

Terrestrial Ecology of Kapingamarangi Atoll, Caroline Islands

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# TERRESTRIAL ECOLOGY OF KAPINGAMARANGI ATOLL, CAROLINE ISLANDS\*

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## INTRODUCTION

During World War II many of our operations in the Pacific Islands brought out a lack of information on atoll ecology. Therefore, an extensive series of environmental investigations was undertaken in Micronesia from 1950-1954 with teams of investigators studying various atolls—Arno in the Marshalls, Onotoa in the Gilberts, Ifaluk and Kapingamarangi in the Carolines and Raroia in the Tuamotu Archipelago (Polynesia). The aim of these studies was to analyze the physical and biological environment of different atolls and to assess their economic potential. This report presents one facet of these studies; namely the work of the land ecologist in describing and interpreting the vegetation and associated fauna on Kapingamarangi. It is considered a preliminary work which, it is hoped, may serve as background for more intensive studies on atolls. This atoll was selected because it is isolated, and because it represented a Polynesian outlier in Micronesia where previous anthropological studies

had been undertaken (Eilers 1934, Buck 1950, Emory 1954). Previous ecological observations have been limited to those of Emory (1954) made in conjunction with a study of the people, Miller (1953) made during a survey of health conditions, and Fosberg (1946) made during a brief reconnaissance of the vegetation.

Kapingamarangi, also known as Greenwich Island, is located in the southeastern Caroline Islands just north of the equator (Lat. 1° 05' N Long. 154° 45'E). The nearest land is Nukuoro, 164 nautical miles northward. The pear-shaped reef which encloses the lagoon, with the exception of a narrow pass, is 8 statute miles in a southeast to northwest direction and 6.3 mi. in width from north to south (Figs. 1, 2, 3). The 33 islands are all located along the eastern or windward side of the reef. Although the islands vary from .03 of an acre to 79.5 acres in size, over half of them are less than 3.5 acres. The smallest, Matukerekere, is 100 by 20 ft—a mere dot of sand and rubble, whereas the largest, Hare, is 1.29 mi. in length. In width the islands range from 20 to 1,000 ft (Werua). The total land area comprises approximately 276 acres or 0.42 sq mi.

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