



#pacdigi

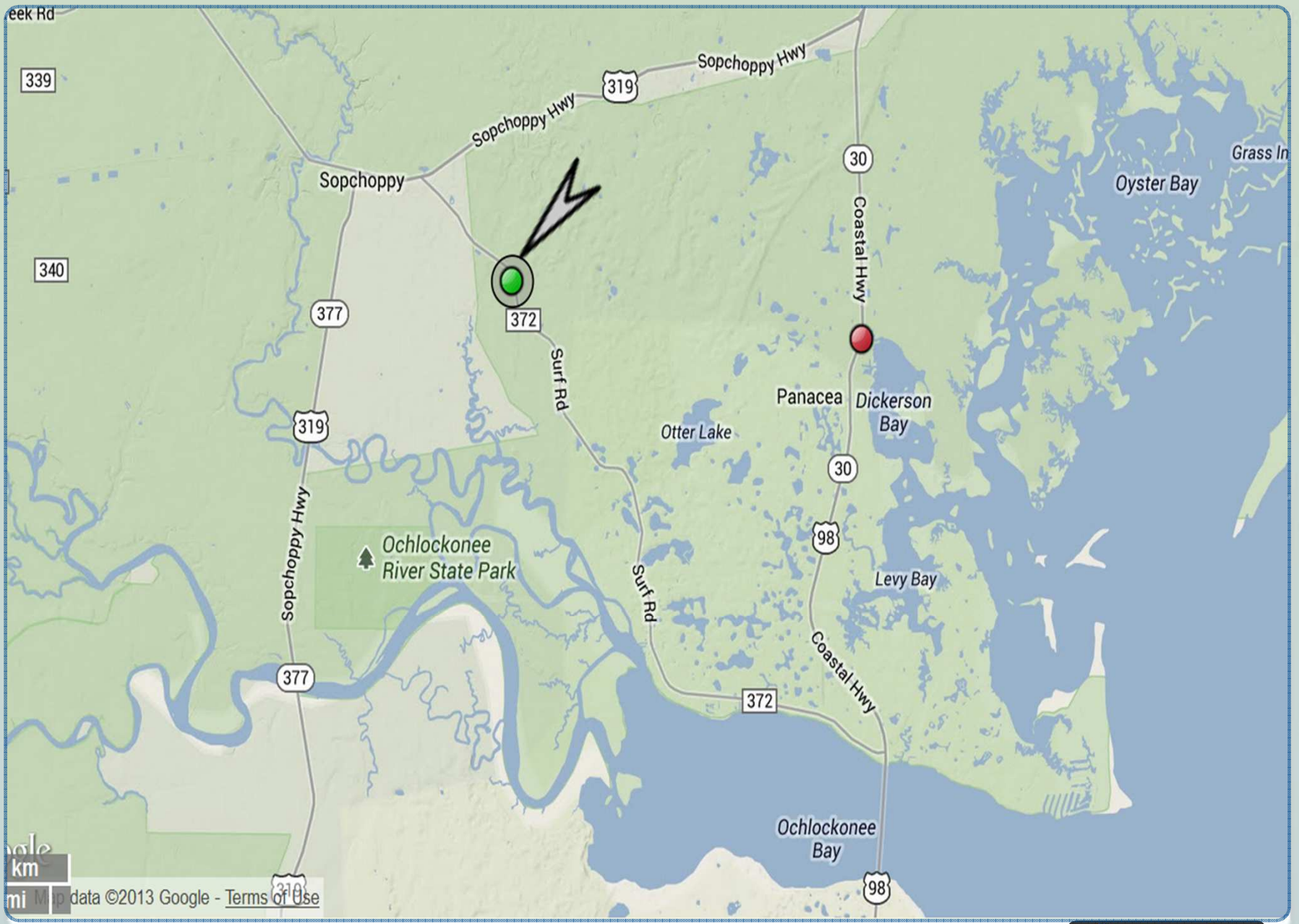
# Georeferencing the past, present, and future

Deborah Paul (et al in the GWG), @idbdeb @iDigBio  
Nelson Rios, Tulane University, GEOLocate Developer, FishNet Co-PI  
Symposium III: Crowd-sourcing, Public Participation & Data Enrichment  
Biological Collections Digitization in the Pacific, March 23-27, 2014  
East-West Center, Bishop Museum, University of Hawaii,  
and the Pacific Science Association



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from: [Collaboration to Automation](#) presentation



WAKULLA CO.: St. Marks Nat'l Wildlife Refuge (Panacea Unit). Frequent in moist roadside depression, less so in drying sand of burned, open longleaf pine along W side Rte 372, just N of Rd 401 and 1.4 mi drive from Hwy 98.

### field notes

- 41 05 54S
- 121 05 34W
- WGS84
- 2 mi. NE Tlh. on Ctrville Rd.
- Tallahassee, 2.5 miles NE on Centerville Road.
- frequent
- Wakulla.
- in moist roadside depression, ...

### your database field

- lat or latitude
- lon or long or longitude
- datum or notes or ...
- loc or location or collectorLocality or ...
- abundance
- county
- hab or habitatDescription or ...

### darwin core

- verbatimLatitude
- verbatimLongitude
- verbatimSRS
- verbatimLocality
- locality
- (abundanceAsPercent)
- county
- habitat

Note

New

# Darwin Core Georeference Terms

## darwin core terms

- decimalLatitude
- decimalLongitude
- geodeticDatum
- coordinateUncertaintyInMeters
- georeferencedBy
- georeferenceProtocol
- georeferenceSources
- georeferenceVerificationStatus
- georeferenceRemarks
- coordinatePrecision
- pointRadiusSpatialFit
- footprintWKT, footprintSRID, footprintSpatialFit

## example values

- 30.441115
- -84.295903
- WGS84
- 20
- Susan Somewhere
- Georeferencing Quick Reference Guide
- Falling Rain Gazetteer, GEOLocate
- verified by collector
- assumed distance by road



# Georeferencing Issue

- Legacy data to georeference



MEX: Guerrero,  
32 km. W Iguala  
IX-15-1982  
elev. 1350 m

J.A. Powell  
J.A. Chemsak  
at light

UC Berkeley  
EMEC  
214468



Notes from Nature.

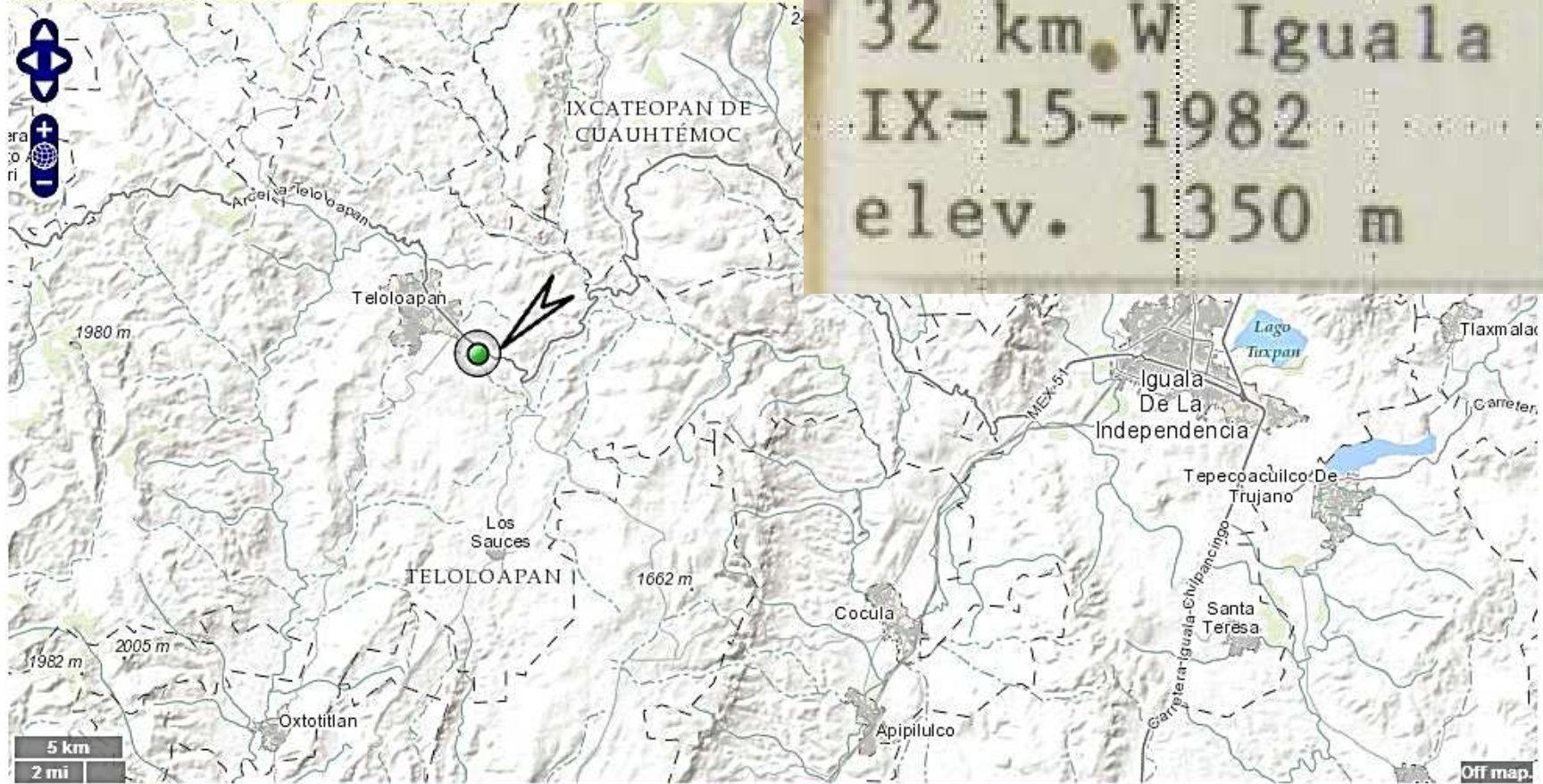
EMEC214468 *Brachinus* sp

COUNTRY- STANDARD SHOW HELP TEXT

-- Country -- OK Back Skip 1/9 NEXT RECORD

# GEOLocate Web Application

30 possible locations found.



MEX: Guerrero,  
32 km W Iguala  
IX-15-1982  
elev. 1350 m

Workbench 30 possible locations found

Georeference Options | Draw polygon Place marker Measure

Locality String: Guerrero, 32 km W Iguala elevation 1350m

Country: MEXICO  latitude: 18.349039  longitude: -99.843772  uncertainty: 1056 m  error polygon

State:  18.349039 -99.843772 1056 Unavailable

# Georeferencing Issue

- **Repatriation**

- Biodiversity Informatics Skills
- Database issues

biggest challenge?



**GEO**Locate 

# Are a Latitude and Longitude enough?

- If present, do we need a text-based locality description?

Asteraceae

## PLANTS OF FLORIDA, USA

### *Helianthus heterophyllus* Nuttall

WAKULLA CO.: St. Marks Nat'l Wildlife Refuge (Panacea Unit). Frequent in moist roadside depression, less so in drying sand of burned, open longleaf pine along W side Rte 372, just N of Rd 401 and 1.4 mi drive from Hwy 98.  
Lat. 30.04494N, Long. 84.45823 W.

Yes!



# Georeferencing Trend

- Born digital
- Current practices
- Ambassadors for best practices



Check / Share  
best practices

## MVZ Guide for Recording Localities in Field Notes

Complete locality data, including the information outlined below, should accompany all collected material and observations.

# Four\* Ways to Georeference

1. Georeference by CSV
2. Georeference Me!
3. GEOLocate Collaborative Georeferencing
4. one-at-a-time (not recommended)



GEOLocate



Scale  
mi km  
Map data ©2013 Google - Terms of Use

# Four\* Ways to Georeference

## Workflow Overview

- Where is your **locality** data? Collate it. Export it.
  - Into a CSV file
    - file-naming strategy, save files
      - Upload to GEOLocate and Georeference by CSV
      - or from CSV, "Call GEOLocate" using "Georeference Me!"
      - or upload CSV to GEOLocate **Collaborative georeferencing**
- Use GEOLocate to **visualize work before import**
- Use CSV-file Georeferences to populate your database
- or copy-and-paste georeferences directly into database
- or GEOLocate is embedded in your software

Meaningful datasets make georeferencing:

\* faster

\* less error prone

\* *more fun!*

repatriation!

**Collaborative Georeferencing**

*Zoothera nana*  
Lat: -72.52 Long: 133.08




Welcome debpaul, user since 1/29/2012. | [LOGOUT](#)

- [Home](#)
- [About Us](#)
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- [My Communities](#)
- [Portal Tutorial](#)

Data Sources      **Members**      Settings


Click on an item's header to expand/collapse its content.

sort by  ▲

✓ community-wide	
✓ montana	date added: Thursday, August 15, 2013
Secondary name:	montana
Path:	drive
Type:	csv
Owner:	nelson
Number of records:	250
Status:	cached
Task:	


Records statistics:

Community specimens processed: 24



corrected: 22  
skipped: 2  
total processed: 24

Community Localities processed: 23

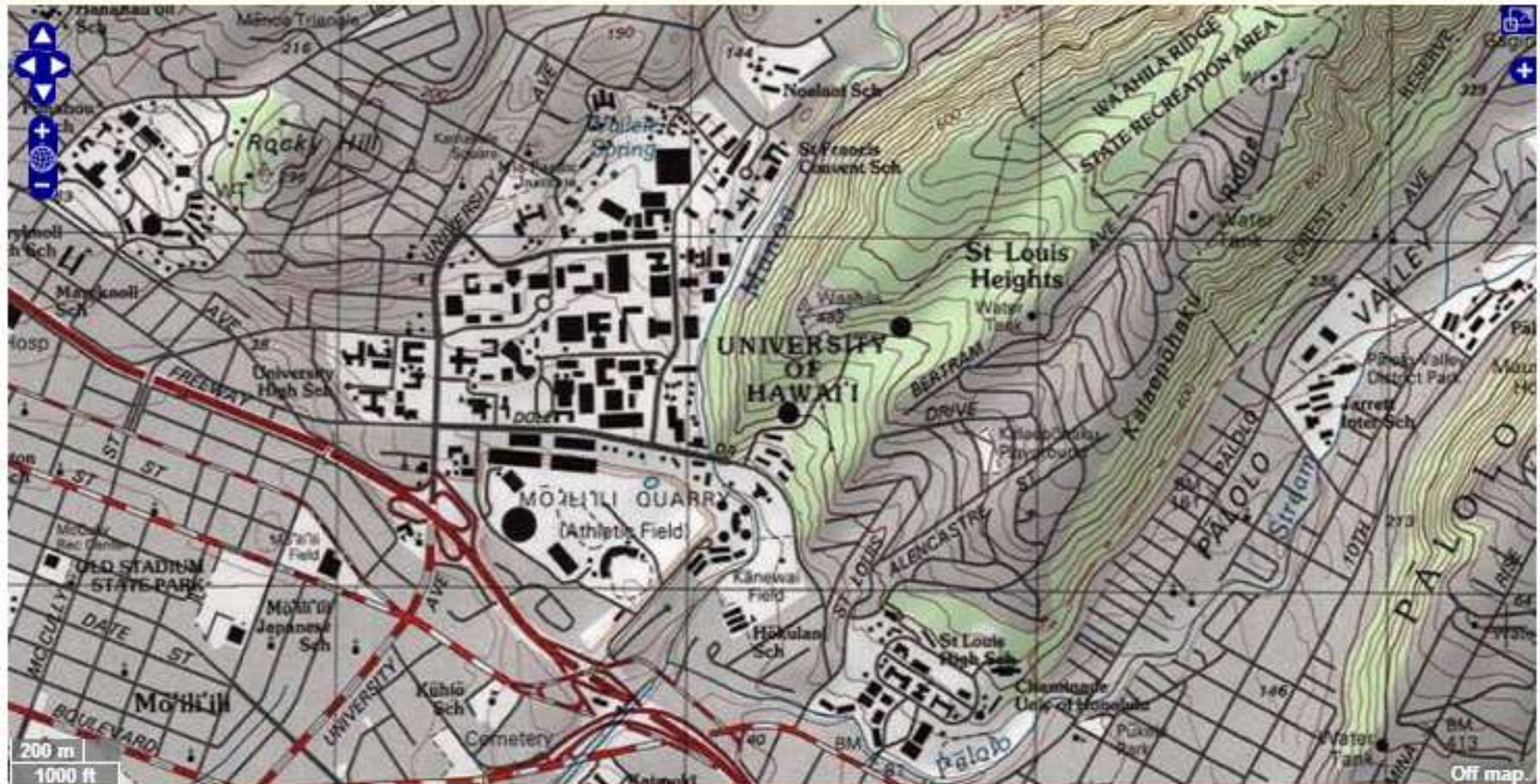


corrected: 21  
skipped: 2  
total processed: 23

[VIEW RECORDS](#)

[DOWNLOAD RECORDS](#)

# GEOLocate Collaborative Georeferencing Web Client



Workbench **Results**

Available communities (check name to set):

- FSU
- idigbio trt2

Data sources in selected community:

Username:

Password:

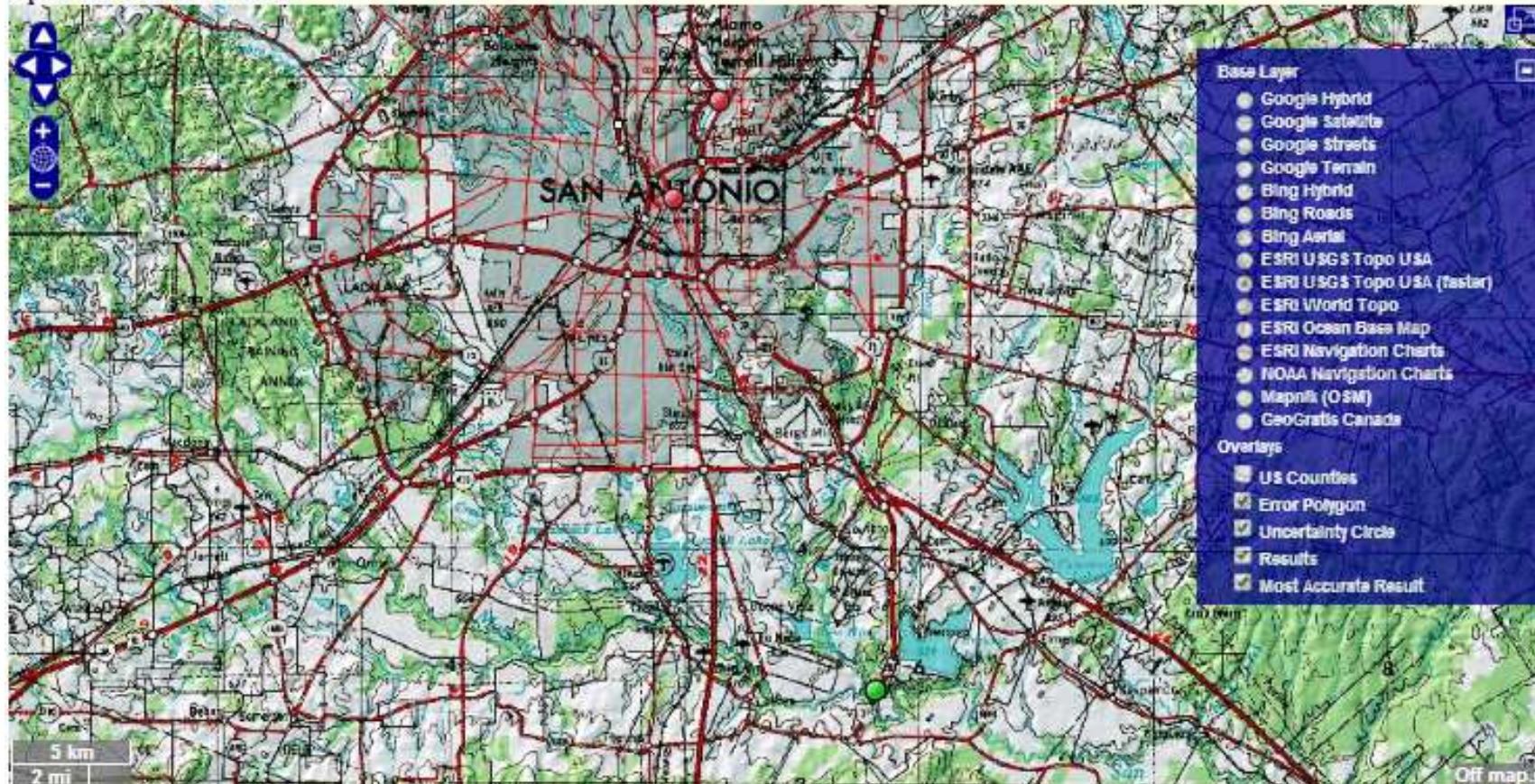
Logout

Continue

# GEOLocate Collaborative Georeferencing Web Client



3 possible locations found.



Workbench 3 possible locations found History

Community: idigbio tt2

Draw polygon  Place marker  Measure

- Next Record(s)
- Correct
- Skip Selected
- Add Comments
- Clear Workbench
- Correction Report

**San Antonio River at IH 37; United States; Texas; BEXAR;**

Similar Records(0)  
Identical Records(0)

Logout | logged in as debpaul

Calculated Coordinates

Lat: 29.235385



Lon: -98.402773

U. Radius: 0 m



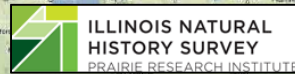
Welcome debpaul, user since 1/29/2012. | [LOGOUT](#)

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- [Portal Tutorial](#)

Data Sources	Members	Settings
Click on an item's header to expand/collapse its content.		
sort by <span>date</span> ▲		
<input checked="" type="checkbox"/> community-wide		
<input checked="" type="checkbox"/> montana <span style="float: right;">date added: Thursday, August 15, 2013</span>		
Secondary name:		montana
Path:		drive
Type:		csv
Owner:		nelson
Number of records:		250
Status:		cached
Task:		
Records statistics:		
Community specimens processed: 24		<a href="#">VIEW RECORDS</a>
		<a href="#">DOWNLOAD RECORDS</a>
<div style="border: 1px solid black; padding: 2px; display: inline-block;">corrected: 22</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">skipped: 2</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">total processed: 24</div>		
Community Localities processed: 23		
		
<div style="border: 1px solid black; padding: 2px; display: inline-block;">corrected: 21</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">skipped: 2</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">total processed: 23</div>		

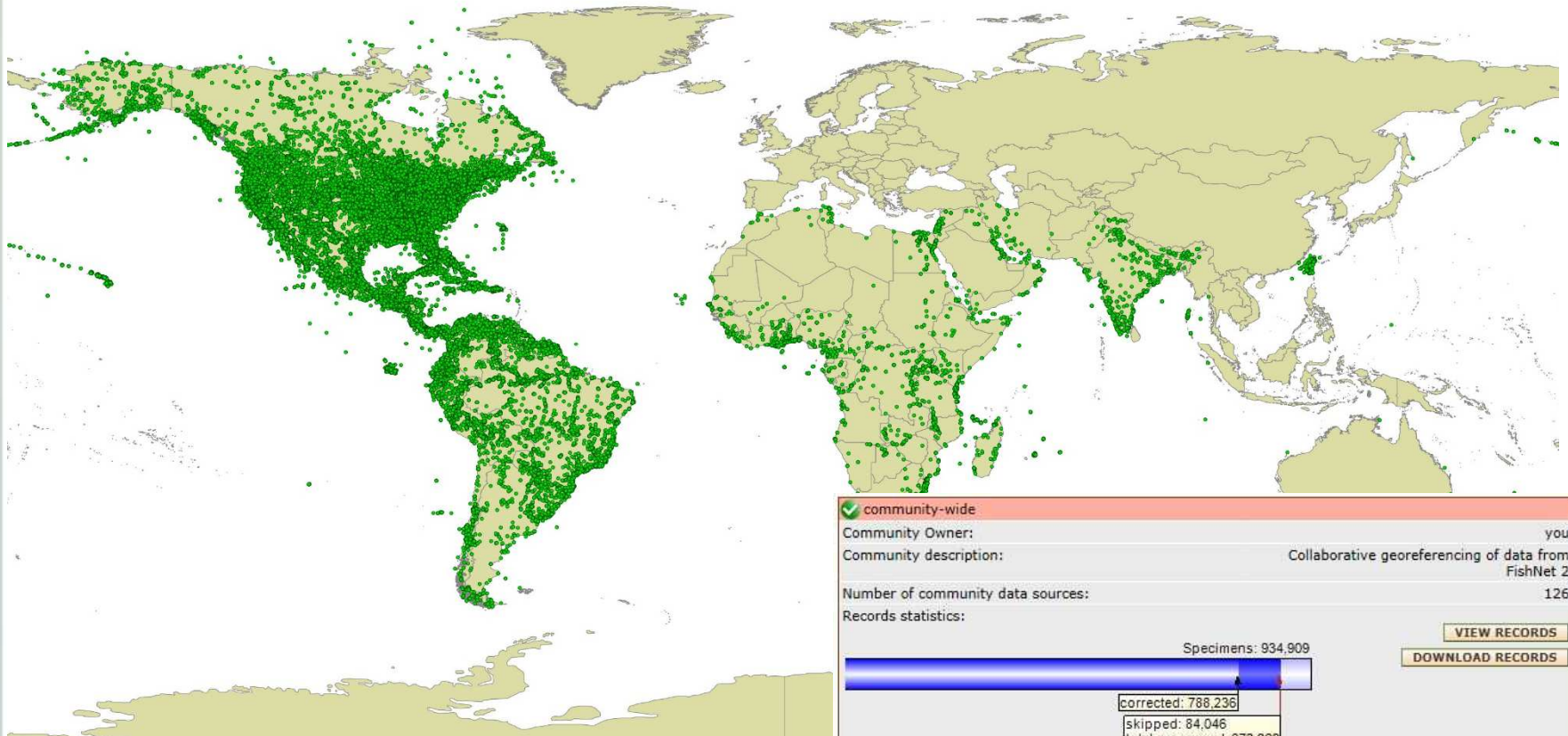
# FishNet Georeferencing Project

- 2 Million specimen records
- 250,000 collecting events
- 18 months
- 12 technicians
- Student volunteers
- Collaborative





# FishNet Georeferencing: Year 1 Stats



# Project Management & Workflow Hints

*Innovating  
for Cost, Speed,  
Confidence*

- familiarity with the localities is key
- language
- organismal group
- land signatures
- hint: advice / policy on how long to spend on 1 locality
- expert or novice?
  
- 1 in 10 dups (VertNet experience from ORNIS)
  - could it be higher as we have more locality data?



# iDigBio GWG

## Train the Trainers I and II

- 5 Day Training
- Pay-it-forward
- Community Resource

10:00	Workshop Overview, Introduction to Georeferencing, and Thinking like a Trainer	David Bloom
10:20	Selected Survey Results, Train-the-Trainers Second Georeferencing Pre-workshop Survey Report and Update from TTT1 Participants Pay-It-Forward Efforts	Shari Ellis
10:35	Break	
11:00	Georeferencing Introduction: Collaboration to Automation	Dave Bloom
11:30	Geographical Concepts	Nelson Rios
11:50	Point-Radius Method and Best Practices	Jessica Utrup
12:10	Darwin Core Standard, Key Terminology iDigBio Recommended fields	Dave Bloom
12:30	Lunch (Provided)	
13:30	Georeferencing Quick Reference Guide, Locality Types, and Georeferencing Template	Una Farrell
14:40	Georeferencing Calculator, Calculator Manual	Dave Bloom
15:30	Break	
16:00	Georeferencing Calculator Example and Exercises, MaNIS/HerpNET /ORNIS Georeferencing Guidelines	Dave Bloom
17:00	Day in Review and Considerations for Trainers-to-be Trivia Question of the Day A.M. Recording: Start-10:30 A.M. Recording: 10:40-12:30	David Bloom Debbie Paul



<http://tinyurl.com/idbttt2>



# georeferencing.org

[HOME](#) [TOOLS](#) [GAZETTEERS](#) [DATA SOURCES](#) [TRAINING](#)

## Georeferencing

Mapping Resource Hub

Home

Welcome to Georeferencing.org!

Here you will find a collection of resources pertaining to the process of georeferencing.

[Tools](#)

[Gazetteers](#)

[Data Sources](#)

[Training](#)

# Advanced GEOLocate



- – via AdobeConnect

## Advanced GEOLocate Course - Services, Integration, End-to-End

### Workflows

On Friday, September 6th, Nelson Rios from Tulane University and the FishNet2 project, presented a lecture covering advanced use of **GEOLocate** software and services available through the web-based Application Programming Interface (API). Using Adobe Connect meeting software, over 30 people came to find out what they can do with GEOLocate tools and services beyond the online public user-interface. The **recorded**

# Links to Cool Stuff

Mahalo!

- iDigBio GWG Listserv [https://www.idigbio.org/wiki/index.php/IDigBio\\_Listservs](https://www.idigbio.org/wiki/index.php/IDigBio_Listservs)
- Got GEOreferencing Questions?
  - idigbio.org > register
    - Resources > Forums > [Georeferencing Working Group \(GWG\)](#)
- iDigBio GWG Wiki <http://tinyurl.com/idbgeowg>
  - ttt1 and ttt2 resource pages
    - power points, videos, handouts, how-to's, trainers
    - sample at <http://tinyurl.com/idbttt2>
- GEOreferencing Trainers
  - <https://www.idigbio.org/wiki/index.php/TTT1TTT2>
- web resources <https://www.idigbio.org/wiki/index.php/Georeferencing>
- GWG help with planning a georeferencing workshop
- [videos](#) (vimeo and idigbio)
- Geo-rectify an old (online) map
  - <http://www.georeferencer.org/>

