

Collecting experiences in Melanesia - best practices for efficient digitization

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iDigBio is funded by a grant from the National Science Foundation's Advancing Digitization of Biodiversity Collections Program (Cooperative Agreement EF-1115210). Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation. This work was also supported by NSF grants DEB-0950207 and DBI-1057453, and CEPF.

Minimum data fields needed for biodiversity aggregators?

Darwin Core

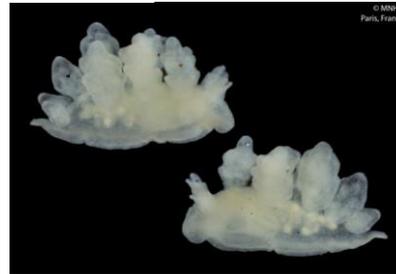
- recordID
- occurrenceID (unique!)
- scientificName
- **eventDate**
- **recordedBy** (ORCID!)
- **Field/collector number**
- **Locality information**
 - eventID
- catalogNumber
- institutionID
- collectionID
- Geological Context

Audubon Core

- recordID
- occurrenceID of specimen
- URL
- Camera EXIF
- photographer

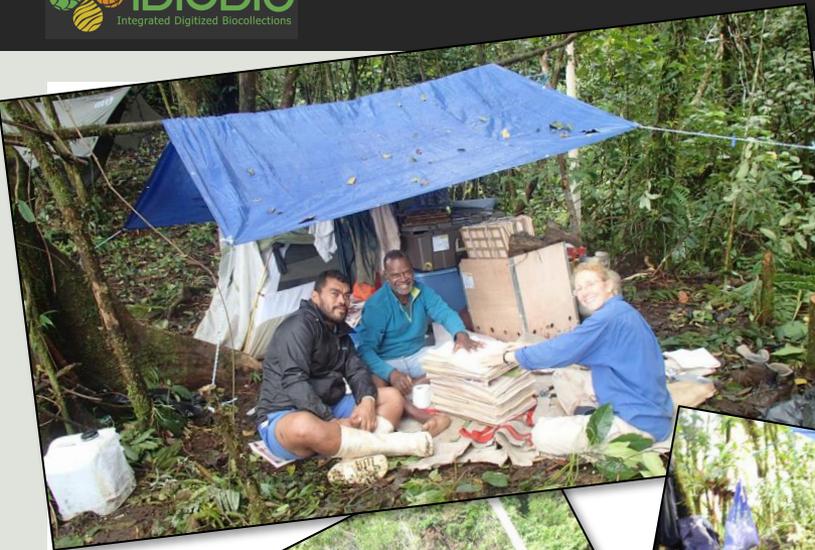
Metadata

- Institution
- Collection
- Contact & info
- Description
- URL



Valevahalo (base) camp, Guadalcanal







Locality (incl. state/region)

Lat.	N / S	Long.	E / W	Error	m
Frequency				Altitude	m
Habitat (substrate/host/assoc. species)				Aspect	
				GPS	
				<input type="radio"/> WGS84 (=GDA94)	
				<input type="radio"/> Other	

Habit (bark, wood)

Habit (leaves)

Flowers/Sori

Fruits

Notes/Local names

Field det.

Collector

Collection team

DNA

Images

Seed

Live coll.

Alcohol

Not pressed

Unicate

Date . . . 20

No. SAJ





Locality (incl. state/region)

Lat.	N / S	Long.	E / W	Error	m
Frequency				Altitude	m
Habitat (substrate/host/assoc. species)				Aspect	
GPS					
<input type="radio"/> WGS84 (=GDA94)					
<input type="radio"/> Other					

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Date . . . 20

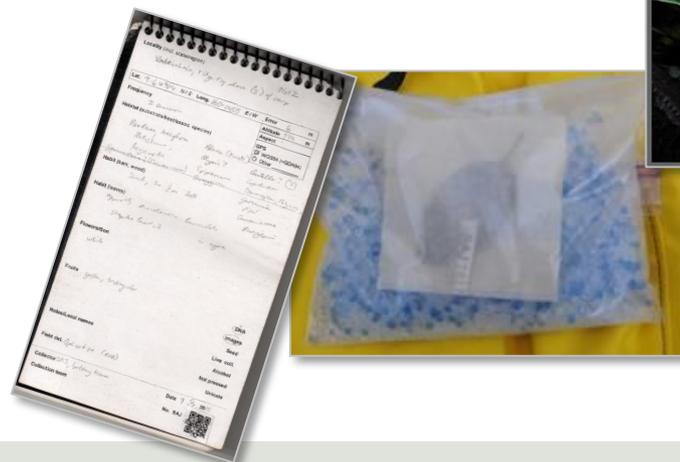
No. SAJ



The Scenario

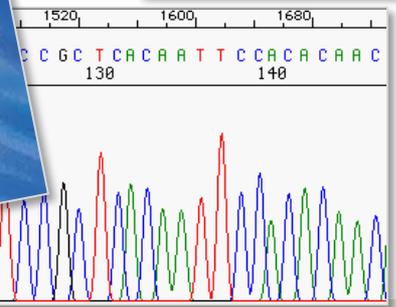
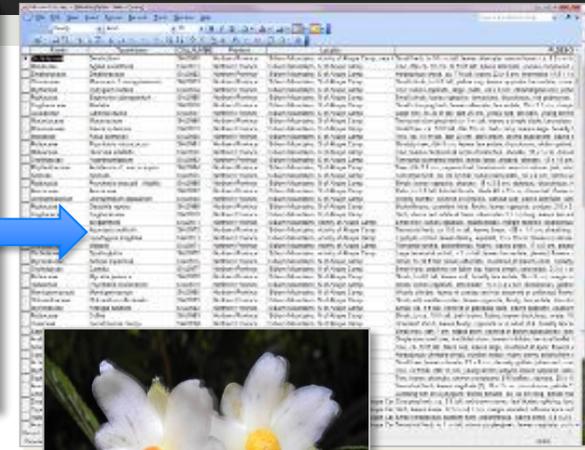
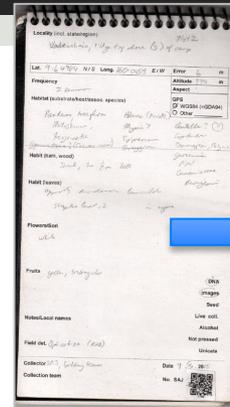
Botanical collecting expeditions
 > 250 flowering and fruiting specimens

- 3+ voucher specimens
- 1 tissue sample → products
- Alcohol collection fruits, flowers
- 10+ images per collection (RAW + JPG)
- Living collection
- Notebook entry



Collection Tracking!

- Field number
- Expedition metadata
- Collection specimen numbers
- Tissue specimen number
- Field images, digitized herbarium voucher
- Genbank and other downstream identifiers
- Other duplicate specimen numbering systems
- etc.



QR codes and collections data

Locality (incl. state/region) *7/12*
Vadivelu, village near (S) of camp

Lat. *9.64984* NIS Long. *160.04515* E/W Error *6* m
 Frequency *2 common* Altitude *970* m
 Aspect
 Habitat (substrate/host/assoc. species) GPS
 WGS84 (=GDA94)
 Other

Parkia speciosa *Balan (fruit)*
Platycodon *Algae?* *Antella?*
Persea *Lycium*
Syntherisma (Cassia) *Epipremnum* *Dioscorea*
Syntherisma *Syntherisma*

Habit (bark, wood) *Shrub, to 2m tall*
PP
Convolvaceae

Habit (leaves) *Opposite, dark green, lanceolate*
Stipules leaf, 2 *in axils*
Bursera

Flowers/Sori
white

Fruits *yellow, triangular*

Notes/Local names

Field det. *Op. 10/12/20 (KSB)*

Collector *SAJ, Gokul Kumar* Date *9/12/2015*
 Collection team No. SAJ

DN/A
 Images
 Seed
 Live coll.
 Alcohol
 Not pressed
 Unicate

SAJ 1766

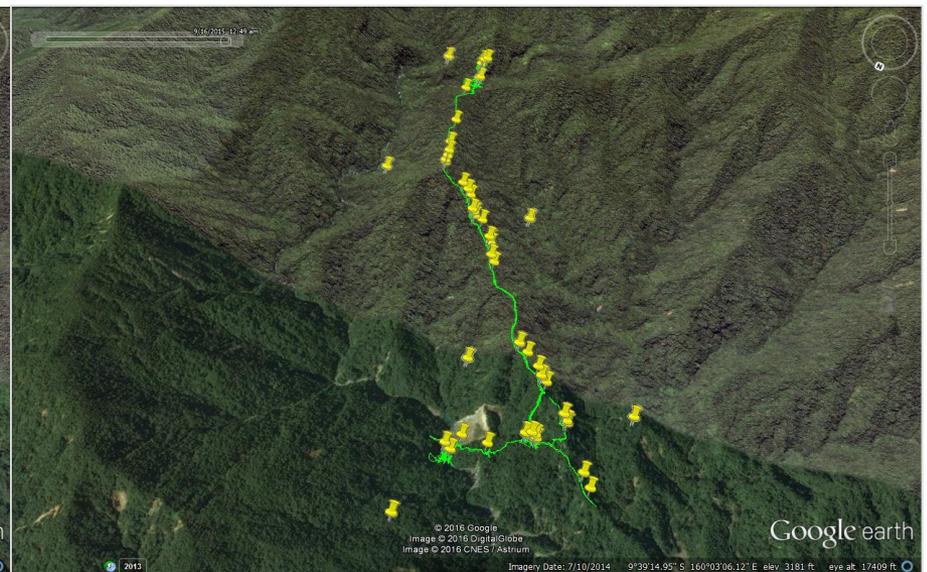
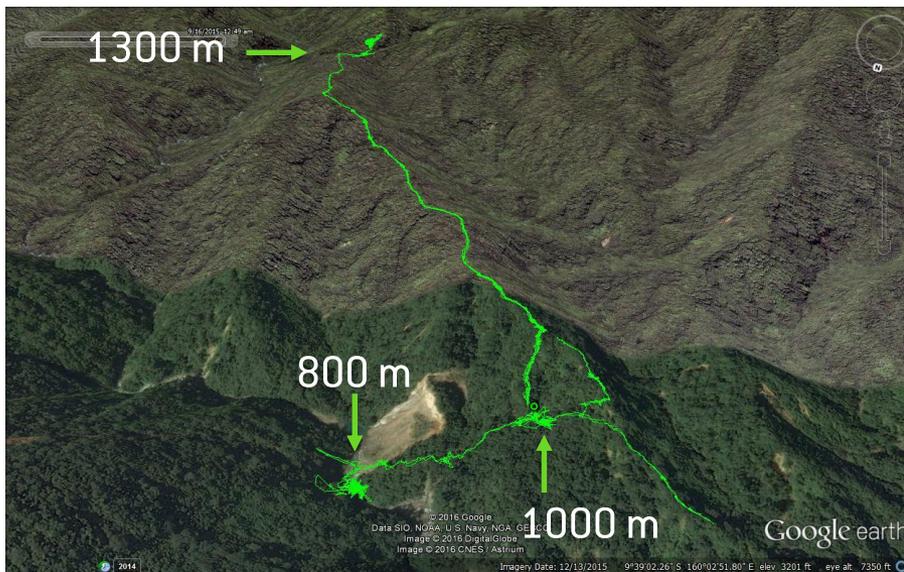


dwc:recordID	dwc:family	dwc:scientificName	dwc:eventID	dwc:recordedBy
SAJ1765	Rutaceae	Murraya	4BABC2BC22A4AC	Chanel, S.
SAJ1766	Rubiaceae	Ophiorrhiza	916E0E076A344FA7	James, S.A.
SAJ1767	Rubiaceae	Oldenlandia	BD7305B8HH204BA	James, S.A.
SAJ1768	Urticaceae	Leucosyke	1F95B1E89C184877	James, S.A.
SAJ1769	Lamiaceae	Plectranthus scute	B655C1F8A0634D2C	James, S.A.
SAJ1770	Gesneriaceae	Cyrtandra cf. filibr	529843C14B31486B	James, S.A.
SAJ1771	Cunoniaceae		4A4D117D633B42BI	James, S.A.
SAJ1772	Gentianaceae	Neubergia corynoc	34CDD225D7A34AF	Chanel, S.
SAJ1773	Piperaceae	Piper	A1AAD96EA9544B3	James, S.A.
SAJ1774	Orchidaceae	Bulbophyllum	5906567C3EE94F9F	Chanel, S.
SAJ1775	Asteraceae	Erigeron	C8A3B7166A324F2f	James, S.A.
SAJ1776	Sapindaceae	Harpullia	7C6C65BB015E49EC	James, S.A.
SAJ1777	Cunoniaceae	Spiraeanthemum	499B1372D4F04D5E	James, S.A.
SAJ1778	Actinidiaceae	Saurauia	0BC9A336CB164CAf	Chanel, S.
SAJ1779	Melastomataceae	Medinilla	8BB0A36C9144A0f	Chanel, S.

916E0E076A344FA7BEC4084443F3CC66
 dwc:eventID

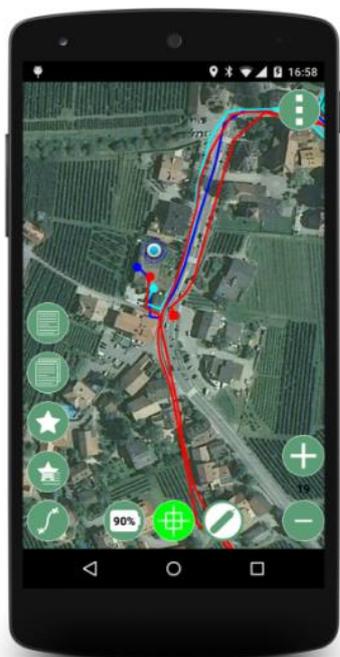
Other useful tips

- Keep GPS track; Geotag images
- Photograph tag number before each specimen
- Don't delay on transcribing/cleaning/integrating data!



More tricks and tips!

- Mobile technology and apps
- Tools for cleaning and standardizing data



- Data collection apps
- Georeferencing tools
- Photo geotagging
- Measurement tools (height, direction, distance)
- Audio collection tools
- OpenRefine *Refine*^{OPEN} 
- Google Earth, other visualization software
- Taxonomic name etc. validation services

More tricks and tips!

- Mobile technology and apps
- Tools for cleaning and standardizing data
- **Field information management system**
- Develop a sustainable workflow
- Publish using identifiers!
- Reach out to iDigBio for information:
 - Field to Database Wiki
 - Glossary of Terms



A Field Information Management System (FIMS) enables data collection at the source (in the field) by generating spreadsheet templates, validating data, and assigning persistent identifiers to collected samples. The following diagram shows how the system works. The most typical functions are the **Generate Template** and **Validate and Load Data** options, both of which can be found under the Tools menu.



FIMS documentation



latest

ABOUT THE FIMS SYSTEM

Introduction

- Biocode FIMS Web Application
- bioValidator: A desktop validation tool (legacy)
- Identifiers
- Samples and Sub-sampling

DEVELOPER INFORMATION

- Installation
- REST Services
- FIMS Commons Javadocs
- User Accounts
- Minting IDs, Creating Expeditions, and Validating Data using REST calls
- curl Examples
- oauth2

MIGRATING FROM FIMS1 TO FIMS2

- FIMS v1 migration to FIMS v2
- REST Service Migration Guide

Docs » Introduction [Edit on GitHub](#)

Introduction

Biocode-FIMS is used for data validation, expedition planning, and data management for field-based surveys enabling tracking physical objects including organisms, soil cores, water samples, and sub-samples. If you would like to start your own Biocode FIMS project, you can either download and install the relevant modules (all freely available) or contact the owner of the 'BiSciCol FIMS installation' code site to see if you can be added as a project to this installation.

[Previous](#)
[Next](#)

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Built with [Sphinx](#) using a theme provided by [Read the Docs](#).

- Expedition identifiers & metadata
- Excel spreadsheet generation
- Controlled vocabulary
- GUID generation
- Data validation
- DwC

Biocode Field Information Management System

Tools ▾ Login Help

Generate Template

Choose Project: New York Botanical Garden ▾

Choose Template Config: Default ▾

Available Columns

Check available column headings to include in your customized FIMS spreadsheet.

[Select ALL](#) | [Select NONE](#) | [Save](#)

Default Group

- useRecordedBy DEF
- minimumElevationInMeters DEF
- decimalLongitude DEF
- decimalAltitude DEF
- habit DEF
- habitat DEF
- verbatimEventDate DEF
- recordedBy DEF
- UUID DEF
- majorGroup DEF
- family DEF
- genus DEF
- specificEpithet DEF
- scientificNameAuthorship DEF
- infraspecificEpithet DEF
- taxonRank DEF
- identifiedBy DEF
- recordNumber DEF
- country DEF
- stateProvince DEF
- island DEF
- location DEF
- verbatimLocality DEF
- preparations DEF
- vernacularName DEF
- vernacularLanguage DEF
- specimenUse DEF
- useClassification DEF
- useSource DEF

Some explanatory TEXT.

Definition

Click on the "DEF" link next to any of the headings to see its definition in this pane.

Export Excel

More tricks and tips!

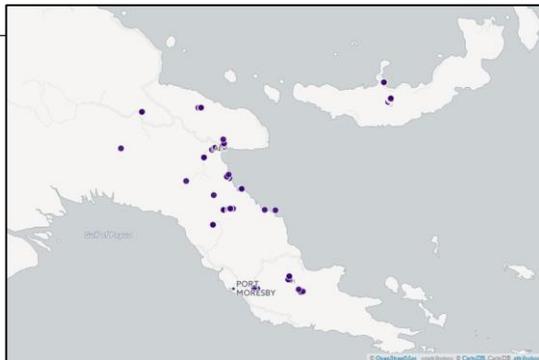
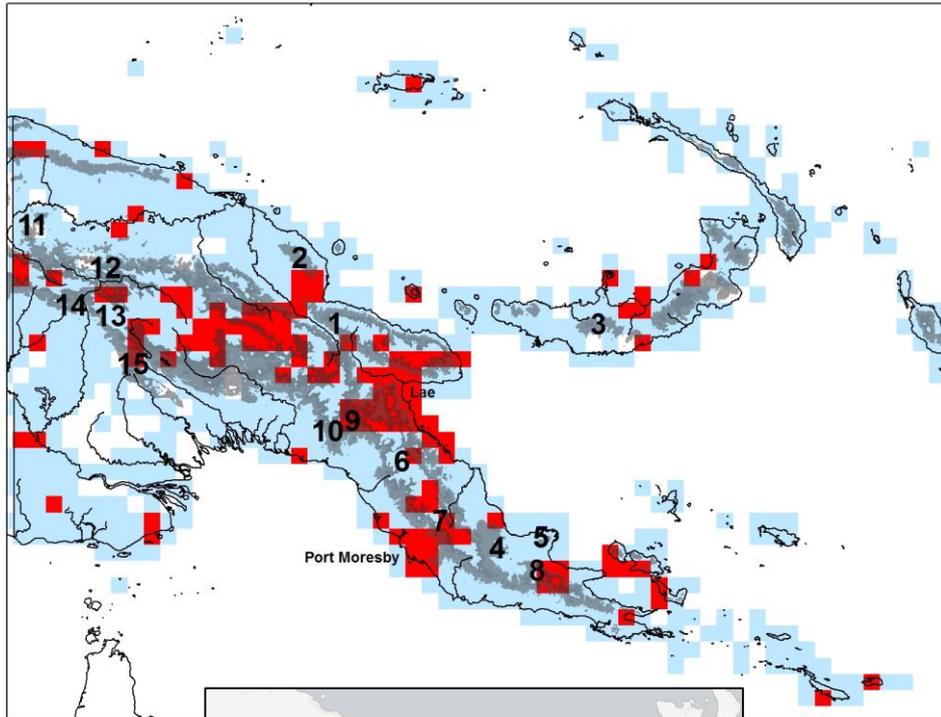
- Mobile technology and apps
- Tools for cleaning and standardizing data
- Field information management system
- Develop a sustainable workflow
- Publish & archive data using appropriate identifiers!



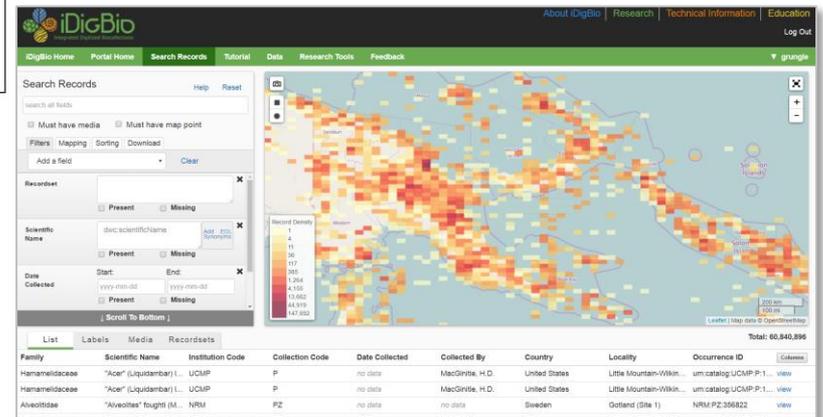
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Using biodiversity data to plan expeditions



- iDigBio
- GBIF
- Other biodiversity data sources
- Physical specimens
- Previous survey documentation
- Literature



Family	Scientific Name	Institution Code	Collection Code	Date Collected	Collected By	Country	Locality	Occurrence ID
Hamamelidaceae	*Acer (Liquidambar) L.	UCJIP	P	no data	MacGillivray, H.D.	United States	Little Mountain-Wilkes...	um.catalog.UCJIP-P-1...
Hamamelidaceae	*Acer (Liquidambar) L.	UCJIP	P	no data	MacGillivray, H.D.	United States	Little Mountain-Wilkes...	um.catalog.UCJIP-P-1...
Alveolidae	*Alveolites (Fougère) M...	NRM	PZ	no data	no data	Sweden	Gotland (Site 1)	NRM-PZ.356822

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I Dig Bio
do you?



Advancing Digitization of Biological Collections

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Support

- National Science Foundation 
-  iDigBio, Florida Museum of Natural History  & University of Florida 
- Bishop Museum 
- experiment.com supporters 
- Critical Ecosystem Partnership Fund 
- University of South Pacific  & American Museum of Natural History 
- MacArthur Foundation, Mellon Foundation, other private foundations
- PNG Department of Environment and Conservation
- PNG National Museum, PNG Forest Research Institute, PNG Department of Forestry
- Solomon Islands Government 
- Solomon Islands Community Conservation Partnership (SICCP)
- Uluna-Sutahuri Tribe, Kamiali Village, & many PNG villagers who provided land access and contributed knowledge, time and resources
- Many collaborators