

The Citizen Scientist Survey of Large Coleoptera on Lord Howe Island, August 2019

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ABSTRACT. A survey of large beetles, 1 cm or more in length, on Lord Howe Island was conducted by the Australian Museum in August 2019, with the help of citizen scientist volunteers. Twelve areas were sampled and the results are discussed. The survey was in late winter, a generally poor time for beetle activity, but 23 large species were found. The large beetle fauna of Blackburn Island is reviewed.

Introduction

Lord Howe and its offshore islands are listed as a World Heritage Site (Anonymous, 2018), and have a highly diverse and endemic flora and fauna. This fauna includes at least 535 species of Coleoptera, most of which are endemic to the archipelago (Cassis *et al.*, 2003; Reid, pers. obs.). The vast majority of these beetle species are small, less than 6 mm. in length, and have therefore been poorly sampled and poorly treated taxonomically in historical surveys of the beetle fauna, as reported by Olliff (1889) and later authors. On the other hand, beetles 1 cm. or more in length are generally well-collected and well understood taxonomically. From a biodiversity monitoring perspective, this group of beetles is the best for sampling as it has the best historical record. There are approximately 75 species of Coleoptera on Lord Howe with body length at least 1 cm.

A survey of these large beetles was made by a team including citizen scientists in 2018, with interesting and useful results (Reid & Hutton, 2019). This review reports the results of a second similar survey, conducted in 2019 to obtain further baseline data on the distribution of large beetles immediately prior to the eradication of rodents, in late 2019 (Anonymous, 2020). The justification and methodology have been described in our account of the 2018 event (Reid &

Hutton, 2019). In brief, the highly diverse and endemic flora and fauna, is threatened by introduced rodents, particularly black rats (Hutton *et al.*, 2007). The rats have eliminated or severely reduced populations of several large insects from the main island including many beetles (Reid *et al.*, 2018a; Reid & Hutton, 2019) but have failed to invade the small offshore islets. In 2019 an intensive rodent baiting programme was undertaken, from April to October, covering the entire island (Anonymous, 2020).

As in 2018, interested members of the public were recruited for the beetle survey, with our guidance, to provide extra eyes and hands. They were provided with some training in search techniques and some information on identification of some of the commoner species. These surveys of large beetles will provide a baseline for determining the effects of rodent eradication on this large group of organisms, most of which are endemic to Lord Howe.

The 2019 event was similar to that of 2018 in concept and practice, but differed in that it was advertised two months in advance, it took place a month later in mid August, and the second author was largely unable to participate due to illness. Instead, the third author, local islander and keen entomologist Saxxon Thompson, was recruited as a guide, when he was not engaged in rodent baiting. In addition, Ewan Reid provided support for the first author.

Keywords: Lord Howe Island; Blackburn Island; Coleoptera; conservation; citizen science

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