Fire Island National Seashore

THREATENED & ENDANGERED SPECIES MONITORING PROGRAM 2017 SUMMARY

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THREATENED & ENDANGERED SPECIES
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Introduction

Fire Island National Seashore (FIIS) is a National Park unit located just south of Long Island, New York. As part of the Threatened and Endangered Species Program monitoring effort conducted at FIIS, the status of several federal and state-listed threatened and endangered species (T&ES) were observed in 2017. T&ES observed and monitored include the piping plover (*Charadrius melodus*), least tern (*Sterna antillarum*), common tern (*Sterna hirundo*), seabeach amaranth (*Amaranthus pumilus*), seabeach knotweed (*Polygonum glaucum*) and northern long-eared bat (*Myotis septentrionalis*). In addition, searches for Asiatic Sand Sedge (*Carex kobomugi*) and SEANET surveys were conducted in conjunction with T&ES surveys.

A total of 11 piping plover nesting pairs were recorded within the Seashore. Nesting productivity reached an average of 1.5 piping plover chicks fledged per pair, with a total of 17 successful piping plover fledglings. New York State Department of Environmental Conservation's Long Island Colonial Waterbird surveys were conducted this season and several least tern and common tern colonies were identified and monitored on Fire Island proper and bay islands within the boundaries of the Seashore. In addition, 24 seabeach amaranth and 16 seabeach knotweed plants were documented throughout FIIS. Virginia Tech continues to study/monitor piping plovers as part of their research funded by the Army Corp of Engineers through the Fire Island Inlet to Moriches Inlet (FIMI) project which began in 2016, and data was shared throughout the season. Acoustic data gathered on bats by FIIS staff, including the northern long-eared bat, will be reported separately.

Methods and Results

1. Piping Plovers

a. Methods

In accordance with USFWS guidelines, preseason habitat fencing (symbolic fencing) was constructed and established in early April, prior to the onset of the piping plover breeding season. Areas to be fenced were determined through the compilation of nest/plant data collected from previous years, early season plover observations, and through visual assessments of habitat. Areas where birds are seen regularly are more intensely monitored (for example, the Fire Island Wilderness) and symbolic fencing is erected and adjusted accordingly. Breeding pairs of plovers are identified using binoculars and observed for specific territorial, courtship and nesting behaviors. These behaviors include (but are not limited to) parallel runs, aerial displays, scraping, broken-wing display, and vocalization (Cairns 1982).

Upon discovery of a nest, an alphanumeric tag is used to identify each nesting pair and nest; a number and year are assigned chronologically, using an "A" for first nesting attempt, "B" for second, and so on (eg.1A-17). Regardless of nest location along FIIS shore, all nests were protected within symbolic fencing borders creating a buffer zone of no less than then 50 meters on all sides.

Monitoring efforts for nesting activity are increased after pairing or copulation is observed. Field biologists lead intensive daily monitoring observations for the purpose of quickly identifying nests. This effort helps ensure accurate estimation of hatch and fledge dates. An average hatch date of 27 days from the full clutch date is determined utilizing a chart produced by New York State Department of Environmental Conservation (NYSDEC). Daily brood monitoring is initiated after the first piping plover egg hatches. Chicks are either considered fledged when witnessed 25 days after they have hatched or when a sustained flight of 15 meters is observed before then. When a nest is situated near a vehicle beach access route, a fledge date of 35 days is implemented and driving restrictions are extended to ensure the safety of the brood (USFWS 1996).

b. Results

A total of 11 nesting pairs were documented, from which there came 13 nesting attempts throughout FIIS. 10 plover pairs nested in OPWA-East (Old Inlet to the Wilderness Visitor Center) and 1 pair nested on Lighthouse beach. Ten nests hatched and 17 total fledglings were successfully produced. The other four nest attempts were lost due to various reasons. One was lost due to predation, one was over-washed due to high tides and two nests were abandoned due to predator disturbance/pressure.

A total of 55 eggs were laid and of these 37 total eggs hatched, with the remainder failing as a result of predation or other circumstances (Figure 2). Seventeen chicks went on to fledge, yielding a productivity of 1.5 for 11 breeding pairs (Table 1).

A breakdown of the number of eggs that hatched and their survival rate is displayed in a bar graph showing the number of chicks that survived past 1 day, those that lived past 2 weeks, and those that went on to fledge (Figure 3). Maps of nest locations can be located in Appendix B.

Below is a summary of each nesting attempt:

Nest **1A-17** was found on April 19th with 1 egg in OPWA-East (section 9) by Virginia Tech researchers. On the afternoon of April 28th the nest was exclosed with a full clutch of 4 eggs. The nest was checked on May 1st and red fox tracks were found leading to and from the exclosure. Virginia Tech researchers reported that the nest had been abandoned on May 3rd, due to pressure from predators.

Nest **1B-17**, the second nest attempt by 1A, was found by Virginia Tech researchers with 3 eggs on May 16th in OPWA-East (section 9), just east of the first nest attempt in a small dune with vegetation. It was exclosed on May 17th with 3 eggs. Virginia Tech researchers reported that all 4 eggs hatched on June 12th. When the brood was checked shortly after the hatch date, only 3 chicks were seen with both parents. The 3 chicks that survived were seen consistently with the adults, and were determined fledged on July 6th.

On July 21st one of the fledglings from 1B was found sick by Virginia Tech researchers and died shortly after being discovered. It was nano-tagged as part of the VT Shorebird Program and a video was taken and submitted to the USGS of its clinical signs. Based off necropsy results from the USGS, the cause of death for the plover was dehydration (Appendix D).

Nest **2A-17** was found on April 27th in OPWA-East (section 8), behind the symbolic fencing in the far over-wash east of the breach with 2 eggs by Virginia Tech researchers. The nest was exclosed on April 28th with 2 eggs. Virginia Tech researchers reported the beginning signs of hatching on all 4 eggs on May 26th and on May 27th the nest was over-washed due to extremely high tides. Virginia Tech researchers found an egg that wasn't washed away and reported that the adults had dug out a new scrape for it but on June 1st the egg was officially declared dead.

Nest **2B-17**, the second nest attempt by 2A, was found just east of the pairs first nest attempt, by Virginia Tech researchers on June 5th with 2 eggs. The nest was exclosed on June 7th with 3 eggs. Virginia Tech researchers reported the full clutch of 4 eggs hatched on July 2nd. By the July 27th fledge date, only 3 chicks were observed with the adults. All three remaining chicks fledged.

Virginia Tech reported that 2B adopted 2 chicks from the neighboring nest 11A. One of the chicks was emaciated and was observed dead on the morning of July 13th. That same day we went out and collected the chick to send off to USGS for necropsy. The second chick was observed with the 2B brood for several days, then disappeared and was not seen since.

Nest **3A-17** was found on May 16th with a full clutch of 4 eggs in OPWA-East, in the eastern half of section 8. The nest was not exclosed due to its location and good camouflage. On June 7th, Virginia Tech researchers reported that the nest had failed due to assumed predation.

Nest **3B-17**, the re-nest of pair 3A, was found by Virginia Tech researchers on June 16th with 1 egg. This nest was not exclosed due to its good camouflage and its location set back in an overwash. On July 11th all four eggs hatched but due to various unknown circumstances, all four chicks did not survive to fledge.

Nest **4A-17** was found on May 16th with 1 egg in OPWA-East, in section 9 just east of the section 9 marker. The nest was exclosed on May 19th with 2 eggs. By June 16th all the eggs had hatched and all chicks were seen on July 10th. On July 12th all 4 chicks were determined fledged.

Nest **5A-17** was found on May 17th with a full clutch of 4 eggs in OPWA-East, in section 8 by Virginia Tech researchers and on that same day we exclosed. On June 11th, all 4 chicks had hatched and were observed foraging the following day on June 12th. But by June 17th only 2 of the chicks were consistently seen with the parents up until the July 6th fledge date.

Nest **6A-17** was found on May 20th with 1 egg by Virginia Tech researchers in OPWA-East just west of the high dunes. On May 25th we went initially went out to exclose the nest but could not due to inclement weather, so we went out once more on May 31st and successfully exclosed with 3 eggs. A 4th egg was eventually laid to make it a full clutch. On June 22nd, 3 of the chicks had hatched leaving the remaining egg to be determined non-viable. By the 26th of June only 2 chicks were observed with the adults at any given time and by July 17th they were determined to be fledged.

Nest **7A-17** was found on May 26th with 2 eggs in OPWA-East, in section 10, east of the high dunes. The nest was exclosed on May 31st with 3 eggs. On June 22nd, the 3 chicks had hatched and were consistently seen with the adults until the July 17th fledge date.

Nest **8A-17** was found on May 26th with 2 eggs in OPWA-East, in section 10, in between nests 6A and 1B. The nest was exclosed on May 31st with a full clutch of 4 eggs. On June 24th, 3 eggs and 1 chick were found in the nest bowl, and the remaining eggs hatched by the next day. This brood was very elusive and difficult to observe. We think they were accessing the bay side to forage despite having nested on the ocean side. By July 10th only one chick was observed with the adults and by July 19th the chick had fledged.

Nest **9A-17** was found by Virginia Tech researchers on June 5th with 4 eggs in OPWA- East in section 8. The nest was exclosed on June 8th. On July 7th, three chicks and one egg were observed in the nest bowl and by July 9th Virginia Tech researchers observed the full brood. Unfortunately during the time between hatching and fledging, all 4 chicks were lost. No chicks fledged from nest 9A.

Nest **10A-17** was found by Virginia Tech researchers on June 7th with 4 eggs at Lighthouse Beach east of the path to the lighthouse. The next day on June 8th we exclosed the nest and as we drove out to the nest location, we observed a red fox on the beach. Over the next few days Virginia Tech researchers reported signs of fox digging around the nest exclosure. On June 19th we went out to close down the Kismet cut to drivers due to the nest but did not observe the birds incubating. The following day the nest was determined abandoned due to red fox pressure/presence with 4 eggs in the nest bowl.

Nest **11A-17** was found on June 7th and the following day, June 8th, we went out to exclose the nest which contained 2 eggs. The adults were seen consistently incubating the nest and on July 6th Virginia Tech researches reported that the chicks were showing the beginning signs of hatching. On July 7th we observed two chicks, 1 intact egg and 1 cracked egg in the nest bowl. The intact egg eventually hatched but the cracked egg never did, making a total of 3 chicks hatched.

Close to 11A's fledge date, Virginia Tech observed that the adults from 2B adopted 2 of the chicks from 11A and the remaining chick from 11A had not been seen. On July 13th one of the adopted chicks from 11A was found dead, and was collected to send off for a necropsy at the USGS Wildlife Health Center (see disturbances section below and Appendix D). The fledge date of this brood would have been August 1st.

2. Colonial Waterbird Surveys (Terns and other waterbirds)

a. Methods

In 2017 there was a piping plover survey window and a tern/black skimmer survey window, as part of the NYSDEC Long Island Colonial Waterbird Surveys (LICWS). Piping plover surveys were conducted at each LICWS site once during their survey window, June 1 – June 9. In addition, two tern and black skimmer population surveys were conducted in June, once June 1-15, and another June 16-30.

Many of the sites surveyed are located on Fire Island's ocean and bay beaches between the Lighthouse Tract and Smith Point County Park. Several bay islands that fall within the boundaries of the Seashore are also monitored for waterbirds, including: Islip Spoil Island, Sexton Island, West Fire Island, East Fire Island, Long Cove, Ridge Island, Pelican Island, John Boyle Island, and Hospital Island. These bay

islands can only be reached by motorboat, canoe or kayak, and access may be limited by inclement weather, remoteness of location, and time constraints.

b. Results

Although all breeding bird species were identified by FIIS staff, the NYSDEC is most interested in breeding least terns (LETE), common terns (COTE) and black skimmers (*Rynchops niger;* BLSK). Despite various circumstances such as weather events, most survey sites were visited during both survey windows.

In total, 15 different sites were surveyed throughout the month-long effort (Table 4) including 9 bay islands and 6 sections of Fire Island. Annual population surveys for LETEs and COTEs resulted in total maximum counts (the greatest number counted during a survey period for each site) of 350 and 781, respectively. No ROSTs or BLSKs were observed in 2017. LETEs were only observed nesting in the Fire Island Wilderness, east of the Old Inlet breach. Virginia Tech researchers conducted a full nest count of LETE on June 12th, and counted about 100 active LETE nests. Many chicks hatched; however a full fledgling count was not conducted.

Two American Oystercatcher (AMOY) pairs also nested in the Fire Island Wilderness, east of the Old Inlet breach. This section of beach was very productive in 2017, with supporting a large LETE colony, 10 pairs of piping plovers, as well as these two nesting American Oystercatchers. The first AMOY hatched 3 chicks, which presumably fledged. The second AMOY nest was abandoned but the adults incubated for 2-3 weeks.

COTE colonies were only observed on East Fire Island, Ridge Island and Long Cove with 260, 450 and 71 pairs (the greatest number counted during a survey period for each site). These numbers are comparable to the past several years. In 2015 a single pair of COTEs was recorded on Sexton Island and in 2016, 60 COTEs were recorded during the first survey window on Sexton Island. After a four year hiatus from the island we believed this population could represent a successful attempt to recolonize the area; however in 2017 we observed no COTE on Sexton Island.

LETE populations are on the rebound after no birds have been observed nesting on Fire Island's ocean beaches in the recent years. In 2016 it was noted that a small number (4-8) LETE were nesting in the OPWA-East, and before that 2013 was the last reported LETE population with 16 nesting individuals.

3. Seabeach amaranth and seabeach knotweed

a. Methods

Amaranth and knotweed begin to germinate on FIIS in early July. These plants tend to grow in early successional beach/dune habitat—the same type preferred by piping plovers and least terns for nesting. For this reason, symbolic fencing established for plover and tern nesting habitat remain up during the germination period for amaranth and knotweed. Fencing may be adjusted after initial sweep counts to provide a buffer around plants.

Field biologists conduct sweep counts throughout FIIS, both on foot and using an ORV, traveling parallel to the toe of the dune. This year the survey windows were as follows:

- Survey window 1: 7/10 – 7/21
- Survey window 2: 8/7 – 8/18

After the second survey window individual amaranth plants are re-visited every 2 weeks. Since 2014 every amaranth plant (when feasible) is exclosed to protect it from deer browsing. For amaranth, data collected includes location (GPS location), plant condition, evidence of browsing as well as percent browsed, maximum lateral spread, reproductive status, potential threats, weather conditions, and general observations in accordance with data sheets provided by the U.S. Fish and Wildlife Service. For knotweed, data collected includes location (GPS location) and reproductive status. We continue to monitor existing amaranth plants throughout the fall season, until senescence.

b. Results

A total of 41 seabeach amaranth plants were found in several sweep counts on FIIS throughout July and August. These plants were then surveyed every two weeks until senescence. Sites from the LICWS were recognized and reported as such for seabeach amaranth: Fire Island Lighthouse (0 plants), Fire Island Villages (5 plants), Fire Island Sunken Forest (9 plants), Fire Island Pines (1 plant), and the Fire Island Wilderness (9 plants). Both federal and non-federal tracts of land were surveyed in 2017.

An exclosure was constructed around 22 out of 24 plants (92%) to protect them from browsing by white-tailed deer (*Odocoileus virginianus*). Protocol dictates that we try and exclose all amaranth plants; however, we were unable to exclose amaranth plant FISF_26 due to its proximity to the staircase at Sailors Haven. All 18 plants (FISF_5-22) were located under the eastern staircase on Sailors Haven Beach and appear to have occurred as the result of an exclosure being left behind from last year's survey. This appeared to help contain the seeds and create a cluster of amaranth plants in close proximity. After the second survey window we decided to continue monitoring the plants as one plant, after it grew in size and we were unable to differentiate the initial counted plants.

Only two plants (8%) demonstrated signs of herbivory throughout the season. Both plants had already showed signs of browsing before being exclosed, while no signs of herbivory were seen after the plants had been exclosed.

A range of plant sizes were observed; the largest was 78.0 cm in diameter at the widest point and the smallest was 2.0 cm. This resulted in an average size of 18.4 cm. Sixteen out of 24 plants showed signs of reproduction (67% of all plants). All seabeach amaranth data is located in Appendix C. Figure 5 displays amaranth survivorship throughout the monitoring season.

Surveying for seabeach knotweed was concurrent with that for seabeach amaranth during the survey windows. A total of 16 knotweed plants were counted and marked throughout FIIS (Figure 4). Sites found with knotweed include Fire Island Lighthouse (1 plant), Fire Island Villages (1 plant), Fire Island Sunken Forest (2 plants), Fire Island Pines (8 plants) and Fire Island Wilderness (4 plants). Both federal and non-federal tracts of land were surveyed in 2017. All plants were reproductive (i.e., flowering). All seabeach knotweed data is located in Appendix C.

4. SEANET surveys

a. Methods

The Seabird Ecological Assessment Network (SEANET) is a citizen science program initiated by the Tufts Center for Conservation Medicine, in collaboration with the Lloyd Center for Environmental Studies in Massachusetts. SEANET volunteers conduct year round beached bird surveys in order to identify and record information about bird mortality along the east coast. SEANET also maintains a blog where they regularly post the latest news and updates about the program. This is also where you can access their database. The blog can be found at www.seanetters.wordpress.com.

In 2017 FIIS interns and local SEANET volunteers conducted surveys on FIIS beaches. During a survey if a beached bird is found, measurements of the bill, tarsus and wing, if possible, are taken and recorded. Photo documentation and a SEANET survey form are also completed that records the date, location, weather and beach conditions at the time of the survey.

b. Results

In mid-June of the 2017 season beaches on the south shore of Long Island from Long Beach to Montauk Point State Park reported a significant spike in beached Greater Shearwaters (*Puffinus gravis*), with numbers reaching the hundreds. Between June 21st and June 23rd, FIIS interns conducted a SEANET survey to capture any unusual beached bird activity from Lighthouse Beach to OPWA-East. Seven dead beached Greater Shearwaters and one unidentified bird were recorded during the survey. One was found in Fire Island Pines, 1 was found in Talisman, 2 were found in Sailors Haven, 1 was found at the Watch Hill cut and 3 were found in OPWA-West. This information was reported through the online SEANET database and also shared with Derek Rogers, the regional coordinator for e-bird.

There is one SEANET volunteer who surveys Lighthouse Beach about once a month year-round. Since the beginning of the calendar year through August he's completed 11 surveys. On August 2nd, the volunteer reported finding a dead beached bird, but was unable to identify the bird due to its state of decomposition. On all other beach surveys no dead birds were observed.

5. Asiatic Sand Sedge

a. Methods

Asiatic sand sedge is a perennial sedge, native to the coastal areas of northeastern Asia and grows on primary dunes and on upper parts of ocean beach wash flats that have recently been disturbed by ocean storms. If left alone this species has the potential to spread rapidly, completely taking over an area and outcompeting native species. Asiatic sand sedge can be found in the same upper beach and overwash habitat as piping plovers and seabeach amaranth. Due to its potential to impact T&ES, monitoring of the sand sedge has been incorporated into the T&ES Monitoring Program.

Monitoring for Asiatic sand sedge occurs during the two survey windows for seabeach amaranth and seabeach knotweed (7/10 – 7/21 and 8/7 – 8/18). When found, the sand sedge was marked with a pin flag for future removal and GPS points of its location were taken. To remove the plants, they were

carefully dug out by hand and shovel to ensure that none of the plant – particularly the stem - was left behind. Plants were put in black garbage bags, tied, and placed in dumpsters for landfills. This disposal plan was recommended by the FIIS Park Biologist and it will be compared to previous removals since 2013, using a combination of chemical and mechanical removal treatments.

b. Results

A total of 90 Asiatic sand sedge plants were found in several sweep counts on FIIS throughout July and August. Sites from the LICWS were recognized and reported as such for Asiatic Sedge: Fire Island Lighthouse (59 clumps), Fire Island Villages (1 clump), Fire Island Sunken Forest (18 clumps), Fire Island Pines (2 clumps) and Fire Island Wilderness (10 clumps).

The plants were discovered from July 12th through August 17th and removal took place between July 12th and August 24th. All of the sand sedge was removed, except for one plant located in western wilderness. Table 5 summarizes the location of the plants, when they were found, when and how they were removed.

Discussion

1. Disturbances

There were several anthropogenic and natural disturbances to T&ES in 2017. Gulls, raccoons, red foxes, ghost crabs, and a variety of avian wildlife in FIIS can pose a threat or disturbance to nesting piping plovers and their broods. This year we had 3 abandonments and 1 depredated nest, which was attributed to red foxes. Red foxes continue to be the most significant predator to piping plovers at FIIS, and will be discussed more in-depth in the next section.

As far as anthropogenic disturbances, FIIS staff follows USFWS (1996) guidelines for beach driving. For example, full-sized vehicles shall not be permitted on beaches where unfledged chicks are found, and that beach access points/dune crossings found within 1000 meters of a nest with chicks be closed to all traffic until those chicks are fledged (35 days after hatching for chicks near vehicle areas). The FIIS Wildlife Biologist continued the Plover Hotline (631-687-5030), first established in 2010, which was regularly updated with information on dune crossing/beach closures to vehicles. Adequate warning of closures (2-3 weeks) was given for established nests, when possible. However, no dune crossings were closed because plovers did not successfully nest west of Watch Hill in 2017, (10A-17 was abandoned before restrictions on driving were enforced).

In the OPWA-East, NPS Park Rangers drove UTVs during patrols, and plover monitors walked this section of beach while unfledged chicks were present. Unfortunately dogs were frequently seen walking this section, sometimes off their leash.

a. Emergencies

There was one emergency situation, in which law enforcement vehicles accessed OPWA-East while unfledged chicks were present. On Sunday July 30th, a swimmer went missing off of the beach at Smith Point County Park. The body was found the following morning in OPWA-East and the beach was closed for a few hours while the scene was processed. Due to the nature of the emergency, law enforcement drove full-sized vehicles on the beach despite the driving restrictions that were in place to protect piping plover nesting areas. At that time, there was only one piping plover brood that had not fledged. Following the reopening of the beach, the east end was monitored for any plover fatalities that may have occurred due to the driving, but none were reported.

b. Plover mortalities

This season Virginia Tech researchers observed 2 piping plover chick/fledgling deaths. We were able to collect the remains to send off to the USGS National Wildlife Health Center for necropsy and other diagnostic testing.

The first chick was found on July 13th at OPWA- East and it was from the 11A brood that was eventually adopted into 2B. Researchers at Virginia Tech observed the chick before it died stating that it appeared emaciated and severely underweight. Afterwards they also noted that the chick's weight was 2.0 grams less than the average weight for a normal chick of the same age (when they recaptured and weighed it, as part of their study). The initial diagnostic finding showed that the esophagus and proventriculus were empty, the ventriculus contained a small amount of black grit and the intestines appeared normal. Histopathology of a complete set of tissues was also completed and showed nothing abnormal. USGS reported that there was no subcutaneous, visceral or epicardial fat which is normal for hatchlings. However it also suggests that short periods of food deprivation can trigger energetic imbalance and death. The final report stated cause of death as starvation which is supported by the diagnostic tests.

The second individual was a female fledgling from the 1B brood. This bird was also found and observed by Virginia Tech researchers before it died on July 21stat the OPWA-East. They submitted a video of the clinical signs the bird exhibited showing that the bird appeared lethargic and had its head down while sitting/hiding near a clump of beach grass. The bird died within a half hour of the video being taken. This bird was also one of the chicks Virginia Tech nano-tagged as part of a study through their Shorebird Program. The initial diagnostic finding showed that there were no significant abnormal findings with the bird being in fair body condition with adequate fat stores present. The final USGS diagnostic report stated that there were abnormalities found in the kidneys that correlate to dehydration, which was determined as the cause of death.

2. Red Foxes

Based on field observations, the predominant predator for the nesting piping plover on Fire Island during the past several years has been the red fox (*Vulpes vulpes*). Red fox tracks were frequently recorded inside the symbolic fencing. Evidence and sightings of red fox were especially prevalent in the OPWA and at Lighthouse Beach. Red fox tracks were often observed at the toe of the dune throughout the 5-mile stretch between Watch Hill and the Old Inlet breach. Nest 9A-17 at lighthouse was abandoned due to predator pressure; fox tracks and digging attempts around the exclosure were observed. No other

predator was as prevalent as red fox on Fire Island in 2017, and this is consistent with the past several years.

The observations from this season and previous ones implicate red fox as a threat to piping plover breeding and productivity success. Virginia Tech has been funded through the Fire Island to Moriches Inlet (FIMI) interim project to research red foxes and their impacts on listed species (piping plovers) on Fire Island, from Democrat Point through Smith Point County Park. Their study is titled, "Red Fox (*Vulpes vulpes*) Movements, Habitat Selection, and Demography, on Fire Island, New York". It began in the summer of 2015 and will continue through the fall of 2017. Information on the project can be accessed at: http://vtshorebirds.fishwild.vt.edu/projects.html and https://irma.nps.gov/rprs/Permit/Profile/42421

Mange was also observed this summer in red foxes, particularly on the west end of Fire Island. One of Virginia Tech's collared foxes died from complications of mange underneath a car in the Lighthouse Annex parking lot on July 17th. Another one of their collared foxes was found dead in Saltaire (also from complications of mange) on August 16th. The FIIS Wildlife Biologist spoke with a resident in Dunewood in August, and it sounded like mange had also been observed in that Fire Island community as well. FIIS staff and Virginia Tech researchers are continuing to follow/record the cycle of mange and its eastward distribution throughout the fall and winter of 2017. Mange was observed on red foxes east of the Old Inlet breach and throughout Smith Point County Park in the summer/fall/winter of 2015 and greatly impacted the population on the eastern side of the island. Fox abundance still appears to be fairly low in the eastern section; Virginia Tech researchers could not trap any foxes from Old Inlet to the Wilderness Visitor Center (to collar and track) in 2017 because there was no sign or presence in that section.

3. Predator exclosures (for piping plovers)

In past seasons, wire exclosures ("predator exclosures") were erected and placed around most (if not all) plover nests in order to protect nests from avian and mammalian predators. Nest exclosures are frequently used to increase hatch success. However, exclosure use can result in adult mortality, which is not always detected and may result only in apparent nest abandonment (Neuman et al 20014). Exclosure use thus increases nest success but carries an unquantified cost in adult survival rates, with unknown consequences for population growth rate.

In 2015 no nests were exclosed due to a high rate of nest abandonment observed in the 2014 season. This decision was made by the FIIS Wildlife Biologist based on observations from the researchers at Virginia Tech (only one adult observed after several nest abandonments in 2014) and based on recommendations from USFWS Biologists, Anne Hecht and Steve Papa. In the 2016 season the FIIS Wildlife Biologist decided to exclose all nests (except for one) due to the high rate of predation of nests in the 2015 and because 1A-16 was predated before it even reached a full clutch. Lastly, in 2017 all nests were exclosed except for 3A-16 and 3B-16, since they were so well camouflaged.

FIIS participated in the data collection during the 2015 and 2016 seasons for the development of Piper Ex, a decision support tool for park managers to use in making decisions about whether to exclose (or not) at a particular site. Piper Ex is a model that was developed by Dr. Jonathan Cohen and Abby

Darrah (SUNY-ESF) and 2017 was the first year it was released for use to park managers: https://piplexclosuretool.shinyapps.io/decision/

As the user instructions explain, the tool accepts nest fate data from the user, and analyzes the data to provide site-specific estimates of exclosure effects and nest abandonment and predation probabilities. These values are then used to predict season-long productivity and breeding adult survival rates, which are combined with published or expert opinion values of other demographic rates to estimate population growth rate at the user's site with and without exclosures. The results can support a decision to use exclosures or not, based on whether exclosures increase or decrease population growth rate compared to not using exclosures.

To have a large enough sample size, FIIS data was combined with Smith Point County Parks to use in Piper Ex. It recommends either using previous year's data, or a minimum of 10 nesting attempts by June 1 (of that same year) to receive more confident probabilities that can be used in decision making. Using 2016 nest fate data from FIIS (except Lighthouse beach) and Smith Point County Park it recommended using exclosures, but to reassess if we observe one nest abandonment. Although we had one nest abandonment in 2017, FIIS staff contributed it to nearby nesting plovers and an American Oystercatcher rather than predators, such as red fox presence/pressure. Exclosures were continued and 1A-17 was the only nest abandonment for the 2017 season.

The FIIS Wildlife Biologist will continue to use this tool in the future, but also take into account personal observations in the field as well. However, the decision to stop using exclosures will be made within the nesting season, rather than before the season begins.

4. Seabeach amaranth

Significant browsing of seabeach amaranth individuals has been observed in past seasons, which led to the decision to exclose almost all plants since 2014. Some instances of slight browsing were observed after the exclosing of plants but this was likely due to foraging by insects and other small animals. This year we did have a number of exclosed nests ripped open and the plants removed. This could be due to human interaction but is more likely aggressive foraging by white-tailed deer. This new potential impact will need to be considered and taken into consideration for how to proceed in future years. Due to an approaching storm (Post-Tropical Cyclone Hermine) most of the exclosures were removed and not replaced. As a result of overwashing (from the storm) there was a significant increase in mortality of plants after the storm, due to high tides. In addition, remaining plants were not protected from browsing which may have caused an increasing in browsing of those plants throughout the rest of the season.

Observational data has shown white-tailed deer to be a possible threat to the survival and reproduction of seabeach amaranth. Significant browsing of plants was recorded prior to the 2014 season, and since then all/most amaranth individuals have been exclosed. It's recommended to continue exclosing plants next season, as staffing allows, and particularly until the implementation of the Deer Management Plan/EIS which calls for a reduction of the deer herd on Fire Island, which could possibly alleviate browsing pressure on this federally threatened plant.

5. Upcoming addendum to the 1998 Environmental Assessment for T&ES Habitat Management

The previous Environmental Assessment – which guides management of T&ES, most notably for "shoreside species" - is from 1998 and park management agrees that it needs to be updated. The Superintendent approved the Wildlife Biologist to begin this process, which began in the fall of FY17 and a draft addendum (in addition to Nuisance Wildlife Protocols) will be available for review in January 2018, with the expectation of being finalized by March of 2018.

In the interim it's suggested that a review be done to assess whether red fox pose a significant threat to threatened and endangered species through reviewing literature, summarizing preliminary data from Virginia Tech's red fox study, and statistically summarizing the park's monitoring data and analyzing existing data. In addition, past population data for T&ES will be compiled and analyzed to better inform the implementation of the T&ES program.

6. Bats

Bats have been experiencing precipitous declines during the past several years. White-Nose Syndrome (WNS) is an emerging disease that has killed more than 6 million bats since its discovery in 2007, reducing regional populations of some bat species by more than 90 percent. The northern long-eared bat (*Myotis septentrionalis*) was listed as federally threatened by the USFWS in April 2015.

During the past several years FIIS has worked with researchers on bat research/monitoring:

- Summer and fall of 2014: Funding was through DisneyGrant (through National Park Foundation). Worked with PI Michael Fishmann, from the consulting firm Natural Resource Group (Syracuse, NY) on the 'Long Island Century Bat Survey'. Summer and fall mist-netting and acoustic surveys conducted at FIIS, SAHI and GATE. In the summer and fall a total of 6 northern long-eared bats were tracked (radio transmitters) by the NYS-DEC.

- Summer of 2015: Funded through FY14 NPS WNS funds. Worked with PI Shannon Farrell at SUNY-ESF. Summer mist-netting and acoustic surveys were conducted at FIIS. Two northern long-eared bats were tracked (radio transmitters) by FIIS staff. FIIS staff implemented acoustic surveys in late-summer/fall at the WFE, SAHI and GATE (North Forty section).

- Summer and fall of 2016: FIIS received funding through FY15 NPS WNS funds. Implemented acoustic surveys across Fire Island (Lighthouse through Wilderness) and at SAHI. Collected acoustic data for GATE Bioblitz's at Jamaica Bay and Sandy Hook.

- Summer/Fall/Winter of 2017: FIIS received funding through FY16 NPS WNS funds. Implemented long-term acoustic deployments at WFE and SAHI.

FIIS is working with Virginia Tech researchers (Dr. Mark Ford) in 2018 (with WNS funds from FY17) to better understand whether the William Floyd Estate supports a maternity colony or just roosting habitat for northern long-eared bats.

The FIIS Wildlife Biologist suggests continued research (particularly at the William Floyd Estate) but also incorporating bats – especially the northern long-eared bat – into the T&ES Monitoring Program effort and developing a long-term monitoring plan for this species. A summary of data collected to date will be available in a separate report. However, starting in 2018 any bat data collected will be incorporated into annual T&ES monitoring program reports.

7. Management of T&ES data

Annual reports for T&ES are completed and all (since 2003) have been posted on the NPS Integrated Resource Management Applications (IRMA) Portal, which is accessible to the public at <https://irma.nps.gov/DataStore/>. In addition, this winter FIIS staff is standardizing/organizing GIS spatial data for T&ES from 1999-2017, which will also be posted to the NPS IRMA site and accessible to the public.

All data gathered for T&ES is inputted into Microsoft Excel spreadsheets, which are located on the network drive by year in the Natural Resource Management folder.

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Appendix A: Tables and Figures

Year	Breeding Pairs	Nest Attempts	Productive Pairs	Eggs Hatched	Hatchlings per Breeding Pair	Chicks Fledged	Chicks Fledged per Nest Attempt	Chicks Fledged per Pair
1993	7	7	0	0	0	0	0	0
1994	3	4	0	0	0	0	0	0
1995	9	2	1	N/A[1]	N/A	2	1	0.2
1996	2	1	1	N/A	N/A	1	1	0.5
1997	1	1	0	0	0	0	0	0
1998	1	1	1	N/A	N/A	1	1	1
1999	3	2	2	N/A	N/A	5	2.5	1.7
2000	3	3	3	N/A	N/A	9	3	3
2001	4	4	4	N/A	N/A	11	2.8	2.8
2002	10	11	9	33	3.3	28	2.6	2.8
2003	20	22	15	64	3.2	35	1.6	1.8
2004	17	18	15	57	3.4	37	2.1	2.2
2005	17	20	14	54	3.2	40	2	2.4
2006	21	26	15	46	2.2	32	1.2	1.5
2007	25	35	11	45	1.8	18	0.5	0.7
2008	15	26	8	32	2.1	20	0.8	1.3
2009	19	24	9	53	2.8	13	0.5	0.7
2010	16	23	9	38	2.2	17	0.7	1.1
2011	14	16	10	38	2.7	21	1.3	1.9
2012	12	17	8	35	2.9	15	0.9	1.3
2013	11	13	3	35	3.2	7	0.5	0.6
2014	8	12	3	15	1.9	7	0.6	0.9
2015	3	5	2	6	2.0	5	1.0	1.7
2016	9	10	6	25	2.8	16	1.6	1.8
2017	**11**	**14**	**7**	**37**	**3.4**	**17**	**1.2**	**1.5**
Average	10.4	12.7	6.2	32.3	2.3	14.3	1.3	1.3

[1]Data from previous nesting seasons are incomplete

Table 1: Historic Productivity of Piping Plovers on FIIS
[1]Data from previous nesting seasons are incomplete

Nest	Area	Status	Exclosed?	# of eggs laid	Actual hatch date	# of eggs hatched	# of chicks fledged	Date of failure	Fledge date (+25 days)
1A	Wilderness East (section 9)	**Failed/Abandoned**	Yes	4	5/21	0		5/3	
1B	Wilderness East (section 9)	**FLEDGED**	Yes	4	6/11	4	3		7/6
2A	Wilderness East (section 8)	**Failed/Overwashed**	Yes	4	5/27	0		5/27	
2B	Wilderness East (section 8)	**FLEDGED**	Yes	4	7/2	4	3		7/27
3A	Wilderness East (section 8)	**Failed/Predated**	No	4	6/9	0		6/7	
3B	Wilderness East (section 8)	**FLEDGED**	No	3	7/11	3	0		8/5
4A	Wilderness East (section 9)	**FLEDGED**	Yes	4	6/17	4	3		7/12
5A	Wilderness East (section 8)	**FLEDGED**	Yes	4	6/11	4	2		7/6
6A	Wilderness East (section 9)	**FLEDGED**	Yes	4	6/22	3	2		7/17
7A	Wilderness East (section 10)	**FLEDGED**	Yes	4	6/22	4	3		7/17
8A	Wilderness West (section 9)	**FLEDGED**	Yes	4	6/24	4	1		7/19
9A	Wilderness East (section 8)	**FLEDGED**	Yes	4	7/6	4	0		7/31
10A	Lighthouse Beach	**Failed/Abandoned**	Yes	4	6/24	0		6/20	
11A	Wilderness East (section 8)	**Hatched/Failed**	Yes	4	7/7	3	0		8/1

Table 2: FIIS 2017 Overall Piping Plover productivity

NPS Nest #	Female	Male	Chick1	Chick2	Chick3	Chick4	Chick1_fate	Chick2_fate	Chick3_fate	Chick4_fate
1A-17	GF(97)	-	-	-	-	-	-	-	-	-
1B-17	GF(97)	GF(06)	GF(N9U)	GF(K1P)	GF(PA6)	GF(ENE)	DIED	FLEDGED	FLEDGED	FLEDGED
2A-17	GF(6UP)	GF(XY2)	-	-	-	-	-	-	-	-
2B-17	GF(6UP)	GF(XY2)	GF(4Y2)	GF(78Y)	GF(1C1)	GF(U9N)	FLEDGED	DIED	FLEDGED	FLEDGED
3A-17	GF(JCY)	GF(TEE)	-	-	-	-	-	-	-	-
3B-17	GF(JCY)	GF(TEE)	GF(79N)	GF(67E)	GF(4K7)	GF(2NX)	DIED	DIED	DIED	DIED
4A-17	GF(2AN)	GF(PC1)	GF(5LA)	GF(PCY)	GF(VH3)	GF(6AK)	FLEDGED	FLEDGED	FLEDGED	DIED
5A-17	GF(8LT)	GF(PY3)	GF(H27)	GF(9MM)	GF(9EU)	GF(Y7A)	FLEDGED	FLEDGED	DIED	DIED
6A-17	GF(01P)	GF(LMT)	GF(62T)	GF(5CN)	GF(A4Y)	-	FLEDGED	FLEDGED	DIED	-
8A-17	GF(HN8)	GF(1EL)	GF(52H)	GF(K04)	GF(8KL)	GF(21P)	FLEDGED	DIED	DIED	DIED
9A-17	GF(J46)	UN BANDED	GF(YVV)	GF(LLP)	UN BANDED	-	DIED	DIED	UNKNOWN	-
10A-17	GF(EYY)	GF(VM1)	-	-	-	-	-	-	-	-
11A-17	GF(CU6)	GF(70E)	GF(C18)	GF(JA0)	GF(UA7)	UN BANDED	DIED	DIED	DIED	UNKNOWN

Table 3: Piping Plover Banding Information for 2017 from Virginia Tech Study. GF = Green Flag. Please refer to Virginia Tech's Annual Report 2017 for more information (when available can be found on NPS IRMA site). *missing information for 7A-17.

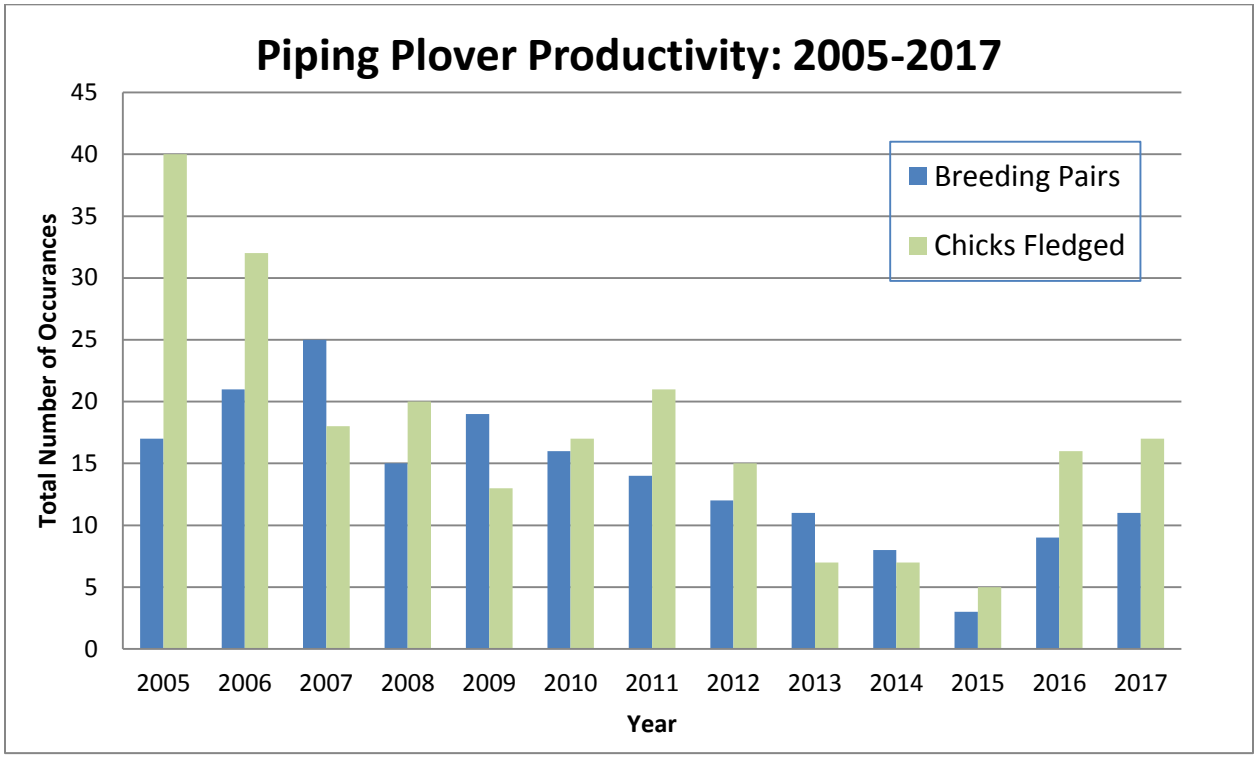

Figure 1: The number of Piping Plover breeding pairs and the number of chicks fledged at FIIS, 2005-2017

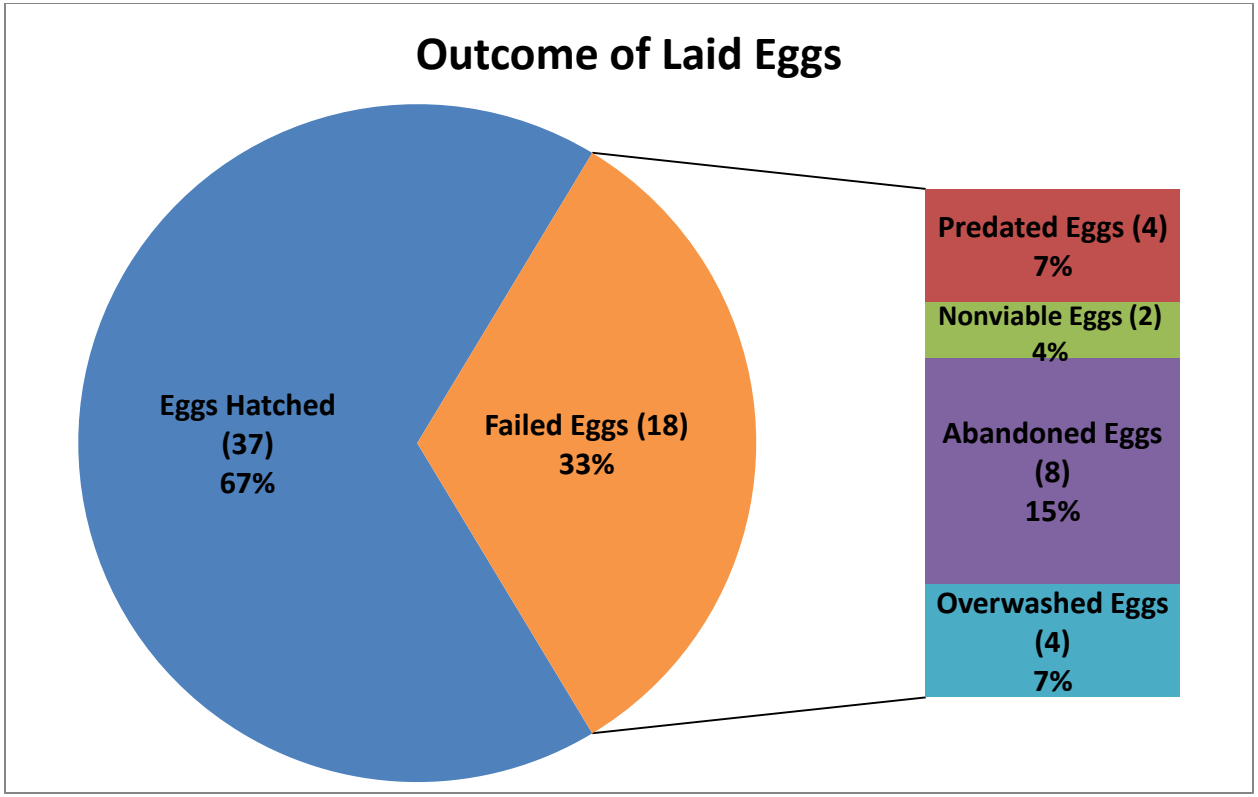

Figure 2: Pie graph displaying the outcome of all laid Piping Plover eggs at FIIS in 2017 (total = 55).

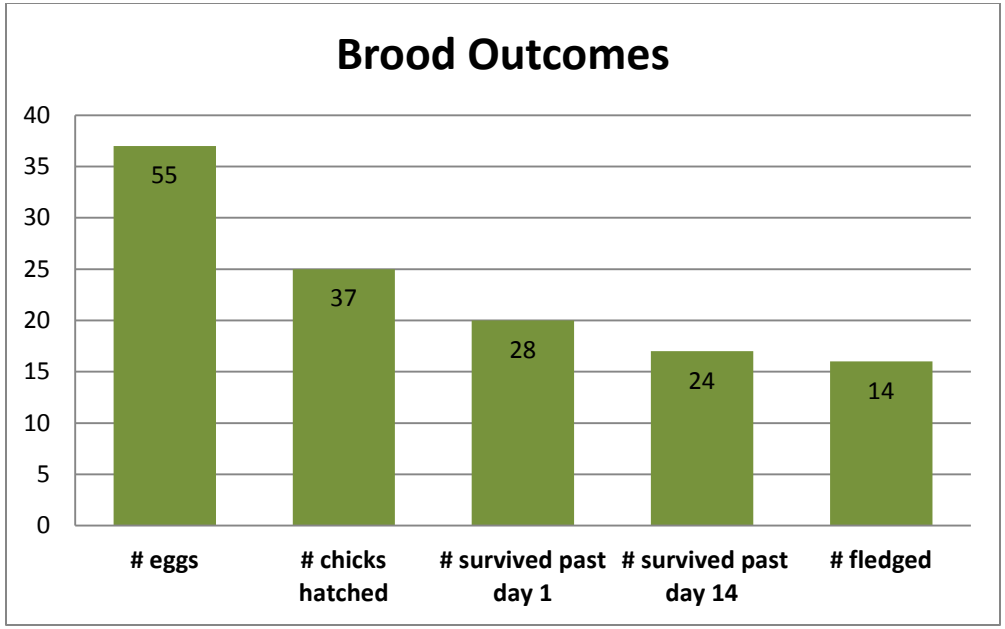

Figure 3: Bar graph of brood outcome for 2017 Piping Plovers at FIIS

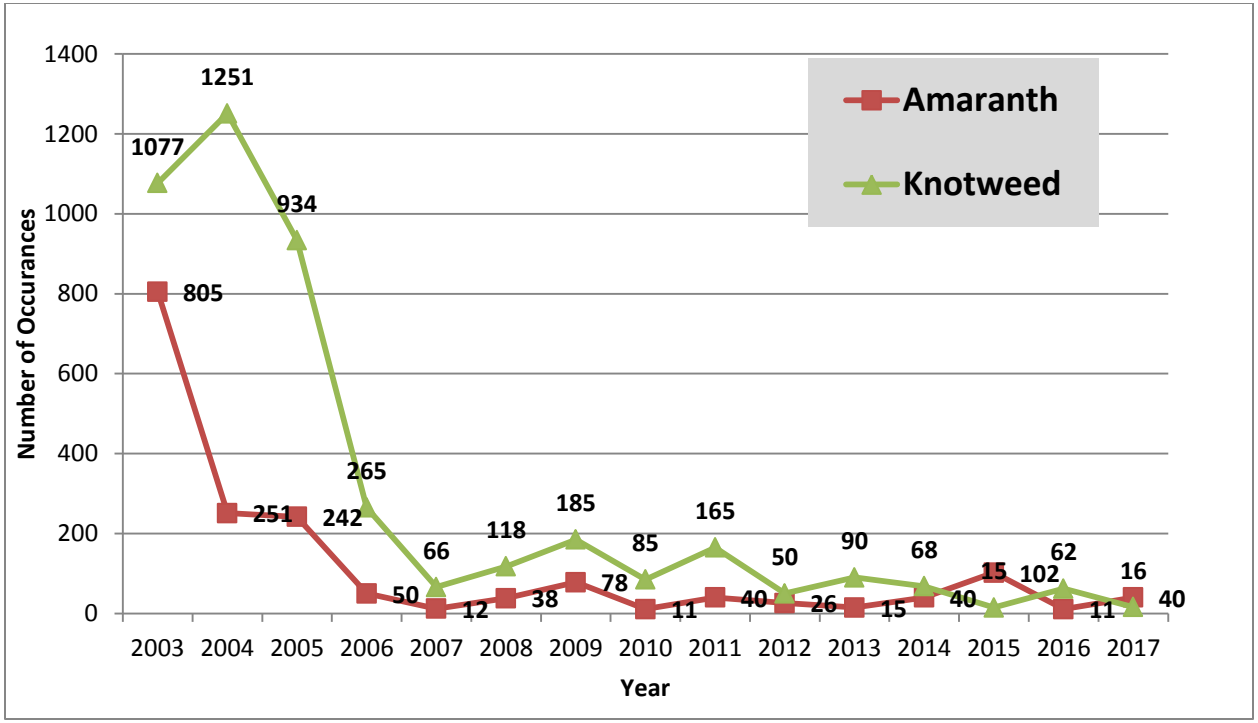

Figure 4: Chart displaying historical values for Seabeach Amaranth & Seabeach Knotweed on FIIS (2003-2017). The y-axis is the total number of plants counted that year.

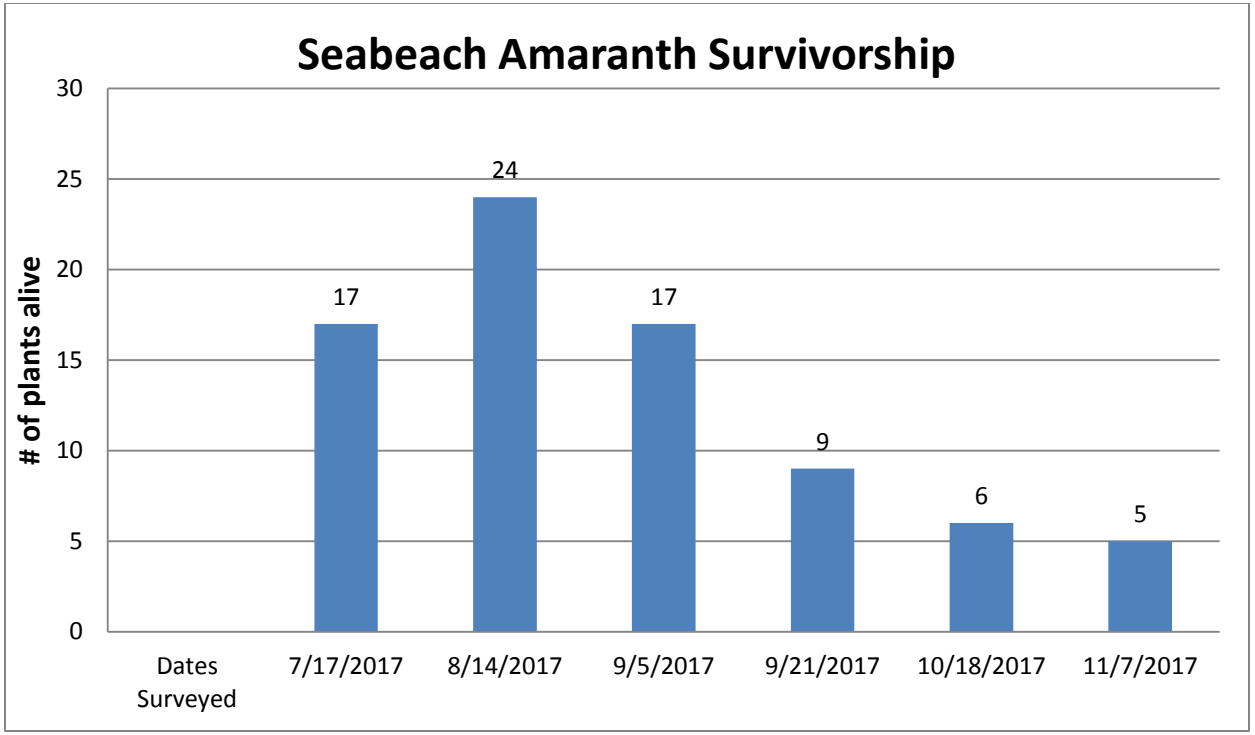

Figure 5: Bar graph demonstrating the survivorship of Seabeach Amaranth plants after each survey.

Tern Survey Window	1st	2nd	1st	2nd	1st	2nd
Site / Species	**COTE**		**LETE**		**BLSK**	
Islip Spoil Island	-	-	-	-	-	-
Sexton Island	NS	-	NS	-	NS	-
West Fire Island	-	-	-	-	-	-
East Fire Island	260	140	-	-	-	-
Lighthouse	-	-	-	-	-	-
Fire Island Villages	-	-	-	-	-	-
Sailors Haven	-	-	-	-	-	-
Fire Island Pines	-	-	-	-	-	-
Watch Hill Bay	-	-	-	-	-	-
Long Cove	71	26	-	-	-	-
Ridge Island	150	450	-	-	-	-
Pelican Island	-	-	-	-	-	-
John Boyle Island	-	-	-	-	-	-
Hospital Island	-	-	-	-	-	-
OPWA*	-	-	350	240	-	-

Table 4: Long Island Colonial Waterbird Surveys for Terns and Black Skimmers in 2017. Sites are listed from west to east and separated by whether they are bay islands or on Fire Island. Tern and black skimmer surveys are conducted twice in June, Window 1: June 1-15 and Window 2: June 15-30. Species codes: COTE = Common Tern, LETE= Least Tern, BLSK = Black Skimmer (* = Davis Park included in Wilderness survey)

Sedge ID	Site Name (LICWS)	Location Description	Date found	# of clumps	Was it removed? (Y/N)	Date of removal	UTM (x)	UTM (y)
LIHO_S1	Fire Island Lighthouse	Lighthouse beach	7/12/2017	1	Y	7/12/2017	651564.42	4499464.59
LIHO_S2	Fire Island Lighthouse	Lighthouse beach	7/12/2017	1	Y	7/12/2017	651546.89	4499466.58
LIHO_S3	Fire Island Lighthouse	Lighthouse beach	7/12/2017	3	Y	7/12/2017	651542.59	4499465.25
LIHO_S4	Fire Island Lighthouse	Lighthouse beach	7/12/2017	8	Y	7/12/2017	650557.29	4499156.52
LIHO_S5	Fire Island Lighthouse	Lighthouse beach	7/12/2017	2	Y	7/12/2017	650886.70	4499291.46
LIHO_S6	Fire Island Lighthouse	Lighthouse beach	7/12/2017	2	Y	7/12/2017	650727.29	4499267.64
LIHO_S7	Fire Island Lighthouse	Lighthouse beach	7/12/2017	2	Y	7/12/2017	650519.59	4499149.24
LIHO_S8	Fire Island Lighthouse	Lighthouse beach	7/12/2017	3	Y	7/12/2017	650506.36	4499141.30
LIHO_S9	Fire Island Lighthouse	Lighthouse beach	7/12/2017	1	Y	8/3/2017	650425.66	4499123.44
LIHO_S10	Fire Island Lighthouse	Lighthouse beach	7/12/2017	6	Y	8/3/2017	650401.85	4499114.18
LIHO_S11	Fire Island Lighthouse	Lighthouse beach	7/12/2017	1	Y	8/3/2017	650340.33	4499091.694
LIHO_S12	Fire Island Lighthouse	Lighthouse beach	7/12/2017	5	Y	8/3/2017	650318.92	4499087.95
LIHO_S13	Fire Island Lighthouse	Lighthouse beach	8/11/2017	3	Y	8/24/2017	650898.61	4499253.09
LIHO_S14	Fire Island Lighthouse	Lighthouse beach	8/11/2017	5	Y	8/24/2017	650913.82	4499261.69
LIHO_S15	Fire Island Lighthouse	Lighthouse beach	8/11/2017	3	Y	8/24/2017	650998.49	4499281.53
LIHO_S16	Fire Island Lighthouse	Lighthouse beach	8/11/2017	6	Y	8/24/2017	651034.21	4499291.46
LIHO_S17	Fire Island Lighthouse	Lighthouse beach	8/11/2017	3	Y	8/24/2017	651074.55	4499309.31
LIHO_S18	Fire Island Lighthouse	Lighthouse beach	8/11/2017	1	Y	8/24/2017	651280.27	4499371.49
LIHO_S19	Fire Island Lighthouse	Lighthouse beach	8/11/2017	3	Y	8/24/2017	651284.24	4499378.11
SAHA_S1	Fire Island Sunken Forest	Sailors Haven	7/17/2017	9	Y	7/28/2017	660897.51	4502428.79
SAHA_S2	Fire Island Sunken Forest	Sailors Haven	7/17/2017	9	Y	7/28/2017 and 8/16/2017	659809.54	4502092.24
FIP_1	Fire Island Pines	Talisman	8/9/2017	1	Y	8/16/2017	666042.76	4504331.20
FIP_2	Fire Island Pines	Blue Point	8/9/2017	1	Y	8/16/2017	667949.88	4505175.76
OPWA_1	Fire Island Wilderness	Western Wilderness	8/10/2017	9	N			
OPWA_2	Fire Island Wilderness	Eastern Wilderness	8/17/2017	1	Y	8/17/2017	678434.18	4510466.00
FIV_1	Seaview		8/14/2017	1	Y	8/16/2017	656592.20	4501044.49
			TOTAL	90		**Found in second survey window		

Table 5: Asiatic sand sedge location data for the 2017 season

Appendix B: Maps

Map 1: Map of Fire Island National Seashore

Map 2: Fire Island Lighthouse locations of threatened and endangered species in 2017. Maps are organized by Long Island Colonial Waterbird Survey areas and include piping plover nests, seabeach amaranth and seabeach knotweed individuals for each area

Map 3: Fire Island Villages locations of threatened and endangered species in 2017. Maps are organized by Long Island Colonial Waterbird Survey areas and include piping plover nests, seabeach amaranth and seabeach knotweed individuals for each area

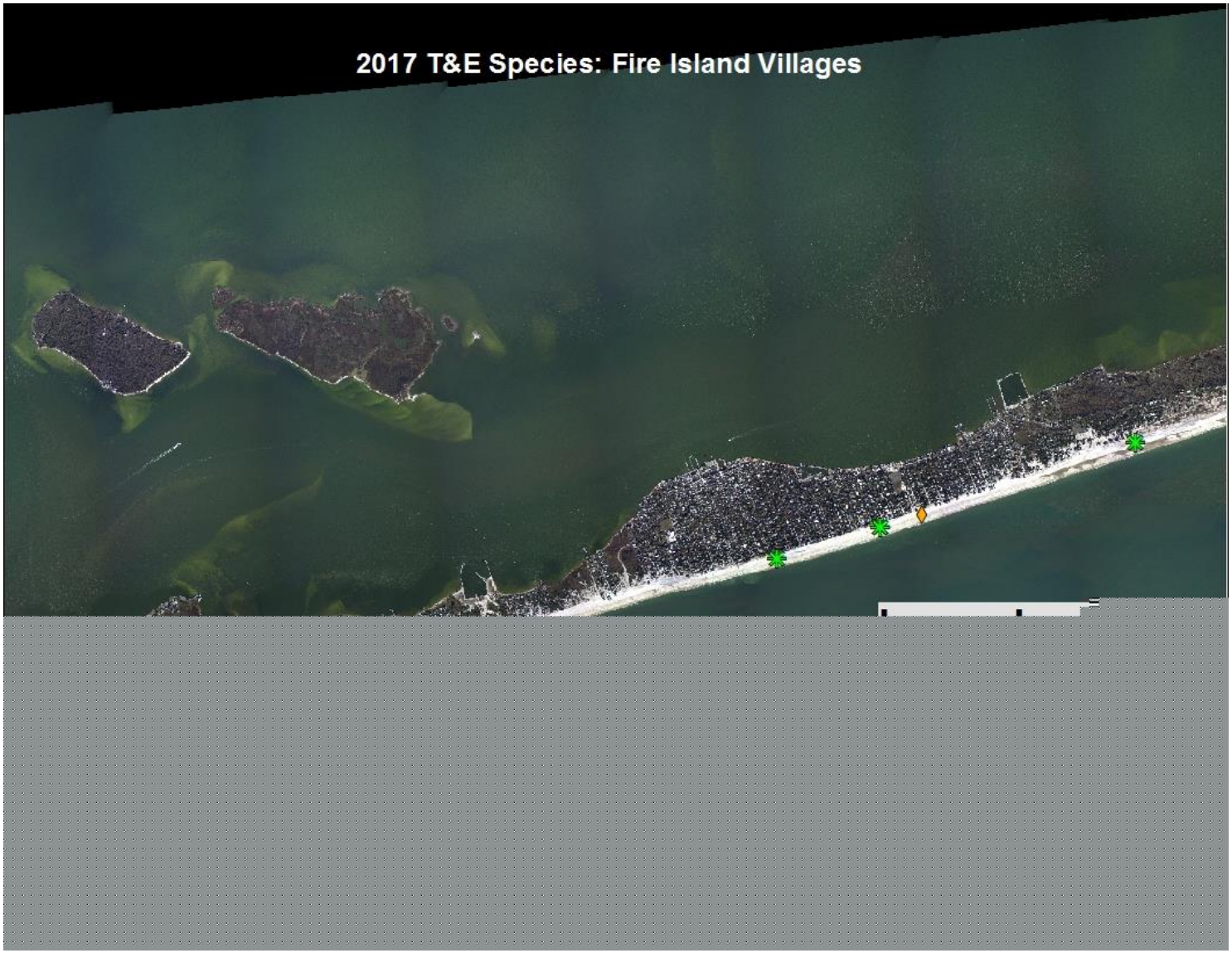

Image 3: Cracked egg from nest 11A that never hatched. Image was taken by FIIS interns.

NATIONAL WILDLIFE HEALTH CENTER

6006 Schroeder Road
Madison, Wisconsin 53711-6223
608-270-2400 (FAX 608-270-2415)

DIAGNOSTIC SERVICES CASE REPORT

Case: **28233**
Epizoo:

Final Report

9/18/2017

Legal ☐ **Declassified** ☐ **INV#:**

Submitter:
Lindsay Ries
Fire Island National Seashore
120 Laurel Street
Patchogue, NY 11772

Date Submitted: 8/2/2017

Specimen description/Identification/Location:

ACC	*SPECIES*	*SPECIMEN TYPE*	*BAND NUMBER*	*SUBMITTER's ID*	*COUNTY*	*STATE*
001	Plover, Piping	CARCASS	299	5LA	Suffolk	NY

Diagnosis:

1. Dehydration, suspect (see comment)

Event History:

A piping plover was found sick and died in hand on 7/21/17 at Otis Pike Fire Island High Dune Wilderness (east of Old Inlet). This area is part of Fire Island National Seashore. This particular bird was a recent fledgling that had a nanotag on it as part of a study through Virginia Tech's Shorebird Program. This is the same site as another plover chick (Case 28194) submitted to NWHC on 7/19/17. Submitter provided video of clinical signs; bird appeared lethargic, head down, hiding/sitting near a clump of beachgrass. It died within 30 minutes of video being taken. The area is a barrier island/wilderness area. There are several other piping plover broods and least terns nesting in adjacent areas.

Submitter note: The brown tide in Great South Bay has lasted 2 months. It is not directly toxic to birds but its ability to disrupt the whole food web and may be related indirectly.

Comment:

One juvenile piping plover was examined at necropsy. There were no significant abnormal gross findings. Although the bird was in fair body condition with adequate fat stores present, the stomach was empty of food.

Microscopically, abnormal findings were limited to the kidney. In one kidney, there was an area of necrosis with mineralization, while in the other kidney, there was an accumulation of urates in the ureter. These changes are suggestive of decreased kidney function and can occur due to any renal insult, but most often occur due to severe dehydration. In this case, a clear cause for the suspect dehydration is not found. There were no other significant microscopic abnormalities. Several Acanthocephalan parasites were noted in the intestine on parasitological examination, but are considered most likely incidental to death.

Avian influenza was negative on tracheal and cloacal swabs by matrix RT-PCR. Samples from this case will be saved for 3 months from the date of this report.

Case: 28233
Epizoo:

Final Report

9/18/2017

Legal ☐ **Declassified** ☐ **INV#:**

Julia S. Lankton DVM, DACVP
Staff Pathologist
Phone: 608-270-2459 **Email:** jlankton@usgs.gov

Diagnostic findings may not be used for publication without the pathologist's knowledge and consent.

Copies To:

MIGRATORY BIRD COORDINATOR (R5)
USFWS Hadley MA (RO5), 300 Westgate Center Drive, Hadley, MA 01035-9589

ENDANGERED SPECIES (RO5)
USFWS Hadley MA (RO5), 300 Westgate Center Drive, Hadley, MA 01035-9589

ANNE HECHT
USFWS Piping Plover Coordinator, Great Meadows NWR, 73 Weir Hill Road, Sudbury, MA 01776

MARGARET WILD
Biol Resource Mgmt Div/Ft Collins-NPS, 1201 Oak Ridge Drive, Suite 200, Fort Collins, CO 80525

DR. MICHELLE VERANT
Biol Resource Mgmt Div/Ft Collins-NPS, 1201 Oak Ridge Drive, Suite 200, Fort Collins, CO 80525

This is a Report for your submission to the National Wildlife Health Center.

For consultation regarding diagnostic findings or laboratory testing and results, please contact the pathologist. Contact information can be found underneath the signature line on this report.

For consultation on the significance of this disease to wildlife populations in your area, assistance with disease control and response, or to report field updates (numbers and species affected, geographical distribution, end date, etc.), please contact an NWHC epidemiologist at NWHC-epi@usgs.gov or 608-270-2480.

NATIONAL WILDLIFE HEALTH CENTER

6006 Schroeder Road
Madison, Wisconsin 53711-6223
608-270-2400 (FAX 608-270-2415)

DIAGNOSTIC SERVICES CASE REPORT

Case: **28194**
Epizoo:

Final Report

8/10/2017

Legal ☐ **Declassified** ☐ **INV#:**

Submitter:

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120 Laurel Street
Patchogue, NY 11772

Date Submitted: 7/19/2017

Specimen description/Identification/Location:

ACC	*SPECIES*	*SPECIMEN TYPE*	*BAND NUMBER*	*SUBMITTER's ID*	*COUNTY*	*STATE*
001	Plover, Piping	CARCASS	LLP/798		Suffolk	NY

Diagnosis:

Suspect starvation

Event History:

One piping plover chick was found dead on 7/13/17 in the Otis Pike Fire Island High Dune Wilderness area. The chick appeared emaciated/underweight. The area it was found is a barrier island/wilderness area. Its brood mates and parents appeared fine. This banded nestling was last observed alive on 7/12 but with another pair of adults (other than its parents). There are several other piping plover broods and least terns nesting in adjacent areas.

Comment:

A hatchling piping plover (*Charadrius melodus*) was received for determination of cause of death. Leg tags were on the right place. On gross examination, there was no subcutaneous, visceral or epicardial fat. This is normal for hatchlings. However it also suggests that short periods of food deprivation can trigger energetic imbalance and death. The upper gastrointestinal tract was empty, which indicates inanition previous to death and support starvation as cause of death. Histopathology was unremarkable. Avian influenza virus matrix RT-PCR screen from trachea and cloaca were negative. Liver, stomach content for feed habits, heart for genetics, and skeletal muscle were collected and saved frozen at necropsy. The carcass was also saved frozen and will remain stored indefinitely.

Case: 28194
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Marcos Isidoro Ayza

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Diagnostic findings may not be used for publication without the pathologist's knowledge and consent.

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MIGRATORY BIRD COORDINATOR (R5)
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ENDANGERED SPECIES (RO5)
USFWS Hadley MA (RO5), 300 Westgate Center Drive, Hadley, MA 01035-9589

This is a Report for your submission to the National Wildlife Health Center.

For consultation regarding diagnostic findings or laboratory testing and results, please contact the pathologist. Contact information can be found underneath the signature line on this report.

For consultation on the significance of this disease to wildlife populations in your area, assistance with disease control and response, or to report field updates (numbers and species affected, geographical distribution, end date, etc.), please contact an NWHC epidemiologist at NWHC-epi@usgs.gov or 608-270-2480.