Prey are typically captured on the ground and carried to an elevated perch where they are consumed. Rough-legged Hawks sometimes rob prey from other birds including other roughlegs, Red-tailed Hawks, Northern Harriers, American Kestrels, and Common Ravens.

During the breeding season Rough-legged Hawks feed primarily on small rodents such as lemmings and voles. In winter, small mammals—including mice, shrews, and voles—are the predominant prey. Rough-legged Hawks also take larger mammals including Arctic Ground Squirrels and rabbits. Birds are an important supplemental source of food, particularly in summer, when Rough-legged Hawks have been known to take ptarmigan, waterfowl, shorebirds, and songbirds. Winter diets vary depending upon location. Although roughlegs feed almost entirely on mammals and birds, they may also capture reptiles, fish, and insects as well. Rough-legged Hawks also feed on many species of carrion, particularly in winter when small mammals are inaccessible due to snow cover. Roughlegs will also sometimes feed on road killed animals.

Conservation Status

The total world population of Rough-legged Hawks is estimated at between 100,000 and one million birds.

Accurately assessing the population size of Rough-legged Hawks is difficult because the species' breeding grounds are widespread and remote. Also, because Rough-legged Hawks migrate across a broad front they are not counted in large numbers at most traditional watchsites, and migration counts do not serve as good indicators of the population size. Overall, the species appears to be fairly common across its range in the Arctic and in tundra regions globally.

Even though Rough-legged Hawks feed primarily on small rodents, the species was viewed as a threat and was persecuted by ranchers and farmers until the 1930s. Because it tends to feed on small mammals and typically breeds in remote areas, the Rough-legged Hawk was unaffected by the widespread use of organochlorine pesticides. Habitat loss is more likely on the Rough-legged Hawk's wintering grounds than on its breeding grounds. In some cases Rough-legged Hawks are displaced when agricultural lands are developed. Collisions with vehicles are a common source of mortality on the wintering grounds.

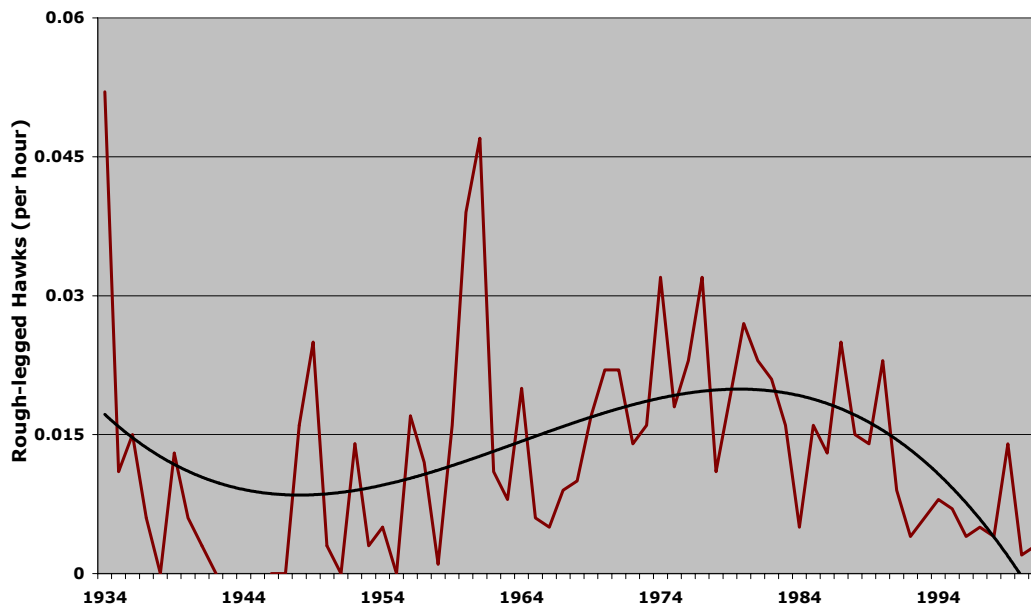
Migration

Rough-legged Hawks are one of the five North American raptors that are complete migrants.

Rough-legged Hawks are moderate-distance migrants that migrate across broad fronts. The largest concentrations of migratory Rough-legged Hawks are observed in

river valleys that run parallel to migration routes and along the shorelines of large bodies of water like the Great Lakes, where hundreds of Rough-legged Hawks are counted at spring watchsites like Whitefish Point, Michigan on Lake Superior, and at Braddock Bay and Derby Hill, New York on Lake Ontario. The largest flights of Rough-legged Hawks are observed after the passage of cold fronts. Rough-legged Hawks usually migrate alone, but individuals are sometimes seen together when capitalizing on favorable atmospheric conditions.

Annual Fluctuations in Rough-legged Hawk Passage at Hawk Mountain Sanctuary (1934-2001)

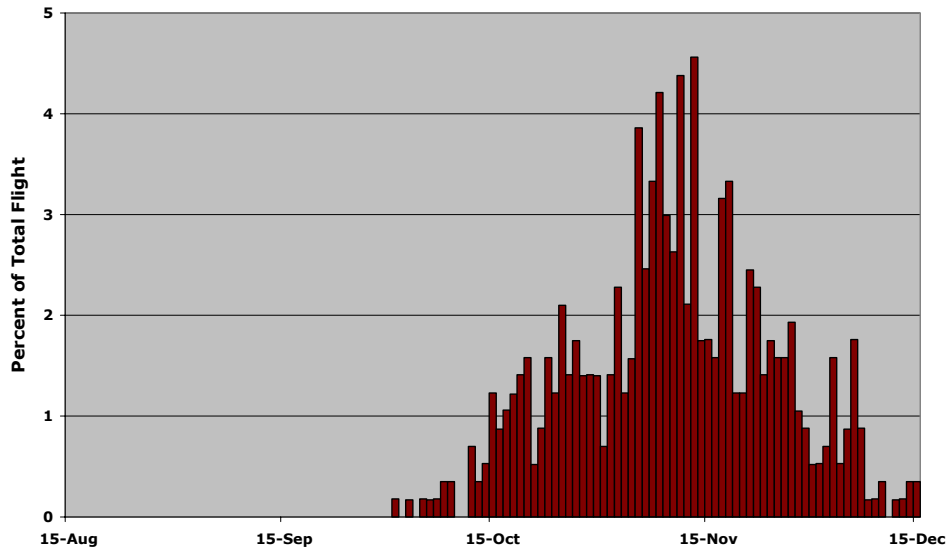


When migrating, Rough-legged Hawks use both powered and mixed flapping and gliding flight, and also soar on mountain updrafts and thermals. Rough-legged Hawks engage in flapping flight more frequently than other *Buteos* and are less dependent on mountain updrafts and thermals. Roughlegs also migrate earlier and later in the day than other *Buteos*. The species readily undertakes long (up to 100 km) water-crossings.

In the eastern United States, female Rough-legged Hawks typically winter farther north, whereas males predominate in more southerly areas. Some roughlegs establish winter home ranges, but others move around in the winter. As a result numbers of Rough-legged Hawks wintering in areas often fluctuate during the course of the season. In spring, adults usually precede juveniles on migration.

At Hawk Mountain, approximately nine Rough-legged Hawks are counted at the Sanctuary each autumn, mainly between early November and mid-December.

**Seasonal Timing of Rough-legged Hawk Migration
at Hawk Mountain Sanctuary (1934-2001)**



**List of Top Ten Rough-legged Hawk Flight Days
at Hawk Mountain Sanctuary, 1936-2002**

Number of Birds	Date
7	11 Nov 1961
6	13 Nov 1977
6	3 Dec 1985
6	6 Dec 1987
5	7 Nov 1960
5	5 Nov 1975
5	9 Nov 1988
4	18 Nov 1934
4	18 Nov 1956
4	6 Nov 1960

Suggested Readings

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