

Status of Osprey Breeding Activity in Northeastern Massachusetts 2020

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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 Osprey Program was established in 2010 to improve Osprey conservation in northeastern Massachusetts. In 2020, the program continued with four focus areas: management of nest structures, monitoring of breeding activity, research and outreach/education. The management focused on nesting site/structure oversight; the monitoring was a combination of staff and volunteers tracking individual nesting pairs; the research involved banding flightless chicks and working with leading raptor biologist Dr. Richard Bierregaard tracking Osprey during migration and; the 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 2020. Community scientists acting as volunteer Osprey nest monitors once again played a critical role in the data collection, as over 25 individuals submitted over 1500 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 2020 in northeastern Massachusetts were reported in late March. Soon thereafter, Osprey pairs were visible from East Boston to Salisbury 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 eventually most departed northeastern Massachusetts on their southward migration in September.

The data from more than 1500 online reports submitted by volunteer nest monitors and Greenbelt staff, plus other observations and data, shows that 58 active nests were observed in 2020 (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 platforms on poles or tripods, coastal navigational markers, electrical transmission towers or other structures like salt marsh hunting blinds. In all, 58 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 a hunting camp,

8 nests on navigational markers, 6 nests on light towers/electrical transmission poles or towers, 34 nests on man-made nest platforms, 3 nest in trees, 1 nest on a large log sitting on salt marsh and 1 nest on flag pole next to a hunting camp.

Table 1 shows the fate of the 58 nests observed in 2020. Based on all the available information, it is known that 51 pairs of Osprey produced nests with eggs in 2020, while 7 “housekeeping” pairs were also observed. The housekeeping pairs were observed building and occupying a nest for an extended 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 2020.

Town/City	# Active Pairs Observed	# Active Pairs with Eggs	# House-keeping Pairs with No Eggs	# Active Pairs Hatching Eggs	# Active Pairs not Hatching Eggs	# Pairs Displaying Light Activity	# Fledglings Observed (# banded)
East Boston	2	2		1	1		3 (3)
Revere	3	2	1	1	1		3
Saugus	5	4	1	3		1	8
Lynn	4	4		3	1		6
Marblehead	2	2		2			5
Salem	2	2		2			5
Beverly	2	2		2			4
Gloucester	4	4		2	2		5 (5)
Essex	7	5	2	3	2		5 (2)
Ipswich	11	10	1	5	5	1	14 (9)
Rowley	4	3	1	1	2	1	3 (3)
Boxford	1	1		1			2
Newbury	5	5		2	3		4 (4)
Newburyport	2	2		1	1		3 (3)
Salisbury	4	3	1	3		1	6 (3)
Totals	58	51	7	33	18	4	76 (32)

Table 1 shows that 65% (33/51) of active breeding pairs that laid eggs were successful hatching eggs in 2020, compared to 53% in 2019, 76% of nests in 2018 and 86% of nests in 2017. Pairs hatching eggs in 2020 had an average productivity rate of 2.7 fledglings per pair. Productivity for all pairs with eggs was about 1.5 fledglings per pair. In 2020 there were 76 fledglings observed, compared to 59 in 2019, 62 in 2018 and 44 in 2017. The failure rate in 2020 of breeding pairs that laid eggs was 35% which is lower than the 40% observed in 2019 but higher than the 24% observed in 2018 and 14% in 2017. Nest failures were believed the result of eggs not hatching or predation. Great-Horned Owls were confirmed or suspected in most predation events at nest sites, although Bald Eagles may also prey on Osprey chicks. In 2020 there were 7 house-keeping pairs, compared to 6 pairs in 2019.

Research

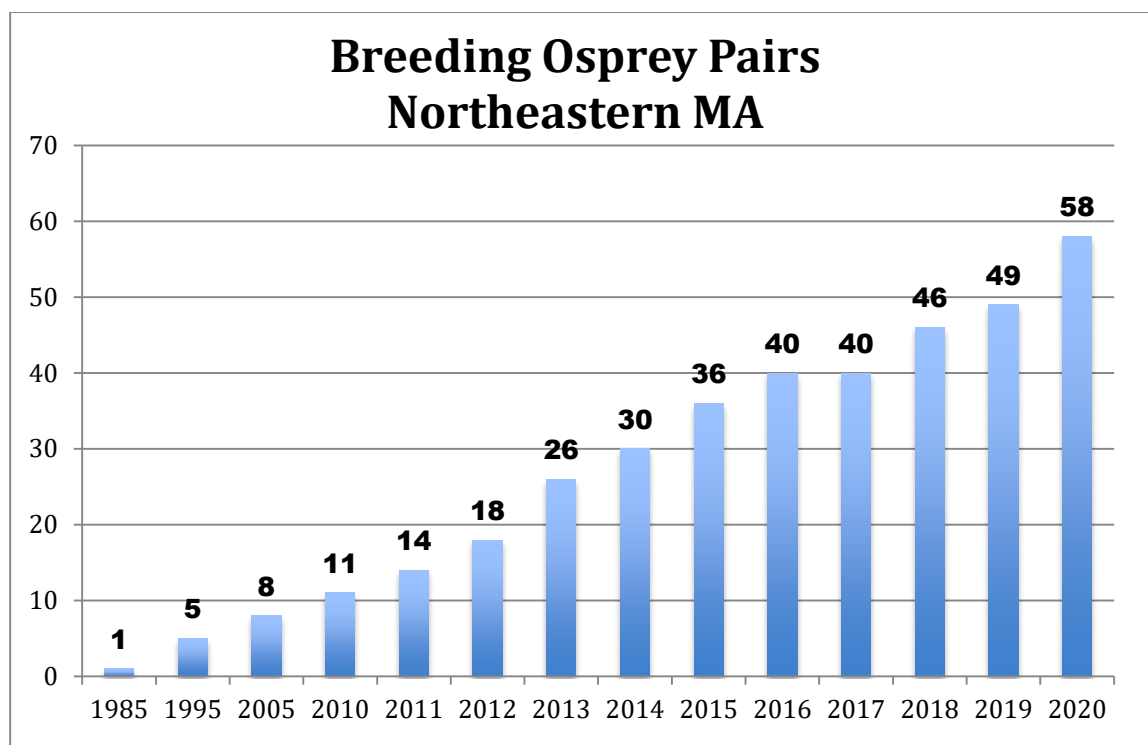
Greenbelt placed US Fish and Wildlife Service aluminum leg bands on 32 flightless chicks in 2020. The total number of banded chicks since 2013 is now 230. Greenbelt had been collaborating with Dr. Richard Bierregaard’s research project on Osprey migration behavior using solar-powered satellite transmitters, but unfortunately, the final surviving tagged Osprey (funded by Greenbelt), Flow, did not survive his southward migration in 2017, succumbing we believe to owl predation in a Virginia woodlot.

Summary

The population of breeding Osprey in northeastern Massachusetts in 2020 was 58 pairs, a 18.3% increase from 2019 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 430% since 2010 (11 pairs to 58 pairs). Chick survival was relatively high in 2020, with 75 fledglings observed, which translates to an overall productivity rate of 1.5 fledgling per pair for the 51 pairs that produced eggs. House-keeping pairs are not included in productivity calculations. 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 may be the main factor limiting productivity. In 2020, great-horned owls appear to have impacted nesting success in certain salt marsh areas where multiple failures were observed at adjacent nest sites.

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. There were several “nuisance” nests observed – one of note was started on a houseboat before a platform was quickly installed nearby and the pair relocated to that spot, leaving the boat. We are confident that the breeding population of Osprey can continue to expand in northeastern Massachusetts.

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.



Greenbelt’s Osprey Program continued to play a vital role in Osprey conservation in northeastern Massachusetts in 2020 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 2021.

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.