



Pacific Basin Information Node

PBIN Taxonomic Service

Taxonomic information helps to establish a baseline of what species are present in an area and their role in the environment.

Background

The Pacific Basin Information Node (PBIN) is a regional node of the U.S. National Biological Information Infrastructure (NBII). That means that PBIN collects information and provides products and services to address questions related to biodiversity in the U.S. Pacific. Led by the Bernice Pauahi Bishop Museum, an online taxonomic service is being developed to help users identify species or to locate other information related to a particular species.



Taxonomy is the science of classifying living things. Taxonomic information allows us to name an individual organism and determine its relationship to other organisms and its environment.

The Importance of Taxonomy

Taxonomic information is important in three ways: it provides a name for an organism; it helps to establish a baseline for what species are present in a particular area; and it helps to define the role organisms play within the environment.

As the poet said, "What's in a name?" Naming a species is critical to science and management. A name provides a label for a species much like a person's name helps to label that person. Once a species is labeled, the name can be used to refer to that particular species or to link that species to particular characteristics or locations that are associated with that species. The name also provides a link to other pieces of information about the species.

Once species have been named, they can be identified, studied, and mapped. Lists of species can be compiled for a place. Such species lists become a baseline for what is present in an area and helps to suggest relationships with other species in the area and the respective roles each may play in the environment. As we begin to identify the species present, their relationships, and their respective



Frigatebird silhouetted by Laysan sunset.

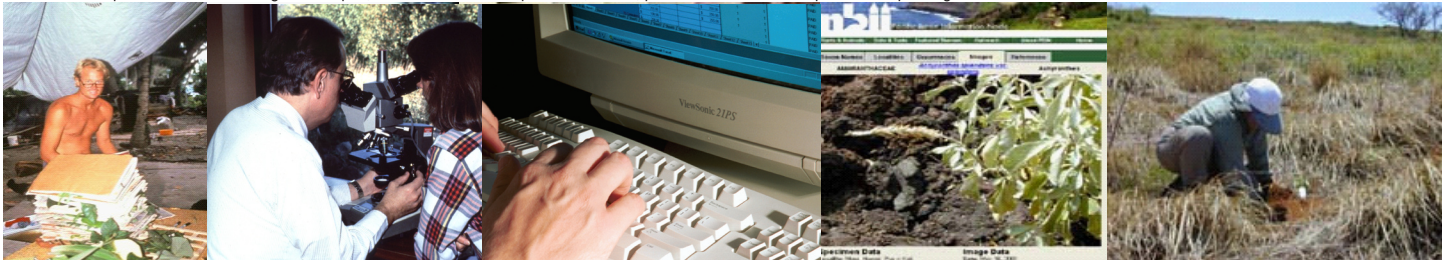
Photo credit: Angela K. Kepler

role in the ecosystem, forecasts can be made regarding the current health of an area as well as suggestions for what management actions would be effective in maintaining or improving the area.

Utility of Collections

Museum collections are aggregations of organisms that have been collected over many years. These collections are a valuable resource because they become the raw material used for the study of taxonomy and they also provide the reference material for other researchers seeking to study a particular species. Information about past biodiversity informs current scientific studies as hypotheses are generated and tested based on what was present in the past and what occurred from that time forward.

Photo credits: specimen collection - Angela K. Kepler; scientists at microscope - BRD, USGS; photo in online screen capture and replanting - Forest and Kim Starr



From left to right: sp

These data can also help conservation and restoration efforts by providing key information related to species, climate, and other matters. In addition, the service can also serve as an entertaining educational tool for K-12 science classrooms.

The Taxonomic Service

The service integrates large existing data sets and provides tools for searching, summarizing, and analyzing patterns as they are represented by these data. The tools include dynamic distribution maps (in conjunction with PBIN's Web GIS service), up-to-the-moment species checklists for particular areas, and image analysis tools, among others.

These data were obtained or generated from the Hawaii Biological Survey



Data collections help us better know what species were present, which helps us better understand what species are there now, and forecast what may be in the future. Availability of this information and analytical tools enables informed decision-making for biodiversity management efforts.

The taxonomic services page gives users online access to:

- valid scientific names,
- lists of species by location (e.g., organisms from Fiji),
- lists of locations of species (e.g., all locations of angelfish),
- images of specimens, and
- species bibliographies.

(HBS) and the Pacific Biological Survey (PBS), as well as from other PBIN partner organizations. This compilation of data will represent a comprehensive “Digital Encyclopedia” for Pacific biodiversity information. This encyclopedia will cater to information needs from a wide variety of users and will conform to emerging international data standards, ensuring broad-scale interoperability and accessibility.

The Future

Future efforts will strive to improve service to users by implementing Web-based keys for easy-to-understand image-based identification guides. This will allow for the automated creation of species checklists and related bibliographies for islands. The service will also support the emerging

interest in conducting “All Species” surveys of the state, U.S. territories, and other Pacific Islands. This was a critical need identified by members of both the regional Global Taxonomy Initiative program, as well as the Pacific Islands Roundtable.

For More Information

Dr. Mark Fornwall
NBII/PBIN Node Manager
Phone: 808-984-3724
E-mail: mark_fornwall@usgs.gov

Dr. Richard Pyle
Bishop Museum
Phone: 808-848-4115
E-mail: deepreef@bishopmuseum.org

Find Taxonomic Services at:
<<http://pbin.nbii.org/taxonomy/index.html>>.

The National Biological Information Infrastructure (NBII) <www.nbii.gov> is a broad, collaborative program to provide increased access to data and information on the nation's biological resources. The NBII links diverse, high-quality biological databases, information products, and analytical tools maintained by NBII partners and other contributors in government agencies, academic institutions, non-government

organizations, and private industry. NBII partners and collaborators also work on new standards, tools, and technologies that make it easier to find, integrate, and apply biological resources information. Resource managers, scientists, educators, and the general public use the NBII to answer a wide range of questions related to the management, use, or conservation of this nation's biological resources.