

Our Mission

To provide the scientific basis for effective conservation action.

Project funded by:



This material is based upon work supported by the National Science Foundation under Grant No. DBI-0547630. 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.

Test devices provided by:



For more information

[www.natureserve.org/
projects/handheld/](http://www.natureserve.org/projects/handheld/)

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For centuries, scientists have used notepads of all sorts to record the data they collect in the field. With support from the National Science Foundation, NatureServe is helping them replace paper and pencil with bits and bytes.

NatureServe and our project partners have developed a mobile observations system capable of supporting more efficient field collection, management, and sharing of observations data. The goal of this system is to boost the efficiency and accuracy of the field scientists who collect observation data while providing biologists, ecologists, researchers, and conservation practitioners with quicker and easier access to observation data by reducing the time from data capture to data sharing.

■ MORE THAN JUST THE LATEST TECHNOLOGY

The project was built around the desire to facilitate use in the field of handheld devices, which offer convenience and positioning accuracy the old notepad doesn't have. But this mobile observations system encompasses more than just forms on a PDA. The system consists of three main components:

Observation Template Library

This online collaboration tool allows users to define and share data structures to use in collecting observations in the field and managing observation data online. Representing a wide variety of observation protocols, the library enables search and reuse of the available templates to promote interoperability. Users can select an existing template as is, modify a template for their own particular project, or create their own template—which they can save to use again later and share with others.

Desktop Applications Suite

All that data has to go somewhere. We've developed a local editing environment that serves as an intermediary between the observation template library, a handheld device, and one or more long-term data repositories. The desktop applications suite aids in the automatic generation of field forms for one or more specified observation templates, cleaning up and validating data that has been collected in the field, and transferring the data to another system for long-term storage and analysis.

Handheld Device

Any of a number of GPS-enabled mobile data loggers can be loaded with the field-data collection forms and any reference data or maps required for the field survey.

These components then integrate with a database system, such as Kestrel, NatureServe's online observations data management system. Kestrel supports variable observation data protocols through a flexible and extensible data model. The mobile observation system also supports integration with other observation database systems.

■ HOW IT WORKS

NatureServe and our partners have designed the mobile observations system to support the wide variability in observation data structures and data collection workflows, from rare species observations (both positive sightings and confirmed absence) to vegetation plots and transects, monitoring data, and ecological integrity assessments.

Through an online template library, users **create or modify an existing template** to define the structure of the observation data they wish to record in the field.

The system's desktop application helps users process a set of templates to **produce a staging database and field forms** that they then load onto their handheld device for the field survey. Back in the office, users synchronize their field data to the staging database, and use the desktop editor to **clean up and validate the observation data**.

Once data validation is complete, users **export observation records** to Kestrel or another long-term observation database.

PROJECT PARTNERS

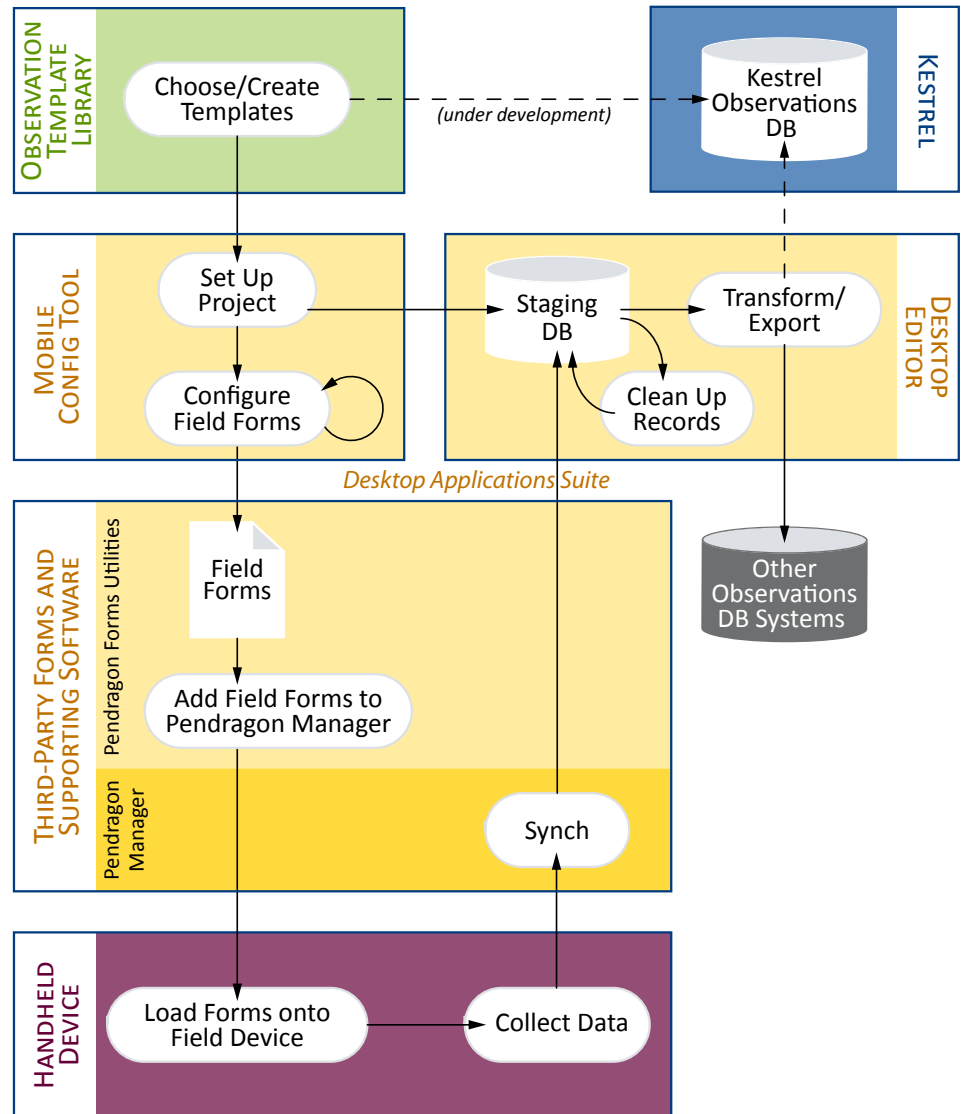
- NatureServe
- Cornell Lab of Ornithology
- New York Natural Heritage Program, New York State Department of Environmental Conservation
- Natural Heritage New Mexico, University of New Mexico
- Washington Natural Heritage Program, Washington State Department of Natural Resources
- Wyoming Natural Diversity Database, University of Wyoming

GET INVOLVED

The first release of the mobile observations system is now available for download! NatureServe is also releasing the source code so that future releases can benefit from contributions by the open-source developer community. The software development roadmap identifies a number of desired enhancements, including:

- ArcPad integration improvements
- Desktop Editor improvements for bulk delete capabilities and easier domain value insertions
- Export Utility improvements to support direct export to Kestrel or other third-party systems
- An Import Project Wizard for copying project configurations between desktop computers

We encourage developers to visit our [Google Code Project](#) to download, develop or customize the source code. The Google project page includes an issue tracker for submitting bugs and a [group forum](#) for posting questions.



System Requirements

The mobile observations system is a software package designed to work with your mobile device, an integrated or external GPS, and a desktop PC or laptop. The system uses these third-party software applications:

Mobile Device

- Windows Mobile 5.0, 6.0, or 6.1
- Pendragon Forms 5.1 (license required per user)
- Esri ArcPad 8 (optional, license required per user)

Desktop

- Windows XP, Vista, or 7
- MS Active Sync (free with Microsoft)
- PostgreSQL (free, open-source database)
- ArcMap (optional, license required)
- Autolt (open-source scripting utility)