

## VI. ATOLL RESEARCH IN ZOOLOGY - LAND AND MARINE

The land species of atolls constitute a depauperate fauna of very few species dependent on the attainment of this isolated habitat after its formation as land, and upon the tolerance of such species for any habitats to be found upon atolls. The land species are mainly concerned with the forest ecology of leaf mold accumulation; such species as the minute land snails, for example. A second group is useful in the reduction or elimination of insects bothersome to man or to his efforts in agriculture. The small lizards belong to this group. The third group, some of which are scavengers of the atoll economy, may be, and are used in some cases for food by the atoll inhabitants. For example, the small rats may help support the cats, dogs, and swine of the natives. The large Coconut or Robber Crab, and birds and bird eggs are usually a direct source of food for the inhabitants.

The marine species of animals found in and around coral atolls are far less restricted than the land faunas, yet form a reduced fauna in comparison with that of continental or high-island habitats in the same geographic areas. The invertebrate animals particularly are of major importance in supporting the planktonic and benthic pyramids of food supply derived from the Ocean by the atoll inhabitants. Certain forms, such as the larger crustacea (Crabs & Spiny Lobsters), Mollusks (Clams & Oysters) are eaten directly. The many other species serve to help the growth of the vertebrate food supply that is the major direct food crop derived from the oceanic waters surrounding the atoll and filling the lagoons. Fish probably constitute the major portion of this crop on all atolls. Of secondary importance for food are the Sea Turtles, and the group of Porpoises; secondary because only captured occasionally. The birds, sometimes seasonally cropped from their rookeries, are usually Sea-birds, fed from the Ocean.

From a very hasty survey, one may say that most of our present knowledge of the Zoology of Coral Atolls is a widely scattered series of isolated faunal studies. That is, the great majority of this scanty knowledge is simply the determination of what species may be present in a particular closely circumscribed area. In the past there has been less time or inclination to study the ecology of species critically, except of course in the case of a few commercially valuable animal products, such as the Oceanic Pearl Shells.

Coral Reef and Atoll studies in Zoology include more or less complete faunal studies at: Tur (Red Sea); Mahebourg (Mauritius); Mascarene Ids; Maldive Ids; Laccadive Ids; Andaman Ids; Nicobar Ids; Cocos-Keeling and Christmas Ids; Port Galera (Philippines); Mariana Ids; Solomon Ids; Great Barrier Reef (Australia); Marshall Ids; Funafuti (Ellice Ids); Phoenix Ids; Fiji Ids; Rose Atoll (Samoan Ids); Tuamotu Ids, Rangiroa, Napuka, and Nganati; Marquesas Ids; Palmyra & Fanning Ids; and Pearl and Hermes Reef, Laysan, and other islands in the Hawaiian group.

Atoll Research in Zoology must include the study of animal species present, in relation to their relatives throughout the entire Indo-Pacific Region (and even in some groups the Atlantic also), before we can fully evaluate each species. It is only by study of the species on and away from atolls, that we may discover facts about each species concerned, to help in any program of development. This is true, whether it be a program of development of greater food supply for the inhabitants, or of improving the yield of such commercial products as Pearl Shell or the Watch & Instrument Oils derived from Porpoises and Dolphins. Ecological studies must be built on an absolutely biologically accurate foundation of species determination.

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