

Pennsylvania's Peregrine Falcons

A comeback in progress



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AS ALMOST everyone is aware, peregrine falcons underwent a startling population crash during the 1940s and 1950s. Although the reason was unknown at first, it gradually became clear that the crash was due to the effects of DDT and other chlorinated hydrocarbon insecticides, which disrupted hormonal function in peregrine falcons and resulted in reproductive failure. This population crash occurred to a greater or lesser extent worldwide, and also affected other top predators, which bioaccumulated insecticides through ingesting tainted prey. Although numbers of bald eagles, ospreys, brown pelicans and others were greatly reduced, remnant populations of these species remained. The effect was especially severe on peregrines, particularly

in eastern North America. A thorough search in 1961 failed to turn up any evidence of successful nesting east of the Rockies. These majestic birds, the fastest animals on earth, which thrill with their domination of the air, were gone.

But thanks to the dedication and hard work of hundreds of wildlife biologists, cooperating individuals and agencies, and a veritable army of amateurs who volunteered their time and effort, we can enjoy these charismatic birds again. The population recovery of peregrines is one of the great success stories in the history of conservation. But it did not get off to an easy start, and the work is not done yet.

The population recovery was brought about by captive breeding and release of peregrine falcons at many locations in North America and abroad where

populations had crashed. The falcons we enjoy today are their descendants. Release of captive-bred birds began in the 1970s, following three events which made it possible to even begin thinking of restoring peregrines to the wild: DDT and related compounds were banned; the Endangered Species Act was passed, giving peregrines protections that they had previously not had; and the public became better aware that peregrines and other raptors are an important part of the ecosystem, and are not simply “vermin.”

The rationale of the captive-breeding-and-release approach seems fairly straightforward, even if it involves a huge amount of effort and expense. At the time, though, the main problem was that no one knew how to breed peregrines in captivity. No one had tried in a systematic way, and the very rare cases of success were more from accident than design. Due to the vision and dogged work of Dr. Tom Cade and associates, the Peregrine Fund was founded at Cornell University to breed peregrines in captivity. Assistance by falconers played an important role in this effort: falconers had literally millennia of collective experience in handling falcons in captivity, even if they hadn't actually bred them. Seven different subspecies, with a combination of characters resembling those of the by-then extinct Eastern *anatum* subspecies of *Falco peregrinus*, were chosen for the breeding program. Thousands were raised in captivity and released in the eastern United States and Canada.

The release program in Pennsylvania was initiated by the Peregrine Fund and then carried forward by the Pennsylvania Game Commission (PGC). It got off to a rocky start. Re-

leases were initiated in 1976 at two cliff sites: along Towanda Creek in Bradford County, and at Dauphin Narrows on the Susquehanna River in Dauphin County. These sites seemed like good choices; both had supported successful peregrine falcon nests in the pre-DDT era, so they should have had everything that peregrines would need. However, all of the falcons released during this first stage succumbed to predation by great horned owls. The released peregrines were naïve and did not have experienced adults to protect them, and during the decades-long absence of peregrines, great horned owls, a traditional enemy of peregrines that nest on some of the same cliff ledges, had no competitors at the cliffs.

Peregrines released in other states met a similar fate, and releases were suspended. When they resumed, birds were released at urban sites and at hack towers in coastal marshes that had an abundance of avian prey, but much less pressure from predators. The site chosen in Pennsylvania was the PNB building in downtown Philadelphia. This time it worked, and the rest is history. In the mid-1980s, for the first time in decades, peregrines were found nesting in Pennsylvania. They were nesting on three large bridges: the Walt Whitman and Girard Point bridges in Philadelphia, and the Commodore Barry Bridge in nearby Delaware County.

Starting with the first instance of nesting in 1986, the peregrine population in Pennsylvania has gradually increased. The population was bolstered by a third round of releases during the 1990s at four sites in Pennsylvania: downtown Allentown, Harrisburg, Reading and Williamsport. During the intervening 26 years, the population



ART MCMORRIS gets buzzed by a peregrine at a nest box on the Rachel Carson Building in Harrisburg.

has grown to the 32 nesting pairs documented in 2012. This is an all-time high in the post-DDT era and is three quarters of the pre-DDT statewide population of about 45 nesting pairs. The recovery is very well underway!

At first glance, it seems the population recovery is nearly complete. Indeed, peregrines were taken off the federal Endangered Species list in 1999, in part because of robust populations, mostly on natural cliffs, in many western states such as Arizona and Alaska. But there are important differences between the population in the pre-DDT era and the population today, and the differences are not just one of numbers. Historically, all but one of Pennsylvania's peregrine falcon nests were on natural cliff ledges in non-urban environments. The one exception was a nest on Philadelphia City Hall, one of only a handful of nests known on man-made structures in the world at that time. Today, 28 of Pennsylvania's

nests are on man-made structures: 16 on bridges, 10 on buildings, and two on smokestacks, all tall structures which can be thought of as man-made cliffs. Only four Pennsylvania nests are on natural cliff ledges. The reason that the population has shifted so heavily to man-made structures (almost all of them in an urban environment) is poorly understood.

"Poorly understood" is what scientists say when they plainly just don't know. But several factors quite possibly contribute to the overall pattern. One is imprinting: falcons may prefer to nest at sites that resemble the sites from which they fledged. Some published studies show peregrines that fledged from cliffs choose to nest on cliffs more often than random, whereas those from man-made structures prefer man-made structures. But there are plenty of exceptions; the preferences are not absolute. Indeed, some peregrines that fledged from Pennsylvania cliffs have

been found nesting on man-made structures, and vice versa. The availability of abundant “easy” prey, such as pigeons in cities, has been cited as another possible explanation for the shift to urban sites, as has the reduced pressure from predators, especially nest predators. Another possibility is that, during the decades-long absence of peregrines, many potential cliff sites have become overgrown, or have been occupied by great horned owls. It is likely that several of these factors, and perhaps others, each contribute to the net shift toward man-made structures in an urban environment. Much remains to be learned, but the bottom line is that the population today is very different from the pre-DDT population.

So what does it matter, if the falcons are successful and productive (which they are) on man-made structures? What does it matter if urban-nesting peregrines produce young, some of which, as they do, go on to nest on natural cliffs? Why are peregrines still listed as endangered in Pennsylvania and many other eastern states? If the objective of the PGC, which is responsible for peregrine falcons (and indeed all birds and mammals in Pennsylvania) is to establish a secure, wild population of peregrine falcons, hasn't this been achieved?

One concern is that, with only four cliff-nesting pairs, there remains a great deal of vacant habitat in Pennsylvania. Therefore if a goal of the PGC's recovery program is to restore the peregrine falcon to its normal place in the ecosystem, this has not yet been achieved. Another reason is that the success of peregrines nesting on man-made structures is heavily dependent on human assistance, both by the PGC

and by the owners and managers of the many bridges, buildings and power plant smokestacks that host peregrines. Many of these structures do not have adequate nest sites, rather, the birds nest in nest boxes placed for their use.

Another concern is that those man-made structures are used by people. This can result in a great deal of disturbance that could easily cause nest failure if they were not highly regulated. This disturbance comes in many forms: installation and maintenance of rooftop equipment, bridge inspection and maintenance, use of balconies or rooftop patios, window washing, and even well-meaning attention by people peering through windows at nesting falcons. All of these are regulated by a combination of legal protections and voluntary cooperation, often at significant inconvenience and expense to property owners and managers.

Thirdly, fledglings often get into trouble. The early post-fledging period is the most hazardous time in a





peregrine's life. If the nest is on a man-made structure, "getting into trouble" includes falling into a river, becoming grounded on a street or sidewalk, flying into glass, getting hit by cars, and other problems that just don't come up at natural cliff ledges. Individuals and organized "rescue squads" frequently rescue fledglings that would otherwise die. At some urban sites, it is not uncommon for every fledgling to be rescued at least once in a season. Given all of these factors, it is fair to ask whether urban-nesting peregrines are either wild or secure. Although it is undeniable that urban nesting peregrines contribute substantially to the growth of the population, any formula for determining whether the species has truly recovered must depend heavily on nests on cliffs, which succeed with minimal or no help from humans.

There is much reason for optimism about the recovery of peregrine falcons in Pennsylvania, but a lot remains to be done. The long-term management goal of the PGC's peregrine falcon Recovery and Management Program

is to re-establish a self-sustaining, secure population of peregrine falcons in Pennsylvania. Besides, many people from the PGC's various bureaus and regions, and many other people have made indispensable contributions. These include several dozen cooperating government and non-governmental agencies, many landowners and managers, and a veritable army of volunteers, people like those of you who are reading this now, who have made essential contributions. Especially important are volunteers across the state who search for new nest sites and monitor known nest sites for activity; it is only because of these volunteers that the PGC has the information needed to carry the recovery program forward. Searching for new nest sites can be a targeted effort of searching tall structures and (most importantly) cliffs, or just a casual report of what you saw while hunting, fishing, hiking, canoeing or birding. Monitoring of known nests is especially important during the nesting season from mid-February until the end of July. Some nest sites are well-covered by local monitors; other sites could use some help. Anyone with sightings to report or who would like to help monitor nest sites is urged to contact pgccomments@pa.gov.

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