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**DEMOGRAPHY AND CONSERVATION OF THE  
FLOREANA RACER (*Pseudalsophis biserialis*  
*biserialis*) ON GARDNER-BY-FLOREANA AND  
CHAMPION ISLETS, GALÁPAGOS ISLANDS,  
ECUADOR**

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Master of Natural Science



## ABSTRACT

The Floreana Racer (*Pseudalsophis biserialis biserialis*) is a medium-sized colubrid endemic to the islets of Gardner-by-Floreana and Champion off the coast of Floreana Island, in the South of the Galápagos Archipelago. The subspecies was historically abundant on Floreana Island, as indicated by sub-fossil remains, however it has since been extinct there since the late 1800's as a result of the effects of large-scale habitat modification, fires and the introduction of rats and cats. I conducted the first field study on the population size, inter-island morphological variability and the diet of the Floreana racer on the two islets where the species occurs as a first step towards the translocation of Floreana racers to Floreana Island. Fieldwork took place over 30 days between November 2015 and January 2017. With the assistance of eight colleagues and volunteers I conducted daylight searches for Floreana racers yielding a total of 123 individuals, 20 on Champion and 103 on Gardner-by-Floreana. Of these 119 individuals were marked with unique PIT-Tags. I also conducted a mark-recapture estimate of population size on both islets based on 17 recaptures. The resulting estimate of the global population of the subspecies is approximately 3088 individuals (Champion 209 snakes; Gardner-by-Floreana: 2879 snakes). I also investigated the diet of Floreana racers via analysis of faecal samples from 29 individuals. The most common prey items are lava lizards (*Microllophus grayii*), followed by the Floreana gecko (*Phyllodactylus baueri*). Lastly I discuss the conservation status of the subspecies and future areas of research and management to advance the knowledge, and conservation status of the Floreana Racer.

## RESUMEN

La culebra de Floreana (*Pseudalsophis biserialis biserialis*) es una colúbrido de mediano tamaño endémica a los islotes de Gardner-por-Floreana y Champion, cerca de la costa de Isla Floreana, en el sur del Archipiélago de las Galápagos. Esta subespecie era abundante históricamente en la Isla Floreana, como lo indican restos sub-fósiles. Sin embargo, se extinguió en Isla Floreana a finales de los 1800's como resultado del efecto combinado de modificaciones de hábitat a nivel de paisaje, fuegos, y la introducción de ratas y gatos. Lleve a cabo el primer estudio de campo sobre el estado poblacional, variabilidad morfológica entre islotes y la dieta de la culebra de Floreana en los islotes mencionados, como un primer paso hacia la reintroducción de la especie a la Isla Floreana. La colecta de datos se llevo a cabo durante 30 días en campo entre Noviembre 2015 y Enero 2017. Con la asistencia de ocho colegas y voluntarios, lleve a cabo búsquedas de culebras durante las horas del día, que resultaron en la captura de 123 individuos (20 en Champion y 103 en Gardner-por-Floreana). De éstos, 119 individuos fueron marcados mediante la implantación de "PIT-Tags". Lleve a cabo una estimación poblacional basada en marcaje-recaptura en ambos islotes en base a 17 recapturas. El estimado poblacional global es de 3088 individuos (Champion: 209; Gardner-por-Floreana: 2879). También investigue la dieta de la culebra de Floreana. Las presas mas comunes fueron las lagartijas de lava (*Microllophus grayii*) y el gecko de Floreana (*Phyllodactylus baueri*). Finalmente, presento una discusión sobre el estado de conservación de esta subespecie y áreas para investigación futura.

## DECLARATION

The research presented is part of a larger research project on Galápagos Terrestrial Snakes developed since 2015 by my supervisor Dr. Luis Ortiz-Catedral. Dr. Ortiz-Catedral allowed me to execute this project following approved protocols by the Ministry of Environment, Ecuador via the Directorate of the Galápagos National Park. Dr. Ortiz-Catedral coordinated all the logistical support necessary to complete this investigation, and also obtained the relevant permissions for accessing study sites. Dr. Ortiz-Catedral and I jointly prepared funding applications to cover the costs incurred during this investigation. Said funds were obtained from the Mohamed bin Zayed Species Conservation Fund, Auckland Zoo Conservation Fund, Rufford Small Grants Program and Galápagos Conservation Trust. The ideas about the components of this thesis were discussed between my supervisor and I prior, during and after fieldtrips. Dr. Ortiz-Catedral provided all the supervision necessary for the development of this project, the analysis of results and the elaboration of the final document. I assume all responsibility for mistakes or omissions present in this document.

Eli J. Christian

Auckland, New Zealand, 31<sup>st</sup> July 2017

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