

Status of Osprey Breeding Activity in Northeastern Massachusetts 2022

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Introduction

Ospreys are one of the most widely distributed raptors in the world, found breeding on every continent except Antarctica. In North America, Osprey occur in all 50 states, but populations decreased dramatically in the 1950s-1970s due to unregulated use of pesticides, which weakened Osprey eggshells and caused nesting failure and poor productivity. In the 1970s, new US laws regulated pesticide use and as a result Osprey numbers began to rebound across North America.

In northeastern Massachusetts (East Boston, MA to NH border), as far back as the 1850s and through the 1970s, Osprey were only observed as migrants in the county, despite well-established breeding populations to the north and the south. In the 1980s, the first confirmed pair of nesting Ospreys was observed on a man-made nesting platform located on open salt marsh in Essex. During the 1990s and 2000s, nesting pairs of Osprey gradually increased in numbers on different natural and man-made structures including trees, nesting platforms, duck blinds, transmission towers and coastal navigational markers. In 2007, Greenbelt began to monitor Osprey nesting activity in northeastern Massachusetts more comprehensively and realized that suitable nesting sites may be limiting Osprey breeding success. As a result, since 2007, Greenbelt has built and installed approximately 50 new nesting platforms, while also repairing existing platforms and assisting private land owners, towns and others wishing to install their own nesting platforms.

Greenbelt's Osprey Program was officially established in 2010. The goal remains to improve Osprey conservation in northeastern Massachusetts. In 2022, the program continued with four focus areas: management of nest structures, monitoring of breeding activity, research, and outreach/education. Management focused on nesting site/structure oversight; monitoring was a combination of staff and volunteers tracking individual nesting pairs; research involved banding flightless chicks; and outreach/education centered on the installation of a real-time webcam on an active Osprey nest displayed on the Greenbelt website as well as the installation of informational kiosks and other public outreach.

Results

Greenbelt was successful collecting nesting and productivity data on all known Osprey pairs breeding in northeastern Massachusetts in 2022. Community scientists acting as volunteer Osprey nest monitors once again played a critical role in the data collection, as dozens individuals submitted about 1700 detailed accounts of Osprey activity at assigned nests using an online reporting process. Greenbelt staff also participated in monitoring. Some nesting pairs may be avoiding detection – most likely those pairs are deep in inland wetland that are difficult to access for monitoring.

The first observations of Osprey in 2022 in northeastern Massachusetts were reported in late March. Soon thereafter, Osprey pairs were visible from East Boston to Salisbury, and inland to Boxford, Merrimac and Haverhill, occupying and rebuilding old nests or constructing new nests. Most pairs laid eggs in April and were observed incubating through May and into June. Some nesting attempts failed in May and others in June. Great-Horned Owls were confirmed as a nest predator at one nest and suspected at most others. Nesting pairs with chicks were observed in many locations in June and the first fledglings were observed in July. Most of the resident adult and juvenile Osprey left their nest sites by the end of August and departed northeastern Massachusetts on their southward migration in September.

The data from the 1700 online reports submitted by volunteer nest monitors and Greenbelt staff, plus other observations and data, shows that 75 active nests were observed in 2022 (Table 1). All nest site locations and descriptions are shown on a map accessible via a link at www.ecga.org. Nest sites included a wide variety of man-made structures as well as some trees. In all, 75 different active nests were observed where Osprey made some type of nest or occupied a nesting structure, including 49 nests on man-made nest platforms, 11 nests on

navigational channel markers, 6 nests on hunting blinds or camp roofs, 5 nests on light towers/electrical transmission poles or towers, and 4 nest in trees.

Table 1 shows the fate of the 75 breeding pairs observed in 2022. Based on all the available information, it is known that 67 pairs of Osprey produced nests with eggs, while 8 “housekeeping” pairs were also observed. The housekeeping pairs were observed building and occupying a nest without ever laying eggs.

Table 1. *Distribution and status of Osprey nests and breeding pairs in the region from East Boston to the New Hampshire border by town in 2022.*

Town/City	# Active Pairs Observed	# Active Pairs with Eggs	# House-keeping Pairs with No Eggs	# Active Pairs Hatching Eggs	# Active Pairs not Hatching Eggs	# Fledglings Observed (# banded)
East Boston	2	2		1	1	1 (2)
Revere	3	3		3		7 (4)
Saugus	6	6		5	1	12 (7)
Lynn	4	4		4		9 (2)
Marblehead	2	2		2		6
Salem	3	2	1	2		3
Beverly	2	2		1	1	2
Gloucester	7	6	1	3	3	7 (3)
Essex	7	7		5	2	9 (9)
Ipswich	15	15		11	4	29 (19)
Rowley	4	4		2	2	5 (5)
Boxford	1	1		1		1
Merrimac	1	1		1		3
Haverhill	1	1		1		2
Newbury	6	5	1	3	2	8 (5)
Newburyport	3	2	1	2		6 (6)
Salisbury	8	4	4	1	3	2 (2)
Totals	75	67	8	48	19	112 (64)

Table 1 shows that in 2022, 90% (67/75) of active breeding pairs laid eggs were 71% (48/67) successful hatched eggs, compared to a fluctuating annual hatching success rate of 80% in 2021, 65% in 2020, 53% in 2019, 76% in 2018. Pairs (48) hatching eggs in 2022 had an average productivity rate of 2.3 fledglings per pair, which is excellent. Productivity for all pairs with eggs was about 1.7 fledglings per pair, which is very consistent with past years. In 2022 there were 112 fledglings observed (a record high), compared to 101 in 2021, 76 in 2020, 59 in 2019, 62 in 2018 and 44 in 2017.

In 2022, the failure rate of breeding pairs that laid eggs was 28% (19/67), which falls within an observed range of 20-40% over the past 10 years. Nest failures were likely the result of eggs not hatching (infertile or otherwise not viable) or egg/chick predation. Great-Horned Owls were confirmed or suspected in several predation events at nest sites. Bald Eagles were not confirmed but still were suspected predators in 2022.

Housekeeping pairs were stable (8) in 2022, compared to 8 in 2021, 7 pairs in 2020 and 6 pairs in 2019.

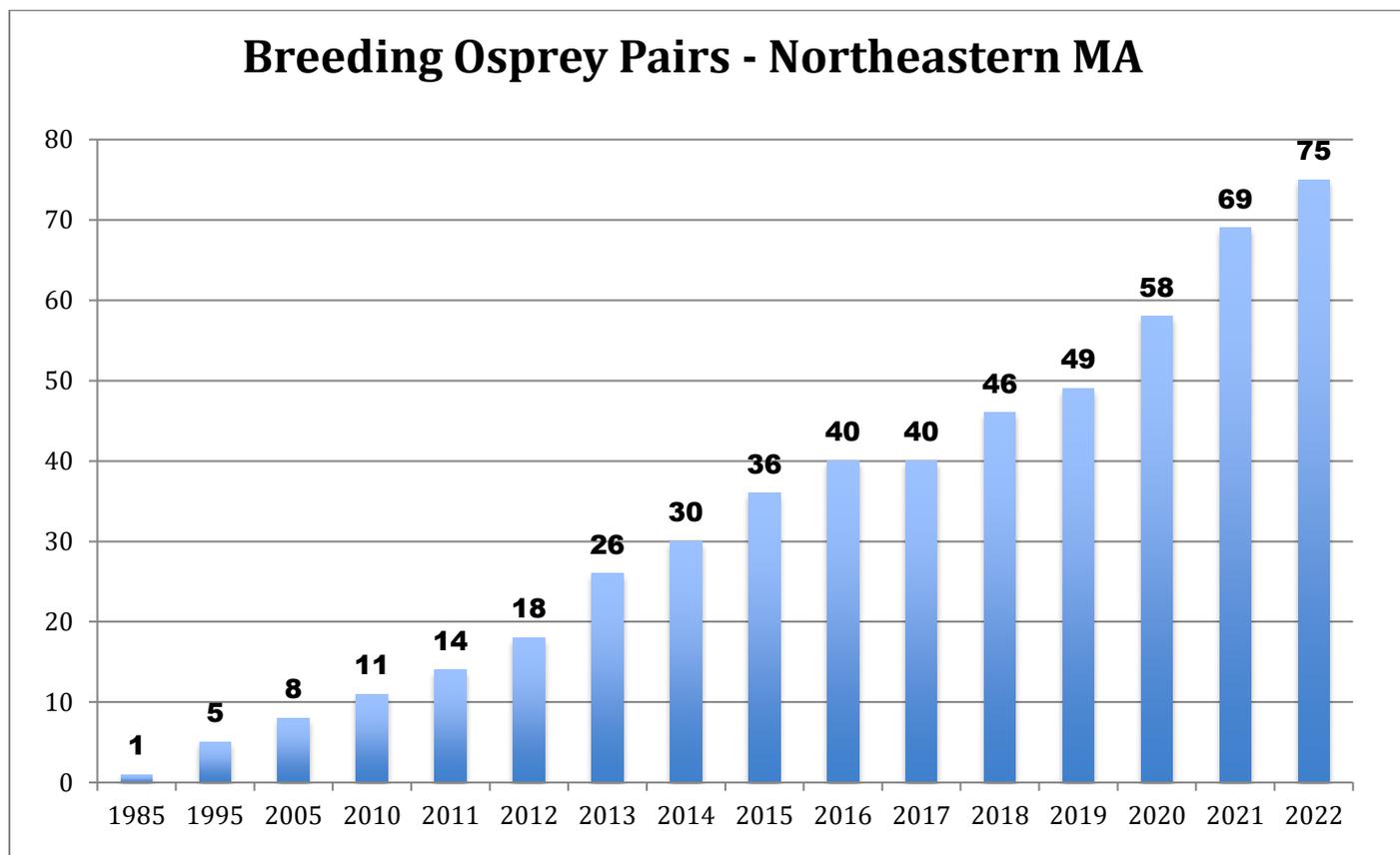
Research

Greenbelt and collaborators placed US Fish and Wildlife Service aluminum leg bands on 64 flightless chicks in 2022. The total number of Osprey chicks banded as part of Greenbelt’s Osprey Program since 2013 is now 335. A banded male Osprey was observed at Greenbelt’s webcam nest in Gloucester and another banded male was seen on a different nest in Gloucester. Both banded males had the band on the right leg, which is always the protocol for Greenbelt. Undoubtedly the hundreds of fledglings produced in our region over the past 10-15 years are returning and fueling some of the growth of the breeding population.

Summary

The population of breeding Osprey in northeastern Massachusetts in 2022 was 75 pairs, a 9% (6 pair) increase from 2021 that established a new modern day high for numbers of breeding Osprey. Figure 1 tracks the annual population and shows that the population has grown steadily and dramatically since 2010 (11 pairs to 75 pairs). Chick survival was high in 2022, with 112 fledglings observed, which translates to an overall productivity rate of 1.7 fledgling per pair for the 67 pairs that produced eggs. Housekeeping pairs are not included in productivity calculations.

Figure 1: Numbers of breeding pairs of Osprey observed between Boston, Massachusetts and the New Hampshire border since 1985, when the first nesting pair was confirmed in Essex.



Carrying capacity for Osprey in this region is unknown, but there appear to be few limiting factors. There are unoccupied nest structures throughout the area, new platforms are being added annually, and food availability appears abundant. Predation or abandonment caused by Great-horned Owls and Bald Eagles in 2022 contributed to limiting productivity.

Osprey are clearly thriving in northeastern Massachusetts; young Osprey are being recruited into the population and first-time nesting pairs are benefiting from the increased number of nesting platforms available to them. However, they are also taking advantage of many other man-made structures not intended for Osprey. Greenbelt will continue to respond as needed to assist with Osprey nests that are potentially problematic. In 2022,

Greenbelt installed our first FiberNest on a utility pole that had a housekeeping pair active in 2021. A FiberNest is a fiberglass dish attached to a metal pole that sits atop a utility pole, allowing Osprey to build a nest with interfering with any utility wires. The pair did not return in 2022 to this location but there is another pair in the region using a FiberNest installed by National Grid, the local utility company.

Greenbelt’s Osprey Program continued to play a vital role in Osprey conservation in northeastern Massachusetts in 2022 by ensuring nest sites/structures were stable; by coordinating monitoring of active nests by volunteers and staff; by expanding public outreach and education; and by conducting research. Greenbelt will continue with the Osprey Program in 2023.

For more information about Greenbelt’s Osprey Program, contact Dave Rimmer, Greenbelt Director of Stewardship at dwr@ecga.org or 978-768-7241 X14. Or visit www.ecga.org and click on the Osprey Program page.



Pip, Squeak and Ollie on the nest in late July, banded and very close to fledging, as captured via Greenbelt’s webcam in Gloucester.

- July 2022