

In 1992 the Hawaii State Legislature established a biological survey at Bishop Museum, Hawaii's Museum of Natural and Cultural History. The survey conducts an ongoing natural history inventory of the archipelago and locates, identifies, evaluates, and maintains the reference collections of all native and non-native species of flora and fauna within the state. The survey works in cooperation with other agencies, including the Hawaii Heritage Program, various state agencies, and the National Biological Service.

More than 14,000 terrestrial, 300 freshwater, and 4,000 marine species inhabit Hawaii (Table 1). Bishop Museum maintains the world's largest biological collections for Hawaii (ca. 4,000,000 specimens; Table 2). Through the Hawaii Biological Survey program, and in cooperation with many partner organizations, the museum is organizing information from these collections and associated literature into comprehensive computerized data bases and conducting field surveys to document distributions of these organisms. The resulting information base

Table 1. Terrestrial and freshwater plant and animal species in Hawaii. In addition, another 4,000 marine organisms inhabit Hawaiian waters. Species at risk include those on the federal lists of endangered, threatened, and candidate species (not including marine).

Taxon	Species (no.)	Endemic (%)	Species at risk
Lower plants	>1,800	Few	0
Higher plants	2,143	44	359
Nematodes	>147	Few	0
Mollusks	1,100	95	60
Insects and mites	>8,800	>60	340
Fish	>25	24	1
Amphibians	4	0	0
Reptiles	13	0	0
Birds	131	43	35
Mammals	19	5	0
Total	>14,182		795

Hawaii Biological Survey

by

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has many applications in conservation, agriculture, forestry, public health, fisheries, and land management.

In 1992 and 1993, the Hawaii Biological Survey:

- published a summary list of the more than 8,600 species of Hawaiian insects and related arthropods;
- produced a catalog of Hawaiian land snails, including nearly 1,000 species;
- continued progress on the book series *Reef and Shore Fauna of Hawaii*, with another volume nearing completion; and
- began a collaborative project with the Smithsonian Institution and local agencies to create a data base of specimens of Hawaiian plants. Other plant projects in progress include a manual of cultivated plants in Hawaii (2,500 species treated in detail, with an additional 10,000 species evaluated); a manual of marine algae; and an updated, electronic bibliography of Hawaiian plants.

A five-stage process was developed to implement the biological survey. For each major group of plants and animals, the process involves developing a computerized literature data base; preparing summary lists of species names (checklists) based on the literature, col-



Courtesy D. Polhemus, Bishop Museum

Megalagrion pacificum, a damselfly in a genus endemic to the Hawaiian Islands.

lections, and consultation with experts; creating a data base of specimen information in our collections; creating data bases of information from other collections and other sources or establishing computer linkage to this information; and filling gaps and updating information through field surveys.

Table 2. The comprehensive collections of Bishop Museum are a core resource for the Hawaii Biological Survey. This chart indicates the relative sizes of the Hawaiian collections, plus related materials from the Pacific region and elsewhere that provide the context for understanding the Hawaiian biota.

Group	Hawaiian collections	Total collections	%
Plants (including algae, etc.)	175,000	500,000	35
Marine invertebrates	250,000	500,000	50
Mollusks	3,000,000	6,000,000	50
Insects and mites	500,000	13,000,000	4
Fish	15,000	130,000	12
Terrestrial vertebrates	20,000	85,000	24
Library		100,000	
Archives		1,100,000	

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