

Status of Osprey Breeding Activity in Northeastern Massachusetts 2019

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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 2019, 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 2019. Citizen scientists acting as volunteer Osprey nest monitors once again played a critical role in the data collection, as over 20 individuals submitted 1000+ 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 2019 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, resulting in nest abandonment. Great-Horned Owls were confirmed as a nest predator at one nest and suspected at several 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 departed northeastern Massachusetts on their southward migration between late August to early October.

The data from more than 1000 online reports submitted by volunteer nest monitors and Greenbelt staff, plus other observations and data, shows that 49 active nests were observed in 2019 (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, 49 different active nests were observed where Osprey made some type of nest or occupied a nesting structure, including 3 nests on hunting blinds, 1 nest on a hunting camp,

7 nests on navigational markers, 1 nest on a light tower, 4 nests on electrical transmission poles or towers, 32 nests on man-made nest platforms and 1 nest in a dead white pine tree.

Table 1 shows the fate of the 49 nests observed in 2019. Based on all the available information, it is known that 26 pairs of Osprey produced nests with eggs in 2019, while 7 “housekeeping” pairs were also observed. The housekeeping pairs were observed either building nests or occupying a nest platform for an extended period of time 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 2019.*

Town/City	# Active Nests Observed	# Active Pairs with Eggs	# House Keeping Pairs with No Eggs	# Nests Hatching Eggs	# Nests not Hatching Eggs	# Nests with Unknown Fate	# Fledglings Observed (# banded)
East Boston	2	2	0	1	1	0	3
Revere	2	2	0	2	0	0	4
Saugus	3	3	0	2	1	0	4
Lynn	3	3	0	3	0	0	6
Marblehead	2	2	0	2	0	0	7
Salem	2	2	0	2	0	0	5
Beverly	1	0	1	0	0	0	0
Manchester	1	1	0	1	0	0	2
Gloucester	4	3	1	2	1	0	3 (3)
Essex	5	4	1	1	3	0	1 (1)
Ipswich	9	9	0	6	3	0	15 (13)
Rowley	3	3	0	0	3	0	0
Boxford	1	1	0	1	0	0	3
Newbury	5	4	1	0	4	0	0
Newburyport	1	1	0	1	0	0	2 (2)
Salisbury	5	3	2	2	1	0	4 (3)
Totals	49	43	6	26	17	0	59 (22)

Table 1 shows that 53% (26/49) of active breeding pairs were successful hatching eggs in 2018, compared to 76% of nests in 2018 and 86% of nests in 2017. Pairs hatching eggs in 2019 had an average productivity rate of 2.3 fledglings per pair. Productivity for all pairs with eggs was about 1.4 fledglings per pair (59/43). In 2019 there were 59 fledglings observed, compared to 62 in 2018 and 44 in 2017. The failure rate of breeding pairs that laid eggs was 40% (17/43), significantly higher than the 24% observed in 2018 and 14% in 2017. Nest failures were the result of eggs not hatching and predation. Great-Horned Owls were confirmed or suspected in all predation events at nest sites; remains of an adult Osprey were found in one nest. Housekeeping pairs (6) increased from 5 pairs in 2018. Anecdotally, reports of non-breeding Osprey were common during the 2019 breeding season and there were frequent reports of intruding individual Osprey around active nests.

Research

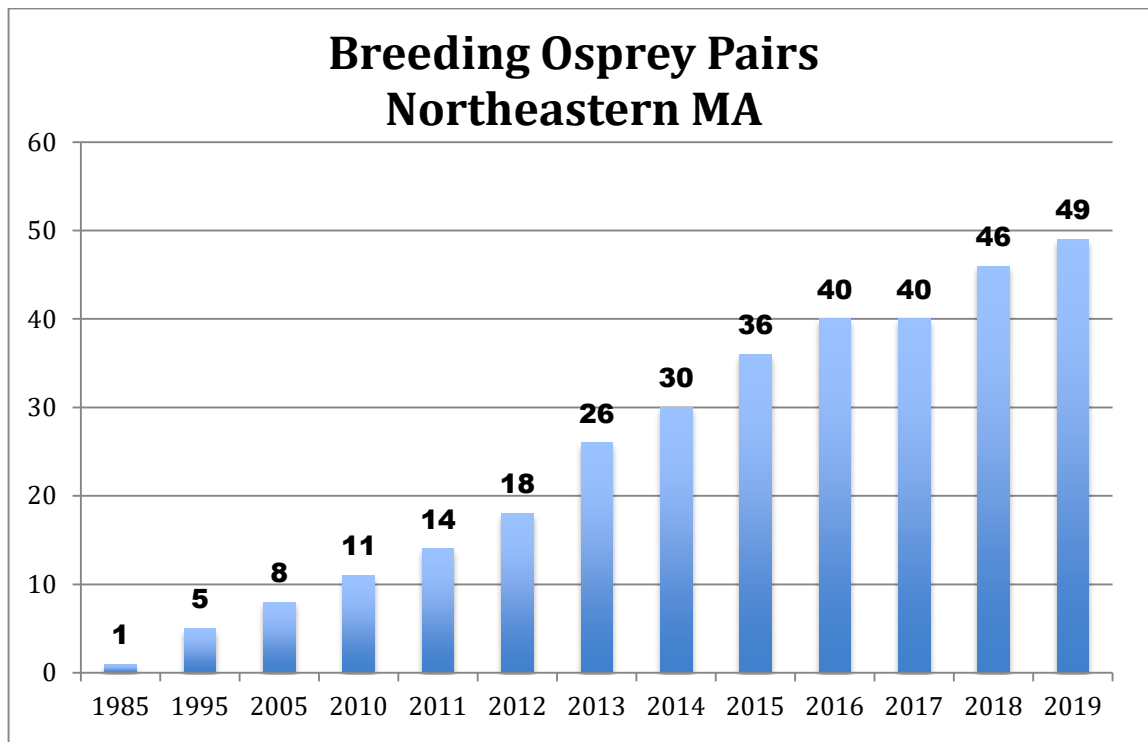
Greenbelt placed US Fish and Wildlife Service aluminum leg bands on 22 flightless chicks in 2019. The total number of banded chicks since 2013 is now 198. Greenbelt had been collaborating with Dr. Richard Bierregaard’s research project on Osprey migration behavior using solar-powered satellite transmitters, 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 2019 was 49 pairs, a 6.5% increase from 2018. Since 2010, the population has increased steadily from 11 pairs in 2010; to 14 pairs in 2011; to 18 pairs in 2012; to 26 pairs in 2013; to 30 pairs in 2014; to 36 pairs in 2015; to 40 pairs in 2016 and 2017; to 46 pairs in 2018; to 49 pairs in 2019. Chick survival was relatively high in 2019, with 59 fledglings observed, which translates to an overall productivity rate of 1.4 fledgling per pair for the 43 pairs that produced eggs. House-keeping pairs are not included in productivity calculation. 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, and food availability appears high. Predation by great-horned owls may be the main factor limiting fledging success.

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. 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 2019 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 2020.

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.