

## STATUS OF THE VIRGIN ISLANDS SCREECH-OWL

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**Abstract.**—The Virgin Islands Screech-Owl *Otus nudipes newtoni* is a little-studied taxon whose current status is uncertain. It historically occurred on several small islands immediately east of Puerto Rico in the Caribbean. In an effort to assess its current status, I carried out surveys on St. John, St. Croix, and St. Thomas, the three largest of the United States Virgin Islands. Acoustic and visual surveys were carried out nightly for a 3-wk period during August 1995. Playback recordings of owl calls from the Puerto Rico subspecies did not elicit any responses during surveys, nor did I see any owls. I conclude that this taxon is extinct, because the three sampled islands contained the largest remaining patches of appropriate habitat for this species.

### ESTATUS DE *OTUS NUDIPES NEWTONI*

**Sinopsis.**—El Múcaro Pequeño de las Islas Virgenes *Otus nudipes newtoni* es una especie poco estudiada cuyo estatus actual es incierto. Históricamente ocurrió en varias islas pequeñas inmediatamente al este de Puerto Rico en el Caribe. En un esfuerzo para evaluar su estatus actual, realicé estudios en St. John, St. Croix y St. Thomas, las cuales son las más grandes de las Islas Virgenes Estadounidenses. Llevé a cabo censos visuales y acústicos nocturnos por tres semanas durante agosto de 1995. No pude lograr respuestas usando una grabación del canto de la subespecie de Puerto Rico, ni observe individuos. Concluyo que esta subespecie está extinta, porque las tres islas muestreadas contienen las parcelas más grandes de hábitat apropiado.

The Puerto Rican Screech-Owl *Otus nudipes* is endemic to the Puerto Rico region (defined to include Mona, Monito, Puerto Rico, Culebra, Vieques, and the U.S. and British Virgin Islands), although related genera and species occur on other Greater Antillean islands and Central America (Bond 1980, Burton 1992). Two subspecies are recognized, *O. n. nudipes* from Puerto Rico proper and *O. n. newtoni* from Vieques, Culebra, St. John, Tortola, Virgin Gorda, St. Croix and Guana Island (American Ornithologists' Union 1983, Raffaele 1989, Sibley and Monroe 1990). *O. n. newtoni* was named in 1860 from skins collected on St. Croix (Lawrence 1878). These birds were purportedly duller, grayer, and less rufescent above than Puerto Rican specimens (Wetmore 1927). Howard and Moore (1991) list a third subspecies, *A. n. krugii*, from the Lesser Antilles, but the taxon is not generally recognized. Indeed, Lawrence (1878) synonymized *Gymnoglaux* (= *Otus*) *krugii* with *O. nudipes* over 100 years ago.

Although *O. n. nudipes* is still common on Puerto Rico, particularly in the forested interior mountains and northwestern karst region (Biaggi 1983, Wiley 1986, Raffaele 1989, Rivera-Milan 1995, Pardiek et al. 1996), *O. n. newtoni* is rare in its historical range or may be extinct (Raffaele

1989). Based on the amount of habitat available on different islands within the historical range and recent reports (see below), the probability of encountering this species is greatest in the United States Virgin Islands. I review the historical status of the Virgin Islands Screech-Owl and report the results of a study to assess the current status of this taxon on the islands of St. Thomas, St. Croix, and St. John.

#### HISTORICAL STATUS

*Vieques*.—The Virgin Islands Screech-Owl has been reported from Vieques, where it is now thought to be extinct (Raffaële 1989). As far as I have been able to ascertain, the Vieques record originated with a comment by Wetmore (1927), who was informed that a resident had seen a small owl several years earlier on the island. Based on this datum, it is unlikely the owl has resided on Vieques in the immediate past; fossil data are required to verify if it ever did. I searched Vieques for this species for one week in June 1979 without success.

*Culebra*.—I was unable to find written remarks regarding the presence of this species on Culebra. In over twenty research-related visits to this island spanning 10 yr, I never saw nor heard this species. On two occasions (1980 and 1986), I used playback recordings but never obtained a response.

*St. Croix*.—When described, *A. n. newtoni* was considered rare on St. Croix, although a breeding population existed. E. Newton (in Newton and Newton 1859) obtained young birds on 30 May 1857 and 1 Sep. 1858. Adults were taken in early June 1857 and 11 May 1858. No additional records are available until over a century later, when Leck (1975) wrote of unverified sightings in western St. Croix and Nellis (1979) saw two birds. Norton (1986) posits that the latter record pertains to *Asio flammeus*.

*St. John*.—Riise (in Newton 1860) collected several birds from this island. Norton (1981) reports a single owl sighting on St. John but suggests that it may have been a vagrant *O. n. nudipes* or *Asio flammeus*.

*St. Thomas*.—Eggs and skins were obtained from St. Thomas (Cassin 1860), although the taxon was considered rare (Knox 1852). No further reports of owls from this island have appeared in the literature. Nellis (1994, pers. comm.) informs me of recent unverified sightings by residents, however.

*Guaana Island*.—S. Lazzell (1993, pers. comm.) reported owl pellets from this island. No confirmed sightings have been recorded, however.

*Tortola and Virgin Gorda*.—Although reported as part of the historical distribution, I have been unable to verify records for these islands.

#### MATERIALS AND METHODS

I visited St. Thomas, St. Croix, and St. John during August 1995. Although August does not coincide with the maximal calling period of *O. nudipes* in Puerto Rico (Rivera-Milán 1995; W. Arendt, pers. comm.), the species calls throughout the year (pers. obs.; R. Perez, pers. comm.). I

TABLE 1. Island visited, dates visited, total km sampled, and number of points surveyed during surveys for the Virgin Islands Screech-Owl.

Island	Dates visited	Total km surveyed	Point counts		Total points
			Playback	Aural	
St. Croix	9–14 Aug. 1995	31.5	44	50	94
St. Thomas	15–20 Aug. 1995	26.4	39	40	79
St. John	21–25 Aug. 1995	45.0	12	20	32

assumed that owls in the Virgin Islands would also call year-round. Although I confirmed that Screech-Owls were calling in both Puerto Rican dry and moist forests by telephoning colleagues on Puerto Rico on most survey nights, the possibility exists that my search coincided with a period of low calling activity in the Virgin Islands. However, my past experience with owls on Puerto Rico suggests that individuals of this species will almost always respond to taped calls if they are present.

On each island, I conducted surveys nightly between 1930 h and midnight (Table 1). This is the time of maximal calling activity for the populations on Puerto Rico (pers. obs.; C. Ruiz, pers. comm.). Surveys consisted of point counts where assistants and I stopped at pre-determined intervals (usually every 0.3 km, although if it was unsafe to stop at a particular site we drove ahead until a suitable area was found) and listened for owls. We drove between 17 and 33 km per hour to minimize engine noise and increase our ability to detect calls between points counts. At least one assistant aided every night, except on the night of 14 August when I conducted the survey alone. Assistants had prior experience in owl sampling methods.

Two approaches were used to detect this species. Aural surveys involved listening for calling owls at, and between, point stations. During playback surveys, I attempted to elicit responses by playing a taped territorial call from *O. n. nudipes* recorded on Puerto Rico. Playback recordings have been used effectively to survey nocturnal bird species such as owls (Johnson et al. 1981, Halterman et al. 1987, Bibby et al. 1993, Pardieck et al. 1996). The call was played continuously from a Sony stereo tape player for 8–10 min at each point station. (De Geus and Bowles [1991] recommended a sampling period of 10 min when surveying Eastern Screech-Owls, *Otus asio*). Calls could be heard up to 0.4 km from the tape player. My assistants and I were able to detect animal calls (e.g., dogs barking) from as far away as 0.75 km at some sites.

Although I did not record cloud cover and wind speed at the different sites, surveys were carried out during clear and calm conditions. However, Pardieck et al. (1996) found no correlations between these variables and calling activity of *Otus nudipes* on Puerto Rico.

I identified survey sites using three sources of information: areas identified by Virgin Islands Division of Wildlife personnel, by the staff of the U.S. Park Service on St. John and U.S. Fish and Wildlife Service personnel

on St. Croix; records of past sightings from the literature and personal communication with observers; and on-site evaluation of habitat. I qualitatively assessed habitats as being suitable for the owl if they possessed the following characteristics: large trees (native or introduced) with potential to form cavities (e.g., mango, ceiba, large palms, etc.) and a relatively well developed and moist understory. On Puerto Rico, sites with these characteristics appear to harbor the most owls (Biaggi 1983, Pardieck et al. 1996). *O. nudipes* is known to nest in cactus cavities in the Guanica Forest of Puerto Rico (R. Pérez, pers. comm.), but this behavior was never reported in the Virgin Islands. Although owls inhabit urban areas in Puerto Rico, and may do so in the Virgin Islands, I would expect their numbers to be low at these sites. However, to ensure thoroughness, I completed aural surveys within the main towns every other night. I stopped adjacent to randomly chosen wood lots and houses surrounded by dense vegetation for ten minutes, but did not play owl calls. These data points are not indicated in Table 1.

I interviewed local wildlife officials to assess whether they had seen or heard owls in the immediate past.

#### RESULTS

*Surveys.*—No owls were detected in any locality on the three sampled islands. I feel confident that all appropriate habitat was adequately surveyed and that the probability of having missed a calling owl was small.

*Interviews.*—I interviewed and played the call of the owl to experienced wildlife workers on each island. Not one individual had ever heard the call while doing field work. All agreed they would have remembered this unusual call if it had been heard.

After discussing D. Nellis's sightings of owls on St. Croix with him, we concluded that the observation pertains to *Asio flammeus*. The relatively large size of the owls he saw, their behavior (flying up from a grassy field to a stump and back to the ground) and the locality (a grassy field I visited) are not consistent with *O. nudipes*.

#### DISCUSSION

Although it is always difficult to state with certainty that a taxon is extinct, the available data strongly suggest the Virgin Islands Screech-Owl is extinct on St. Thomas, St. John, and St. Croix. Because the latter three islands contain the largest remaining patches of appropriate habitat within the historical range, the taxon is most likely globally extinct as well.

*O. nudipes* probably has not re-colonized these islands from Puerto Rico for one of two reasons. First, *O. nudipes* does not appear to be as good a disperser as the more widespread *A. flammeus* (Burton 1992). For example, while carrying out wildlife surveys in the small islands between Puerto Rico and the U.S. Virgin Islands, I have come across both breeding pairs and single individuals of *A. flammeus*, but never of *O. nudipes*. Alternatively, *O. nudipes* may reach the Virgin Islands but, for unknown reasons, cannot persist.

The Virgin Islands Screech-Owl most likely succumbed to the destruction of native forests in the latter part of the 19th century. Beginning in earnest after 1750, over 90% of the forest cover on each island was cleared for plantation crops, mostly sugar and cotton. This species requires old-growth trees with cavities in which to nest. Today, between 6–7% of the U.S. Virgin Islands are forested (Lugo et al. 1981).

The taxonomic status of *O. n. newtoni* is problematical, as the name was assigned based on only slight plumage color differences (Lawrence 1878). W. Arendt (1997, pers. comm.) has banded several different colored morphs of this species within a single forest in Puerto Rico, and I have observed owls with *newtoni* coloration in southwestern Puerto Rico. These observations suggest the subspecific designation is not valid. If a reevaluation of this species results in synonymizing the two taxa, efforts may be initiated to study the feasibility of re-introducing the owl to the Virgin Islands from Puerto Rico.

#### ACKNOWLEDGMENTS

I would like to thank the following individuals without whose help this study could not have been completed: Jorge Saliva of the United States Fish and Wildlife Service on Puerto Rico, David Nellis and Judy Pierce of the Virgin Islands Division of Wildlife, Tom Kelley of the National Park Service on St. John, and Mike Evans (USFWS) and his brilliant wife, Maggie, on St. Croix. Luis (Kentucky) Rodriguez, Carlos Ruiz and Mari Plaza Munet toiled long nights in all or some of the islands. Mary Pacheco of the Institute of Environmental Education (Metropolitan University) provided invaluable logistic assistance. Raul Pérez-Rivera, Wayne Arendt, C. Ray Chandler, and Jim Chase offered helpful suggestions that improved the manuscript. This study was funded by the U.S. Department of the Interior, Fish and Wildlife Service through grant number 1448-000-4-94-9152.

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Received 4 Feb. 1997; accepted 10 Jul. 1997.