

Status of Osprey Breeding Activity in Northeastern Massachusetts 2016

Prepared by: Dave Rimmer, Essex County Greenbelt Association

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 19 new nesting platforms, including 5 in 2016, 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 create a comprehensive effort to improve Osprey conservation in northeastern Massachusetts. In 2016, 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 2016. Citizen scientists acting as volunteer Osprey nest monitors once again played a critical role in the data collection, as over 20 individuals submitted over 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 2016 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. Norway rat egg predation was also suspected at one nest. 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 September 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 40 active nests were observed in 2016 (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, 40 different active nests were observed where Osprey made

some type of nest, including 5 nests on hunting blinds, 1 nest on a hunting camp, 4 nests on navigational markers, 5 nests on electrical transmission poles or towers, and 25 nests on man-made nest platforms.

Table 1 shows the fate of the 40 nests observed in 2016. Based on all the available information, it is known that 37 pairs of Osprey produced nests with eggs in 2016, while 3 “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 2016, we estimate that all of the housekeeping pairs were individual pairs only associated with a single nest and were not possible second nest attempts.

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 2016 breeding season.

Table 1 represents data collected in 2016.

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 | 1 |
| Revere | 2 | 2 | 0 | 1 | 1 | 0 | 1 |
| Saugus | 3 | 3 | 0 | 2 | 1 | 0 | 5 |
| Lynn | 1 | 1 | 0 | 1 | 0 | 0 | 2 |
| Marblehead | 2 | 2 | 0 | 2 | 0 | 0 | 5 |
| Salem | 2 | 2 | 0 | 2 | 0 | 0 | 4 |
| Beverly | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Manchester | 1 | 1 | 0 | 0 | 0 | 1 | 0 |
| Gloucester | 3 | 2 | 1 | 1 | 2 | 0 | 0 |
| Essex | 5 | 4 | 1 | 3 | 2 | 0 | 6 |
| Ipswich | 8 | 8 | 0 | 7 | 1 | 0 | 18 |
| Rowley | 3 | 3 | 0 | 2 | 1 | 0 | 5 |
| Newbury | 3 | 3 | 0 | 3 | 0 | 0 | 6 |
| Newburyport | 1 | 1 | 0 | 1 | 0 | 0 | 3 |
| Salisbury | 5 | 4 | 1 | 3 | 2 | 0 | 4 |
| Totals | 40 | 37 | 3 | 29 | 10 | 1 | 60 |

Table 1 shows that 78% (29/37) of active breeding pairs were successful hatching eggs in 2016, compared to 71% of nests in 2015 and 63% in 2014. Pairs hatching eggs in 2016 had an average productivity rate of 2.1 fledglings per pair, which is the highest productivity rate recorded to date. In 2016 there were 60 fledglings observed, compared to 30 in 2015. The failure rate of active breeding pairs that laid eggs was 27% (10/37), similar to recent years. Nest failures were never confirmed but predation is suspected as the main cause of nest failure. Great-Horned Owls are thought to be the main culprit in predation. Active pairs with nests (37) increased in 2016, up from 31 pairs in 2015. Housekeeping pairs (3) were less abundant in 2016 than 2015 (11). Anecdotally, reports of non-breeding Osprey were common during the 2016 breeding season and there were frequent reports of intruding Osprey around active nests. A male Osprey banded in 2014 in Essex, as a chick was found weak and unable to fly. He was rehabbed and released.

Research

Greenbelt placed US Fish and Wildlife Service aluminum leg bands on 35 flightless chicks in 2016. Greenbelt also continued to collaborate with Dr. Richard Bierregaard’s research project on Osprey migration behavior using solar-powered satellite transmitters. Greenbelt has now funded the tagging of four juvenile Ospreys but only one

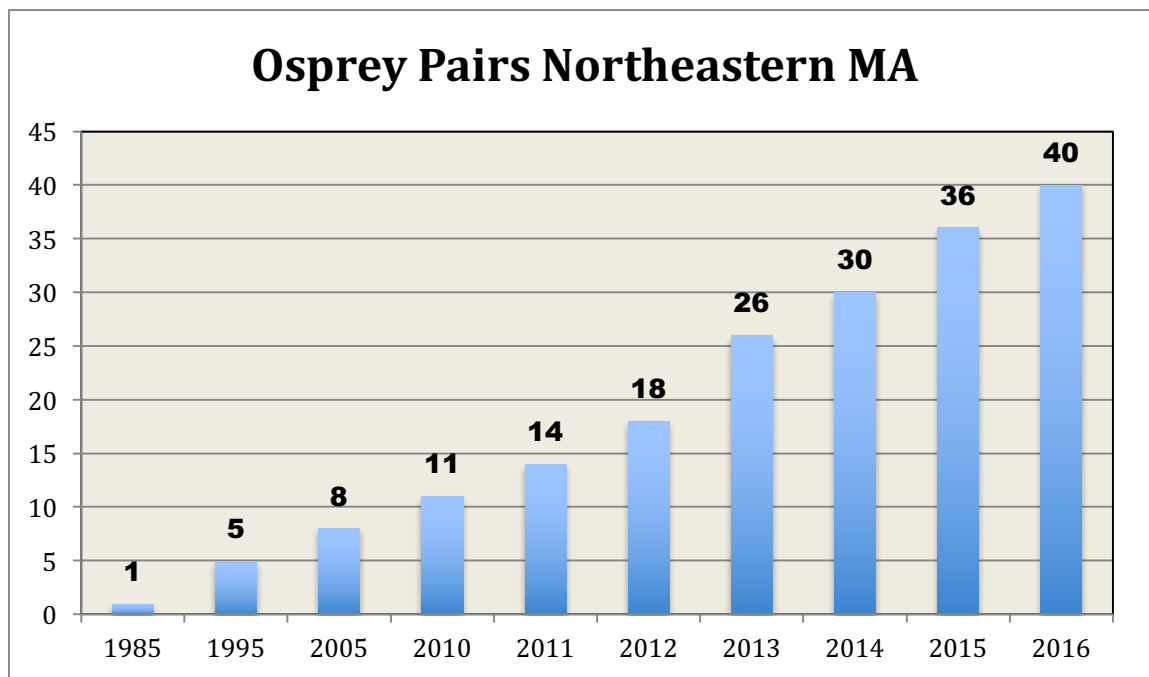
is still alive, named Flow (a male tagged in 2014). Flow spent from October 2014 until March 2016 in central Cuba. His first migration north was interesting and eventful as he made several long distance continuous flight, while also stopped for extended periods on route back to Massachusetts. Flow eventually returned to Essex County, MA in June of 2016 and spent the next few months based on the Merrimack River and several large lakes in Haverhill, MA, but he also made numerous excursions to destinations such as Great Bay in NH, the Great Marsh (where he was photographed on August 27) and down to the Saugus River mouth in Saugus. An interactive map showing all Flow's tracking data is available at www.ecga.org.

Summary

The population of breeding Osprey in northeastern Massachusetts continued to expand in 2016 to 40 pairs, increasing about 11% from 2015. 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. Productivity in 2016 reached a record of 60 fledglings, which can only bolster future population growth. 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 only factor limiting fledging success. Monitoring efforts revealed new nests, one of which was known to be active also in 2015. But we observed real growth in the breeding Osprey population in 2016.

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 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 2017.

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.