

## The field identification of Black and Markham's Storm-Petrels *Oceanodroma melania* and *O. markhami*

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BLACK AND MARKHAM'S Storm-Petrels *Oceanodroma melania* and *O. markhami* are large, all-dark storm-petrels which occur, respectively, off-shore from California to northern Peru, and from Chile north to northern Peru (Murphy 1936, Palmer 1962). Even in the hand they are best separated on the basis of tarsus length (29–34 mm and 23.9–25 mm respectively), and are generally considered to be indistinguishable at sea (e.g. Crossin 1974). I had the opportunity to see both species during an oceanographic cruise which left Panama on October 30, 1977, worked off Chimbote, Peru, from November 5 to December 2, and which returned to Panama on December 8. I found that I could separate the two species quite easily from their flight characteristics.

Stallcup (1976: 123) notes that the flight of the Black "is deliberate and wingbeats are fairly deep and spaced reminiscent of the flight of the Black Tern ... the wings are raised definitely above the horizontal before each down-

stroke." This describes exactly the flight of the large black storm-petrels which I saw south to 00°41'N on the outward voyage and north of 07°00'N on the return. These birds flew with a slow, deep wing-beat whose arc extended from c.60° above to c.60° below the horizontal. At the bottom of the beat the wings seemed to curl in under the body a little. There was little gliding, even when following the ship.

By contrast the birds which I saw south of 03°34'S in early November, and of 00°46'S in early December spent much time in gliding, broken by short bouts of 3-4 rapid, *shallow* wing-beats whose arc never extended more than 20°-30° above or below the horizontal. The difference from the flight of the birds off Panama was very obvious. It was apparent in a comparable situation—when the birds were following the ship. Two birds which came on board off Peru had tarsal lengths of 24.1 and 26.0 mm—too small for Black Storm-

Petrels but within or very close to the range of Markham's (e.g. Murphy 1936).

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## DISTRIBUTION

### A second record for Black-throated Green Warbler in Puerto Rico

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ON FEBRUARY 4, 1980 at approximately 1430 hours, the author was birding in the company of Nancy Perez and Jorge Moreno at the Carite State Forest, in the southeast corner of Puerto Rico at some 600 m altitude. I observed and photographed in a man-made clearing in deep forest a Black-throated Green Warbler (*Dendroica virens*). The area is located some seven hectometers from the junction of state roads 179 and 184 on a paved road at the Carite Forest Reserve. The warbler was observed perching in the branches of a boxleaf eugenia (*Eugenia foetida*), 2 m above the

ground. The bird was silent, feeding and moving actively.

The only previous record of this species is of a specimen collected by W.W. Worthington of the Carnegie Museum at Pittsburgh, April 5, 1912, and reported by W.E. Clyde Todd (*Auk* 42:199,1925). This extremely rare migrant was unknown to Puerto Rico after 1912, although James Bond (*Birds of the West Indies* 1974, p. 193) considered it a common migrant to the West Indies.

Virgilio Biaggi (Las Aves de Puerto Rico 1974, p. 286) comments that all

citations regarding the existence of the species in the island make reference to the unique bird collected by Worthington at Adjuntas, Puerto Rico.

Parulids in the island number at present more than twenty species, including breeding birds and winter residents, with many more still to be discovered, with the continuous increase in birdwatchers and professional ornithologists in Puerto Rico.

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