



Peregrine Falcon

Falco peregrinus



Current Status: In Pennsylvania, the peregrine falcon is protected under the Game and Wildlife Code and the Migratory Bird Treaty Act of 1918.

Population Trend: The peregrine falcon is cosmopolitan, in more ways than one. It nests in many parts of the world and its choice of nest sites is diverse and often urban! Peregrines historically nested widely in the eastern United States, numbering about 350 nesting pairs in the early 1900s. In Pennsylvania, there were 44 known nest sites; 43 were on cliffs, usually along rivers. The native eastern breeding population was wiped out by the early 1960s, primarily due to effects of DDT. The peregrine falcon was listed as an Endangered Species by the U.S. Fish and Wildlife Service in 1973 following the catastrophic decline of the species worldwide. No nesting was recorded in Pennsylvania between about 1959 and 1987.



After DDT was banned, the Peregrine Fund Inc., a nonprofit organization, was organized with the mission of reestablishing the species in the eastern United States. Some of the earliest reintroduction sites during the 1970s included historic nesting areas in Pennsylvania. A slow, steady expansion in the population was assisted by supplemental releases of birds coordinated by the Pennsylvania Game Commission in the 1990s. The peregrine falcon's subsequent recovery resulted in its removal from the federal list in 1999 and Pennsylvania's threatened list in 2021.

Cliff-nesting – where most peregrines nested in Pennsylvania prior to their population collapse and eventual extirpation – was first reconfirmed in the state in 2003 in Lycoming County. At the time of state delisting, the cliff nesting population had recovered to 22 pairs with numerous additional pairs nesting on human structures.

Identifying Characteristics:

Peregrines are mid-sized birds of prey, 15 to 22 inches in length, with a wingspan of more than three feet. Adults have dark-bluish-gray upper parts and wings; undersides are whitish to buffy, broken by horizontal blue-gray bars. Young birds, up to two years old, are dark brown (rather than gray) on their wings and back with vertical brown streaks against a pale chest. The head has a dark "helmet" pattern that is more pronounced in adults. Like all falcons, the peregrine has long pointed wings and rapid, steady wing beats in flight. An adult peregrine can reach a speed of more than 200 miles per hour in a vertical dive called a stoop; in level flight they average about 60 miles per hour.



Pennsylvania counties with active peregrine falcon territories in 2021

Biology-Natural History: The true eastern United States peregrine falcon was the subspecies *anatum*. Today, the population reestablished by The Peregrine Fund employed subspecies from around the world. The reintroduction effort was tremendously successful, and the birds have returned to many historical nest sites.

Peregrines feed primarily on other birds, typically by striking them in flight. Prey range in size from five-inch-long chimney swift, to waterfowl and gulls. The remains of pigeons, blue jays, northern flickers and other mid-sized songbirds are typically found at nest sites. Their aerial hunting style partially explains peregrines' preference for high prominences, buildings, cliffs and other open spaces with expansive views.



In Pennsylvania, most peregrines are nesting on buildings and bridges. Smokestacks and cliffs also are used. Male and female falcons typically pair for life, renewing their bond with courtship activity during late winter and early spring. Courtship is marked by special flight displays and the male bringing the female food. No nest is built, and the eggs are normally laid in a small scrape in gravel on a high ledge or cliff. Some city-nesting peregrines use platforms or boxes installed for them. A peregrine clutch is three to five eggs laid at two- to three-day intervals. Eggs are incubated about 31 days by both adults.

When the eggs hatch young falcons weigh about 1.5 ounces and are covered in fluffy white down. Nestlings grow rapidly and their down is replaced by feathers in three to five weeks. They are essentially



full-grown at six weeks of age. Males develop more quickly than females. Females are larger and more powerful when fully grown.

For the first few weeks, the adult female broods the young and feeds them with food brought by the male. As the demands of the rapidly growing young increase, both adults begin providing food. By three weeks, nestlings move about the nest site and begin to tear meat from prey brought to them by their parents. Nestlings become fledglings, taking their first real flight between 40 and 45 days of age. First flights may appear proficient, but landings reveal their inexperience. After about five days of practice the fledglings are much more adept at flying and landing. Four to 10 weeks after fledging, juvenile birds begin to care for themselves, hunt for food and disperse from the nest area. Initially, prey items may be dragonflies or butterflies, but soon they're hunting skills improve to include small birds.

Some adult peregrines may remain in Pennsylvania year-round while others leave their nesting territory during the winter months. Based on the findings of movement studies, young falcons disperse from nest sites and meander through the Mid-Atlantic region. They may travel hundreds of miles before settling on a winter territory, sometimes returning to visit their natal area. We have no evidence of long-distance migration south to Latin America by Pennsylvania's birds.

During spring and fall migration the Arctic breeding subspecies pass through the state in route to Latin American wintering grounds. These are most readily seen at hawk migration sites such as Hawk Mountain Sanctuary, but birds may show up anywhere.

Mortality in the first year of life is assumed to be high, but peregrines that survive to adulthood may live 12 to 15 years. Most peregrines become sexually mature at two or three years of age.

Preferred Habitat: Historically, Pennsylvania's peregrine falcons nested on cliffs in at least 21 counties. After an absence of nearly three decades, the first breeding peregrines to Pennsylvania were documented on bridges in the Philadelphia area. Today, peregrines are found nesting on bridges, tall buildings smokestacks and cliffs in 31 counties.

Reasons for Being Threatened: By 1961, peregrines no longer nested in Pennsylvania or anywhere in the eastern United States. Their catastrophic decline and extirpation were attributed chiefly to pesticides – particularly DDT. Prior to federal protection, they were subject to egg collecting and shooting, but they withstood these pressures for centuries until DDT became widespread.

In 1970, the American and Arctic peregrine falcon subspecies were listed as endangered under the Endangered Species Conservation Act of 1969 (the law preceding the Endangered Species Act of 1973).

In 1999, the eastern U.S. breeding population was removed from the federal list of endangered species but remained on the Pennsylvania list. In 2019, the species was upgraded to threatened and ultimately removed from the state list in 2021.

In a 1968 Pennsylvania Game News article, Ron Jenkins wrote about the ill-fated extirpation of the peregrine falcon in our commonwealth. After more than 40 years of conservation recovery action in Pennsylvania and nationally, the peregrine falcon has recovered and was taken off the state's threatened and endangered species list in 2021. The recovery is a victory for the Commission in recovering high-profile raptors, with the peregrine falcon now joining that ranks of the bald eagle and osprey. The Game Commission has demonstrated a commitment to thoughtful, scientific species management based on population monitoring data. Endangered or threatened species listing is not a permanent designation—recovery is achievable!

Following their recovery, new threats continue to be identified, in part because peregrine falcons now nest on human-made structures. Known causes of mortality, primarily to young, include building collisions (especially glass, estimated to kill up to 1 billion migratory birds every year), drowning when fledging on bridges, airplane strikes, and many other hazards specific to the human-manipulated environment. Additionally, nests on artificial structures are often exposed to heightened levels of disturbance due to routine human activities such as inspections, construction, and repairs.

Management Programs: Peregrine falcons have enjoyed extraordinary management attention, including federal endangered species status, active reestablishment through hacking (description below), nest-site improvement, and protection at urban nest sites through adjustments to structure maintenance schedules to avoid disturbance at critical times.

During the 1990's hacking was a strategy to supplement the state's population using captive-bred birds. Hacking involves raising young birds in a rooftop or elevated enclosure for several weeks. When they are ready to fledge, the enclosure is then opened so the birds can come and go as they practice flying. The fledglings continue to receive food as they gain experience hunting. Some of the birds may remain in the general area and nest in subsequent years.

Following delisting in 2021, the Game Commission will continue to survey and monitor nesting peregrine falcons. The effort is lessened, focusing on the success of cliff-nesting pairs as well as seeking to avoid and reduce disturbance at the artificial structure nest sites. Game Commission staff continues to evaluate monitoring results to determine whether a more detailed analysis of the population is necessary.



Sources and Further Reading:

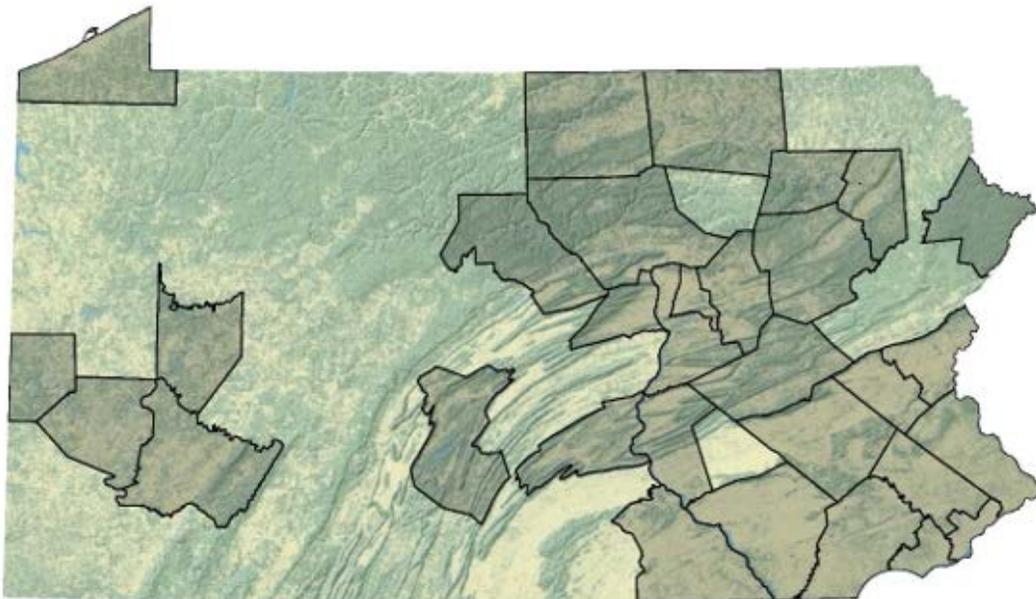
- Askins, R. A. 2000. Restoring North America's Birds. Yale University Press. New Haven and London.
- Berger, D. D., C. E. Sindelar, Jr., and K. E. Gambel. 1969. The status of breeding peregrines in the eastern United States. Pp. 165-173, in Hickey, J.J. (ed). Peregrine falcon populations: Their biology and decline. Madison, University of Wisconsin Press.
- Gahbauer, M. A., D. M. Bird, K. E. Clark, T. French, D. W. Brauning, and F. A. McMorris. 2015. Productivity, mortality, and management of urban peregrine falcons in northeastern North America. *Journal of Wildlife Management* 79: 10-19.
- Groskin, H. 1952. Observations of duck hawks nesting on man-made structures. *Auk* 69: 246-253.
- Hickey, J. J. (Ed) 1969. Peregrine falcon populations: Their biology and decline. Madison, University of Wisconsin Press.
- Hickey, J. J. and D. W. Anderson. 1968. Chlorinated hydrocarbons and eggshell changes in raptorial and fish-eating birds. *Science* 162:271-273.
- Ratcliffe, D. 1993. *The Peregrine falcon*, 2nd Edition. Calton: T. & A. D. Poyser.
- Rice, J. N. 1969. The decline of the peregrine population in Pennsylvania. Pp. 155-163, in *Peregrine falcon population: their biology and decline*. J. J. Hickey (Ed). Madison, University of Wisconsin Press.
- U.S. Fish and Wildlife Service 1987. Revised peregrine falcon eastern population recovery plan. U.S. Fish and Wildlife Service, Newton Corner, MA. 35 Pp.

By Dan Brauning

Pennsylvania Game Commission

8/19/2014

Revised 9/21/2021 - Patricia M. Barber and Sean Murphy, PhD



Pennsylvania counties with active peregrine falcon territories in 2021