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Wildlines

FALL 2006

New Hampshire Fish and Game's quarterly newsletter of the Nongame and Endangered Wildlife Program

Bald Eagles Soar Off the Charts!

by Chris Martin,
Senior Biologist, NH Audubon

The 2006 bald eagle breeding season in New Hampshire was exceptional, marked by the discovery of new breeding territories in the state's Seacoast, Lakes Region and North Country, and also marked by high productivity. Breeding pairs were documented at 12 New Hampshire sites in 2006, a 20% increase over the prior record of 10 pairs confirmed in 2005. Incubation was documented at 11 active sites, up 57% over the prior record of 7 active nests in both 2004 and 2005. A total of 10 eagle nests produced fledged young in New Hampshire in 2006, a 67% increase over the prior record of 6 successful pairs in both 2004 and 2005.

BALD EAGLES continued on page 12



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Peregrine Falcons Succumb to Rainy Weather

Lowest productivity in over a decade

By Chris Martin,
Senior Biologist, NH Audubon



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The 2006 peregrine falcon breeding season in New Hampshire was marked by heavy rain and poor productivity. While 17 occupied territories set a new post-DDT state record high, and 14 territorial pairs tied a previous high mark set in 2002 and 2003, other reproductive parameters lagged substantially behind recent years. For example, 6 successful nests and 14 young fledged both represent lowest reproductive levels documented in the state in the past decade, and this year's average of 1.17 young fledged per active nest was the lowest annual productivity reported for peregrines in New Hampshire since 1992. Of the 5 New Hampshire sites monitored under the USFWS national post-delisting peregrine falcon monitoring plan, 80% (4 of 5) were non-productive in 2006.

New Hampshire biologists and cooperators banded a total of 6 nestling peregrine falcons at 3 of the state's 6 productive falcon nests in 2006. Banding in New Hampshire was conducted by Chris Martin of NH Audubon acting as a sub-permittee on a federal banding permit issued to Michael Amaral of the US Fish & Wildlife Service. A total of 4 unhatched peregrine eggs, plus a partial shell of 1 additional egg, were recovered and submitted to the USFWS New England Field Office in Concord, N.H.

For more information about peregrine falcons and bald eagles, visit the NH Audubon website at www.nh.audubon.org. To find out more about bald eagles, visit the US Fish & Wildlife Service website at www.fws.gov/migratorybirds/baldeagle.htm.



Welcome to the new Wildlines. We're happy to report that technological advances in the printing industry allow us to bring you the newsletter in an improved, full-color format at no additional cost to the Nongame Program.

Piping Plovers Hang Tough

Two more chicks fledge from New Hampshire beaches

It was another interesting year for the state endangered and federally threatened piping plovers on the seacoast this year. Early in the season, the plovers moved around to different areas from day to day and kept biologists guessing as to how many pairs actually were present.



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The first nest attempt was at Hampton Beach State Park. This pair established their nest up high on a dune. This served them well as a spring storm swept the seacoast and blowing sand piled up over four feet high in front of the nest. But, because the nest was up so high, it did not get buried and, amazingly, the parents were able to hang tough and outlast the storm.

Piping plover monitor Kristen Murphy and Brandon Clark, an intern from Plymouth State University, worked together with several volunteers to keep close watch over the birds, their nests and their chicks daily throughout the breeding season. The two alternated shifts and relied on volunteers to make sure someone was watching the birds from morning to night. This was especially important over the busy Fourth of July holiday, when four chicks hatched from a nest at Seabrook Beach. Many people were out on the beach with fireworks and Clark kept careful watch over them throughout the night until the crowd had finally dissipated.

Normally, both the male and female adult plovers will help incubate their eggs



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About the size of a cotton ball when they hatch, piping plover chicks are able to walk and feed themselves within hours after hatching. They cannot fly until they are almost 30 days old.

and raise their chicks. However, a strange thing occurred this year that has never been observed in New Hampshire before. Two separate broods were raised by a single parent. "In Seabrook, at day 17 after hatch, only the male was caring for the chicks. In Hampton it was just the opposite and only the female cared for the chicks," said Murphy.

In all, three pairs of piping plovers returned to New Hampshire beaches and nested this year – two pairs at Hampton Beach State Park and one pair at Seabrook Beach. Two chicks successfully fledged from the single adult female at Hampton. The chicks had been observed practicing flying short distances on the beach and were last seen at 24 days of age. On the 25th day, both chicks and the adult were gone and are presumed to have begun their journey south for the winter.

The piping plover protection effort began in New Hampshire in 1997. Since then, over 70 chicks have successfully fledged from the New Hampshire seacoast. For more information about the Atlantic coast population of piping plovers visit the U.S. Fish & Wildlife Service website at www.fws.gov/northeast/pipingplover/index.html.





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Low Breeding Success for Loons

By John Cooley Jr., Biologist, Loon Preservation Committee

Loons nest close to the waterline and their nests and eggs are vulnerable to even slight fluctuations in the water level. In 2006, for the second year in a row, heavy spring rains and high water flooded traditional nest sites and delayed or prevented nesting on many lakes. Although there was an increase in the number of loon pairs defending breeding territories (territorial pairs) across the state, fewer successful nests meant that the basic indicator for reproductive success, the ratio of chicks surviving per territorial pair, was 20% below the preceding 5-year average. Other rainy years have showed similarly low success rates.

On the brighter side, a number of new lakes were added to the list of nesting loon lakes this year. Loons prefer quiet lakes with clear water, a varied shoreline, and nesting islands or marshes. Habitat models developed by the federal Environmental Protection Agency (EPA) and University of New Hampshire doctoral student Mark Brennan have incorporated these characteristics to identify lakes with highly suitable loon habitat that are not yet regularly occupied by breeding loons. During 2006, loons established new nest sites or territories on several of these lakes, validating the model predictions. These new lakes included Grassy Pond, in Rindge, Leavitt Bay in Freedom, and Webster Lake in Franklin. As the New Hampshire loon population continues to recolonize lakes, habitat models are proving a useful tool to anticipate and monitor

recolonization, and prioritize protection efforts.

The 2006 breeding season also highlighted the continued impact of lead fishing tackle on the health of breeding loons. Loons are a classic example of a species adapted to a stable environment: long lived, with a delayed breeding age, and producing only a few young each year. This means that the survival of adult loons from year to year is the key to a sustainable breeding population. In fact, in a companion study to the habitat modeling described above, the EPA has used New Hampshire loon monitoring data to show that a change in the state-wide mortality rate of as little as 2-3 adult mortalities per year could shift the population from long term stability into decline. In spite of a 5-year old ban on lead sinker use in New Hampshire, examination of five of the nine adult loon carcasses collected this summer confirmed lead poisoning as the cause of death. Three of these adults came from breeding pairs with chicks. As biologists Chris Persico and John Cooley from the Loon Preservation Committee (LPC) collected one of these carcasses shortly after it beached itself on Chocorua Lake, the remaining parent and chick drifted close by, trying repeatedly to contact the missing mate.

With funding from N.H. Fish and Game, the Loon Preservation Committee hired an additional field biologist this summer to monitor and manage human



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Common loons, a state threatened species, require a healthy environment for their livelihood. Despite a 5-year ban on the use of lead sinkers, lead poisoning continues to be a primary cause of death in loons.

disturbance to loons on Lake Winnepesaukee, the state's biggest (and perhaps busiest) lake. Loon chicks typically hatch just around the 4th of July, when summer boat traffic peaks, setting the stage for a precarious brooding period in the following weeks. In at least one case, the extra help this summer paid off. LPC's Winnepesaukee field biologist Brittany Wilson was in the right place at the right time on one of the busiest afternoons of the 4th of July weekend, when she was able to escort a pair of week-old chicks from their Bear Island brooding area across the choppy waters and oncoming speedboats of the main boating lane into the shelter of Black Cove, accompanied by the adult loons and a watchful Marine Patrol officer. Pilot data on human disturbance collected this year on Winnepesaukee will help guide management in the future. For more information about loons please visit the Loon Preservation Committee website at www.loon.org.



Karner Blue Butterflies on the Rise

...with a little help from some friends at the Rhode Island Zoo

The number of Karner blue butterflies in New Hampshire continues to steadily rise, thanks to successful captive rearing and habitat restoration efforts. What started out as a small population of only 50 Karners in 2000 has grown to approximately 1,500 in only six years.

This year, the state and federally endangered insect got a little help from some friends. Members of the Roger Williams Park Zoo raised Karners in their facility in

Providence Rhode Island to help restore the population of Karners here in New Hampshire. Rhode Island Zoo staff and volunteers have been helping for several years with habitat restoration efforts on the Concord Pine Barrens, however, this was the first year they assisted with raising the butterflies in captivity.

Captive rearing efforts continue to prove successful. This year, 1,489 Karner blue butterflies emerged from larvae raised in captivity in New Hampshire. This exceeded last year's numbers, when 1,352 butterflies emerged. In addition, "The zoo successfully reared over 200 Karner blue butterflies to the pupa stage," said Heidi Holman, biological technician for the Nongame Program. "They will continue to captive rear in the future."

Butterflies raised in captivity were released into the wild again this year. In all, nearly 850 butterflies were released onto the Concord Pine Barrens. In addition, mark and recapture efforts of wild Karner blue butterflies continued on the Pine Barrens. A total of 70 wild butterflies were caught on the Concord Pine Barrens this year. This is the second year that wild butterflies have been documented, indicating that restoration efforts are proving successful for Karner blue butterflies and the Concord Pine Barrens.

For more information about the Roger Williams Park Zoo and its involvement with the Karner blue butterflies and Pine Barrens habitat restoration, please visit the zoo's website at www.rogerwilliamsparkzoo.org/conservation/BFCI_KBB.cfm.



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Farewell, Celine!

State- and federally endangered Karner blue butterflies now have a place to call home in the wilds of the Concord Pine Barrens, thanks in large part to the dedicated efforts of biotechnician Celine Goulet.

Since Celine joined the Non-game Program in 2002, she has worked to restore the Concord Pine Barrens by clearing open areas where the sunlight can reach the forest floor and native nectar plants can once again grow. Because of Celine's efforts, there are now thousands of wild blue lupine thriving on the Pine Barrens, providing the one essential requirement for the existence of Karner blue butterflies.

Celine has left the Nongame Program, but she will not be far afield. She will be working with another New Hampshire-listed species as she works with the New Boston Air Force Station and the University of New Hampshire to complete a Master's program researching the state-threatened eastern hognose snake. She will be greatly missed here at Fish and Game.

Thank you and good luck Celine!



An unmarked wild Karner (left) and a marked captive-raised Karner (right) mate on wild blue lupine in the restored Concord Pine Barrens.

Fewer Terns Nest at Isles of Shoals

Measures being taken to address habitat loss

The spring weather was good for nesting as the terns arrived and began mating this year. “The heavy rains were short lived; the temperatures were fairly warm and the winds were light,” said Dan Hayward, the Tern Project Coordinator for the Shoals Marine Laboratory. These conditions initially may have helped, as more eggs per nest were documented and more chicks per nest were recorded hatching than in previous years.

However, despite the good start to the breeding season, the final numbers of common, roseate and arctic terns nesting at the Isles of Shoals were down this year, and common terns experienced the lowest productivity since the start of the project.

“Habitat loss is the big issue,” said Hayward. “The grasses have really taken over and a large percentage of the island went unused this season.” Dense grasses cover more of Seavey Island, and there is less exposed rock than there was five years ago. This year, Melissa Hayward, who returned for her fourth year, and Susi Burbidge were the tern biologists who lived on the island, kept the gulls in check and monitored and documented the tern breeding season with project leader Dan Hayward. The biological staff observed that some terns even abandoned their nests in the midst of the breeding season because the thick grass had overgrown their nest sites.

“We’re looking at options to reopen the overgrown areas to create more suitable

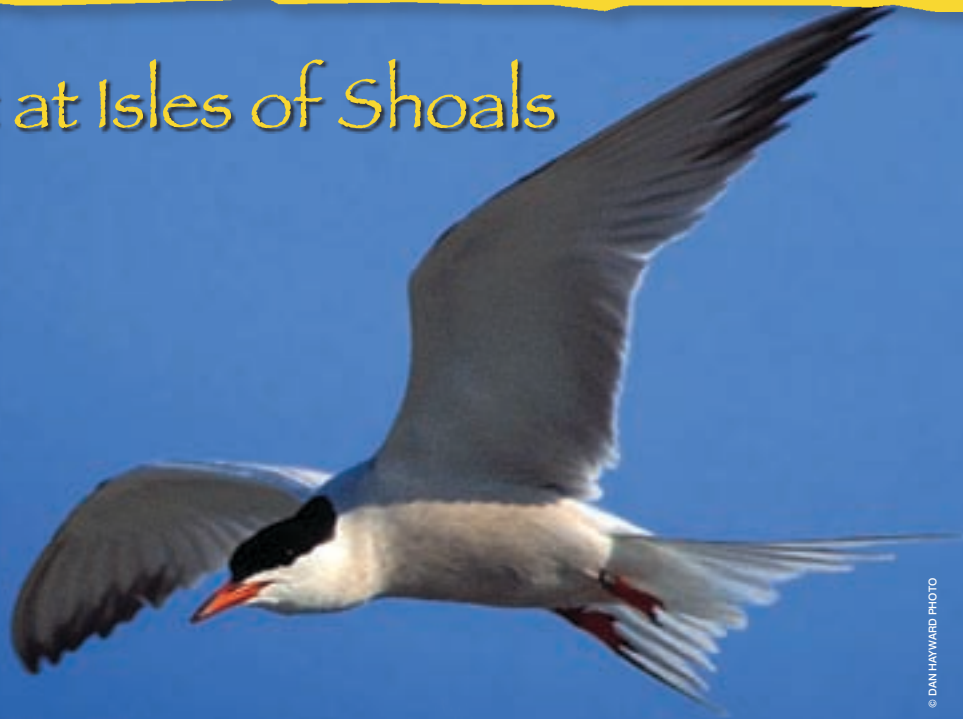
nesting habitat,” Hayward said. This fall, Nongame Program staff from the Karner blue butterfly restoration project traveled to the Isles of Shoals to help. Controlled burns are a key component to maintaining the Concord Pine Barrens for Karner blue butterflies. The biologists put their expertise to work to perform a controlled burn on Seavey Island to maintain the habitat at the tern colony.

Because of the overgrown vegetation on Seavey Island, more terns nested on neighboring White Island this year. State-endangered common terns had the biggest increase, from 2 pairs in 2005 to 62 pairs in 2006. One pair each of state- and federally endangered roseate terns and state-threatened arctic terns also nested on White Island for the first time this year.

In all, the total number of nesting pairs of common, roseate and arctic terns were down at the Isles of Shoals this year. However, as Hayward said, “I think that we have identified the problem and that over the next two seasons we will see a change in the right direction.”

Year-by-Year Comparison (Season Totals)

Number of Pairs	2002	2003	2004	2005	2006
Common terns	1,687	2,414	2,582	2,478	2,463
Roseate terns	26	63	112	67	38
Arctic terns	1	6	7	9	8



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© DAN HAYWARD PHOTO

State endangered common terns (top), state and federally endangered roseate terns (above) and state threatened arctic terns (left) all nest on the Isles of Shoals.



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Timber Rattler Survey

Biologists succeed in marking timber rattlesnakes and collecting DNA

Biologist Mike Marchand and biological aide Brandon Clifford headed out into the woods of southern New Hampshire this summer in search of what is perhaps the rarest wildlife species in the state – timber rattlesnakes.

The pair had two main objectives in their survey efforts. First was to evaluate habitat conditions. They visited sites where timber rattlesnakes are known to have historically occurred, as well as new sites where the snakes may potentially occur. They used a variety of parameters to evaluate and compare habitat conditions at each of the sites.

The second objective was to gather biological information about the last known population of timber rattlesnakes in the state. Biologists sought to find out how many individual snakes were in the population, as well as how many males versus

females, their ages and the habitat areas they are using.


The biologists were able to mark some of the snakes using unique paint combinations on the snakes' rattles. Because the snakes don't shed any skin over the rattles on their tails, the paint markings will make it possible for biologists to identify individual snakes' and track the population over time.

In addition to marking the snakes, biologists were able to collect skins that the snakes had shed. The skin sheds were sent to Cornell University, where a current study is under way looking at timber rattlesnake populations in other parts of the country. According to Marchand, "DNA can be extracted from the shed skins. This information will help determine genetic variation within the New Hampshire population of

timber rattlesnakes, as well as help determine whether New Hampshire's population is genetically unique from other timber rattlesnake populations in the region."

Biologists gained valuable new information from this summer's efforts and are dedicated to continuing their search for the state endangered timber rattlesnakes. According to Marchand, "2006 surveys focused on southern New Hampshire. Most sites in this part of the state have been developed and are no longer suitable." Future survey efforts will include areas in the south that have not yet been surveyed and areas in the northern part of the state where habitat may still exist.

If you would like to report a timber rattlesnake observation, either recent or historic, please contact Mike Marchand at michael.marchand@wildlife.state.nh.us.

To learn more about timber rattlesnakes and the other snakes of New Hampshire, please visit the New Hampshire Fish and Game website at www.wildlife.state.nh.us/Wildlife/Nongame/snakes.htm. 

Because timber rattlesnakes do not shed any skin over their rattles, biologists are using unique paint combinations on their tails to identify individual snakes and track them over time.



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The 2006 Annual Fund Campaign was a great success – thanks to you!

The Nongame and Endangered Wildlife Program at N.H. Fish and Game is a self-funded program that is not supported by the sale of hunting and fishing licenses. Each year, the State of New Hampshire offers a \$50,000 challenge grant. And, each year, we turn to you for your support to help meet the challenge.

2006 marked a keystone year for nongame and endangered species. More people than ever before showed their support of nongame and endangered wildlife, and the Nongame Program successfully led the charge to complete the state's first Wildlife Action Plan.

In addition to the Annual Fund Campaign, the Nongame and Endangered Wildlife Program is fortunate to receive generous financial contributions from donors throughout the year.

It is with great gratitude that I thank nearly 1,100 people who generously donated this year to the Nongame and Endangered Wildlife Program.

John J. Kanter
Nongame and Endangered Wildlife Program Coordinator

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Pine marten



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continued on next page

BALD EAGLES continued from page 1

Statewide, a total of 21 young bald eagles reached fledging age, almost doubling the previous record high of 11 chicks fledged in both 2004 and 2005. In 18 previous New Hampshire breeding seasons, there had been only one case in which trios fledged successfully (Nubanusit Lake in 2004); however, in 2006, trios fledged from 2 locations (Plainfield and Umbagog North). This year's overall annual productivity rate (1.90 young fledged/active nest) was the highest reported in New Hampshire during the past decade.



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FALL
Wildlife Almanac

OCTOBER

- N.H. state endangered marbled salamanders breed and lay their eggs in vernal pools.

NOVEMBER

- Long-tailed weasels molt during late October and early November, their fur turning from brown to white as winter approaches.

DECEMBER

- N.H. state threatened common loons can be seen in their winter plumage along the seacoast where there is open water for them to feed on fish.

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