

Status of Osprey Breeding Activity in Northeastern Massachusetts 2015

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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 14 new nesting platforms, including 5 in 2015, 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 5 years ago to create a comprehensive effort to improve Osprey conservation in northeastern Massachusetts. In 2015, 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 Osprey breeding in northeastern Massachusetts in 2015. Citizen scientists acting as volunteer Osprey nest monitors once again played a critical role in the data collection, as over 20 individuals submitted about 800 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 2015 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. Nesting pairs with chicks were observed in many locations in June and the first fledglings were observed in late July and August. Most of the resident adult and juvenile Osprey had departed northeastern Massachusetts on their southward migration by October.

The data from about 800 online reports submitted by volunteer nest monitors and Greenbelt staff, plus other observations and data, shows that 42 active nests were observed in 2015 (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 and an old section of wooden dock. In all, 42 different active nests were observed where Osprey made some type of nest, including 6 nests on hunting blinds, 2 nests on hunting camps, 3 nests on navigational markers, 4 nest on an electrical transmission tower, 1 on an industrial smokestack, 1 on an old dock up on salt marsh and 25 nests on man-made nest platforms.

Table 1 shows the fate of the 42 nests observed in 2015. Based on all the available information, it is known that 31 pairs of Osprey produced nests with eggs in 2015, while 11 “housekeeping” pairs produced nests but no eggs. Some of these housekeeping pairs were observed in the late stages of the breeding season and built minimal nests, suggesting they may be second nest attempts. Other housekeeping pairs were on the same nest all season. We estimate that about 50% of the housekeeping pairs were individual pairs only associated with a single nest.

Combining known active pairs that laid eggs with an estimate of housekeeping pairs, we conclude that 35-38 pairs of Osprey were active in northeastern Massachusetts in the 2015 breeding season. For the purposes of this report, we are using an actual number of 36 breeding pairs of Osprey for 2015.

Table 1 represents the data collected in 2015.

Table 1. *Distribution and status of Osprey nests and breeding pairs in the region north of Boston to the New Hampshire border by town in 2015.*

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	1
Revere	2	1	1	1	0	0	2
Saugus	2	2	0	1	0	1	3
Marblehead	2	2	0	2	0	0	4
Salem	2	1	1	1	0	0	0
Beverly	0	0	0	0	0	0	0
Gloucester	4	2	2	2	0	0	0
Essex	6	3	3	1	2	0	3
Ipswich	7	7	0	6	1	0	8
Rowley	4	3	1	1	2	0	1
Newbury	5	3	2	1	1	1	0
Newburyport	2	2	0	2	0	0	3
Salisbury	5	4	1	3	1	0	6
Totals	42	31	11	22	7	2	30

Table 1 shows that 71% (22/31) of active breeding pairs were successful hatching eggs in 2015, compared to 63% of nests in 2014. Pairs hatching eggs in 2015 had an average productivity rate of 1.4 fledglings per pair, which was lower than 2014 (2.0 fledglings per pair). In 2015 there were 30 fledglings observed, compared to 38 in 2014. The failure rate of active breeding pairs that laid eggs was 23% (7/31), similar to the 30% (9/30) nest failure rate observed in 2014. However, some of the pairs successfully hatching eggs in 2015 experienced some chick loss, which suppressed overall fledging success. Predation is suspected as the main cause of nest failure, although evidence is rarely observed. Great-Horned Owls are thought to be the main culprit in predation. Housekeeping pairs (11) were much more abundant in 2015 than 2014 (4), supporting the speculation that greater numbers of young Osprey are being recruited into the local breeding population. Anecdotally, reports of non-breeding Osprey were common during the 2015 breeding season and there were more reports of intruding Osprey around active nests.

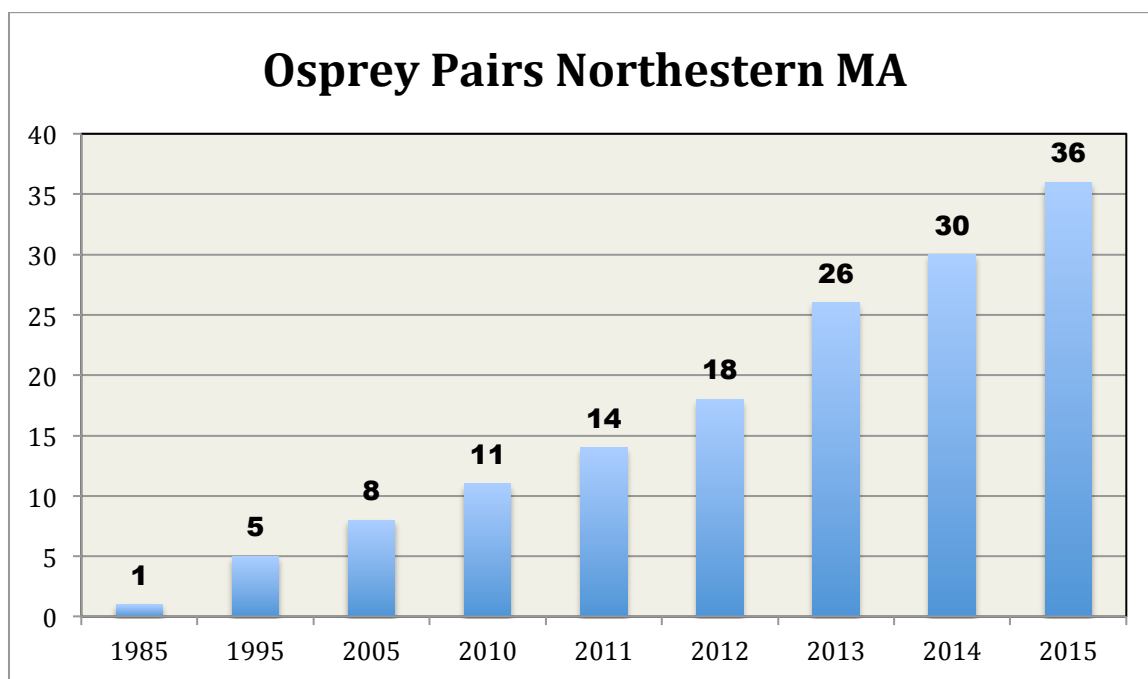
Greenbelt placed US Fish and Wildlife Service aluminum leg bands on 17 flightless chicks. Greenbelt also continued to collaborate with Dr. Richard Bierregaard's research of Osprey migration behavior. Greenbelt has now funded the tagging of four juvenile Ospreys but only one is still alive, named Flow (a male tagged in 2014). Flow has been in central Cuba since October 2014. We are anticipating Flow will begin his first northward migration some time in the Spring of 2016. An interactive map showing Flow's tracking data is available at www.ecga.org.

Summary

The population of breeding Osprey in northeastern Massachusetts continued to expand in 2015, increasing about 20% from 2014. Since 2010, the population has increased by more than 200%, 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. Carry capacity for Osprey in this region is unknown, but limiting factors may be suitable nest sites more than food availability. Monitoring efforts continue to reveal new nests, some which were known to be active in previous years, suggesting not all of the population growth is new breeding pairs. But we have observed real annual growth in the population.

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 well established Osprey Program played a critical role in Osprey conservation in northeastern Massachusetts in 2015 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 2016.

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.