Summary of Leach's Storm-petrel Nesting on Penikese Island, MA, and a Report of Probable Nesting on Noman's Land Island

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The Leach's Storm-petrel is one of the most abundant marine birds in the North Atlantic but is seldom seen by most birders because it usually feeds far offshore and only returns to its remote island nesting colonies after dark. It nests in the North Pacific from Japan to Alaska and south to Baja. In the North Atlantic, colonies are found from the British Isles to Iceland, Greenland, Newfoundland, and south to Muscongus Bay, Maine, with one small disjunct colony on Penikese Island, Massachusetts. This is the southernmost nesting site known in the North Atlantic, and is also the island on which the first North American and only known U.S. nesting of Manx Shearwater occurred (Ben David and Bierregaard 1973).

Penikese Island

Penikese Island is a seventy-four-acre, mostly treeless island, located about one mile north of Cuttyhunk Island at the end of the Elizabeth Island chain in Buzzard's Bay. It has a colorful history as the site of Louis Agassiz's John Anderson School of Natural History (1873-1874) and a state-run leper colony (1905–1921), and has been a Wildlife Sanctuary managed by the Division of Fisheries and Wildlife since 1924. It has also hosted the Penikese School, a special needs program for boys, since 1973 (Cadwalader 1988).

For four years beginning in 1930, the team that visited Penikese Island to band terns reported hearing strange calls at night from the vicinity of a rock retaining wall (Townsend and Allen 1933). Their eventual conclusion was that these calls were being made by some of the many cottontail rabbits on the island. Individual cottontails were even seen going in and out of crevices in the rock wall. Hearing a description of these calls, Charles Townsend of Ipswich was convinced that they were being made by Leach's Storm-petrels. Townsend, along with Francis Allen of Boston and his son Robert Allen of Cincinnati, visited Penikese and stayed the nights of July 18 and 19, 1933. Townsend confirmed that the calls were from Leach's Storm-petrels and was able to observe a flying bird land and enter a hole in the rock wall. They not only heard the flight call (chuckle call), but also heard the nest call (purring or churring call) coming from the same hole that they had seen the bird enter. Although wishing to get a

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specimen or photograph to confirm the record, they felt that their evidence of breeding was conclusive.

In August 1933, Dr. Oliver Austin, Jr. and Maurice Broun visited Penikese for one night and tried to acquire a specimen by placing a net over the entrance hole and then tearing down a section of the wall (Allen 1935). The blocks of cut rock proved to be too large, so they were not successful. Again in July 1934 the tern banding team reported hearing the flight call. For the same year the annual report of the Massachusetts Fish and Game Commission states that "The Leach's petrel reported last year was again heard at night, and its mate was heard responding from a stone wall, but at a new location. The section of stone wall used last year was pulled down by an enthusiast desiring credit for establishing the nest record, but the rock filling proved to be of such large material that it could be handled only by a powerful derrick; consequently, the nest was not seen. Measures are being taken to see that the walls will not be molested again..."(MFGC 1934). Birds were again seen and heard around the rock wall in 1935 (MFGC 1935) and in 1936 it was reported that " There is probably an increase in Leach's petrel for the caretaker has heard the night cries of more than one bird at a time..."(MFGC 1936).

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Leach's Storm-petrel on Kent Island, Maine

A specimen that would provide conclusive proof of nesting on Penikese Island was eventually collected on August 24, 1940, by the State Ornithologist, Archie Hagar (Griscom and Snyder 1955). This bird was a fully feathered male nestling that still had some remaining down (MCZ 291236). The following year Hagar produced a "Field Map of Leach's Petrel burrows on Penikese Island 21-22 May 1941" (MDFW

files). A notation states that each cross represents a burrow identified by either the characteristic odor or by hearing a petrel in it during the night. The map shows the locations of seventy-nine petrel burrows distributed all across the island. Archie Hagar estimated that 120 pairs nested annually on Penikese between the 1930s and 1950s (Veit and Petersen 1993). No estimates before or since have suggested more than just a few nesting pairs, all located in or near the original rock retaining wall. This was a period when the Massachusetts Fish and Game Commission burned at least parts of the island almost annually, keeping the vegetation open and low, and a period when no gulls nested on the island.

I know of no other reports from Penikese Island for thirty-one years. In 1972, one active and two inactive burrows were reported by Ian Nisbet (Finch 1972). On July 1, 1975, an estimate of fifteen to twenty pairs was made by Jim Baird, Archie Hagar, and Deborah Howard (Finch 1975), and on July 30,1981, five active burrows were located (Jeremy Hatch, pers. comm.).

I first visited Penikese Island in 1984. On the nights of July 20 and 21, I was able to locate five crevices along the rock retaining wall from which petrels were calling. Using a mist net and a tape of both the flight and nest calls, I was able to capture and band twenty-one Leach's Storm-petrels. Of these, nine still had bare brood patches, suggesting that they might be local breeders, and twelve had brood patches which had been bare but were beginning to fill in, which is typical of subadult nonbreeding storm-petrels that actively visit colonies during the nesting season. Not only do these nonbreeding birds spend a great amount of time flying and calling overhead, they will also land to prospect potential nest burrows and will even enter active nest burrows. As a consequence, many of the Leach's Storm-petrels in and around a nesting colony, even some of those in burrows, are subadults. Since most Leach's Storm-petrels do not nest until age four, these subadults visit multiple colonies over a rather large area and fly over islands that have no nesting pairs. Although I have never observed a nonbreeding subadult doing the nest call, the only way to absolutely confirm breeding is to document eggs or chicks.

Petrels were netted and banded in five other years: July 3-5, 1986 (seven captured, including one new bird); July 1, 2, 14, 15, 16, and August 26, 1989 (twelve captured, including three new birds); July 2-4, 1991 (five captured, including two new birds); July 3 and 5, 1994 (one previously banded bird and one new bird); and July 5, 1995 (one new bird). In all, twenty-eight petrels were banded, and thirteen of these were captured in more than one year. The amount of net effort varied significantly with most effort being expended in the earlier years. Therefore, the drop in captures over the years is probably largely an artifact of net effort. However, the number of active nest burrows has also varied from 1984 (five active burrows), to 1986 (seven), 1989 (four), and 1991 (three).

In 1984 one of the five nests was located under the large boulders thrown up on the shore just above the storm-tide line. In 1986 three of the seven nests were located under these boulders, which were on the nearest section of shore to the rock retaining wall nest area by the Penikese School's house. After 1986 these nests were no longer

occupied. Also in 1986, a traditional nest site in the wall was plugged up by a large European Starling nest and was never used by petrels again.

In most years Dave Masch of the Penikese School has heard the first returning petrels calling during the last week in April, but in 1984 they were back by the second week in April. The latest petrel in the season seen or heard by Dave Masch was a nearly fledged chick that he found in the rock wall on October 7, 1984. Since most of the nest chambers are so deep in the wall, actual observations of eggs and chicks on Penikese have been few. On July 3, 1986, I was able to use a flashlight at night to see an adult with an egg in its nest chamber. This is the only time I have ever been able to see an actual nest chamber on Penikese. However, while banding at night, I frequently heard the peeping calls of chicks, particularly when an adult was present and moving around within the nest crevice.

Noman's Land Island

Noman's Land Island is located about six miles SSW of Squibnocket off the southwest corner of Martha's Vineyard in Chilmark, Dukes County, MA. As the name implies, it is rather remote and exposed to the harsh conditions of the open sea. At 628 acres, it is just under one square mile in size. The landscape is dominated by old field grasses and waist-high shrubs. A variety of wetland habitats occurs on the island, including at least four man-made ponds, several shallow natural ponds, pristine cranberry-sedge bogs, and a number of small drainage streams. Although the island has a generally treeless appearance, there are many patches of small trees and large woody shrubs in low areas protected from the wind, particularly along wetland drainages.

For at least the last 300 years the landscape of Noman's Land has been significantly altered by a succession of human uses. The island was heavily pastured, and the rock walls were already built by the early 1700s (Wood 1978). In the mid-1800s, sixty fishermen and their families lived on the island during the fishing season, and several farming families stayed year-round. The last year-round family left the island in 1933.

With the beginning of World War II, the island was first leased and later bought by the U.S. Navy to be used as a target range. The Navy Seabees occupied a base on the island for a time and constructed a series of roads and an airstrip for the purpose of maintaining the target area. Fires, probably set by flares and machine-gun tracer rounds, burned vegetation over parts of the island almost annually. After the early 1950s only practice "dummy" bombs were dropped on the island. On April 29, 1970, the eastern one-third of the island was set aside to be managed for wildlife by the U.S. Fish and Wildlife Service (USFWS) in cooperation with the Navy. Use of the island as a military target range ended in 1996, and the entire island was turned over to the USFWS to become a National Wildlife Refuge on June 26, 1998. In 1997 and 1998 a total of 671,306 pounds of ordnance and 59,847 pounds of nonordnance scrap metal was removed from the island (Stephanie Koch, pers. comm.). Although a great deal of military ordnance has been removed, only items found on the surface were cleared. Additional ordnance may become exposed through frost heaving or erosion. For these

reasons and to protect the wildlife resource value, Noman's Land Island is closed to all public access.

During the week of June 11, 2001, the USFWS led one in a series of ongoing trips to the island to document and monitor the island's wildlife. I was fortunate to visit on June 13 and stay overnight. Although I have always believed that the presence of a Leach's Storm-petrel colony on Noman's was quite likely because of its distance offshore and its relative lack of human occupation, I was unable to detect any sign of storm-petrels on my only other overnight stay in June 1998. On the present trip I was too exhausted to stay up to listen and search for storm-petrels, so I went to bed shortly after dark. At 1:15 a.m. I was awakened out of a deep sleep by the familiar sound of a Leach's Storm-petrel chuckle or flight call nearby. I lay still and in a few minutes confirmed another call much farther away. I immediately got dressed and went outside to listen. Soon I was able to hear repeated calls coming from at least three different general areas. The calls were coming from only a few flying individuals, and they were intermittent, so it was not easy to determine whether the birds were just moving across the island or were focused on different nesting sites.

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Leach's Storm-petrel chick on Kent Island, Maine

I have often encountered these circumstances on islands in Maine. I chose what I believed was the closest calling bird and walked across the island in a straight line with as little light as possible until I eventually came to a short section of exposed rock wall, where I began to hear the distinctive purring or nest call. With some effort, I was able to detect birds purring at three different locations under this section of wall. By now it was 1:45 a.m., and a bright moon was just starting to rise. I went to a nearby hill and tried to determine from how many other locations storm-petrels were calling. There seemed to be two and maybe three other locations where, in each location, at least one bird was calling in flight. I targeted a second location and walked in that direction, but the calls became less frequent as the moon continued to rise. By 2:00 a.m. all of the storm-petrels were quiet. In all I heard five to seven birds calling from the air from three and maybe four different sites, and I heard three birds purring from under the same section of rock wall at probable nest sites. I did not attempt to investigate under any rocks to confirm an egg because I did not want to disturb the few birds present. Although it is true that subadult storm-petrels give the nest call while visiting potential future nest sites, it has been my experience that this behavior is not typical of multiple subadults

at sites that do not already have established breeders. Under these circumstances, I am quite confident that the three birds that I heard giving the purring call were all in nest chambers.

Another overnight trip was made on July 16-17, 2001, by Stephanie Koch, Tim Prior, and Ron Lockwood. Between 12:00 and 1:00 a.m. they heard at least four individual Leach's Storm-petrels flying around the same area giving the flight call. They did not attempt to locate nests and did not hear the nest call.

I was fairly certain that I could locate the nest sites when I visited the island again on October 9-10, 2001. Unfortunately, even after considerable effort I was not able to find any nest chambers under the rocks of the wall or entrances to nest burrows in the nearby soil. However, this was complicated by the fact that I did find several muskrat burrow entrances and tunnel systems in the soil by the wall. Like Charles Townsend in 1933, I am confident that these observations are indeed indicative of nesting, but for conclusive evidence we will have to wait for another nesting season.

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