

WERC Multitaxa Database Program

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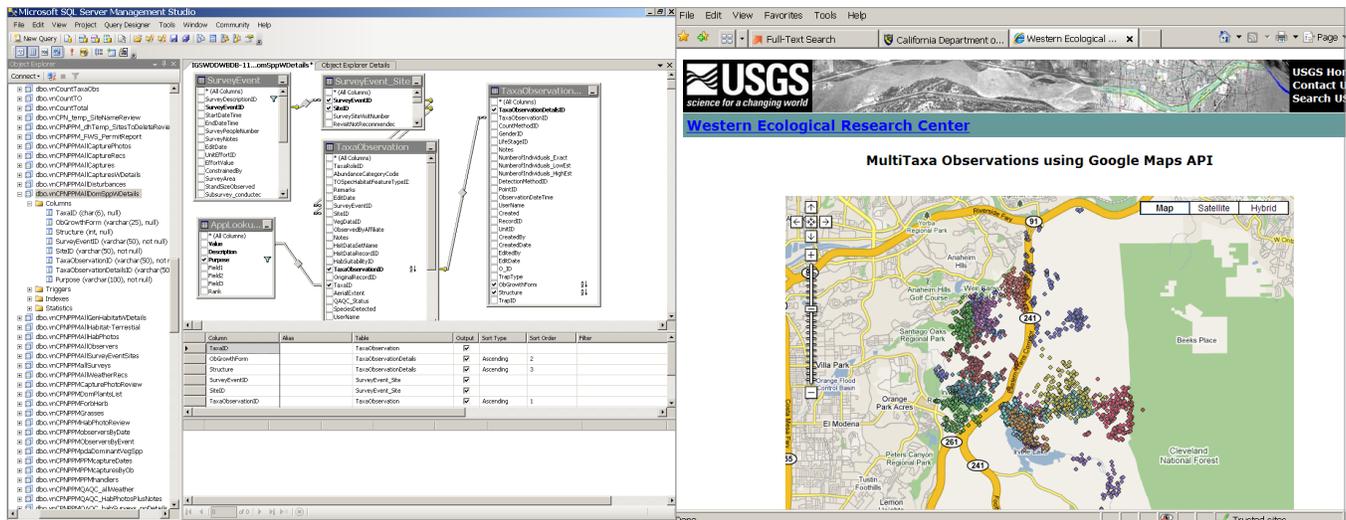
The Western Ecological Research Center (WERC) is a USGS science center serving California, Nevada and the greater Pacific Southwest — the most ecologically diverse geographic region in the U.S. with an enormous network of federal, military, state, local and private offices dedicated to wildlife and resource management.

These disparate offices have the common mandate of managing California’s complex landscape — and they face the common problem of maintaining disparate electronic databases, which silo important ecological data from convenient, collaborative use and prevent our collective understanding of regional, long-term trends.

To solve this problem, WERC has led the development of the **Multitaxa Database Enterprise Architecture**, a SQL data management system to standardize and archive cross-agency ecological data, from satellite telemetry to stream surveys to tissue samples. Temporal and geospatial records are incorporated so that datasets can be visualized through **ArcGIS** or **Google Maps**, offering snapshots of the living pulse of California’s wildlife and ecosystems. Development continues on the database, and partners are invited to collaborate on this new tool providing science for our changing world.

Multitaxa Database Enterprise Architecture

- Development led by researchers at the USGS Western Ecological Research Center, as part of USGS Ecoinformatics Program.
- A new enterprise data management model that serves multiple studies through a single integrated database.
- Provides a centralized, synchronized, geospatially tagged database of ecology data in CA, offering a cross-agency solution uniting federal, state, local and partner data to enhance collaborative, long-term science.
- Can generate state-wide map of known ecological observations — a snapshot of the living pulse of CA wildlife and ecosystems to help answer the question **“What’s here and how is it changing?”**
- Database currently houses more than 20 years of data on wildlife satellite tracking, stream data, carnivore remote cameras, small mammal trapping, amphibian monitoring and other surveys — complete with time, GPS location, landscape/weather information — from partners including NBII, USFWS, NPS, CA Dept. of Fish and Game and San Diego Association of Governments.



The Multitaxa Database Ecoinformatics Program offers the capability to visualize datapoints through ArcGIS or through Google Maps. Image Credits: USGS.

Project Primer

Multitaxa Database Goals

- Develop a single multi-taxa database for all California ecological studies, while incorporating study-specific electronic forms for data entry, review and editing.
- Tie ecological data with GPS location, time and landscape/ weather info.
- Migrate legacy data from multiple agencies.
- Produce outputs and reports to other data systems.
- Allow USGS to manage and store ecological and land resource data for partner agencies, as currently being developed with the San Diego Association of Governments (SANDAG).
- Allow USGS to easily retrieve large amounts of information and assist regional-scale studies and partners with greater speed and efficiency.

Multitaxa Database Functions

- Each study uses custom views of the database to display only the relevant tables and fields.
- Custom views can filter for records only from a specific survey.
- Access/editing permissions for each user can be controlled.
- Electronic forms on hand-held/Personal Digital Assistant (PDA) devices can use these views to interface with the database, and each set of PDA forms is unique and designed to support the workflow described in the protocol.
- Visualization options in ArcGIS or via Google Maps API.

Development Progress

- Basic database functions are operational.
- Includes over 20 years of data, including those from USFWS, NPS, NBII, California Department of Fish and Game, San Diego Association of Governments (SANDAG) and USGS data from USMC Camp Pendleton.
- Currently developing secure intranet forms for researchers to manage data and ways to improve user collaboration and data access for our partners.
- Continuing to import new data from partners and legacy USGS data stores.
- Continuing to refine Database for application/usage beyond California.

Current Data Types

- Bird satellite telemetry
- Bobcat GPS collar telemetry
- Sea otter monitoring
- ARMI amphibian monitoring
- Bird song and bird point count
- Carnivore camera traps, pitfall traps and small mammal traps
- Animal track stations
- Road riding
- Vegetation
- Western pond turtle trapping and visual encounters
- Incidental species observations

FOR ADDITIONAL INFORMATION:

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WERC RESOURCE MANAGERS PORTAL

Search forecoinformatics keywords in our Products Database, or learn more about other WERC research projects. Online at:
<http://www.werc.usgs.gov/OutreachForResourceManagers.aspx>

WERC EVENTS LISTING

Interact directly with WERC scientists at upcoming workshops and conferences. Browse the calendar online:
<http://www.werc.usgs.gov/Events.aspx>

Project Investigators

Multitaxa Database Project Homepage

<http://www.werc.usgs.gov/MTDB> (ONLINE OCTOBER 2011)

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Project Partners

- USGS Council for Data Integration
- USGS National Biological Information Infrastructure (NBII)
- USGS Amphibian Research and Monitoring Initiative (ARMI)
- U.S. Fish and Wildlife Service
- National Park Service
- California Department of Fish and Game
- San Diego Association of Governments (SANDAG)