

## ADDITIONAL RECORD OF THE BLACK-THROATED GREEN WARBLER IN PUERTO RICO, WITH SOME OBSERVATIONS ON FORAGING BEHAVIOR

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The Black-throated Green Warbler (*Dendroica virens*) ranges from eastern Canada to Colombia, including the West Indies where it is uncommon and restricted to the Greater Antilles (Clements 1978, Faarborgh & Terborgh 1980). The species is considered a rare winter migrant to the islands, occurring from mid September to early May (Leopold 1963, Molinares 1980, Bond 1985, Raffaele 1989). The Black-throated Green Warbler was first recorded (specimen collected) in Puerto Rico in 1912 at Adjuntas (Biaggi 1983). Since then, the species has been recorded from Carite State Forest and Caribbean National Forest (Molinares 1980, Wunderle *et al.* 1987). The warbler is a canopy dweller and it has been inferred that, because of this behavior, the species is not reported more frequently (Biaggi 1983).

On 12 February 1990, I observed three Black-throated Green Warblers at 960m in the Toro Negro State Forest. The birds were gleaning from the lower surfaces of the leaves of *Macgravia sintenisii* in the upper inner canopy on Sierra Palms (*Prestoea montana*). Of 27 foraging maneuvers, 21 (78%) were successful, defined here as a foraging bout that ended in bill wiping. Four Bananaquits (*Coereba flaveola*) were associated with the warblers, but foraged on a nearby (2m) Sierra Palm. These were gleaning, but from the empty panicles of the Sierra Palm. After 5 min of observation, the small mixed species flock left together to a location out of sight.

In Costa Rica *D. virens* prefers canopy and gleans insects from the upper and lower leaf surfaces (Stiles & Skutch 1989). In Panama the spe-

cies was observed ducking-under, clinging vertically, and hanging more frequently when compared with other studies conducted in Maine and North Carolina, showing marked geographical and seasonal variations in the foraging behavior (Rabenold 1980). In Costa Rica Black-throated Green Warblers have been observed alone, in intraspecific flocks up to 15 individuals, and/or feeding with mixed species flocks of small forest insectivores such as Brown-capped Vireo (*Vireo leucophrys*), Gray-headed Greenlet (*Hylophilus decurtatus*), Black and White Warbler (*Mniotilta varia*), Golden-winged Warbler (*Vermivora chrysoptera*), Tennessee warbler (*V. peregrina*), and the Townsend Warbler (*Dendroica townsendi*) (Stiles & Skutch 1989, Tramer & Kemp 1980). Tramer & Kemp (1980) also noted that Black-throated Green Warblers fed at virtually every height and used foliage as a foraging substrate proportionally to its availability.

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