

BARN OWL POPULATIONS AS REFLECTED IN DATA FROM JOHN F. KENNEDY INTERNATIONAL AIRPORT

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ABSTRACT—From 1979 through 1995, 113 Barn Owls (*Tyto alba*) were struck by airplanes at John F. Kennedy International Airport, representing 3% of all bird strikes during this 17 year period. The mean number struck was 6.65 per year, ranging from 2 to 17, peaking during the late 1980s. Barn Owls are struck at JFK 12 months a year. The greatest number of strikes occurs during the middle of the summer and then decreases until November. These data may reflect its local populations.

INTRODUCTION

The Barn Owl (*Tyto alba*) is listed as a protected species in New York State and is a species of management concern to the US Fish and Wildlife Service. Its populations are fluctuating both in New York and nationally. Some are struck at John F. Kennedy International Airport (JFK), Queens County, despite its uncommon status, which may reflect either local abundance or that the species is doing well locally. Barn Owl strikes increased after the nearby landfills were closed, Fountain Avenue in 1985 and Edgemere in 1991, and the Barn Owls shifted their hunting to other suitable areas, including JFK. While the landfills were active they provided vast open areas with large numbers of available rodents. During 3 hours of observations at night at the nearby Fountain Avenue Landfill in 1979, Michael Harrison observed 7 owls feeding on rats. When the landfills were closed, the rat populations plummeted, and the remaining owls hunted prey that were less plentiful and more difficult to locate, as well as prey that were more seasonal, or more difficult to capture.

METHODS

JFK has the most complete bird strike data set for any airport in the world. Every bird strike reported by a pilot or by the Federal Aviation Administration is investigated, identified, and added to our data base. Each dead bird found within 250 feet of the centerline of a runway is identified and becomes part of our index, enabling us to determine relative seasonal and annual abundance. Based on these data and the number of Barn Owl boxes at Jamaica Bay Wildlife Refuge, which is adjacent to JFK, as well as on significant factors, such as closings of local landfills, we analyzed bird numbers in conjunction with bird management methods to determine which methods are most effective.

RESULTS

From 1979 through 1995, 113 Barn Owls were struck at JFK representing 3% of all bird strikes during this 17 year period. The mean number struck was 6.65 per year, ranging from 2 to 17. The number of strikes per year is graphed in Figure 1. Strikes spiked after nearby landfills were closed and the owls were forced to use other feeding areas, including JFK.

Barn Owl strikes at JFK then appeared to have dropped for several years. On average there were 9 strikes a year from 1979 through 1990, then the number dropped to 7 in 1991, averaging 5 since. The decline is attributable to the closing of the landfills on either side of JFK followed by a several year period of fewer birds feeding over a larger area. However, the number of strikes may not remain so low as a result of the increasing number of successful Barn Owl nesting boxes that the National Park Service has erected throughout the Jamaica Bay Wildlife Refuge.

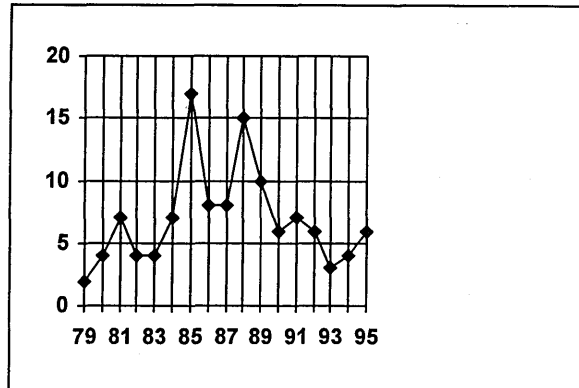


Figure 1. The number of Barn Owls struck at JFK from 1979-1995

DISCUSSION

Of all the Barn Owls struck at JFK, none resulted in aircraft damage or delays. All the strikes involved single birds. Barn Owl strikes, however, have the capacity to significantly damage an aircraft. When a Canadian Airlines Boeing 737-200 struck a Barn Owl at Palm Springs, California, on 7 May 1994 (Garber 1996), the pilot landed the aircraft safely, and while the one damaged engine was replaced the passengers were put up at a hotel during which time a replacement aircraft was flown in.

Barn Owls are seldom seen flying in the JFK vicinity because they are active over the runways at night, when the Bird Control Unit is not on duty. This accounts for why Barn Owls that were struck are found dead in the morning

when the first bird sweep occurs (when someone drives down the runways to ensure that no birds are physically present on the pavement surface).

Barn Owls are struck at JFK 12 months a year (Figure 2.). The greatest number of strikes occurs during the middle of the summer and then continues for several months. After the summer is over the number of Barn Owl strikes declines each month until the strike record reaches a low in May. The Barn Owl strike rate increases slightly in June, with considerably more in July, and hitting a peak in August, when most of the fledglings are catching food on their own. The airport probably has both the young inexperienced birds hunting over the runways during this time, as well as the experienced adults. The increase in strikes probably reflects the total number in the vicinity of the airport.

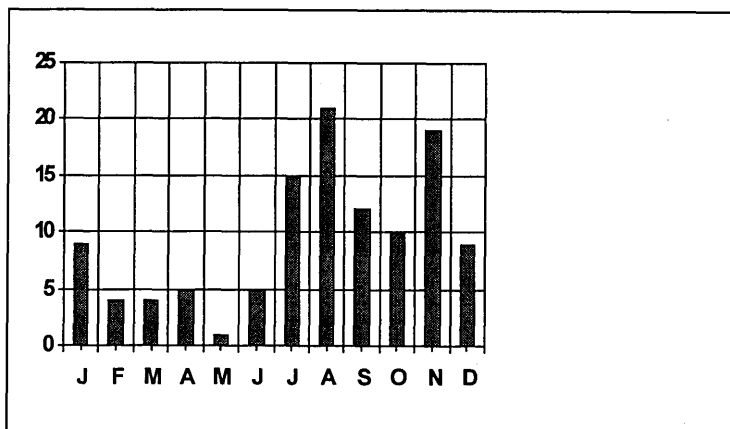


Figure 2. The number of Barn Owls struck each month at JFK from 1979-1995

Barn Owls are known to breed throughout the year in New York, nesting almost exclusively in association with human habitation. In urban areas nests are commonly found in abandoned buildings, in more rural locations their nests are often found around agricultural structures (Sibley 1988).

At JFK, in 1983 Barn Owls nested in Hangar 17 (Chevalier, personal communication, 1996). Barn Owls also used to nest in the old hangars at Floyd Bennett Field, west across Jamaica Bay in Kings County. (Garber 1987, Richard 1988). Barn Owls were still nesting there until the hangars were renovated, which displaced the owls, providing additional impetus to the National Park Service to build and erect Barn Owl boxes in an effort to provide adequate nesting opportunities for them in the area. Chevalier banded 125 Barn Owls from the boxes over the years when visiting Gateway National Recreation Area, the larger area encompassing Jamaica Bay, JFK, and Bennett Field.

In 1996 there were about 20 Barn Owl boxes at Gateway's units near the airport, in Queens and Brooklyn. Of the 20 boxes, about 12 were active. During mid-summer most of the young of the year have fledged and those that live in the

area often feed at the airport. We know that some of the Barn Owls migrate south because those banded by Chevalier in the vicinity of JFK were recaptured at Cape May. Migration occurs primarily in October and November. Then, as some of the birds have migrated south, and the naive birds have either learned, or been struck, the number of Barn Owls in the area probably declines, as does the number of birds that are struck at JFK.

At about noon on 21 December 1996, on the Brooklyn Christmas Bird Count (Cech & Joost 1997), we checked 4 Barn Owl boxes on Canarsie Polder, an island in Jamaica Bay, Kings County; 1 box was empty, 2 boxes had 1 Barn Owl each, and 1 box had 2. When the birds flew as we approached the boxes or rapped on the poles, they were mobbed by gulls.

LITERATURE CITED

- Cech R, Joost P, Compilers. 1997. Brooklyn, NY. *National Audubon Society Field Notes* 51(2): 257-258.
- Federal Aviation Administration. 1979. Aircraft bird hazards and bird control at John F. Kennedy International Airport. Unpublished report.
- Garber SD. 1987. *The Urban Naturalist*. New York: John Wiley. 287 p.
- Garber SD. 1996. John F. Kennedy International Airport Bird Survey. In: Minutes of the 25th Meeting of Bird Strike Committee Canada. Nov 6-7. Transport Canada. Ottawa, Ontario.
- Garber SD. 1997. *Bird Atlas for Jamaica Bay Wildlife Refuge and John F. Kennedy International Airport*. New York, NY: The Port Authority of New York and New Jersey. 174 p.
- Richard H. 1988 Jul-Aug. What's two more? *The Conservationist* 43(1): 12-17.
- Sibley SC. 1988. Common Barn-Owl. In: Andrle RF, Carroll JR, Editors. *The Atlas of Breeding Birds in New York State*. Ithaca, NY: Cornell University Press. p 200-201.

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