

**PENNSYLVANIA GAME COMMISSION
BUREAU OF WILDLIFE MANAGEMENT
PROJECT ANNUAL JOB REPORT**

PROJECT CODE NO.: 06717

TITLE: Osprey Research/Management

JOB CODE NO.: 71701

TITLE: Osprey Nest Surveys

PERIOD COVERED: 1 July 2016 to 30 June 2017

COOPERATING AGENCIES AND ORGANIZATIONS: U.S. Department of Interior, Fish and Wildlife Service; U.S. Army Corps of Engineers; Audubon Pennsylvania staff and volunteers; Department of Conservation and Natural Resources; Pennsylvania Fish and Boat Commission; New Jersey Fish, Game and Wildlife; members of Pennsylvania Society for Ornithology, Three Rivers Birding Club, and Delaware Valley Ornithological Club; Allegheny National Forest; East Stroudsburg University, and many volunteers.

WORK LOCATION(S): Statewide

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ABSTRACT This project monitors osprey (*Pandion haliaetus*) nesting activity in Pennsylvania. Osprey has been considered a Threatened species in Pennsylvania since 1999. It was considered state Endangered from 1985 to that time. In 2016, we conducted a statewide osprey nest survey by posting announcements and by asking staff, collaborators, and volunteers to report nests. The survey was conducted in order to determine if the osprey has met Goal 1 of the agency's Osprey management plan to maintain a stable or increasing breeding population of osprey in Pennsylvania with the objective of delisting osprey when at least 10 nesting pairs are found in each of 4 watersheds and at least 50 total nesting pairs are documented in 2 consecutive comprehensive surveys. This objective was met convincingly with reports of 149 active nests, including more than 10 nests in each of six different watersheds. Although osprey has a clustered distribution, these nests were found in 25 counties. Over 90% of the nests were built on artificial structures including nest platforms, cell towers, energy distribution towers, and unconventional locations such as abandoned factories, power plants, and grain elevators. Osprey benefit from some human activities and habitat modifications; activity is concentrated near reservoirs and impoundments. The osprey population not only met the objective for upgrading from threatened to protected no longer meets the definition of a threatened species. The public's interest in this charismatic raptor is demonstrated by its enthusiastic participation in the annual nest survey and the 406 views of the agency's osprey web pages during 2016. A public comment period between 13 October and 12

November resulted in 14 individuals, a non-governmental conservation organization, and a state agency commenting. The comments supported osprey delisting with the caveat that this species continue to be protected in the state. The future of this charismatic raptor looks very good due to its popularity with the public, its flagship role as a symbol of water quality, and its ability to adapt well to the modern human landscape.

OBJECTIVE

Inventory and monitor osprey nesting activity and assess the current status of osprey in Pennsylvania, and use the current breeding information to evaluate its current conservation status and whether the objectives of the management plan are met.

METHODS

In order to meet Goal 1 of the Osprey management plan (Master et al. 2015), we conducted a full state-wide osprey nest survey in 2016.

This comprehensive survey was conducted with the intention of meeting the goal of a stable or increasing population with at least 10 nesting pairs found in each of four hydrologic unit boundaries (HUC6) watersheds and at least 50 total nesting pairs in 2 comprehensive surveys.

The survey was promoted through a link on the Game Commission's home page to a form and survey instructions. An e-mail resource account allowed direct survey reports to Wildlife Diversity staff (pgcosprey@pa.gov). We made announcements to the birding community and cooperating agencies and organizations about the osprey survey, and soliciting assistance with the survey. This included announcements on the Pennsylvania Bird Listserv, Pennsylvania eBird, and the Pennsylvania Society for Ornithology (PSO) Pileated Newsletter. Personal inquiries also were made to the Army Corps of Engineers, the Allegheny National Forest, the Pennsylvania Department of Conservation and Natural Resources (DCNR) staff, as well as individuals who reported osprey nests in the past.

Key staff conducted osprey nest surveys in areas with concentrations of nests. In particular, John Morgan of the Southeast Region, Roger Coup of the Northwest Region, and Environmental Review biologists Tracey Librandi-Mumma and Olivia Braun collected data on several osprey nests. These Game Commission staff were instrumental in coverage of the Lower Delaware, the Upper Delaware, the Lower Susquehanna drainages, and the wetlands and lakes in the Northwest counties in either the Ohio-Beaver or Allegheny drainages. Reports of nesting osprey were compiled from submissions received through the osprey resource account, direct e-mail and supplemental reports. The Army Corps of Engineers provided osprey nest data for the Tioga-Hammond Lake area of the Upper Susquehanna drainage area. The Allegheny National Forest provided data for nests under its jurisdiction. Dr. Terry Master of East Stroudsburg University surveyed several osprey nests in the Upper Delaware River watershed. Volunteers supplemented these surveys in all watersheds surveyed.

The Game Commission web pages provided educational material on osprey including natural history, Pennsylvania range, habitat, and conservation concerns. The Management of the

Osprey (*Pandion haliaetus*) in Pennsylvania, Ten Year Plan (2015-2025) also was available at the Game Commission website. Additionally, the public is encouraged to report nests they find and share information essential to tracking nesting activity: nest location, in latitude and longitude coordinates when available; the closest waterway; nest substrate, nesting activities seen, number of young seen and observer contact information.

For recovery purposes, nesting clusters are defined by secondary watershed drainages, specifically HUC6, reflecting the ospreys' close association with water and aquatic biological resources (Barber and Gross 2015). Osprey nesting clusters are in the upper Delaware, the lower Delaware, the upper Susquehanna (Tioga-Hammond and Cowanesque lakes), the lower Susquehanna, the Allegheny, and the upper Ohio-Beaver drainages.

RESULTS

In 2016, 149 active nests were reported in seven different HUC6 watershed drainages including 23 counties (Table 1; Table 2; Fig. 1). Six of these drainages met or exceeded the management goal of 10 nests: the upper Delaware, the lower Delaware, the Upper Susquehanna, the Lower Susquehanna. The HUC6 drainage with the largest population is the Upper Delaware where the first population was reintroduced by Dr. Larry Ryman and students from East Stroudsburg University. The Upper Susquehanna, Upper Ohio-Beaver, and Allegheny drainages follow, all with 20 or more nests. The counties with the most osprey nests are Tioga (25), Northampton (20), and Mercer (16) (Table 2).

Most (90%) nests were associated with human-modified habitat either near rivers, lakes, and reservoirs, or built on a man-made structure, and often both. Surveys in the last few years reported 115 nests in 2010-11 (Haffner and Gross 2011).

Osprey use of human structures for nesting bodes well for their continued success around people, but also suggests there will be more conflicts as the recovery continues. Only five of the nests found in 2016 were built on natural structures like trees or snags, the remaining 97% built on artificial structures. Osprey nests in Pennsylvania were found on a wild variety of structures, often utility poles and structures, communication towers, osprey platforms, but also unconventional places like abandoned factories, a retired power station, grain elevators, marker buoys, and dock structures. Several osprey nests were found in urban environments including both Philadelphia and Pittsburgh where they seem well-adjusted to human activities. These are traits not usually associated with an endangered or threatened species but rather a bird that has adjusted to the human landscape as long as it is not harassed or harmed, or its nest not disturbed during nesting period.

Unlike bald eagles, ospreys nests tend to be clustered sometimes nearly colonial. A glance at the distribution map (Fig. 1) not only shows how many osprey nests are in the HUC6 drainages but also distinctive cluster that are mostly associated with specific reservoirs, impoundments, and an abundance of available human structures near foraging areas. Ospreys tend to feed at bodies of water with extensive shallow still water (Poole et al. 2002). The most obvious clusters are the Shenango River Lake; Lake Wilhelm; Kinzua Lake; Tioga-Hammond Lakes; the Lower Susquehanna especially near dams; and various lakes and impoundments in the Poconos. It should

be noted that the clusters of nests along the Delaware and Lower Susquehanna Rivers are associated with human structures including power plants and dams.

Gaps in osprey nest coverage suggest that the total number of osprey nests is larger and the distribution even wider than indicated in this survey. This gap includes some reservoirs, lakes, and dammed sections of rivers that are not visited often by birders. For example, no osprey nests were reported for the West Branch Susquehanna watershed where nests were reported previously.

Ospreys may not have yet filled all possible acceptable habitat in Pennsylvania and probably will continue to expand into areas where the conditions suit osprey nesting. By repairing old osprey nest platforms and adding new ones to reservoirs and other water bodies, people may encourage ospreys to continue an expansion and recovery.

Since ospreys are long distance migrants, they also are subject to more risks than species like bald eagle that are permanent residents or short-distance migrants in a state where there are protections for non-game migratory birds. Out of breeding season mortality may be causing some territories to be abandoned at least temporarily.

As part of the osprey survey, it is important to assess the survey approach and success. Although the surveys certainly was successful in regards to the amount of data received and attaining the goals set for meeting the objectives of the management plan, the survey was certainly fairly complete but not a complete census. The variety of report means allowed a good summary of osprey nests but allowing such a variety of reports is not time-efficient. Many nests were reported using the agency osprey project website so over half the nests were reported by volunteers. Several nests were reported by more than 1 party causing some confusion in nest count but these confusions were resolved eventually. Reports of active nests after the survey project's end demonstrates that the list of possible contributors could have been even larger and more inclusive and that the survey results are a good but incomplete list. So, the number of active osprey nests is probably even greater than the 149 reported here.

Delisting

Since the 2016 osprey survey results demonstrated that osprey had reached a population size and range that justified upgrading from Threatened to Protected status by standards set in the management plan (Barber and Gross 2015), Gross made a presentation to the Pennsylvania Game Commission Board of Commissioner Working Group on 29 August, a public meeting.

The public comment period was open from 13 October through 12 November 2016. The endangered bird biologist, Patti Barber, collected the public comments. Comments were submitted by 14 individuals, a conservation organization, the Western Pennsylvania Conservancy, and a state agency, the DCNR. Both the DCNR and the conservation organization support status upgrading. Individuals were divided in their opinion with half preferring delisting and the other half preferring a delay in the state change until the population is yet larger. There seems to be a persistent misunderstanding that state delisting means that there would no longer be protections for the species. One comment represented a segment of the public that opposes protections for raptors like osprey. The osprey would still be protected under the Migratory Bird Treaty Act after being removed from the state Threatened list. Our agency's response was to continue with plans to

upgrade osprey from threatened to protected but also to continue to educate the public about ospreys and provide guidance on its conservation and management. Providing osprey platforms in appropriate habitat is one of the practices that partners of the agency can continue to provide even after delisting.

The future of osprey looks very good in Pennsylvania. Fortunately, the osprey is popular and charismatic with broad public support that has been manifested by the voluntary monitoring and nest protection. This includes energy and communication companies that build structures that ospreys use readily. The osprey serves as a flagship species for water quality and aquatic natural resources which is widely supported by the public including consumptive outdoor community. Public utilities and local conservation groups have supported osprey nest platform construction generously over the years. Therefore, there probably will be opportunities for osprey nest structure repair and replacement which may allow ospreys to adopt even more locations especially at smaller impoundments where nest structures do not yet exist. Ospreys also have adjusted well to the recovery of bald eagle, a competitor for nest sites and foraging areas, by nesting where fish are abundant and there are concentrations of potential nest structures. From the agency's experience, ospreys also will adjust to nest removal by re-nesting at another location. This kind of flexibility will allow ospreys to coexist well with humans in the modern Pennsylvania landscape.

The Game Commission's website hosts osprey specific pages. During 2016, these pages were viewed times. The target audience for these pages is educators, students, and adults interested in wildlife and conservation.

RECOMMENDATIONS

1. Develop a volunteer monitoring program for occasional osprey nest monitoring and productivity in Pennsylvania.
2. Evaluate nestling mortality and its impact on osprey population dynamics.
3. Continue to work with volunteers to repair and replace osprey nest structures in appropriate locations.
4. Reduce threats associated with osprey use of structures for nesting and resting, especially energy and communication structures.
5. Evaluate current permitting procedures to determine effects on future nesting of osprey in immediate area of activity.
6. Incorporate osprey nest and habitat protection in comprehensive game land plans.

LITERATURE CITED

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Poole, A. F., R. O. Bierregaard and M. S. Martell. 2002. Osprey (*Pandion haliaetus*). Account 683 in A. Poole, editor. The birds of North America, The Academey of Natural Sciences, Philadelphia, Pennsylvania, and The American Ornithologists' Union, Washington D.C., USA.

Table 1. Active Osprey nests identified in Pennsylvania during the 2016 breeding season organized by watershed drainage.

Watershed Drainage	HUC6	Nests	Observation sources
Upper Delaware		43	PGC staff, ESU, and volunteers
Lower Delaware		16	PGC staff, ESU, and volunteers
Upper Susquehanna		25	USACE and volunteers
Lower Susquehanna		19	PGC staff and volunteers
Allegheny		20	PGC staff and volunteers
Upper Ohio – Beaver		24	PGC staff, volunteers
Monongahela		2	volunteer
Total		149	

Table 2. Active osprey nests identified in Pennsylvania during the 2016 breeding season organized by county.

County	Nests
Allegheny	4
Beaver	5
Bucks	7
Butler	5
Carbon	2
Crawford	3
Dauphin	4
Delaware	6
Elk	2
Erie	2
Forest	1
Lackawanna	1
Lancaster	8
Luzerne	1
McKean	5
Mercer	16
Monroe	9
Northampton	20
Philadelphia	3
Pike	10
Tioga	25
Wayne	1
Westmoreland	1
York	8
Total	149

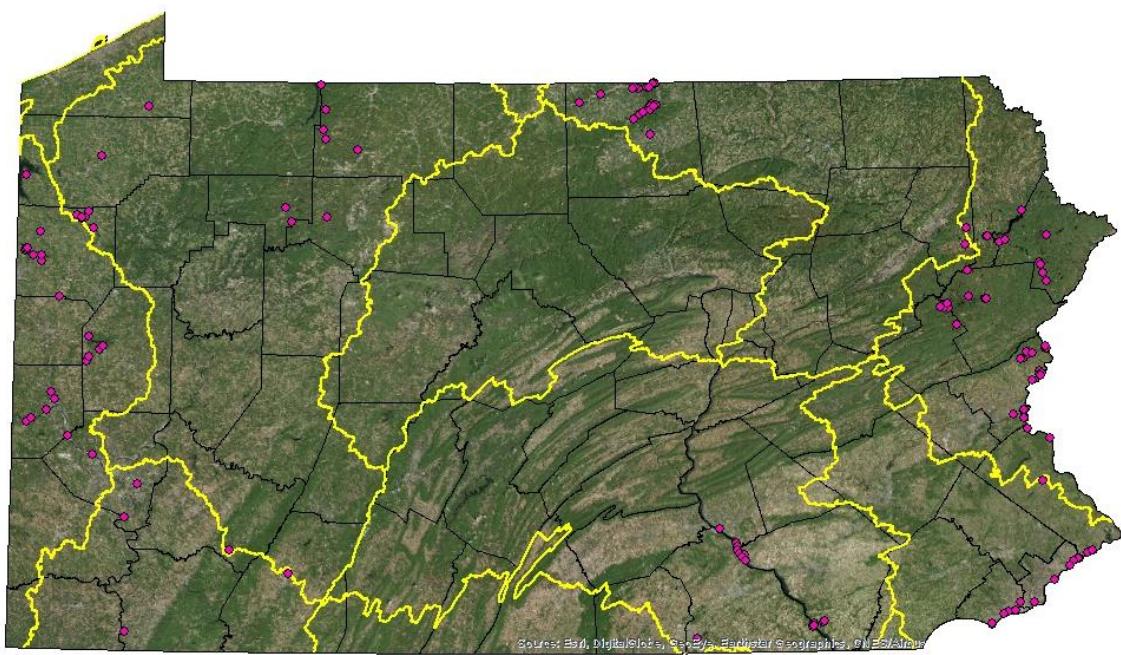


Figure 1. Osprey nests reported during the 2016 breeding season in Pennsylvania, yellow lines indicate the boundaries of the secondary drainages used to define clusters.