Twenty-eight Year Study of Upland Sandpiper Breeding Population in New York

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INTRODUCTION

The United States Fish and Wildlife Service describes the Upland Sandpiper *(Bartramia longicauda)* as a migratory non-game bird of management concern in the Northeast (Carter 1992). Upland Sandpiper populations have declined significantly from Ohio through the northeastern states since the 1940s (Peterjohn and Rice 1991). In New York, according to the North American Breeding Bird Survey, Upland Sandpiper numbers declined by 83 percent during the past 30 years (from 1966 to 1996), representing a decline of 5.73% per year (P=.3645, N=28; N = the total number of breeding bird survey routes where Upland Sandpipers were detected in New York). These numbers were calculated from unpublished data provided by Pardieck and Peterjohn (pers. com. 1997).

At John F. Kennedy International Airport (JFK), located on the east shore of Jamaica Bay in New York City, there is a significant Upland Sandpiper population about which we have collected data for decades (Garber and Chevalier 1996), creating a valuable source of information useful to those interested in managing this species on or off airports. Efforts to attract breeding Upland Sandpipers from the JFK population to establish a satellite population at Floyd Bennett Field, on the west shore of Jamaica Bay, have been unsuccessful. Upland Sandpipers have done well at JFK, and we recently documented a breeding population at Newark Airport in Newark, New Jersey, where we are managing for them based on what we have learned from the methods used at JFK. We have worked with bird populations at JFK, LaGuardia, and Newark airports in an ongoing effort to reduce the risk of a plane crash from birds getting sucked through airplane engines. Whenever possible, we conduct our wildlife management methods in ways that enable us to protect both people and birds. One of our many efforts to protect birds at JFK is reported here, where we have documented an Upland Sandpiper population living at one of the biggest, busiest airports in the world in the middle of New York City.

Upland Sandpipers did not occur on the habitat where the airport is presently located before the airport was constructed. Originally, most of the over 5,000 acres that currently comprise JFK were a mixture of fresh and saltwater wetlands. The nearest population of Upland Sandpipers that historically occurred in the area was found on the Hempstead Plains of Long Island, which formerly comprised approximately 60,000 acres (Garber 1997). Hempstead Plains was one of the best remaining habitats for Upland Sandpipers in the John F. Kennedy International Airport area until the first part of the century, before the region was developed and before the airport was built. In the 1920s John T. Nichols estimated at least 25 pairs bred on the Hempstead Plains (Bull 1975,1985); but by the early 1940s, the Hempstead Plains population had only four to six remaining pairs (Cruickshank 1942); afterward the population disappeared. Currently, JFK has approximately 20 breeding pairs of Upland Sandpipers.

JFK is very close to where the Hempstead Plains used to extend. Much of JFK's habitat is created artificially from primarily sandy dredge spoils, which

were built approximately six feet above sea level (Garber 1995). The airport was built in stages, primarily in the 1930s and 1940s, with one last runway extension added on in the 1960s. The goals were to make a flat, dry region suitable for taxiways, runways, and buildings. Although upland meadow habitat was created where there used to be wetlands, to some extent, it appears these upland meadows replaced the original natural upland meadows of the Hempstead Plains. It could be that the birds breeding at JFK are descendants of the birds that used to breed at Hempstead Plains, and the birds moved to JFK when the Hempstead Plains were fragmented and reduced in size, while simultaneously, JFK was increasing in size. Today, Upland Sandpipers breed only at a relatively small number of discrete, local sites, and these sites usually have a small number of birds.

Throughout their entire range, which includes North and South America, the total number of breeding pairs is quite small. For these reasons, and because JFK has one of the largest breeding populations in the East, as well as one of the most significant long-term data bases on the species, we continue to monitor the species at the airport. In North America, it breeds as far south as Virginia. To date, this species has not represented a significant hazard to aircraft in light of the low number of individuals that have been struck at JFK over the years. Even though there has been just one strike from January 1979 through February 1997 (it occurred on 30 August 1996, without any damage to the aircraft), we are making every effort possible to record relevant information about the birds at the airport so others interested in this species' management might benefit from our experience.

Most of the research on breeding habits, reproductive success, habitat requirements, home range, movements, coloniality, and effects of grazing was done on midwestern Upland Sandpiper populations. Studies of the species' breeding biology have been conducted (Higgins and Kirsch 1975, Kirsch and Higgins 1976, Ailes 1979, Ailes 1980), and their home range and daily movements were studied elsewhere (Ailes and Toepfer 1977). In addition, coloniality, reproductive success, and habitat interactions have been studied in the Midwest (Bowen 1976), as have the effects of grazing on nesting Upland Sandpipers in south-central North Dakota (Bowen and Kruse 1993).

METHODS

From 1969 through 1997, bird banding has been conducted at JFK under the permits held by Jay Richard Cohen, Sammy Chevalier, and Steven Garber. From 1969 through 1987, 410 Upland Sandpipers were banded at JFK; all were banded by Cohen and Chevalier on aeronautical parts of the airport (near runways and taxiways). The Upland Sandpipers that were caught and banded were primarily young that could not fly. Juvenile birds were chased down and captured by hand. Adults that could be caught because they were more likely to come close enough to a person when protecting their young were chased down and captured by net. The effort was not equal each year, so the yearly numbers primarily represent relative effort. Population estimates were made using the spot mapping method. Banding data and observations by biologists at the airport are presented in an effort to determine the history of this species at the airport during our tenures here.

RESULTS

Two of the Upland Sandpipers banded here were recovered subsequently, both at the airport. Each was banded at JFK when they were too young to fly. The first was banded on 6 July 1976 and was recovered 8 May 1978. The second was banded 12 June 1981 and recovered 28 May 1990. We believe the latter bird is a longevity record for the species; the hiatus between times captured was nine years.

The total number of Upland Sandpipers banded and recovered at JFK each year is as follows:

1969-2; 1970-9; 1971-19; 1972-12; 1973-6; 1974-13; 1975-8; 1976-22; 1977-22; 1978-36; 1979-39; 1980-30; 1981-7; 1982-32; 1983-48; 1984-6; 1985-0; 1986-14; 1987-2; 1990-1.

All were banded when they were too young to fly except for one adult in 1971, one adult in 1977, two adults in 1978, one adult in 1979, and one adult in 1990. The number banded appears to drop off markedly after 1983, which may be a result of the grassland management at the airport. It has been suggested that it was after 1983 that the grass was

Figure 1.

UPLAND SANDPIPER BANDING DATES

If the bird was banded and recaptured, it is followed by an R. The number of birds banded or recaptured is in parentheses, if there is no number in parentheses, then the number banded was 1

1969
July 2, 1969 (2)
1970
June 11, 1970 (6)
June 24, 1979
June 26, 1970
July 8, 1970
1971
June 11, 1971
June 14, 1971
June 15, 1971
June 16, 1971 (5)
June 18, 1971 (3)
June 22, 1971
June 23, 1971 (2)
June 25, 1971 (2)
June 27, 1971 (3)
1972
June 7, 1972 (2)
June 9, 1972
June 15, 1972 (7)
June 19, 1972
June 20, 1972
1973
June 25, 1972
June 26, 1972 (3)
July 5, 1972
July 11, 1973
1974
June 12, 1974 (3)
June 13, 1974 (3)
June 14, 1974 (4)
June 18, 1974 (2)
June 26, 1974
1975
June 24, 1975
June 25, 1975
July 7, 1975 (3)
July 8, 1975 (3)
1976
June 6, 1976 (4)
June 13, 1976 (2)
June 14, 1976
Junw 16, 1976 (2)
June 17, 1976 (3)
June 18, 1976 (2)
June 19, 1976 (2)
June 20, 1976 (3)
June 24, 1976
June 25, 1976
July 6, 1976
1977
June 1, 1977
June 3, 1977 (3)
June 8, 1977 (3)
June 14, 1977
June 17, 1977
June 19, 1977 (4)
June 21, 1977 (2)
June 22, 1977
June 26, 1977
June 28, 1977 (2)
June 29, 1977
July 6, 1977 (2)
1978
May 5, 1978 R
June 1, 1978 (2)
June 6, 1978 (2)
June 14, 1978 (3)
June 15, 1978 (2)
June 16, 1978 (3)
June 19, 1978
June 20, 1978 (6)
June 21, 1978 (3)
June 24, 1978 (3)
June 28, 1978 (2)
June 29, 1978 (2)
June 30, 1978 (3)
July 5, 1978
July 8, 1978
July 24, 1978
1979
June 3, 1979 (2)
June 7, 1979 (3)
June 12, 1979
June 14, 1979 (4)
June 16, 1979 (6)
June 17, 1979
June 20, 1979 (5)
June 21, 1979
June 22, 1979 (4)
June 25, 1979 (3)
June 26, 1979
June 27, 1979 (4)
June 28, 1979
July 3, 1979 (2)
July 4, 1979
1980
June 2, 1980 (3)
June 4, 1980
June 7, 1980 (2)
June 10, 1980
June 12, 1980 (2)
June 16, 1980 (3)
June 17, 1980 (3)
June 18, 1980
June 19, 1980 (2)
June 20, 1980
June 21, 1980
June 22, 1980
June 23, 1980 (3)
June 24, 1980 (3)
June 25, 1980
June 27, 1980
July 4, 1980
1981
June 23, 1981
June 24, 1981 (2)
June 25, 1981 (2)
June 29, 1981
July 27, 1981
1982
May 31, 1982 (2)
June 1, 1982 (2)
June 2, 1982 (5)
June 6, 1982
June 8, 1982 (6)
June 9, 1982
June 10, 1982 (3)
June 11, 1982
June 14, 1982 (3)
June 16, 1982 (2)
June 19, 1982
June 20, 1982 (2)
June 23, 1982
June 25, 1982
June 26, 1982
1983
June 8, 1983 (3)
June 9, 1983 (7)
June 10, 1983 (3)
June 13, 1983 (3)
June 14, 1983 (5)
June 16, 1983 (3)
June 17, 1983 (4)
June 22, 1983
June 26, 1983
June 27, 1983 (2)
June 30, 1983 (5)
July 1, 1983 (5)
July 3, 1983 (2)
July 4, 1983
July 9, 1983
July 11, 1983
July 27, 1983
1984
June 9, 1984
June 10, 1984
June 25, 1984
July 11, 1984
July 13, 1984
July 20, 1984
1986
June 3, 1986 (1)
June 5, 1986 (3)
June 6, 1986
June 10, 1986 (2)
June 14, 1986
June 16, 1986 (3)
July 1, 1986
July 9, 1986
July 14, 1986
1987
June 20, 1987
July 23, 1987
1990
May 28, 1990 R

allowed to grow high during the summer; whereas during previous years, it was always kept shorter during the summer months. Although the longer grass does not appear to hinder the Upland Sandpipers' success at JFK, it does affect the success of those trying to locate and capture them so they can be banded. No new birds were banded in 1988, 1989, 1990, 1991, or 1992. Each of these years Chevalier was busy during the summer with other chores at the airport and was not able to devote time to banding. He retired in October 1992, and Garber began working at JFK in December 1994. (See Figure 1 for banding dates.)

Figure 2. Number of Upland Sandpipers observed at JFK Airport on each date during 1994 and 1995.

1994
May 11, 1994 (1)
May 19, 1994 (1)
May 23, 1994 (2)
May 24, 1994 (1)
May 25, 1994 (1)
June 8, 1994 (2)
June 14, 1994 (6, of which 2 were chicks)

1995
May 22, 1995 (1)
May 25, 1995 (1)
June 1, 1995 (4)
June 5, 1995 (3)
June 7, 1995 (2)
June 10, 1995 (4 adults, 1 juvenile)
June 15, 1995 (1)
June 16, 1995 (4)
June 17, 1995 (3)
June 19, 1995 (1)
July 14, 1995 (4)
August 4, 1995 (2)

The hiatus between Figures 1 and 2 reflects the time between when Chevalier worked at the airport and when Garber began. Dates during 1994 and 1995 do not represent birds banded; rather, they represent Upland Sandpiper observations at JFK during the following days. In 1994, 14 Upland Sandpipers were seen from 11 May through 14 June. In 1995, 31 were seen from 22 May through 4 August. In 1996, over 100 were seen because we spent a great deal of time in the field each day conducting a falconry program to scare gulls from the airport (Garber 1996). During the years 1991 through 1993 no Upland Sandpipers were banded or recorded at JFK.

DISCUSSION

From the banding and observation dates listed in Figures 1 and 2, Upland Sandpipers are here during the months of May, June, July, and August; therefore, one might conclude that the earliest date the birds are back at JFK was 8 May and the latest they were here was 4 August. However, most banding dates start at the end of May and beginning of June, which may be more representative of when the birds are on their nests and when they have young in the area.

From the above observation data, it appears that many Upland Sandpipers arrive at JFK through May, but eggs do not hatch until the end of May and in June, and some may hatch as late as July. As stated earlier, there are as many as 20 pairs of Upland Sandpipers breeding at JFK. This population has been utilizing air-side grassland habitats for many years. The Upland Sandpiper will not continue breeding in an area when its fragmentation reaches a certain critical threshold; therefore, continued divisions of the air-side habitat with more taxiways and open blacktop areas could lead to an eventual decline of this species at JFK.

LaGuardia Airport and Newark International Airport - Upland Sandpipers do not occur at LaGuardia Airport, which is much smaller than both JFK and Newark airports and without the vast expanses of potential Upland Sandpiper habitat. Because we felt Newark had appropriate Upland Sandpiper habitat, we looked for them in 1996 and for the first time found six breeding pairs there.

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