

## ABSTRACT

Developing a Management Plan for the White-tailed Sabrewing (*Campylopterus ensipennis*) in the Main Ridge Forest Reserve, Tobago, West Indies

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The objectives of this study were to map the distribution, determine the habitat association and population size of the White-tailed Sabrewing in 2005-2006, and develop a management plan for the Sabrewing in Tobago. The distribution of the species has changed over the years. The majority of individuals now inhabit the eastern portion of the reserve (along Roxborough-Parlatuvier road), few individuals occur in Mt. Dillon, and they no longer occur in Hillsborough and Pigeon Peak. Elevation has a positive correlation ( $r_s=0.65$ ,  $N=16$ ,  $P=0.0065$ ) with the number of Sabrewings detected. Binary logistic regression showed a significant relationship of elevation ( $P<0.001$ ) but not plant species richness ( $P=0.77$ ) as a predictor of the presence of sabrewings. Chi-squared tests of association and Fishers' exact test between the Sabrewings and individual plant species showed an association between nine species: *Cecropia peltata*, *Podocarpus coriacea*, *Heliconia* sp., *Roystonea oleracea*, and *Licania biglandulosa*, identified in both tests, and *Rudgea hostmanniana*, *Inga venosa*, *Roystonea broinquena*, and *Hyeronima laxiflora*, identified by Fisher's exact test.

The movements of 43 marked Sabrewings among 16 mist-netting stations were observed. The after-hatch-year (AHY) stayed close to the station (0–150m) where they were initially captured, whereas the hatch-years (HY) had a longer dispersal distance  $>150$  m. One-way ANOVA showed significant variation in mean distance moved (km) between captures per individual between female, male, and HY birds ( $P < 0.001$ ). Tukey simultaneous test showed no significant difference ( $P > 0.05$ ) in the movement of the sexes. However, there was a significant difference ( $P < 0.05$ ) in the movement of the age groups. Using the distribution patterns and dispersal distances we estimated that the Sabrewings inhabit 2467 ha (24.67 km<sup>2</sup>) of the reserve.

208 individuals were marked, 43 were recaptured and 218 point counts were sampled. Data showed a 1:2 male ( $N=71$ ) to female ( $N=137$ ) ratio and 1:2 HY ( $N=64$ ) to AHY ( $N=144$ ) ratio. Mark-recapture data was analysed using two closed population methods; Schnabel 1938 and Schumacher and Eschmeyer 1943. The estimated population size is (2,116-2,302) individuals. Using point count data, DISTANCE estimated a density of 2-3 Sabrewings per ha, giving a population of (4934–7401). There are less than 10,000 mature individuals; the status must remain as near-threatened. It is therefore necessary that the population is managed and conserved.

Key words: distribution; dispersal; population estimate; elevation; hatch-year; after-hatch-year; globally near threatened; point counts; mark-recapture.