

# Digitization Initiatives at the Bishop Museum



**Shelley A. James & Bishop Museum Natural Science Staff  
& many volunteers**



# Bernice Pauahi Bishop Museum



Hawaii  
Biological  
Survey



- Established in 1889
- World's largest biological collections from the Pacific region (more than 22.3 million specimens)
- Organizer of more than 100 major biological survey expeditions in Hawaii and throughout the Pacific
- 1988: designated as the Hawaii State Museum Natural and Cultural History
- 1992: designated as the ***Hawaii Biological Survey***
- 1998: established the ***Pacific Biological Survey***

[www.bishopmuseum.org](http://www.bishopmuseum.org)





Micronesia 2013-02, 1-61


**Bibliographic checklist of the marine benthic algae of Central Polynesia in the Pacific Ocean (Excluding Hawai'i and French Polynesia)<sup>1</sup>**

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**Abstract**— The Polynesian algal bibliographic checklist is based on records from past references for American Samoa and Samoa (380 spp.), Cook Islands (111 spp.), Johnston Atoll (190 spp.), Line Islands (250 spp.), Niue (3 spp.), Phoenix Islands (193 spp.), Pitcairn Islands (23 spp.), Tokelau (1 sp.), Tonga (109 spp.), Wake Atoll (121 spp.) and Wallis and Futuna (191 spp.) and consists of three sections. The first

**HAWAIIAN  
 TERRESTRIAL  
 ARTHROPOD  
 CHECKLIST**

Second Edition



Editor  
 Gordon M. Wood



# *Herbarium Pacificum:* Types and rare specimens

- approx. 10,300 Type specimens; 47% Hawaii, 16% Polynesia, 6% New Guinea & Solomon Islands, 7% Fiji, 2% Micronesia
- 17,500 specimens of the > 1,000 extinct, endangered, and threatened species in Hawaii
- Historical collections, including Nelson's collections from Capt. James Cook's third voyage
- Submission of data and barcoded images to JSTOR Global Plants ([plants.jstor.org](http://plants.jstor.org))

# New Guinea floral biodivers



- 33,100 specimens databased & imaged from Papua New Guinea and Indonesian New Guinea
- Expeditions providing new collections; digital field images online; tissues for molecular studies
- Online checklist of Papuan flora
  - more than 13,200 accepted taxa
- Bibliography of published and grey literature (ca. 7,000 records)
- Specimen backlog incorporated into collections
- Repatriation of New Guinea data to PNG Plants

([pngplants.org](http://pngplants.org))

[obs.bishopmuseum.org/papuanplants](http://obs.bishopmuseum.org/papuanplants)

[png-bpbm.smugmug.com](http://png-bpbm.smugmug.com)

[nsdb.bishopmuseum.org](http://nsdb.bishopmuseum.org)





# Pacific Collections

- Collaboration between Bishop Museum, National Tropical Botanical Garden, University of Hawaii, and 17 other Pacific herbaria

Consortium of Pacific Herbaria  
([www.pacificherbaria.org](http://www.pacificherbaria.org))

- Digitization of collections from the Polynesia Micronesia Hotspot
- As of 2014, more than 304,500 records databased, 90,000 images
- Curation of collections by visiting specialists



# Current number of BPBM digitized botanical collections

Total: 304,523



**Specimen Database Entry**

Sheet Number

Taxon Name

Accession Number

Collector

Collector Number

Collection Date  to

Locality

Latitude  Degrees  Min  Secs

Longitude  Degrees  Min  Secs

Elevation

More Info on Label?

**Enter NEW Specimen Record**

<b>Northern Polynesia</b>	<b>201,664</b>
Hawaii	194,440
Republic of Kiribati	2,820
Tokelau, Tuvalu	147
U.S. Administered Islands (Polynesia)	4,284
<b>Micronesia</b>	<b>37,215</b>
CNMI	6,658
Federated States of Micronesia	12,698
Republic of Nauru	123
Republic of Palau	6,140
Republic of the Marshall Islands	5,398
Guam	6,173
<b>Western Polynesia</b>	<b>19,768</b>
American Samoa & Samoa	11,018
Niue	1,127
Norfolk Island	17
Tonga	4,031
Wallis and Futuna Islands	515
<b>Eastern Polynesia</b>	<b>34,052</b>
Cook Islands	2,221
French Polynesia	30,351
Pitcairn Islands	1,094
<b>Melanesia</b>	<b>52,512</b>
Fiji	11,824
Indonesian & Papua New Guinea	33,089
Vanuatu	749
New Caledonia	3,554
Solomon Islands	2,885



# Macroalgae (TCN)



- Digitization of 79,000 specimens
- Primarily from Hawaii and Pacific
  - 40% Hawaii
  - 14% Continental US, Territories, Canada & Mexico
  - 10% Polynesia
  - 13% Micronesia
  - 22% Other
- Collected over the past 250 years
- 35% from the past 50 years
- Collections of more than 1,500 phycologists







# Entomology: Tri-Trophic TCN

- **94,000 Hemiptera in collections**
- **29,169 specimens to be barcoded and databased**
- **~60% complete**



# Other BPBM collections

<b>Collection</b>	<b>No. objects</b>	<b>Databased</b>	<b>%</b>
Botany	750,000	415,615	55
Ichthyology	41,171	41,171	100
Malacology	283,786	278,809	98
Vertebrates	233,956	97,124	42
Invertebrates	35,852	33,846	94
Entomology			
• Types	17,790	17,790	100
• Beetles & Flies	126,184	126,184	100
• Other specimens	14,000,000	68,643	0.1
PCMB	11,700	11,700	100



# Mobilization of collections data

## Bishop Museum's online collections portal

- 842,000 specimen records available online
- Conversion of online collection databases to live data (vs. snapshot data)
- Creation of RESTful services to better support biodiversity data aggregators
- Pages now have persistent, globally unique addresses instead of technology dependent parameter

IRI s

*nsdb.bishopmuseum.org*



# A Global Names Architecture

