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Falco peregrinus

peregrine falcon

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By Tanya Dewey

Geographic Range

Kingdom: Animalia
 Phylum: Chordata
 Subphylum: Vertebrata
 Class: Aves
 Order: Falconiformes
 Family: Falconidae
 Subfamily: Falconinae
 Genus: *Falco*
 Species: ***Falco peregrinus***

Peregrine falcons are found worldwide, except for rainforests and cold, dry Arctic regions. They are one of the most widespread, terrestrial vertebrate species in the world. Most southern Palearctic and island populations of peregrine falcon are resident, and do not migrate. (White et al., 2002)

Peregrine falcons migrate long distances between breeding and winter ranges. Northernmost populations, which breed in the tundra of Alaska and Canada, migrate to central Argentina and Chile. They typically migrate along sea coasts, long lake shores, barrier islands, mountain ranges, or at sea. (White et al., 2002)

Biogeographic Regions:

nearctic (native); palearctic (native); oriental (native); ethiopian (native); neotropical (native); australian (native .

Other Geographic Terms:

cosmopolitan .

Habitat

Elevation

3600 m (high)
(11808 ft)

Peregrine falcons prefer open habitats, such as grasslands, tundra, and meadows. They are most common in tundra and coastal areas and rare in sub-tropical and tropical habitats. They nest on cliff faces and crevices. They have recently begun to colonize urban areas because tall buildings are suitable for nesting in this species, and because of the abundance of pigeons as prey items. They have been observed breeding as high as 3600 meters elevation in the Rocky Mountains of North America. (White et al., 2002)

These animals are found in the following types of habitat:

temperate Q; tropical Q; terrestrial Q.

Terrestrial Biomes:

tundra Q; taiga Q; desert or dune Q; savanna or grassland Q; chaparral Q; forest Q; scrub forest Q; mountains Q.

Other:

urban Q.

Physical Description

Mass

907 g (average)
(31.93 oz)

Length

36 to 58 cm
(14.17 to 22.83 in)

Wingspan

91 to 112 cm
(35.83 to 44.09 in)

There are 19 regional variants (subspecies) of peregrine falcon worldwide. They vary considerably in size and color. Like all falcons, peregrine falcons have long, tapered wings and a slim, short tail. In North America they are roughly crow sized, ranging in length from between 36 and 49 cm in males and 45 to 58 cm in females. Wingspan varies from 91 to 112 cm. They weigh an average of 907 g. Like most birds of prey, female peregrine falcons are slightly larger than males. They are typically 15-20% larger and 40-50% heavier than males. Peregrine falcons have slate and blue-gray wings, black bars on their backs and pale underbellies. They have white faces with a black stripe on each cheek and large, dark eyes. Young birds tend to be darker and browner, with streaked, rather than barred, underparts. Plumage doesn't vary seasonally. (White et al., 2002)

Some key physical features:

endothermic Q; homoiothermic; bilateral symmetry Q.

Sexual dimorphism: Qfemale larger.

Reproduction

Peregrine falcons form monogamous pair bonds that often last throughout many breeding seasons. Both males and females have a strong attachment to previous nesting sites, which may explain monogamy over multiple breeding seasons, rather than attachment between individuals. (White et al., 2002)

Males display at nest ledges to attract females and advertise ownership to other falcons. The development of a pair bond is first indicated by the male and female roosting near each other. Eventually they sit at the nest ledge side by side. Individuals may also peep at each other, preen, nibble their mate's toes, or "bill" (gently grab the other bird's bill in their own). Both sexes may then engage in "ledge displays", centered on the area of their nest, or scrape. Prior to egg-laying, the pair will engage in incredible aerial displays, involving power dives, tight cornering, high soaring, and body rolls during a dive. Once the pair has formed, they begin to hunt cooperatively and females begin to beg for food from the male. (White et al., 2002)

Mating systems:

monogamous ♀.

Peregrine falcons breed between March and May, depending on how far north they are breeding. Females usually lay their eggs in mid-May and they usually hatch in mid-June. Peregrine falcons lay one egg every 48 hours, for a total of from 2 to 6 eggs. Eggs are laid in a nest high on cliffs, tall trees, or tall buildings. Falcons make nests that are called 'scrapes', or simple small depressions dug into the sand or dirt and lined with fine materials. They may sometimes use nests that were built by other birds. Eggs hatch in 33 to 35 days. Young birds learn to fly 35 to 42 days after hatching. It typically takes 3 years for the young to reach adulthood and be able to breed. Females most frequently breed earlier than males. (White et al., 2002)

Key reproductive features:

iteroparous ♀; seasonal breeding ♀; gonochoric/gonochoristic/dioecious (sexes separate); sexual ♀; oviparous ♀.

Both parents incubate eggs and care for the young. Females generally incubate the eggs for greater proportions of the time than do males. Young are brooded almost continuously until they are 10 days old. Young birds remain dependent on their parents for several weeks after fledging. As the young become more adept at flying, parents begin to deliver prey to them by dropping them in the air. The young then pursue and capture this already-dead prey in the air. In migratory populations, young become independent at the onset of migration, usually around 5-6 weeks post-fledging. Young in non-migratory populations may be dependent for slightly longer. (White et al., 2002)

Parental investment:

altricial ♀; pre-fertilization (provisioning, protecting: female); pre-hatching/birth (protecting: male, female); pre-weaning/fledging (provisioning: male, female, protecting: male, female); pre-independence (provisioning: male, female, protecting: male, female).

Lifespan/Longevity

**Extreme lifespan
(wild)**

20 years (high)

**Extreme lifespan
(captivity)**

25 years (high)

**Typical lifespan
(wild)**

Though most peregrine falcons do not live to be 1 year old, a healthy falcon who survives lives an average of 13 years. Survival rates through the first year of life are estimated at 40%. Adult survivorship is estimated at 70%. Maximum longevity records for wild birds is from 16 to 20 years old. The longest known lifespan for a captive peregrine falcon is 25 years. (White et al., 2002)

Behavior

Peregrine falcons are active during the day. When not breeding they are primarily solitary and establish and defend territories. Territory sizes vary with the density of food resources. In northern populations, with the highest population densities, the distance between nests averaged between 3.3 and 5.6 km in different areas. (White et al., 2002)

Home Range

Home ranges have been estimated from 177 to 1508 square kilometers. Males and females regularly hunt up to 5 km from their nest site or territory. (White et al., 2002)

Key behaviors:

flies; diurnal Q; motile Q; migratory Q; sedentary Q; solitary Q; territorial Q.

Communication and Perception

Peregrine falcons use a wide variety of vocalizations at different stages of life, but primarily during breeding seasons.

Most vocalizations are either between mated individuals, parents and offspring, or in antagonistic interactions.

Young beg for food with a call similar to: "screea, screea, screea."

"Cack" calls are usually used in alarm and nest defense. They are highly individual specific, with individual recognition possible in 72 to 90% of calls. The call is characterized as "kaa-aack, kaa-aack."

"Chitter" calls are used in several contexts and are a rapid succession of "chi chi chi chi's." Similarly, the eechip call occurs in a variety of contexts. It is characterized as "kee-u-chip", but the "chip" portion contains the highest energy and the "kee-u" portion is often left out.

When hunting, peregrine falcons will often give sharp, territorial calls in quick succession, "kee, kee kee...".

Postures are used to communicate aggression and appeasement. Raising the feathers and bill gaping are typical of aggressive posturing. Submission is indicated by the feathers being held tight to the body and the head held down, with beak averted.

Peregrine falcons have extraordinarily keen vision. They can see small objects from very far away and accurately fly at high speeds to capture them. (White et al., 2002)

Communicates with:

visual Q; acoustic Q.

Perception channels:

visual ☞; tactile ☞; acoustic ☞; chemical ☞.

Food Habits

Peregrine falcons prey almost exclusively on birds, which make up 77 to 99% of prey items. Birds include mourning doves, pigeons, shorebirds, waterfowl, ptarmigan, grouse, and relatives, and smaller songbirds. They will also eat small reptiles and mammals. Most frequent mammal prey are bats (*Tadarida*, *Eptesicus*, *Myotis*, *Pipistrellus*), followed by arvicoline rodents (*Arvicolinae*), squirrels (*Sciuridae*), and rats (*Rattus*). The most important set of prey, by biomass, is Columbidae. (White et al., 2002)

Peregrine falcons most frequently hunt from a perch with a high vantage point, taking flight once prey have been detected. This is most frequently a cliff or tall tree. They may also fly or hover to search for prey. In some areas, where they may have to rely on insects, lizards, or mammals for prey, peregrine falcons hunt on foot on the ground. (White et al., 2002)

Peregrine falcons are most successful in capturing prey if they have more height from which to initiate a stoop onto a prey animal. Although peregrine falcons capture their prey with their talons, they generally kill with their beak by severing the cervical vertebrae. Prey are then typically carried to an eating perch, where they are plucked and consumed, or cached for later use. Small prey (such as bats) may be eaten in flight. (White et al., 2002)

Primary Diet:

carnivore ☞ (eats terrestrial vertebrates).

Animal Foods:

birds; mammals; amphibians; reptiles; fish; insects.

Foraging Behaviors:

stores or caches food ☞.

Predation**Known predators**

- great horned owls (*Bubo virginianus*)
- golden eagles (*Aquila chrysaetos*)
- gyrfalcons (*Falco rusticolus*)
- bears (*Ursus*)
- cats (*Felis*)
- foxes (*Vulpes*)
- wolverines (*Gulo gulo*)

Though peregrine falcons, like other birds of prey, are considered to be near the top of the food chain, they are not completely free from predators. Adults may be killed by other, large birds of prey, such as great horned owls (*Bubo virginianus*), gyrfalcons (*Falco rusticolus*) and golden eagles (*Aquila chrysaetos*). Nestlings and fledglings may be taken by mammalian predators such as cats (*Felis*), bears (*Ursus*), wolverines (*Gulo gulo*), or foxes (*Vulpes*), particularly in nests that are closer to the ground. Humans take eggs to raise for falconry. (White et al., 2002)

Peregrine falcons are aggressive in defense of their nests, attacking birds and mammals that are much larger than themselves. (White et al., 2002)

Ecosystem Roles

As top predators, peregrine falcons play an important role in regulating populations of their prey, particularly pigeons and doves (Columbidae), ptarmigan (*Lagopus*), and ducks (Anatidae) (White et al., 2002)

Peregrine falcons harbor, and are susceptible to, a number of parasites and diseases, including avian pox (*Poxvirus avium*), Newcastle disease, herpes virus, mycotic infections, strigeid trematodes (Strigeidae), nematodes (*Serratospiculum amaculata*), malaria (*Plasmodium relictum*), tapeworms, and bacterial infections. Ectoparasites include chewing lice (Phthiraptera, including *Colpocephalum zerafae*, *Degeeriella rufa*, *Laemobothrion tinnunculus*, and *Nosopon lucidum*), fleas (*Ceratophyllus garei*), and flies (*Icosta nigra* and *Ornithoctona erythrocephala*). (White et al., 2002)

Commensal or parasitic species (or larger taxonomic groups) that use this species as a host

- *Ornithoctona erythrocephala*
- *Icosta nigra*
- *Ceratophyllus garei*
- *Nosopon lucidum*
- *Laemobothrion tinnunculus*
- *Degeeriella rufa*
- *Colpocephalum zerafae*
- *Plasmodium relictum*
- *Serratospiculum amaculata*
- Strigeidae

Economic Importance for Humans: Negative

Birds of prey are sometimes accused of killing farm animals, such as chickens. The numbers of farm animals killed by birds of prey is of minor economic consequence when compared to their contributions to pest control.

Economic Importance for Humans: Positive

Peregrine falcons (and predatory birds in general) are a great asset to many farmers, killing millions of crop-destroying animals and insects.

Ways that people benefit from these animals:

controls pest population.

Conservation Status

IUCN Red List: [\[link\]](#):

Least Concern.

US Migratory Bird

Act: [\[link\]](#):

Protected.

US Federal List:**[link]:**

No special status.

CITES: [link]:

Appendix I.

Peregrine falcons have suffered due to their dangerous position atop the food chain. Pesticides accumulate in small (not lethal) quantities in the tissues of small birds and mammals, but become concentrated enough in predatory birds, such as falcons, to kill them or render them incapable of producing offspring. Organochlorine pesticides (DDT and dieldrin) have been proven to reduce the birds' ability to produce eggshells with sufficient calcium content, making the egg shells thin and more likely to break. Peregrine falcon populations dropped precipitously in the middle of the 20th century. All breeding pairs vanished in the eastern United States. A successful captive breeding and reintroduction program, combined with restrictions in pesticide use, has been the basis of an amazing recovery by peregrine falcons. Now the use of many of the chemicals most harmful to these birds is restricted. However, it is not yet restricted in Central and South American where many subspecies spend the winter. After having been on the endangered species list since 1969, the incredible recovery of peregrine falcons has become a perfect example of how effective human conservation can be. In the 1990's they were taken off the federal list of endangered species in the United States. They are still listed as endangered in the state of Michigan. (White et al., 2002)

Other Comments

Peregrine falcons are perhaps the fastest animals on earth. In a stoop, or dive, peregrine falcons have been clocked at speeds of over 180 miles per hour and are believed to be able to reach up to 200 mph. Because of their fantastic agility and capability for high speeds, peregrine falcons have been the favorite choice of falconers, who train falcons to hunt other birds.

Contributors

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References

White, C., N. Clum, T. Cade, W. Hunt. 2002. Peregrine Falcon (*Falco peregrinus*). *The Birds of North America*, 660. Accessed March 24, 2006 at [http://bna.birds.cornell.edu/BNA/account/Peregrine_Falcon/..](http://bna.birds.cornell.edu/BNA/account/Peregrine_Falcon/)

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