

# **BIOTICS 5:**

## ***A NATIONAL SYSTEM TO INCREASE CONSERVATION EFFECTIVENESS AND EFFICIENCY***

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***Tuesday, October 18, 2011***



**NatureServe**

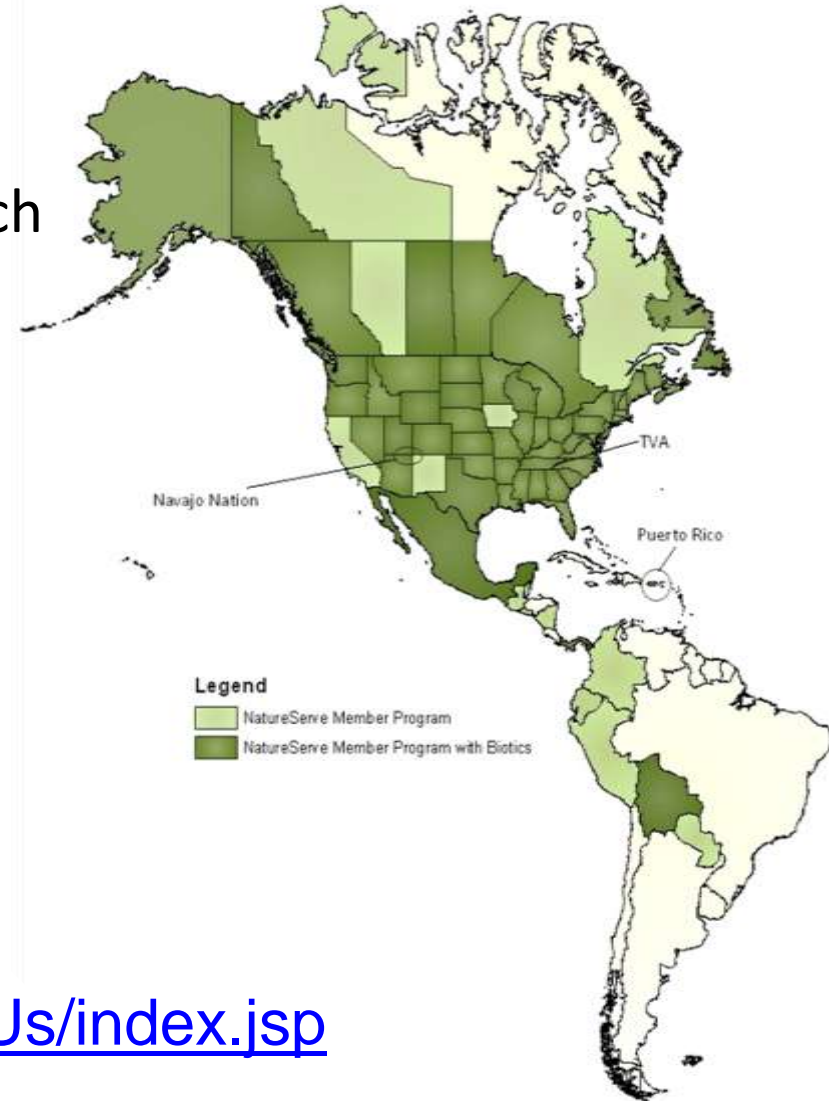
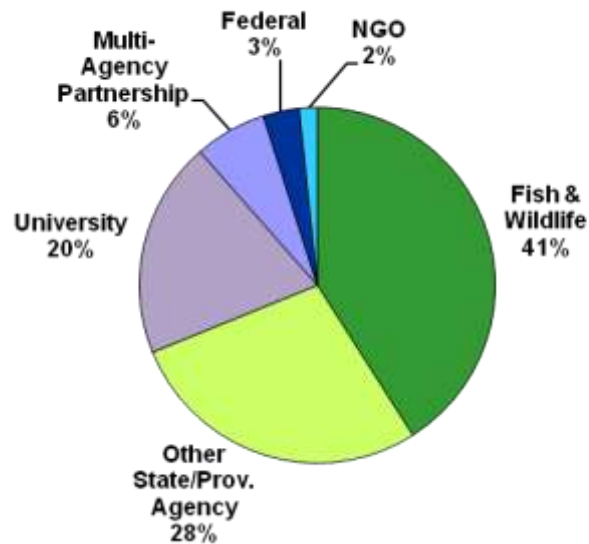
A Network Connecting Science With Conservation

# Session Objectives

- Provide an overview of NatureServe's biodiversity data management tool suite including a new Biotics and Mobile Field Observation System.
- Highlight how these new tools will promote data sharing and integration between systems.

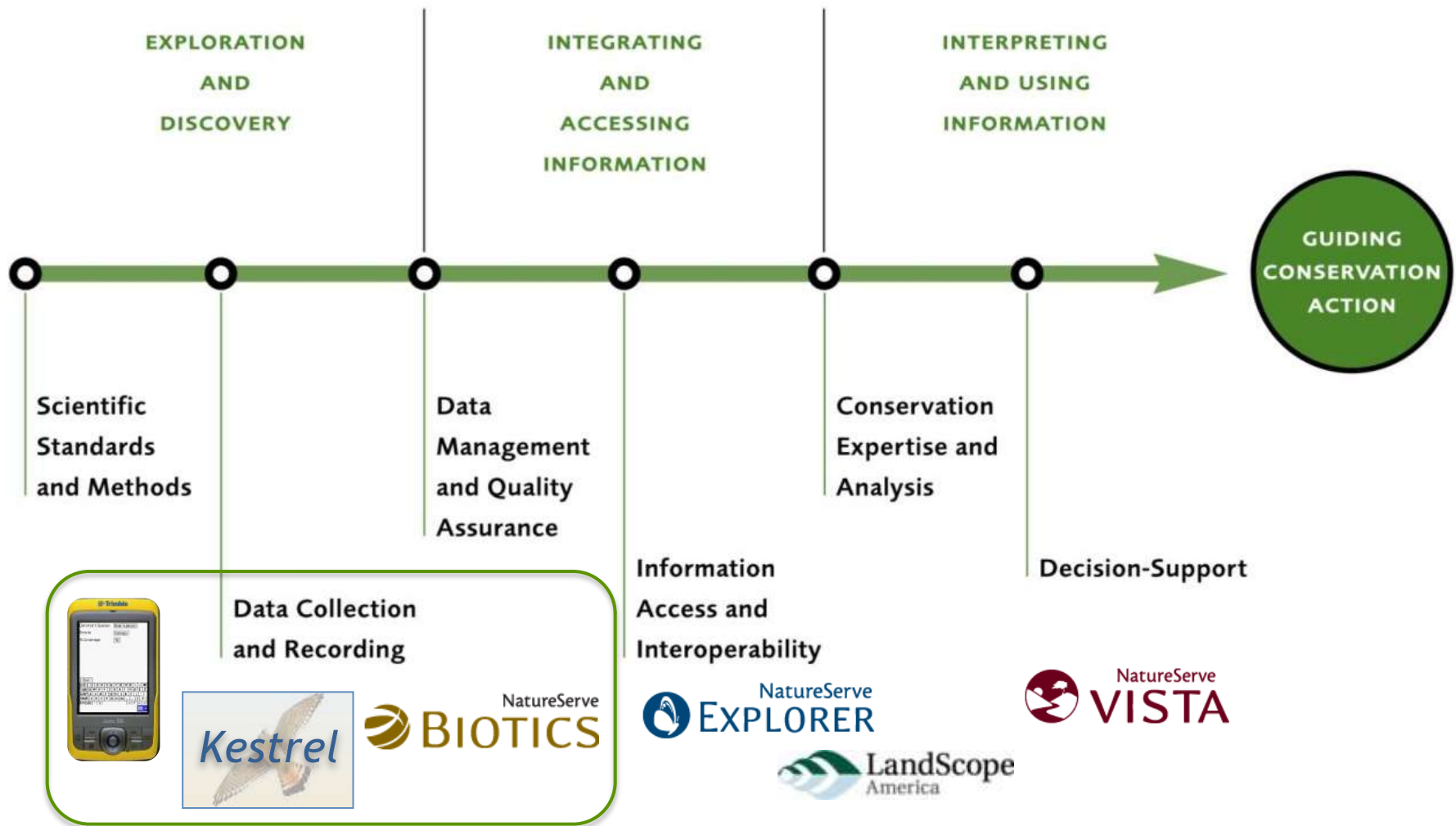
# NatureServe Network

- 80 members across the Western Hemisphere
- All programs use a common approach to biodiversity data management
- 58 programs use the same tool (Biotics)



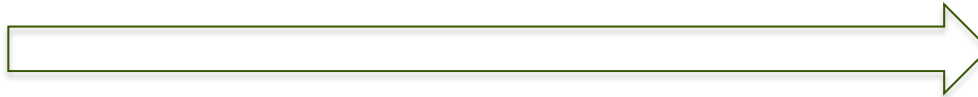
<http://www.natureserve.org/aboutUs/index.jsp>

# Full Suite of Technology Products



# Information Systems Strategy

Legacy Systems



Next Gen Systems

## Data Collection

Paper field forms  
Manual data entry

Mobile observation system with GPS  
Automated data capture, online data entry

## Data Management

Client-server architecture (desktop)  
ArcView 3.X platform, shapefile storage

Service oriented architecture (web)  
ArcGIS Server platform, geodatabase

## Data Exchange

Manual data exchange and aggregation  
Manual taxonomic reconciliation

Web service access between data nodes  
Semi-automated taxonomic updates

## Data Delivery

Manual, custom data request process  
Static map products with summary data

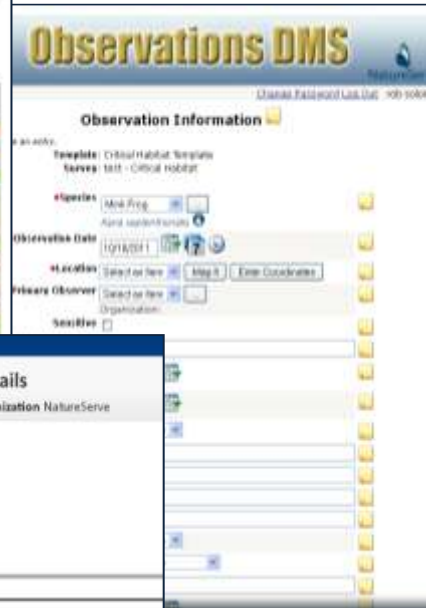
Automated web data delivery  
Dynamic web mapping products

# Data Collection and Recording: Mobile Observation System Components

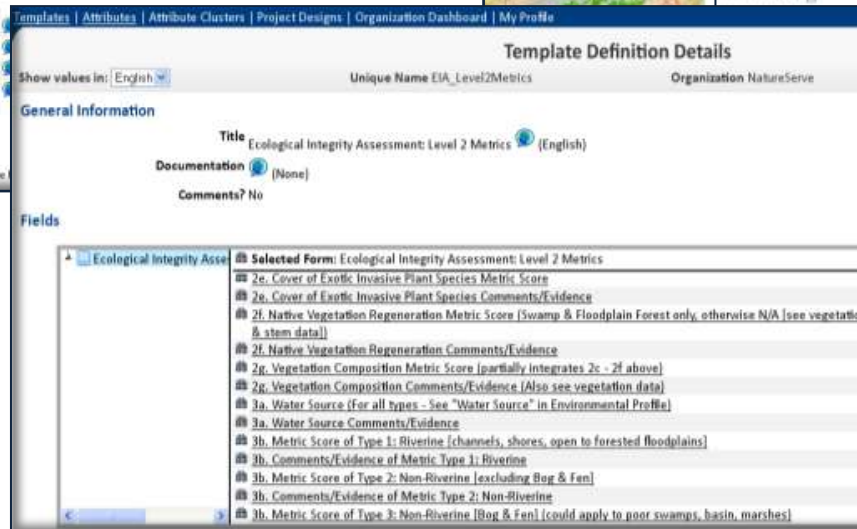
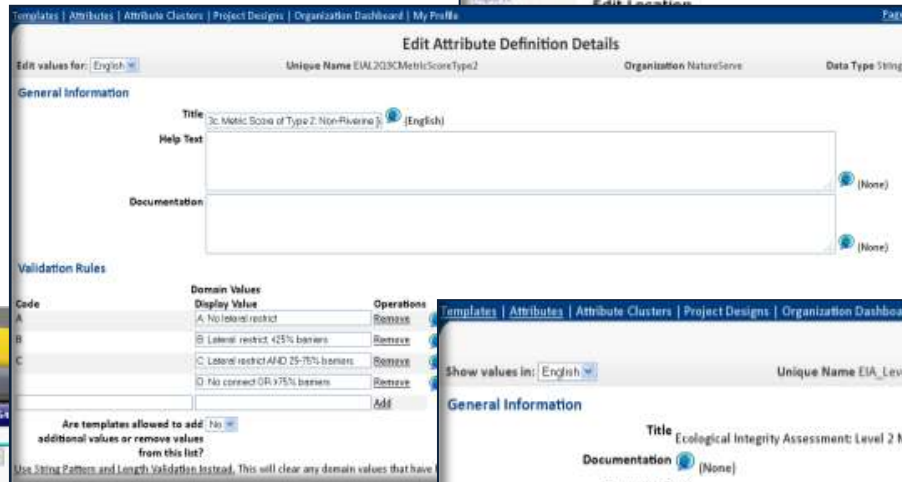
*Template Library  
Tool*



*Kestrel*

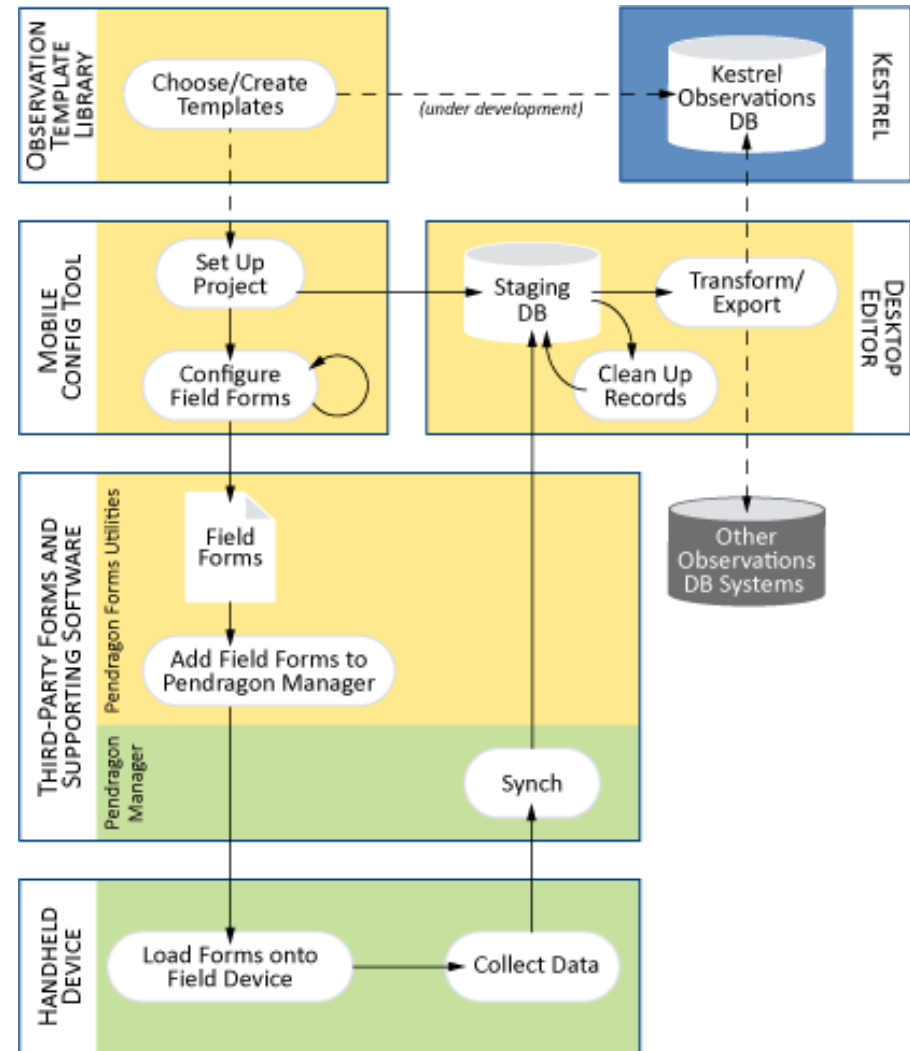


*Handheld  
Tool*



# Mobile Observation System Handheld Tool

- Create or edit templates for use with handheld tool
- Utilities associated with handheld tool establish database and associated entry forms, process synchronize, and validate field form data
- Handheld desktop editor tool exports records to Kestrel or other observation database systems



# Mobile Observation System Kestrel

- Secure, web-based access
- ArcGIS Server mapping
- Extensible, **template-driven** data model
- Localizable user interface (English, French, Spanish)
- Links to real-time standard taxonomic web service
- Bulk upload and export

The image displays three overlapping screenshots of the Observations DMS web application. The top-left screenshot shows the 'Observations List' page for the 'whitney' survey, featuring a table with columns for Action, Common Name, Primary Observer, and Observation Date. The top-right screenshot shows the 'Edit Location - Eva Lake' page, which includes a map interface with a search bar, map layers, and coordinate input fields. The bottom screenshot shows the 'User Account Information' page, which contains fields for Username, First Name, Last Name, and Email Address, along with a Password field and a 'Save Changes' button.

Action	Common Name	Primary Observer	Observation Date
Actions	Columbia Spotted Frog	Weber, Whitney	3/5/2007
Actions	Columbia Spotted Frog	Weber, Whitney	6/22/2007
Actions	Northern Flying Squirrel	Weber, Whitney	6/5/2007
Actions	Northern Flying Squirrel	Weber, Whitney	6/21/2007
Actions	Columbia Spotted Frog	Weber, Whitney	6/5/2007
Actions	Wood Frog		
Actions	Leopard Frog		

# Mobile Observation System Observation Template Library

The screenshot shows the 'Edit Attribute Definition Details' page for an attribute named 'EIA\_Level2MetricScoreType2'. The page is divided into several sections: 'General Information' with fields for Title, Help Text, and Documentation; 'Validation Rules' with a table of domain values and operations; and a section for adding or removing templates. The title is '2c. Metric Score of Type 2: Non-Riverine [English]'. The domain values table lists four options: 'A. No lateral restrict', 'B. Lateral restrict 425% basins', 'C. Lateral restrict AND 25-75% basins', and 'D. No connect OR 175% basins'. Each has a 'Remove' operation and an '(English)' language indicator.

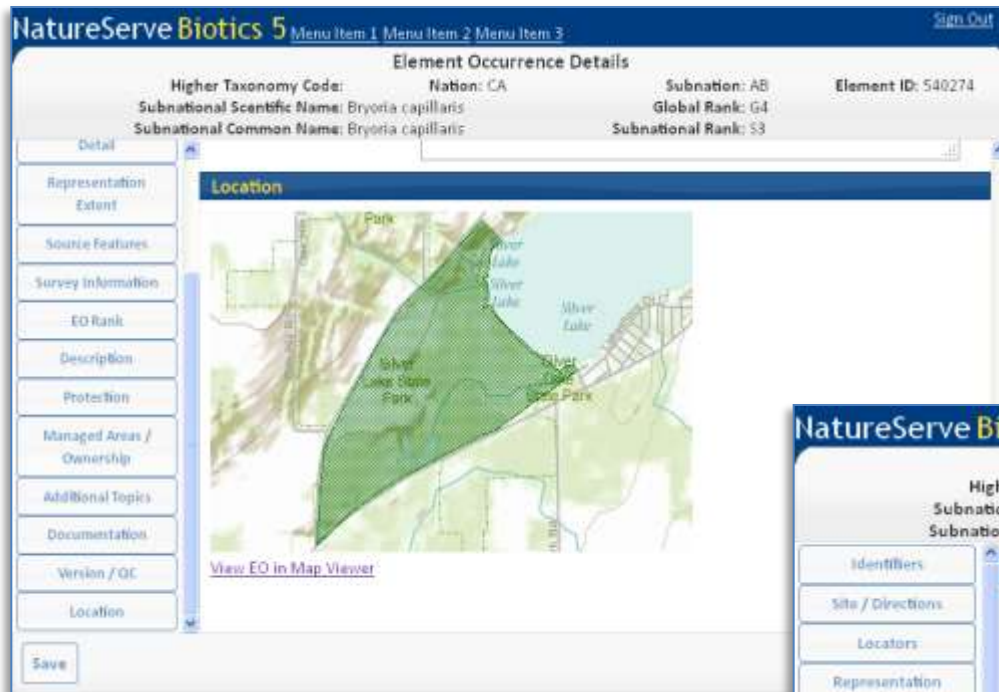
Code	Domain Values	Operations
A	A. No lateral restrict	Remove (English)
B	B. Lateral restrict 425% basins	Remove (English)
C	C. Lateral restrict AND 25-75% basins	Remove (English)
D	D. No connect OR 175% basins	Remove (English)

- Web-based application
- Author new or customized templates
- Use templates with Kestrel and/or handheld device

- Discover how other organizations collect data
- ***Facilitate and promote use of common standards to improve consistency of data!***

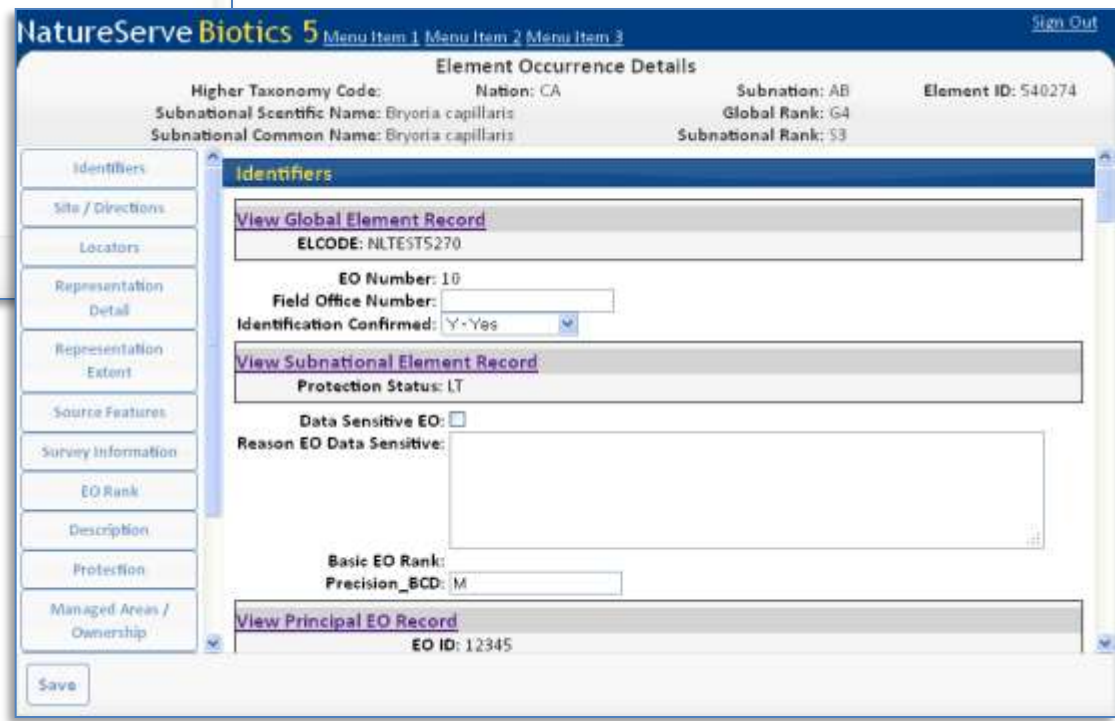
The screenshot shows the 'Template Definition Details' page for a template named 'EIA\_Level2Metrics'. The page includes 'General Information' with Title, Documentation, and Comments? No; and a 'Fields' section. The title is 'Ecological Integrity Assessment: Level 2 Metrics [English]'. The 'Fields' section shows a list of metrics under the heading 'Selected Form: Ecological Integrity Assessment: Level 2 Metrics'. The metrics include '2c. Cover of Exotic Invasive Plant Species Metric Score', '2c. Cover of Exotic Invasive Plant Species Comments/Evidence', '2f. Native Vegetation Regeneration Metric Score [Swamp & Floodplain Forest only, otherwise N/A]', '2f. Native Vegetation Regeneration Comments/Evidence', '2g. Vegetation Composition Metric Score [partially integrates 2c - 2f above]', '2g. Vegetation Composition Comments/Evidence [Also see vegetation data]', '3a. Water Source (For all types - See "Water Source" in Environmental Profile)', '3a. Water Source Comments/Evidence', '3b. Metric Score of Type 1: Riverine [channels, shores, open to forested floodplains]', '3b. Comments/Evidence of Metric Type 1: Riverine', '3b. Metric Score of Type 2: Non-Riverine [excluding Bog & Fen]', '3b. Comments/Evidence of Metric Type 2: Non-Riverine', and '3b. Metric Score of Type 3: Non-Riverine [Bog & Fen] [could apply to poor swamps, basin, marshes]'.

# Biotics 5



- Hosted web application
- ArcGIS Server mapping
- Web service architecture

- Observations have a home in Biotics
- Streamlines spatial data workflow

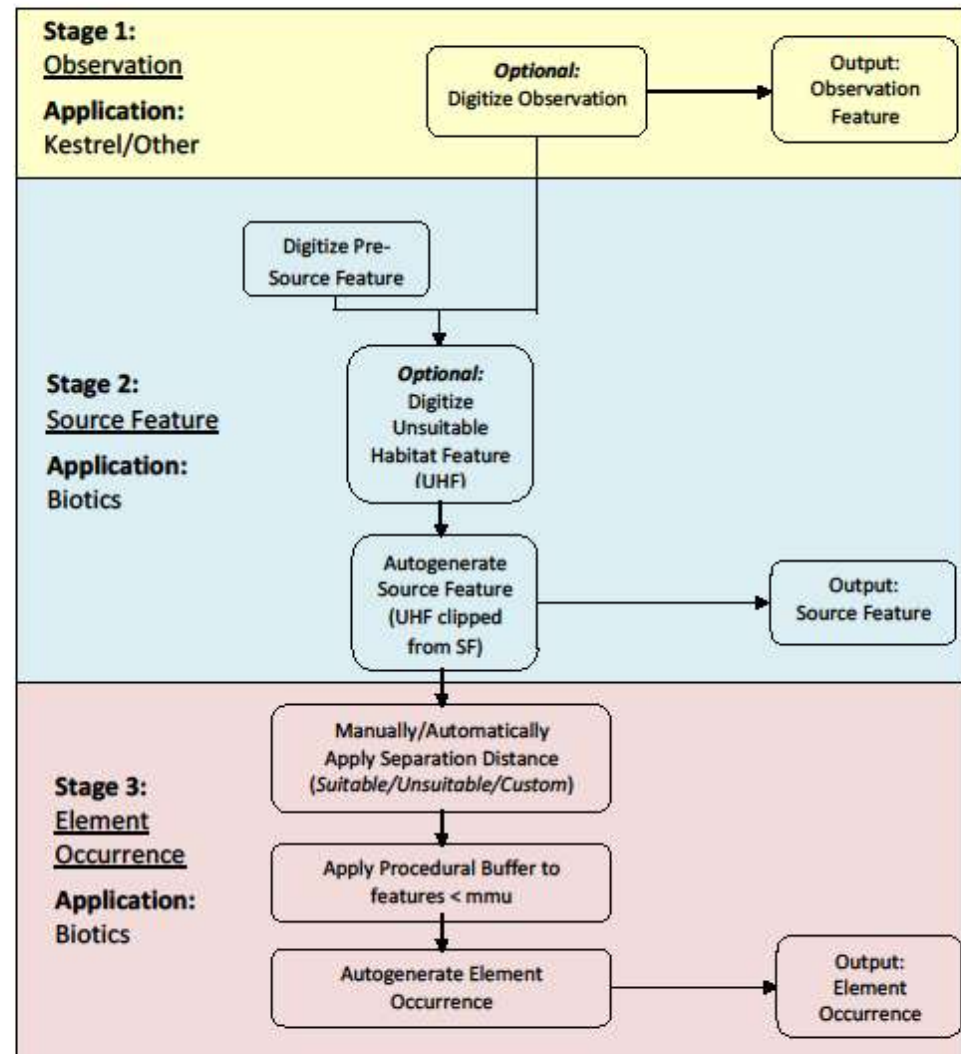


# Spatial Methodology Advances

- Integrate observations
- Streamline feature development process
- Provide options for automation
- Provide flexibility in implementation
- Improve data consistency

# Spatial Feature Development

- Application guides users through process for developing features
- Creates consistent output features at each stage
- Optional automated processes:
  - Develop Observations into Source Features
  - Clip unsuitable habitat from Source Features
  - Apply separation distances and generate EOs



# Moving to the Cloud!

- System-wide cost savings through the consolidation of more than fifty state-administered installations into one central hosting facility
- Simplifies maintenance and support
- One shared copy of global level data ensures taxonomic synchronization
- Better interoperability and data sharing with other state and federal systems through the use of open data and technology standards
- Piloting in Summer 2012

# Data Sharing Example: Wildlife TRACS

The screenshot shows the Wildlife TRACS website. The header includes the Wildlife TRACS logo and the text "Tracking and Reporting on Actions for Conservation of Species". A left sidebar contains navigation links: Home, States and Territories, Species, Ecological Regions, Search for Projects, Project Advisory Group, Project Development Team, Project Committees, FAQs, and Contact Information. The main content area is titled "Species of Greatest Conservation Need" and includes a search box with the placeholder text "Search by common or scientific species name" and a "List SOCNs by state" link. Below the search box is a map of the United States with states colored in various colors. At the bottom of the page, there is a footer with the text "Last updated: September 18, 2011" and several links: "Wildlife & Sport Fish Restoration Home Page", "U.S. Fish and Wildlife Service Home Page", "Department of the Interior | USA.gov", "About the U.S. Fish and Wildlife Service", "Accessibility", "Privacy", "Notices", "Disclaimer", and "FOIA".

NatureServe will be working with tool developers to integrate species and habitat web services from Biotics

# For More Information

## NatureServe

- [www.natureserve.org](http://www.natureserve.org)

## Biotics

- [www.natureserve.org/prodServices/biotics.jsp](http://www.natureserve.org/prodServices/biotics.jsp)

## Mobile Observation System

- [natureserve.org/projects/handheld/index.jsp](http://natureserve.org/projects/handheld/index.jsp)

**For information on Kestrel and Template Library tool contact:**

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(703) 908-1873

Q&A



NatureServe

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