

Peregrine Falcon, *Falco peregrinus*

Status:

State: Endangered

Federal: Not listed

Identification

Peregrine falcons, like all falcon species, are designed for speed. With long, pointed wings, a long, tapered tail and flat head, peregrines can attain rapid speeds in powered flight or stoops. Attaining dive speeds of up to 200 M.P.H., the peregrine falcon is the planet's fastest bird. Its wing beats are stiffer and deeper than those of other falcon species. In a soar, they exhibit a soft-angled silhouette resembling that of a cocked bow and arrow. Significant sexual size dimorphism



Photo courtesy of NJ ENSP

is displayed by peregrine falcons, the females of which can be as much as one-third larger than males. In addition, the crow-sized males are considerably slighter and narrower winged than females. The peregrine falcon's call is a series of quick, loud, kee notes.

Adult peregrines are blue-gray above with a dark head and flight feathers and a paler rump. From below, adults are whitish with dark barring on the chest and underwing. Like most falcon species, peregrines show a distinct sideburn or "moustache" mark each side of the face. The cere--the fleshy area behind the base of the bill that contains the nostrils-- and legs are yellow, the bill is black, and the eyes are dark brown.

Juvenile peregrine falcons are dark slate-brown on the upperside and often show a contrasting blonde crown. The underside is buff colored with dark brown checker-marked underwings and vertical streaks on the chest. The cere and legs are pale blue and the bill is black. Adult plumage is acquired the summer after fledging.

Habitat

Traditionally, peregrine falcon nest sites were restricted to cliffs and rock outcrops. As people began to inhabit areas occupied by peregrines, the birds took to nesting on buildings and bridges. Today, peregrines continue to nest on these man-made structures, although there are no remaining cliff nests in New Jersey. During the peregrine's population recovery two decades ago, artificial nesting platforms were erected in coastal marshes. Peregrines continue to nest on these platforms today. Peregrine falcons favor open areas for foraging and often hunt over marshes, beaches or open water.

Status and Conservation

The peregrine falcon historically bred in New Jersey on cliffs along the Hudson River (the Palisades) and along the Delaware River. During the 1930s and 1940s, there

were about 350 pairs of peregrines nesting east of the Mississippi. Well into the 1940s and 1950s, egg collectors and falconers looted peregrine nests, while gunners, game wardens, and pigeon fanciers shot adult falcons, which were viewed as vermin. Human activity at nest sites, coupled with expanding development and road construction near peregrine nests, caused local nest abandonment.

While persecution and nest disturbances resulted in declines, it was the introduction of DDT that wiped out the species from much of its former range. The pesticide was regularly used for mosquito control from the mid-1940s to the mid-1960s. Initially thought to be harmless, DDT was later linked to devastating population declines in several bird species, including the peregrine falcon, osprey (Pandion haliaetus), and bald eagle (Haliaeetus leucocephalus). Once introduced into the environment, the concentration of DDT increased at each trophic, or food chain, level--a phenomenon termed biomagnification. In top level predators, such as raptors, DDT had accumulated at levels high enough to impair reproduction. DDT, which inhibits calcium metabolism, caused eggshell thinning in contaminated birds. Consequently, the thin-shelled eggs cracked under the weight of the incubating adult. A reduction in eggshell thickness of nearly 23 percent was documented in peregrine eggs from the pre-DDT era to the 1950s.

The 1950s and 1960s saw a devastating crash in peregrine falcon populations. By the 1960s, there were no known nesting peregrines in the East. The extirpation of the peregrine alarmed the scientific community, which joined forces in the species recovery effort. The use of DDT was banned in New Jersey in 1968 and in the United States in 1972. The peregrine falcon was classified as a federally endangered species in 1970 and as a New Jersey endangered species in 1974. The following year (1975), a peregrine falcon recovery plan was initiated in the East. The goal of the plan was to restore the breeding population to at least half of pre-DDT levels. This resulted in an eastern goal of 175 to 200 pairs, a mid-Atlantic regional goal of 20 to 25 pairs, and a New Jersey goal of eight to 10 pairs.

During the late 1970s, biologists released young peregrines into the wild throughout their former range. This process, known as hacking, was hoped to reestablish nesting populations, as peregrines often return to their natal sites to breed. Peregrines released at cliff sites experienced high mortality due to great horned owl (Bubo virginianus) predation, causing biologists to erect man-made nesting structures in coastal marshes where owl numbers were lower and prey was abundant. In 1980, peregrine falcons nested at Edwin B. Forsythe National Wildlife Refuge in Atlantic County, the first nesting attempt in the state, and the eastern U.S., in nearly a quarter century. Eggshells from New Jersey nests contained residual contaminants during the early 1980s, but not at levels high enough to impair reproduction. By 1986, the peregrine had reached its local recovery goal, with 10 pairs in New Jersey and 21 pairs in the mid-Atlantic region.

The peregrine falcon population in New Jersey had stabilized at approximately 10 pairs during the late 1980s and early 1990s. Productivity was high at Atlantic Coast nests, yet many nests along the Delaware Bay and River failed due to owl predation, abandonment, or unhatched eggs, possibly resulting from PCB contamination. Peregrines from Barnegat and Manahawkin bays also showed elevated levels of PCBs as well as DDE, chlordane, and dieldrin in the early 1990s. Although the use of DDT was banned in

the United States, migratory prey, such as shorebirds and passerines, may encounter this pesticide on their wintering grounds and pass the contaminant on to peregrine falcons.

Currently, the state's peregrine population remains stable at about 15 pairs. Although PCBs levels remain elevated in peregrine eggs, pairs are exhibiting good productivity, averaging 1.7 young per nest on buildings and towers since 1986. In 2001, a total of 17 pairs statewide produced 1.75 young per nest on buildings and towers and about 1.0 per nest on bridges.

Because national recovery goals were met, the peregrine falcon was removed from the federal endangered species list in 1999. Despite the fact that the peregrines have met state numerical recovery goals, their continued listing as endangered in New Jersey is warranted. They remain threatened by environmental contaminants and human disturbance, and rely on active management of their nesting sites.