

EASTERN SCREECH-OWL POPULATION STUDY

Leo Hollein

The Great Swamp National Wildlife Refuge (GSNWR) has a robust Eastern Screech-Owl (*Megascops asio*) population and offers an interesting environment for studying them. The GSNWR has about two hundred Wood Duck boxes that are being actively maintained and monitored. Wood Ducks (*Aix sponsa*) are the primary occupants as they nest in about 70% of the boxes. Hooded Mergansers (*Lophodytes cucullatus*) and screech-owls also nest in the boxes. The maximum number of Hooded Merganser nests as well as screech-owl nests found in a nesting year is four. Screech-owls are the only birds that roost in the duck boxes during the winter.

The study of the GSNWR screech-owl population was begun in the spring of 2009. The study takes advantage of the tendency of the screech-owls to roost in the Wood Duck boxes in the winter and to then nest in these boxes in the spring. This presents opportunities during two seasons to band screech-owls or to record the bands of previously banded owls. On the next page is a photograph of a Wood Duck box that was successfully used by nesting owls for two consecutive years. All the nest boxes are supported by a metal post and have a conical predator guard to deter raccoons and other mammalian predators.





The screech-owls nest in the Wood Duck boxes from March through May and roost in the boxes starting in October when the trees begin to drop their foliage. Screech-owls begin laying their clutch of four or sometimes five eggs in late-March. Their eggs are round and white. They look like Ping-Pong balls. Brooding begins when all the eggs are laid. Both parents (as with most raptors the female is larger than the male) are usually in the nest box during the egg brooding period that lasts

about four weeks. The female broods the eggs. She is fed by the male during this period. The male usually roosts nearby but outside the nest box once the eggs hatch. However, as shown in the photograph on the next page, both parents may roost in the box with young owlets (in this case four). The female stops roosting in the nest box when it is time for the owlets to leave the nest. It takes several days for all the owlets to leave the nest box.

Both parents hunt at night to obtain food for their young. Although their favorite food is small rodents such as mice and voles, screech-owls are truly omnivorous. If the hunting is good, extra food will be stored in the nest box for later. Prey items found in boxes include frogs, fish, crawfish, flying squirrels and a variety of birds including Blue Jays (*Cyanocitta cristata*), Northern Flickers (*Colaptes auratus*), Downy Woodpeckers (*Picoides pubescens*), Tree Swallows (*Tachycineta bicolor*), and Dark-eyed Juncos (*Junco hyemalis*). They also catch insects and worms. Two owlets died in one nest box. They were eventually dismembered and eaten. This behavior has

been observed in other owl species. Evidently cannibalism also exists among Eastern Screech-Owls.

The owlets are pure white and down covered when they hatch. They remain in the nest box for about four weeks. They are banded along with their mother at about three weeks. When the owlets leave the box in late-May, they are unable to fly. They are able to hop and climb. The parents continue to feed and train their young after they leave the nest



until they are able to fly and hunt on their own. Sometime between June and September the parents drive their young out of the territory the parents occupy year round. Presumably this is done to prevent inbreeding in a species that does not migrate.

Eastern Screech-Owls are unusual in that they have two color morphs – red and gray. Gray morph birds are uniform in color while red morph owls range in color intensity from a bold reddish to more of a brownish-red. The adult screech-owls banded in the GSNWR are essentially a 50/50 mix of the two color morphs. We have found thirteen red phase and twelve gray phase owls. All the owlets from a pair of red phase owls are red. All the owlets from a gray pair are gray. The owlets from mixed pairs have mixed coloring – some red and some gray. Evidently neither red nor gray is a dominant trait. The adults do not select a mate based on color as about half

the owl pairs are of mixed color (next page). This is the expected distribution in a population that is 50% red and 50% gray.

In the first two springs and two winters, a total of twenty-five adult screech-owls and seventeen owlets were banded. Chart 1 is a comparison of screech-owls banded or recaptured during the winters of 2009-2010 and 2010-2011. Eighteen screech-owls were found while cleaning the Wood Duck boxes in 2009-2010 versus seventeen in 2010-2011. While fourteen owls were banded in the first winter, only seven were banded in the second as the number of already banded owls that were recaptured increased from four to ten. None of the seventeen owlets banded during the springs of 2009 and 2010 has been recaptured. Nearly fifty percent (twelve out of twenty-five) of the banded adults have been recaptured. All were recaptured close to where they were originally banded. Four of the five



banded nesting female screech-owls have been recaptured. Two of the adult owls have been recaptured twice. Adult females banded at their nests in the spring were captured during the subsequent winter in the same area where they nested and were banded. Three owls were recaptured one year later in the same box where they were originally found and banded. These observations are consistent with the literature findings that screech-owls do not migrate and remain on or near their territory all year long.

An attempt was made to recapture banded owlets. Boxes in areas surrounding successful nests were checked in August, September and October. No owls were found in the nest boxes until October. Apparently the owls do not return to the nest boxes to roost until vegetation begins thinning out

in the fall. The owlets are gone by then. Owlets usually relocate as far as ten miles away from their birth place.

In eight screech-owl nests located in the GSNWR owlets have successfully left the nest box in seven of the nesting attempts. This success rate of 87.5% is greater than for the Eastern Bluebirds (*Sialia sialis*) (81%) and Tree Swallows (73%) whose nests are also monitored in the GSNWR. Guidelines have been developed to assist in locating owl nests. These guidelines are based on the following observations about owl nests in the wood duck boxes:

Boxes are located 100 feet or more inside a tree line in a wooded area. The tree line is adjacent to large open areas.

The boxes are in areas that are not subject to flooding.

Nests are at least a third of a mile from the nearest other nest.

Twice screech owls have nested in consecutive years in the same box indicating a tendency towards nest site fidelity.

All the owl nests were in areas where screech-owls had been found roosting during the winter duck box inspection and cleaning.

Owl nests were not found in all areas where screech-owls roosted in duck boxes during the winter.

The guidelines reduce the number of boxes that need to be checked for owl nests in the spring.

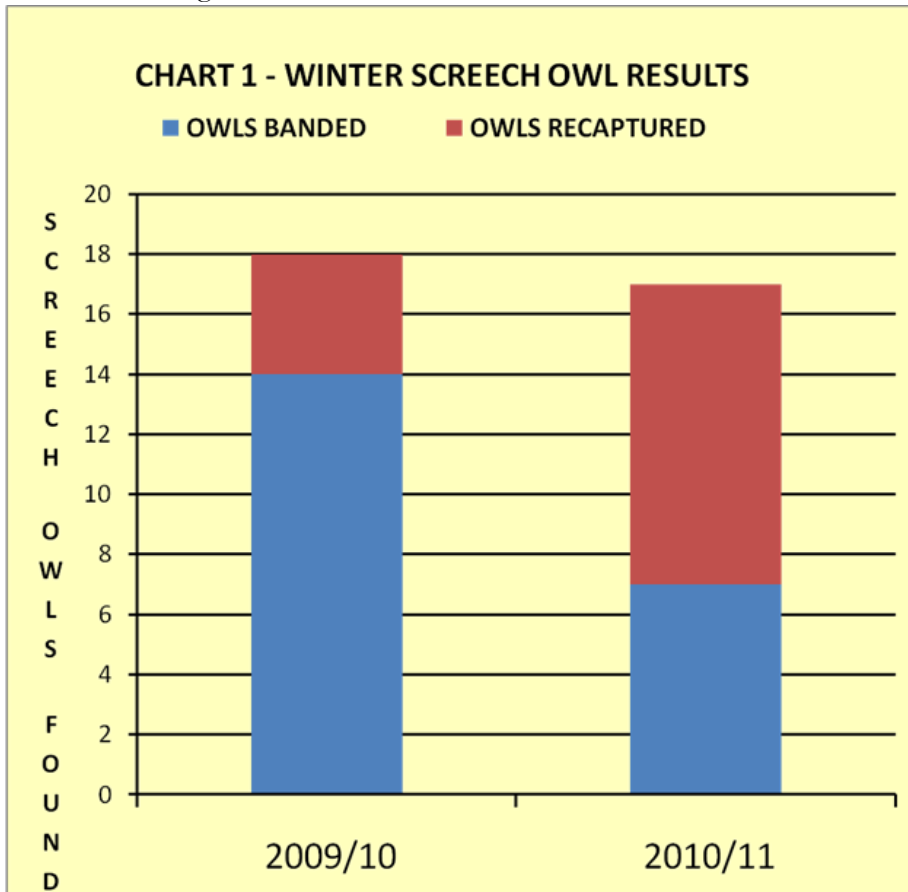
Screech-owls use a number of nest boxes as roosts during the winter. Presumably they move around in search of prey. Eighteen owls were found while cleaning out the nest boxes in 2009-2010. However, over fifty nest boxes (including those with owls) had signs of owl usage. The most common indicator was owl

pellets. Other indicators were prey items such as feathers or actual prey.

There also were several anecdotal observations. One screech-owl was banded on December 15. It was recovered in a nest box several hundred yards away on December 18. On January 8 a gray morph owl was found in a nest box but the bands were not available. This box was rechecked on January 10 and January 19. There were owl pellets but no owl. On January 26 the owl was home and was banded.

One Wood Duck box was used successfully by both owls and Wood Ducks in 2009. The owls fledged their young in late-May. Then a Wood Duck that probably lost her first brood nested in the box. Membranes from hatched eggs and several unhatched eggs were found in the box during winter inspection.

The Banding and recapturing of banded Eastern Screech-Owls in the GSNWR has already provided information on the their population. Additional data obtained during a multi-year study would help to address and/or confirm the following:



Mate fidelity – do screech-owls mate for life?

Nest box fidelity – do a pair of owls use same nest box? Do they use the same box for roosting in the winter and nesting in the spring?

Reproductive success – clutch size, hatching rate and fledging rate.

Owlet dispersal post fledging.

Length of life for screech-owls.

Nesting density and range.

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## NEW CONSERVATION COMMITTEE

Andrew Rubenfeld

A new Conservation Committee was formed by President Alice Deutsch in the summer of 2012. Its members are Andrew Rubenfeld (chair), Mike Bryant, Anders Peltomaa, Judy Rabi, and Barbara Saunders.

The first task of the committee was to understand the role of such a committee within the Society. The Constitution and By-Laws of The Linnaean Society of New York call for the appointment of a committee “to advise, inform and represent the Society on conservation and environmental matters” although “no substantial part of the activities of the Society shall be the carrying on of propaganda or otherwise attempting to influence legislation.” At its September 2012 meeting the Council of the Linnaean Society agreed that the committee can be more than just a conservation information clearinghouse, however, advocacy of any environmental position cannot be a major part of what the Society does.

The next task of the committee was to solicit conservation concerns from the membership and to focus on those critical issues that affect the metropolitan New York City area. Several dozen suggestions were initially received, ranging from upstate New York hydrofracking and the Floyd Bennett Field natural gas pipeline to the tree-cutting policy of the Central Park Conservancy and window bird kills in Lower Manhattan. The devastation caused by Hurricane Sandy and the nor’easter that followed it added the restoration of Jamaica Bay Wildlife Refuge to the list. Following are some of these issues presented by Society members. The views presented are those of the members writing about the subjects discussed.

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Marcellus Shale Gas Extraction: A Bird’s-Eye View

Alan Messer

The drilling method known as hydraulic fracturing, or “fracking,” is employed to gain access to deep shale formations containing geologically locked natural gas. The Marcellus shale gas does not exist in discreet pockets or chambers that can be pumped out as in traditional wells. Drillers must blast a cocktail of noxious chemicals and silicate sand mixed with millions of gallons of water at high pressure down deep wells and along horizontal drill lines to fracture the rock formation and released trapped gas.

Natural gas is mostly methane and is twenty to thirty times more potent than carbon dioxide as a greenhouse gas. Climatologists are concerned about the impact on global warming when that gas is released by well drilling and operation, gas processing, the supply chain, and from capped wells. Forestry managers are worried about invasive species (plant and animal) from woodlands fragmented by myriad tightly spaced well pads and their pipe networks. Also at risk is the integrity of underground aquifers from leaking well shafts as well as surface waters from flow-back pits and spills resulting from poorly regulated practices. Atmospheric disruptions, also worrisome regarding nesting birds and other animals, can include light pollution from gas flaring during the well testing period, noise pollution (the industrial compressors are extraordinarily loud), and the creation of ground level ozone.

An insurmountable impediment to any state seeking to regulate this industry is the “Halliburton Loophole.” Language inserted into the 2005 Energy Policy Act exempts hydrofracking from the federal Clean Water Act, Safe Drinking Water Act, Clean Air Act, and Superfund Act. The legal framework that would give the states the tools and authority to monitor and regulate this industry properly has been effectively neutered.

I've met with people from Pennsylvania and the town of Dimrock, and I believe there is a lot to learn from them and their troubles. For an environmentalist's viewpoint, search the web for "Goddard Forum at Penn State University 2012," and you will find a printable summary of the forestry papers presented there. An "Assessment of the Potential Impacts of High Volume Hydraulic Fracturing on Forest Resources" by The Nature Conservancy can be found on the web by searching the title; www.responsibledrillingalliance.org contains content applicable to New York; web searches of bio-habitat restoration scientist Kevin Heatley yields informative web clips. A good overview of the concerns facing New York can be found by visiting the website www.foodandwaterwatch.org.

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### **Review of the Rockaway Pipeline and Its Infrastructure**

Ann Lazarus

The Transco/Williams portion of the Rockaway (26 inch) Pipeline will be built perpendicular to an existing lateral gas pipeline in the Atlantic Ocean. It will be at a depth of three feet. A directional, horizontal, directional pipe will be drilled starting at the north end of Riis Park nearer the surface and then descending under the park and beach at a depth of about sixty feet. This pipe will go into the Atlantic Ocean and gradually ascend to meet the three-foot trenched pipe. Both the hdd pipe and the trenched pipe will be hydrostatically tested with water, biocides and other chemicals. The hdd pipe will be tested twice. The slurry from the hdd will be emptied into an excavated hole.

At this point National Grid takes control of this 26-inch diameter pipe. This hdd pipe (about sixty feet deep or more in the inlet) crosses the Rockaway Inlet, parallel to the Gil Hodges Bridge and terminates at the metering station in Floyd Bennett Field. I do not know how deep it is in Floyd Bennett Field.

The metering station and the regulatory station will be housed in the hangars. The metering station measures the flow of gas, pounds per square inch. The gas psi of this high-pressure pipe when entering Floyd Bennett Field will be at 950 psi. This metering station will be in a large space, 60,000 square feet. Transco/Williams controls the metering and regulatory station.

The metering and regulatory stations are remotely monitored from Texas. The psi is lowered to 350 when the National Grid pipe exits the metering and regulatory station. It goes north along Flatbush Ave Extension to connect with gas pipes at Avenue U. National Grid has started its work on the hdd at the Rockaway Inlet. This National Grid section of the pipeline does not cross state borders and does not require federal approval. The city, under Mayor Bloomberg, decided the pipeline does not present an environmental problem, and does not need an environmental impact assessment or public comment.

The metering station measures the flow of gas, and it further purifies it from any water or chemical contaminants, including carbon-based ones. Toxic chemicals are released from the operations at the metering station. They can include: diesel, benzene, NOx, ozone, methane, formaldehyde and other VOCs. It is predicted that a compressor may be built at Floyd Bennett Field within a year. A compressor can emit the above pollutants at higher levels.

What is the role of FERC, the Federal Energy Regulatory Commission? After Congressional authorization to build the first section of the pipe into federal parkland, there needs to be a public comment period. This is the final step in the permitting process for Transco/Williams. Transco/Williams has now applied to FERC for final approval, and it is expected they will get that approval and begin their work on the project in October of 2013. These FERC proceedings are considered an Environmental Impact Statement. The Linnaean Society has the right to file and to testify before FERC.

What are some of the problems?



1. Transco will be trenching and dredging at a depth of three feet in the ocean. The sediments and drilling fluids can negatively impact marine life. There are still questions about the artificial reef and the negative impacts on the fish that thrive on it. The Army Corps of Engineers wants Transco/Williams to dig a four-foot trench and bury the pipe.

2. The metering stations at Floyd Bennett Field will be remotely controlled from Texas. Response time in emergencies can be delayed.

3. The pollutants mentioned above will contaminate the Community Gardens, the grasslands, camps and other adjacent areas, including Jamaica Bay Wildlife Refuge. Air knows no boundaries.

4. Transco/Williams has a terrible record of explosions, accidents and neglect. They have been placed under a Federal Correction Action Order. (Google: National Gas Watch)

5. Liberty Offshore has proposed to build a Liquid Natural Gas facility several miles offshore from Atlantic Beach. They also want to construct an artificial island for this industrial project. If they get the permit, they could build these facilities elsewhere. What will be the effect on the Rockaways?

6. Should we be putting industrial structures in a national park? Unfortunately Floyd Bennett Field is zoned at present for potential industrial use. What is the role of the National Park Service?

Two very good links are:  
[www.saneenergy.org/rockaway-pipeline](http://www.saneenergy.org/rockaway-pipeline) and  
[www.carpny.org](http://www.carpny.org)

[TO BE CONTINUED]

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HELEN HAYS HONORED

On November 18, 2012, at a ceremony at the Connecticut Audubon Society Coastal Center at Milford Point, Helen Hays and Noble Proctor were honored by the Roger Tory Peterson Institute of Natural History for their years of work and dedication. The text of the scroll presented to Helen follows.

“Whereas, Helen Hays, Chairwoman of the Great Gull Island Project for the American Museum of Natural History, has distinguished herself as one of the world’s great ornithologists; and
Whereas, For nearly 50 years Helen has dedicated herself to monitoring populations and improving nesting conditions of Roseate and Common Terns on New York’s Great Gull Island; and
Whereas, Helen has lived with the terns on the island every breeding season since 1969; and
Whereas, Helen’s remarkable effort, tenacity and commitment have resulted in the island becoming home to the largest nesting colony of Roseate and Common Terns in the Western Hemisphere, one of the great conservation success stories of our time; and
Whereas, Helen has recruited, trained, mentored and launched the careers of several generations of ornithologists, educators, conservation professionals, artists and others, inspiring everyone she touches with an example of commitment, unflinching enthusiasm, and the ability to turn the most onerous task into fun; and
Whereas, It is fitting and proper that the Roger Tory Peterson Institute honor Helen for her career, which has become a legend among ornithologists and other naturalists.
Now therefore be it unanimously resolved by the Board of Directors of the Roger Tory Peterson Institute of Natural History that we recognize and honor Helen Hays.”

Signed by Richard R. Redington, Chairman, Board of Trustees and Twan Leenders, President, Roger Tory Institute of Natural History.

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### LINNAEAN NEWS-LETTER

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