

## Bermuda Skink Project

The BHS student grant was awarded to Heléna Turner in 2017 to assist with field equipment, particularly PIT tags needed for her Ph. D research on the critically endangered Bermuda skinks (*Plestiodon longirostris*).

This study has been assessing the distribution, abundance and status of the Bermuda skinks. It represents the most comprehensive review and long-term surveying of this species to date. Once common throughout Bermuda, skink populations have been declining since 1965 due to several factors including habitat loss and fragmentation, anthropogenic activities and the introduction of multiple invasive species (Glasspool & Outerbridge 2005).

Using one-gallon glass jars as traps and a small amount of cheese or rotten fish as bait, island wide surveys were undertaken between 2015-2017. Skinks were present at 12 sites (31.6%) of those surveyed and 95.6% were found in the east of the Island within Castle Harbour, confirming that in the event of a hurricane the population is extremely vulnerable.

A total of 253 individual skinks were marked with PIT (Passive Integrated Transponder) tags that were captured and subsequently recaptured 1078 times. The tags are not only useful for short term on the mark-capture-recapture aspect of the study but will be beneficial for the long term by providing an insight into the population dynamics such as growth and survival rates for the first time with this species.

By evaluating the efficiency of a capture–mark–recapture population estimation method and robust-design model we are able to monitor trends in abundance, density, survival and capture probabilities. We found the robust-design model provided precise estimates of abundance ( $N \pm SE$ ) at the two largest Bermuda skink sub-populations were  $258 \pm 4.5$  on Southampton Island and  $157 \pm 4.4$  on Castle Island.

Overall, we found the populations did not appear to be stable and fluctuated at both sites over the 3-year period. As a result, we found that reliable trapping estimates can provide accurate early-warning signals in advance of the decline of the breeding population, so action can be taken in time to ensure populations remain stable.

As a result of island wide surveys, skinks were also found on North Cock Rock and South Cock Rock for the first time (Turner. 2017) and for the first time we observed 2% of individuals had bifurcated tails that were captured on island populations most likely the result of increased predation (Turner *et al.* 2017).

Our results emphasize the importance of estimating reliable population parameters that can provide timely insights into population trends and the mechanisms driving them, which has important implications for the future conservation and research effort, to help prevent extinction.

Further analysis is currently being conducted to see if sub-populations are morphologically or genetically distinct. The data collected from this study will be vital to be able to assess the current size and status of the population that will be used to inform conservation management and used in the implementation of future monitoring programmes.

## References

Glasspool, A., and Outerbridge, M. (2005). A population re-survey of the Bermuda skink, *Eumeces longirostris cope* (1861), on Southampton Island. (Bermuda Zoological Society: Bermuda).

Turner, H., Griffiths, R., Garcia, G., & Outerbridge, M. (2017). Natural History Notes: *Plestiodon Longirostris* Bermuda Skink Tail Bifurcation. *Herpetological Review*, 48(1), 198-199.

Turner, H (2017). Geographic Distribution Notes: *Plestiodon Longirostris* Bermuda Skink. *Herpetological Review*, 48(4), 812.



Figure 1. Adult Bermuda Skink (*Plestiodon longirostris*).



Figure 2. Skinks caught in pit fall trap (under licence from the Government of Bermuda).



Figure 3. Taking various morphometric measurements.



Figure 4. Bermuda Skink Hatchling caught on Castle Island.



Figure 5. Pit Tagging a skink on Nonsuch Island.



Figure 6. Reading the individuals unique PIT tag number.



Figure 7. Bifurcated Tail observed in Southampton Island Skink.