

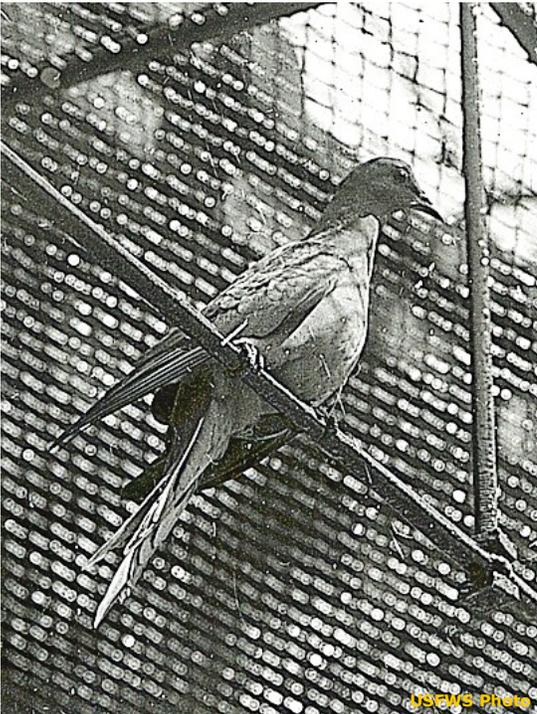


What Is Happening to These Animals?



Why species are threatened or endangered. Whenever wildlife managers designate animals as endangered or threatened species, it means their numbers are low, their habitat is at risk and they need specialized management or care to protect and hopefully increase their populations. Species declines are usually the result of changes brought about by people, or changes in environmental conditions or ecosystems. Some are naturally-occurring, some are not. But all present the same unfortunate consequence: a species in trouble, one at risk of disappearing from Pennsylvania, the United States, or Earth.

If there is one constant for animals living in Pennsylvania, in fact on earth, it is that their world and living conditions change, and consequently affect their populations and/or distribution. Some changes are caused by natural influences such as fires, weather and disease. Others are the result or byproduct of human activities: timbering, pollution, pesticide use, development, farming and so on. Introduction of species also can influence a native species' population.



There are always winners and losers when change occurs. Sometimes change promotes better living conditions for some wildlife species. For instance, when Pennsylvania's large forests were cut in the late 1800s and early 1900s, it led to the creation of huge tracts of young, regenerating forestland, ideal habitat for species such as white-tailed deer, ruffed grouse and bobcats. At the time, the deer population was excessively depressed, primarily because of unregulated hunting. The habitat change, coupled with the establishment of the Game Commission in 1895 and passage of more-stringent laws governing the taking of deer, helped spur the deer population's recovery in Pennsylvania.

That same deforestation – about 25 percent of Penn's original woods remained forested around 1900 – unfortunately turned out to be the final nail in the coffin of the persecuted passenger pigeon. They were once so abundant, their passing flocks darkened the sky and stretched for miles. Its North American population was believed to number in the millions in the mid 1800s. But they were gone in Pennsylvania and most other places by the start of the twentieth century. The cutting of critically important forest nesting areas was simply more than the species could bear. Combined with the increasing pressures of unregu-

lated commercial harvest at nesting areas, which grew annually with improvements in communications and transportation, the passenger pigeon population slipped to unrecoverable depths. The last one died



in the Cincinnati Zoo in 1914.

Pennsylvania has lost some species to extirpation as a result of unrelenting persecution.

The timber wolf and mountain lion are two classic examples. These large predators were hunted, trapped and hounded from the early 1600s until they disappeared forever in the late 1800s, because Pennsylvanians were unaccustomed to sharing wild game with them, and unwilling to tolerate any livestock depredation caused by them. Never overly abundant in the commonwealth, wolves and panthers were found statewide prior to colonization. Bounties surfaced a short time after the European colonists arrived. **But bounties alone didn't eliminate these predators.**

Their extirpations also are linked to habitat deterioration/elimination and declines in important prey species. Roughly 200 years after its colonization, Pennsylvania lost its big cats and wolves. At the time, **most people didn't seem to mind their passing. Even today, most people are probably ok with not having those large predators roaming our woods.** However, predators are part of functioning ecosystems and it is unnatural not to have them around. With the extirpation of wolves across much of their former range, eastern coyotes filled their niche. They now inhabit all 67 counties of Pennsylvania.

The rise of the eastern coyote can be viewed as an improvement or unwanted addition to Pennsylvania's biodiversity. Some see it as a threat to livestock, or the deer and wild turkeys they enjoy hunting, even though studies have shown they subsist largely on rodents, carrion, insects and soft and hard mast. Others consider it a pleasing and exciting new member to our fauna. Its proliferation over the past 30 years **suggests it's here to stay. It has supplanted the extirpated timber wolf at the top of the food chain, filling a decades' old vacancy. That's nature's way.** Those species that persevere are usually the fittest, those living in stable ecosystems, those not competing directly or indirectly with man for food and/or shelter, and those living in relative obscurity.

It's not easy managing what you can't see or spend enough money to find. The problem with small creatures that live out of sight in swampy places, in grasslands, underground or in talus rock or boulder fields is that we often know very little about them because they're hard to observe. To learn

more costs a lot of money. And when you consider the Pennsylvania Game Commission is responsible for managing 467 species of wild birds and mammals, it **quickly becomes apparent that there isn't enough money to competently cover all species.** Consequently, there exists an inability for the Game Commission to ably manage that for which it is charged without more funding. The U.S. Fish and Wildlife Service's [State Wildlife Grants Program](#) has helped with **this problem, and the state's new [Wildlife Action Plan](#)** maps out how we can take care of these species of greatest conservation need and other priority species currently requiring increased management focus. But sound science drives good management, and we are in need of more financial and personnel resources to be more effective in wildlife conservation, particularly when it comes to managing species for which there is growing concern.

All wild things are not compatible. Additions to our animal and plant communities aren't always good for biodiversity, particularly the intentional and unintentional introductions of foreign species. Bluebirds and





Dr. Lloyd Glenn Ingles ©
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other native cavity-nesting birds were dealt a serious blow by the introduction of house sparrows and European starlings in New York City in the 1800s. These non-native species competed – in fact aggressively extricated – bluebirds from nesting cavities in trees and posts. The bluebird's downward population trend was reversed only through a nesting box campaign started in the early 1900s. Other examples of foreign species that have found the United States – and Pennsylvania – to their liking and have consequently become well established, are zebra mussels, gypsy moths and mile-a-minute weed. They all negatively affect many indigenous species. Ditto for the fungus *Gyomyces destructans*, the leading suspect in the White-Nose Syndrome outbreak that is sweeping through the hibernacula of cave bats in eastern Pennsylvania and several other states. It seriously threatens our six species of cave bats, including the endangered Indiana bat. To date, it has led to the deaths of more than a million cave bats. The fungus, which irritates bats out of hibernation, appears to have come from Europe, probably hitchhiking on caving gear. Now bats — and cavers — are carrying it from one hibernacula to the next, and within a year or two of its arrival, the fungus sweeps through colonies, causing bats to burn up the energy they stored for hibernation, and forcing them to forage on a winter landscape that offers no food. Typically, 95 percent or more of the wintering bats die within the cave or mine.

Threats aplenty. Another unforeseen enemy, identified through fieldwork, is threatening the already fragile existence of Pennsylvania's endangered northern flying squirrels. It is a parasite called *Strongyloides robustus*, which is carried by southern flying squirrels and can be lethal to northers. The parasite poses no threat to the southern, but it seems to suppress the northern's ability to put on winter fat, and to even maintain its existing weight. Like the effect of *Gyomyces destructans* on cave bats, this parasite impedes the northern's ability to winter. In Pennsylvania, our northern big woods have always served as sort of a point of demarcation for the southern range of northers. Habitat preference and lifestyle differences have helped to naturally keep the northern and booming southern populations separated for some time. But that is changing.

The state's northern population is known to occur in only a few locations, the largest is a population center in Carbon and Monroe counties. Otherwise, we don't know much more, primarily because there has been extremely limited fieldwork performed on this species. Complicating the usual funding and manpower limitations the Game Commission endures are the difficulties associated with identifying the northern flying squirrels from southern, the northern's limited and unidentified range instate, and, of course, the nocturnal lifestyle of flying squirrels.



Hal Korber/PGC Photo



Loss of wetland habitats, particularly large contiguous tracts, remains one of the foremost factors affecting at-risk, threatened and endangered species in Pennsylvania. Over the past 400 years or so, more than 50 percent of the state's original wetlands have been filled. As a direct result, many wildlife species have declined. Wetlands are used by more than 80 percent of the state's wildlife species at some point during their life cycles. So it's not difficult to see why they are critically important to most wildlife. They always have been, always will be.

The state's and nation's wetland losses since colonization are staggering. So, too, have been consequences to wildlife. It shouldn't be too surprising that many of the species comprising the state's threatened and endangered species lists are wetland-dependent. They include the endangered American and least bitterns, black-crowned and yellow-crowned night-herons, great egret

and king rail. Given their importance to wildlife, wetlands have been high-priority land acquisitions for the Game Commission for years, and the agency's ownership ensures their preservation and proper management. Unfortunately, an overwhelming majority of the state's wetlands are on private property, which increases their vulnerability.

Loss of habitat hits most endangered and threatened species the hardest. Large contiguous tracts of wetlands and grasslands have themselves become endangered in the commonwealth. Over the years, they've been swallowed and scarred by development or fragmented beyond recognition by roads. These once-expansive safe havens have fallen victim to seemingly unavoidable land-use changes that are typically associated with progressive development and community expansion, but also can be lost to sedimentation, dam construction and intensified farming practices.

The loss or degradation of grasslands, a more recent phenomenon caused by road construction, development and changes in agricultural practices, also has presented many grassland species with impossible nesting or living conditions. One of the most notable problems in grasslands is earlier hay cuttings, which occur before birds and their young have left their nests. Consequently, population gains aren't occurring. Other problems include highway mortality, traffic disturbances, increased use of herbicides and insecticides, field consolidation, and forest regeneration in reverting farm fields. Grassland species currently experiencing population declines include the endangered least shrew, short-eared owl and dickcissel.

You've probably noticed there's a common thread in the preceding paragraphs. Many of the species that are currently endangered or threatened are classified as such because they have been unable to adapt to change, especially when change comes quickly, unexpectedly, particularly to their habitat or health. If they cannot rebound, or at least hang on, they'll slip into localized extirpation, or worse, extinction. Habitat degradation and loss are the most common threats faced by wildlife. Left without shelter, nesting sites or food sources, wildlife populations become stressed, unhealthy and begin to decrease. Often, recovery is





dependent upon human intervention. That's where the Game Commission and other natural resource agencies come in. It's up to us to ensure birds and mammals teetering on the brink of extirpation in the Commonwealth are afforded the protection and special management they require. Without that help, Pennsylvania very well could have lost the bald eagle.

What else makes a species endangered or threatened? Some species listed as endangered or threatened in Pennsylvania are so distinguished because their range barely extends into the state, or their population has a fragile foothold here. Common terns, for example, have really only ever nested at Erie County's Presque Isle State Park. They're listed as endangered to ensure additional management considerations for these habitat specialists, as well as to heighten awareness of their very limited population status. The common tern's listing, like the loggerhead shrike's and short-eared owl's, recognizes its tenuous existence in Pennsylvania and the need to keep a watchful eye on its status. Keeping tabs is really important, because every time another species is lost, we lose ground in our battle to preserve the genetic diversity that has sustained our complex interdependent fauna and flora communities for centuries.

Challenges in endangered and threatened species management. Recognizing changes in relatively unnoticeable and mostly uncharted wildlife species is always a challenge in

endangered/threatened species management because manpower and funding are always limited. The U.S. Fish and Wildlife Service's State Wildlife Grants Program helps all states, including Pennsylvania, better monitor and manage species of greatest conservation need, which are identified in the state's Wildlife Action Plan. SWG grants have pumped millions of dollars into initiatives that have helped Pennsylvania improve its management of species of greatest conservation need by working with conservation partners — often universities and conservation organizations — that help underwrite the cost of the fieldwork being performed. Additional work is performed by the Pennsylvania Biological Survey, a nonprofit research, education and conservation organization, composed of representatives from governmental resource agencies, scientific institutions and conservation groups. But even with this financial and manpower assistance, there is so much that cannot be started because funding isn't in place to adequately manage all species of greatest conservation need and follow the tenants of our own Wildlife Action Plan. The job at hand requires far more funding and manpower. Only through state and federal general fund appropriations or taxes can more intensive management be financed. The State Wildlife Grants Program has been critically important to the Pennsylvania Game Commission and Pennsylvania's wildlife. But additional alternative funding is still needed, both on a state and national level. With time, that may change. But currently, the limited funding translates into limited monitoring/research for most wildlife species.

It's important to remember, however, that there also have been tremendous success stories in Pennsylvania's endangered/threatened species management program. Pennsylvania's bald eagle population numbers more than 175 nesting pairs – up from three in 1980 – because of the Game Commission's bald eagle reintroduction program in the 1990s. Other beneficiaries of specialized management include the osprey and peregrine falcon. More success stories are desired, especially for cave bats and northern flying squirrels, as well as for the state's declining Allegheny wood rat population. And maybe, given the solid foundation started with poster species such as bald eagles and peregrines, more funding will eventually become available. Let's keep our fingers crossed.

By Joe Kosack
Pennsylvania Game Commission
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