

Land Snails from Norfolk Island Sites

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ABSTRACT. Fourteen sequences of land snails were sampled by corer from the Emily Bay settlement site and four from Cemetery Bay. Thirty-nine samples of modern land snails were collected from six environmental zones on Norfolk Island. The modern fauna is depauperate compared to the prehistoric one, with loss occurring mostly among the larger species. We suggest this is due first to predation by *Rattus exulans* introduced by prehistoric Polynesians and later to habitat loss following European settlement. We consider we cannot use the land snail data to make any interpretation of direct human impact on the Norfolk Island environment. We note however that the density and diversity of snails is high in the prehistoric cultural layer and below it, showing that the settlement area probably provided a more vegetated and wetter environment for the earliest settlers than is now present.

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The aim of this research was to use the land snail fauna to investigate the effects of the Polynesian settlement at Emily Bay on the local environment. We reasoned that a settlement of the extent revealed by the excavations was likely to have caused at least local changes through brush clearance, tree felling, burning, building, gardening, refuse disposal and the like. These changes would, perhaps, have had their greatest effects amongst animals of low mobility, some species of which might also be assumed to be restricted environmentally. Land snails seemed to be appropriate.

Methods

The research was carried out in three stages. Bulk samples of landsnails from Trench EB96:10 were submitted to WP in 1996. At the end of fieldwork in 1997 DN and PW took six grab samples of sand, each of c. 1 kg, from various trenches of the Emily Bay excavations. Three samples came

from sands above the cultural layer and three from the fine yellow sand below. The samples were wet sieved through 2 and 1 mm sieves at the Archaeological Materials Laboratory (AML), University of Sydney and dried. The land snails were sorted into apparent species, the results being checked by Stephanie Clark of Invertebrate Identifications Australasia. Final results are in Table 1, which shows that only three of the 12 identified species are common to levels above and below the prehistoric occupation. Seven species are found only below the cultural layer and two only above it. One species (*Omphalotropis albocarinata* Mousson, 1873) dominates, providing more than three-quarters of the total number.

Despite the dramatic nature of these results, we considered that they might be flawed in several ways. First, since they were grab samples, sample sizes were only approximately similar. Next, our initial processing methods were experimental and certainly resulted in the loss or