

# Status of Osprey Breeding Activity in Northeastern Massachusetts 2021

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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. Over the ensuing years, nesting pairs of Osprey have 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 dozens of 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 work with Osprey began in 2008 and the Osprey Program was established in 2010. The goal remains to improve Osprey conservation in northeastern Massachusetts. In 2021, 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 2021. 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.

The first observations of Osprey in 2021 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 69 active nests were observed in 2021 (Table 1). All nest site locations and descriptions are shown on a map accessible via a link at [www.ecga.org](http://www.ecga.org). Nest sites included a wide variety of man-made platforms on poles, coastal navigational markers, electrical transmission towers or other structures like salt marsh hunting blinds. In all, 69 different active nests were observed where Osprey made some type of nest or occupied a nesting structure, including 4 nests on hunting blinds, 1 nest on an old section of dock, 9 nests on

navigational markers, 8 nests on light towers/electrical transmission poles or towers, 43 nests on man-made nest platforms, and 4 nest in trees.

Table 1 shows the fate of the 69 nests observed in 2021. Based on all the available information, it is known that 61 pairs of Osprey produced nests with eggs, while 8 “housekeeping” pairs were also observed. The housekeeping pairs were observed building and occupying a nest for a period 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 2021.

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
Revere	3	3		2	1	5
Saugus	6	6		6		11 (5)
Lynn	4	4		3	1	5
Marblehead	2	2		2		5
Salem	2	2		2		4
Beverly	2	2		2		4
Gloucester	7	6	1	3	3	6 (2)
Essex	6	6		5	1	8 (8)
Ipswich	14	11	3	9	2	23 (10)
Rowley	4	3	1	1	2	3
Boxford	1	1		1		1
Merrimac	1	1		1		3
Haverhill	1	1		1		1
Newbury	5	5		4	1	9 (8)
Newburyport	3	2	1	2		5 (3)
Salisbury	6	4	2	4		7 (5)
<b>Totals</b>	<b>69</b>	<b>61</b>	<b>8</b>	<b>49</b>	<b>12</b>	<b>101 (41)</b>

Table 1 shows that 80%% (49/61) of active breeding pairs that laid eggs were successful hatching eggs in 2021, compared to 65% in 2020, 53% in 2019, 76% of nests in 2018 and 86% of nests in 2017. Pairs hatching eggs in 2021 had an average productivity rate of 2.1 fledglings per pair. Productivity for all pairs with eggs was about 1.7 fledglings per pair. In 2021 there were 101 fledglings observed, compared to 76 in 2020, 59 in 2019, 62 in 2018 and 44 in 2017.

The failure rate of breeding pairs in 2021 that laid eggs was 20%, which is lower than most years (35% in 2020).. Nest failures were likely the result of eggs not hatching or egg/chick predation. Great-Horned Owls were confirmed or suspected in most predation events at nest sites, although Bald Eagles attacked and killed a female Osprey at an active nest.

More housekeeping pairs were observed in 2021 (8), compared to 7 pairs in 2020 and 6 pairs in 2019.

### Research

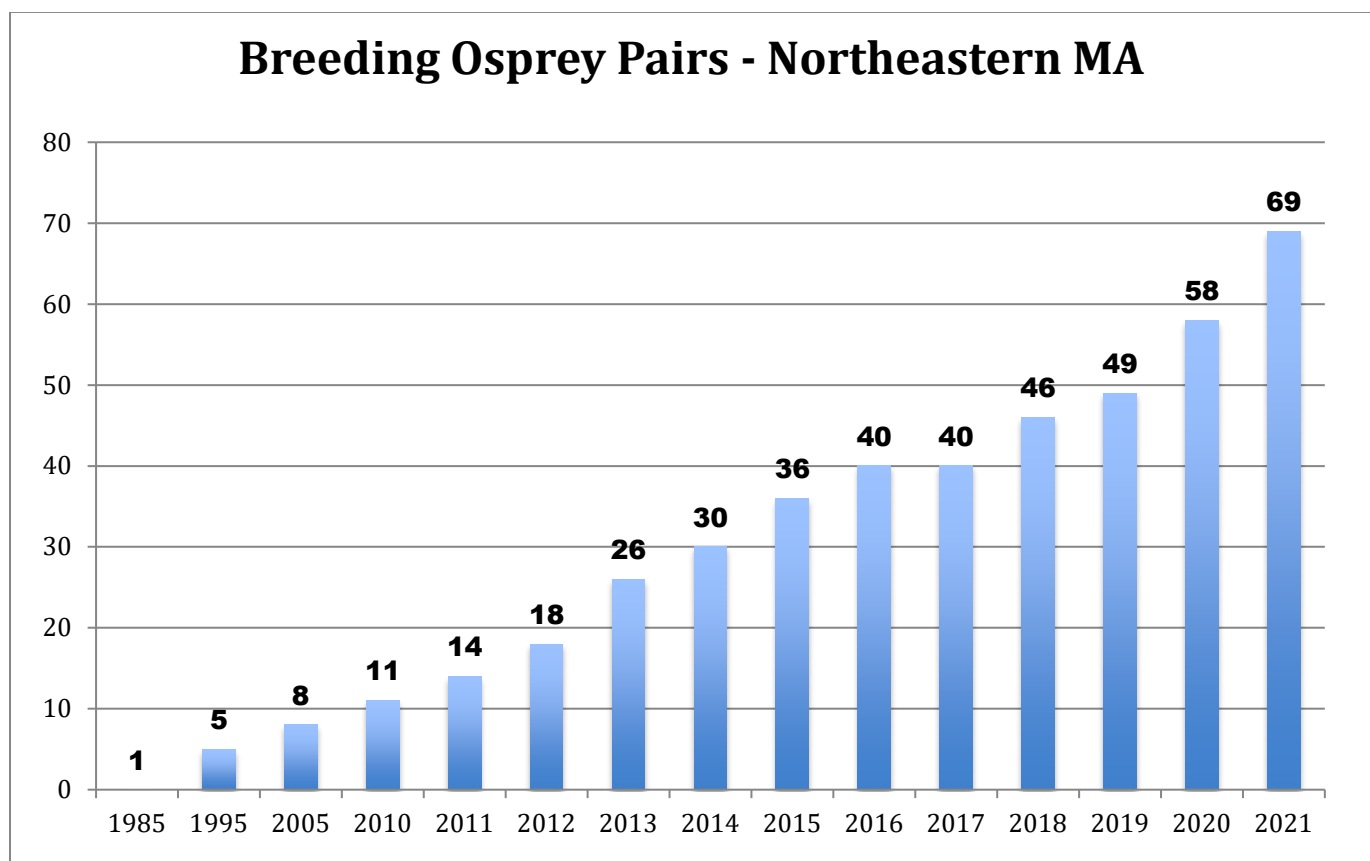
Greenbelt placed US Fish and Wildlife Service aluminum leg bands on 36 flightless chicks in 2021 and an additional 5 flightless chicks were banded by another authorized bander. The total number of Osprey chicks

banded as part of Greenbelt’s Osprey Program since 2013 is now 271. A banded male Osprey was observed in April and again in August at Greenbelt’s webcam nest in Gloucester. It is highly likely this is adult male was banded as a chick, since the band was on the right leg, which is always the protocol for Greenbelt. Presumably, this young unpaired male tried to take over the nest in April (unsuccessfully) and then returned in August to insert himself again into the family group of two adults and two fledglings. He was disruptive and successful stealing fish being delivered to the chicks. This banded male’s presence caused a lot of commotion both with the resident pair and their chicks, but for many online viewers who were concerned about the intruder’s behavior. However, the banded male Osprey did not appear to have any negative impact. Instead, we concluded this was completely normal behavior to observe with a growing osprey population – that is adult birds competing for resources.

### Summary

The population of breeding Osprey in northeastern Massachusetts in 2021 was 69 pairs, a 19% (11 pairs) increase from 2020 and the largest single year increase since data collection started in 2010. Figure 1 tracks the annual population and shows that the population has grown about 527% since 2010 (11 pairs to 69 pairs). Chick survival was high in 2021, with 101 fledglings observed, which translates to an overall productivity rate of 1.7 fledgling per pair for the 61 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 very few limiting factors. There are unoccupied nest structures throughout the area, new platforms are being added annually, and food availability appears high. Predation by Great-horned Owls and Bald Eagles in 2021 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. There were several “nuisance” nests observed – one of note was on a utility pole in Rowley. This housekeeping pair will hopefully relocate to a nearby platform in 2022. We remain confident that the breeding population of Osprey can continue to expand in northeastern Massachusetts.

Greenbelt’s Osprey Program continued to play a vital role in Osprey conservation in northeastern Massachusetts in 2021 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 2022.

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



*Spar and Tina, captured by the Greenbelt webcam huddled together as fledglings after yet another 2021 rain event.  
– Aug 2021.*