

Status of Osprey Breeding Activity in Northeastern Massachusetts 2017

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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 (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 man-made structures including 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 20 new nesting platforms, including 1 in 2017, 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 to create a comprehensive effort to improve Osprey conservation in northeastern Massachusetts. In 2017, 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 comprehensive nesting and productivity data on almost all Ospreys breeding in northeastern Massachusetts in 2017. Citizen scientists acting as volunteer Osprey nest monitors once again played a critical role in the data collection, as over 20 individuals submitted over 1400 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 2017 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 once again suspected as nest predators although never confirmed. Remains of an adult Osprey were recovered at one nest in June. 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 had departed northeastern Massachusetts on their southward migration by late August to early October.

The data from more than 1400 online reports submitted by volunteer nest monitors and Greenbelt staff, plus other observations and data, shows that 41 active nests were observed in 2017 (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, 41 different active nests were observed where Osprey made

some type of nest (one pair nested twice), including 4 nests on hunting blinds, 1 nest on a hunting camp, 5 nests on navigational markers, 5 nests on electrical transmission poles or towers, 25 nests on man-made nest platforms and 1 nest in a dead white pine tree (the first nest observed in this region in a tree).

Table 1 shows the fate of the 41 nests observed in 2017. Based on all the available information, it is known that 35 pairs of Osprey produced nests with eggs in 2017, while 5 “housekeeping” pairs built nests but produced no eggs. Some of these housekeeping pairs were observed building minimal nests while others built large nests and were on the nest most of the season. In 2017, we concluded that all of the housekeeping pairs were individual pairs only associated with a single nest.

Combining known active pairs that laid eggs with known housekeeping pairs, we conclude that 40 breeding pairs of Osprey were active in northeastern Massachusetts in the 2017 breeding season.

Table 1 represents data collected in 2017.

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 2016.

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
East Boston	1	1	0	1	0	0	0
Revere	2	2	0	2	0	0	3
Saugus	4	2	1*	2	0	0	3
Lynn	2	2	0	2	0	0	3
Marblehead	2	2	0	2	0	0	5
Salem	2	2	0	2	0	0	1
Beverly	0	0	0	0	0	0	0
Manchester	1	1	0	0	0	1	UKN
Gloucester	2	2	0	1	1	0	2
Essex	5	4	1	3	1	0	2
Ipswich	8	8	0	7	1	0	13
Rowley	4	3	1	2	1	0	2
Newbury	3	2	1	2	1	0	1
Newburyport	1	1	0	1	0	0	3
Salisbury	4	3	1	3	0	0	6
Totals	41*	35	5	30	5	1	44

- A single house-keeping pair is suspected to have built nests at two different sites.

Table 1 shows that 86% (30/35) of active breeding pairs were successful hatching eggs in 2017, compared to 76% of nests in 2016 and 71% in 2014. Pairs hatching eggs in 2017 had an average productivity rate of 1.3 fledglings per pair. In 2017 there were 44 fledglings observed, compared to 60 in 2016. The failure rate of active breeding pairs that laid eggs was 14% (5/35), lower than the 27% observed in 2016. Nest failures were the result of eggs not hatching and predation. Great-Horned Owls are thought to be the main culprit in predation; remains of an adult Osprey were found in one nest. Housekeeping pairs (5) were more common on 2017 than 2016 (3). Anecdotally, reports of non-breeding Osprey were common during the 2017 breeding season and there were frequent reports of intruding Osprey around active nests.

Research

Greenbelt placed US Fish and Wildlife Service aluminum leg bands on 21 flightless chicks in 2017. Greenbelt also continued to collaborate with Dr. Richard Bierregaard’s research project on Osprey migration behavior using solar-powered satellite transmitters. Greenbelt funded the tagging of four juvenile Ospreys in 2013-2014 but

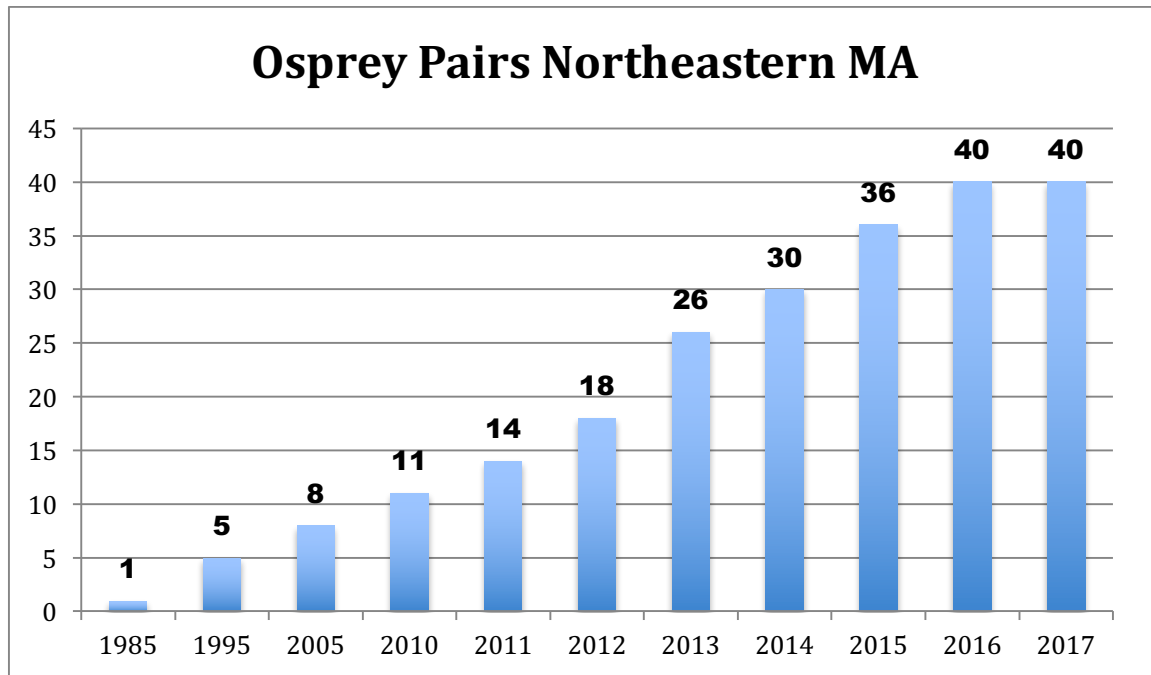
unfortunately the final surviving member of this group, Flow, did not survive his southward migration in 2017, succumbing we believe to owl predation in a Virginia woodlot.

Summary

The population of breeding Osprey in northeastern Massachusetts was stable in 2017 at 40 pairs, which represented the first year since monitoring began in the 1980s that the number of breeding pairs of Osprey did not increase. Since 2010, the population has increased almost 300%, 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. Productivity in 2017 was only 21 observed fledglings. Carrying capacity for Osprey in this region is unknown, but there appear to be few limiting factors. There are unoccupied nest structures through out the area, and food availability appears high. Predation 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, despite the lack of population increase in 2017.

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 an important role in Osprey conservation in northeastern Massachusetts in 2016 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 2018.

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 page.