Eco-Logical
Webinar Series

A New Data Tool for Implementing Eco-Logical: Eco-Plan Beta Testing

Presenters

Brian Gardner, Federal Highway Administration, Office of Planning

Stephen Ziegler, ICF International

September 10, 2014

(Learn more about Eco-Logical at the FHWA website)

Volpe The National Transportation Systems Center

U.S. Department of Transportation
Federal Highway Administration

Steps to Ensure Optimal Webinar Connection

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- Close all background programs
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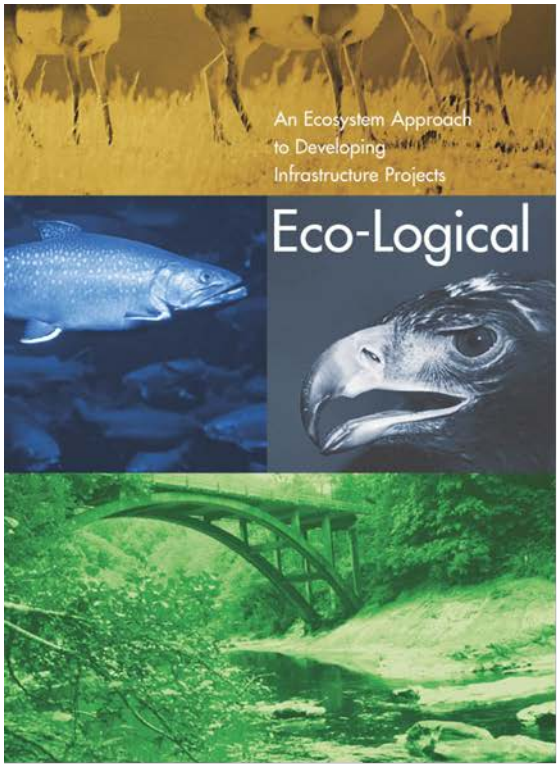
- Mute their webroom audio (toggle is located at the top of webroom screen) and use phone audio only

W here did the idea for Eco-Plan originate?



Prepared by the Steering Team
April 2006

Signed by the Steering Team Partners' Leadership

Dale Bosworth, Chief of Forest Service
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Steps of the Eco-Logical approach

1. **Build and strengthen collaborative partnerships**
2. **Integrate natural environment plans**
3. **Create a Regional Ecosystem Framework (REF)**
4. **Assess effects on conservation objectives**

Partner
Share Data
Analyze Effects

5. Establish and prioritize ecological actions
6. Develop crediting strategy

Identify key sites and actions

7. Develop programmatic consultation, biological opinion, or permit
8. Implement agreements, adaptive management, and deliver projects
9. Update REF

Document
Implement
Evaluate

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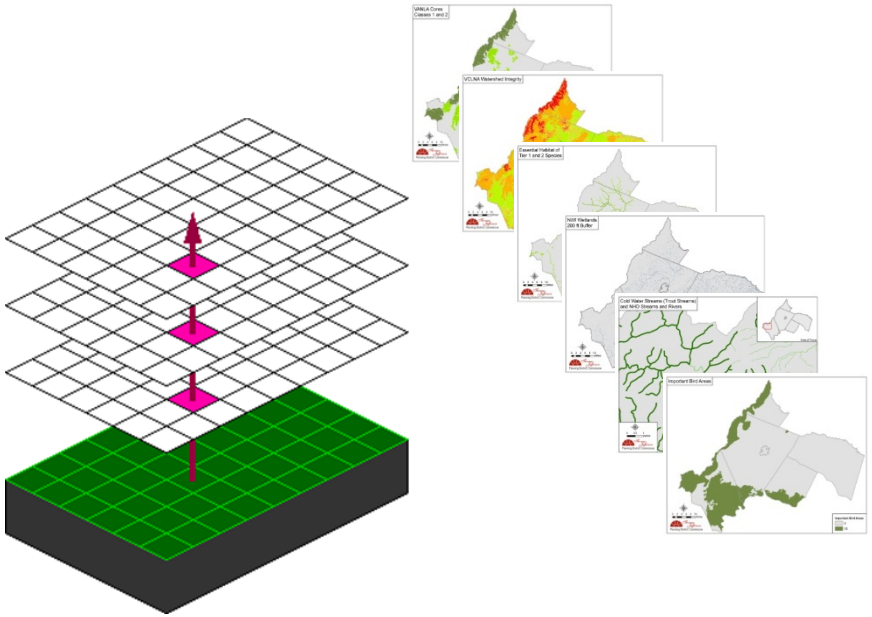
W hat is Eco-Plan?

- **An interactive, web-mapping tool that overlays national resource data and preliminary project data to inform pre-NEPA discussions regarding resource concerns and mitigation opportunities**



What is the process to develop and support Eco-Plan?

Research

- SHRP2 C06 -> EcoLogical
- SHRP2 C40 -> EcoPlan

Evaluate

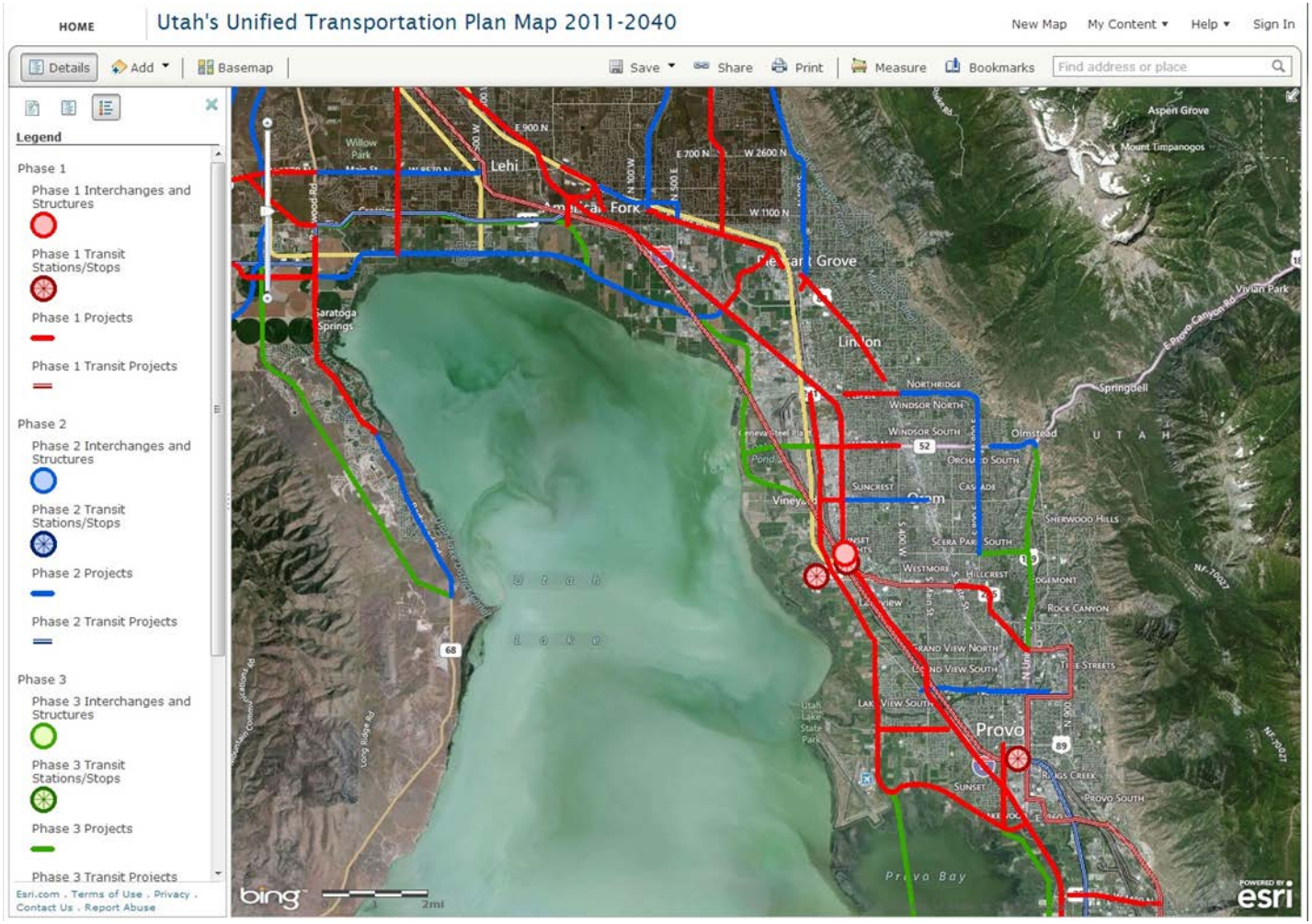
- Pilots
- Beta testing

Implement

- Convene, Facilitate, Collaborate
- Host
- Finance

W here does geospatial data fit into the planning process?

W here does geospatial data fit into the planning process?



How can I apply Eco-Plan?

- **CalTrans** evaluated the transferability of Eco-Plan to California's Regional Advance Mitigation Planning Framework impact assessment method (RAMP)
- **East-West Gateway Council of Governments** explored how those with limited GIS experience and staff at small MPOs could access national level environmental datasets
- **Contra Costa Transportation Authority** compared Eco-Plan's effectiveness to other tools in a feasibility study

How can I provide feedback?

FHWA is seeking beta testers of Eco-Plan and Eco-Plan Advanced. As you test the tool, please email mike.ruth@dot.gov with feedback on:

1. Ease of use for various levels of GIS expertise
2. User interface
3. Anticipated time/money costs or savings
4. How the tool can be used on current projects
5. Compatibility with other data and tools
6. Relationships to other tools
7. General feedback – Do you like the tool? Would you use it?

Eco-Logical Webinar Series

Eco-Plan Beta Testing

(Learn more about Eco-Logical at the FHWA website)

- **Brian Gardner,** Federal Highway Administration (Brian.Gardner@dot.gov)
- **Stephen Ziegler,** ICF International (Stephen.Ziegler@icfi.com)

- **Mike Ruth,** Federal Highway Administration (Mike.Ruth@dot.gov)
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Volpe The National Transportation Systems Center

U.S. Department of Transportation
Federal Highway Administration

Eco-Plan

SHRP 2 C40A Product Overview

Prepared for:

FHWA Pilot Webinar

Steve Ziegler
September 10, 2014

Agenda

- **Project Overview**
- **Vision**
- **Architecture**
- **Eco-Plan Overview**

Project Overview

- **SHRP C40A Integration of National-Level Geospatial, Ecological Tools and Data**
- **Scope**
  - Build a national-level GIS tool to provide the data and analysis
  - Support *Eco-Logical* and Integrated Ecological Framework (IEF)
  - Focus on novice users with little in-house GIS resources
  - Leverage Federal web services to provide up-to-date data
  - Pre-NEPA ecological screening
- **Process**
  - Form several groups to provide design input and testing feedback
    - C40Bs, User Group, Technical Expert Task Group, Beta Testers
  - Gathered and documented needs
  - Developed a vision
  - Designed the architecture
  - Tested and updated based on feedback

User and Testing Help

- **State, MPO and Research Feedback**

State DOTs
- Alaska
- Maine
- Utah

MPOs
- Dallas/Ft. Worth (Dallas/Ft. Worth, TX)
- East-West Gateway Council of Governments (St. Louis, MO)
- North Front Range Metropolitan Planning Organization (Ft. Collins, CO)
- Rogue Valley Council of Governments (Jackson Co., OR)
- Thomas Jefferson Planning District Commission (Charlottesville, VA)

Research
- University of California, Davis
- Missouri Resource Assessment Partnership (MoRAP)

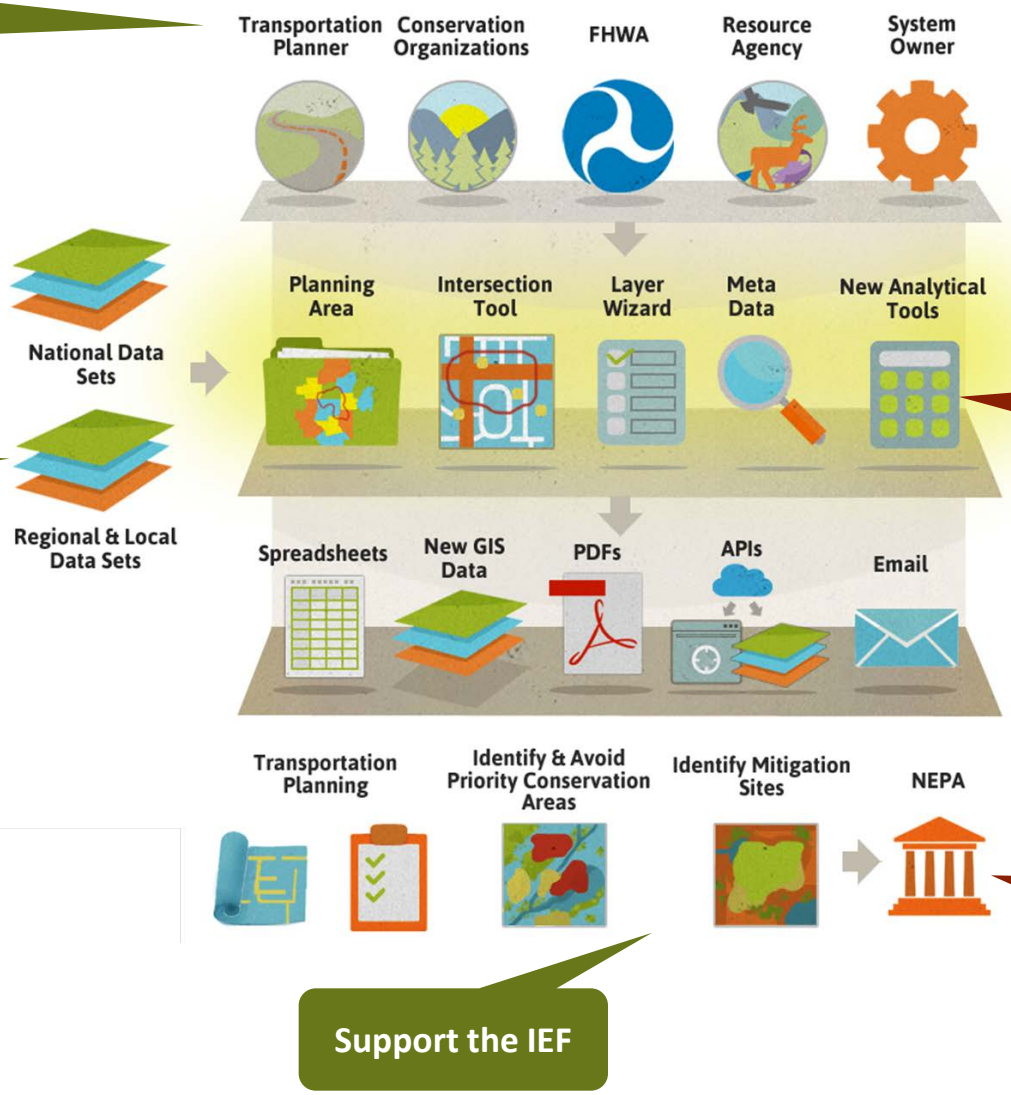
Others
- AASHTO TIG 2
- EPA Region 6
- FHWA
- Parsons
- Idaho Department of Fish and Game

Vision

Primary users are state and MPO planners

Provide Federal data sets

Allow upload of local data



Not a replacement of existing tools

Only for pre-NEPA screening

Support the IEF

Architecture – Eco-Plan and Eco-Plan Advanced

Eco-Plan

Eco-Plan supports transportation planning by providing prepared maps of national ecological data sets that can be used to avoid and minimize transportation impacts.

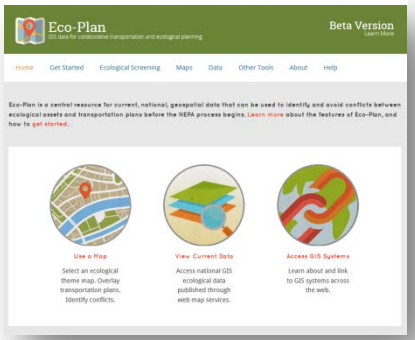
- Review maps of national ecological data sets
- Find data and other useful GIS information
- Upload or draw a planning area or transportation network
- No GIS skills needed

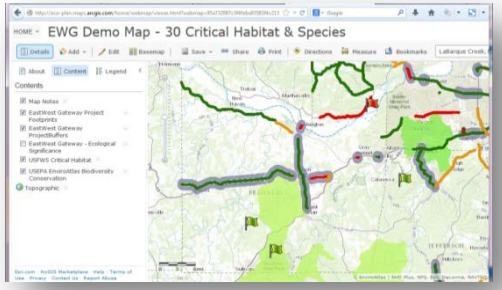
Eco-Plan Advanced

Eco-Plan Advanced, a separate website hosted by Esri ArcGIS Online, provides all of the information available through Eco-Plan with additional capabilities.

- Add any data set to the prepared maps of national ecological data
- Set up groups to save, share and comment on maps
- Conduct GIS analysis and create reports
- Requires GIS skills
- Learn More

Microsoft ASP.net MVC





Architecture - Data

Natural Environment

Land Cover, Soils and Geology
- Natural Resource Inventory and Monitoring, Vegetation (Mapping) Inventory Program (National Parks)
- Land Cover
- Forest Density
- Grassland Density
- Soil Survey Geographic (SSURGO)
- U.S. General Soil Map (STATSGO)
- Natural Resource Inventory and Monitoring, Geologic Resources Inventory
- National Geologic Map Database

Species Distribution
- Digital Distribution Maps of various species

Protected Lands and Waters
- National Wilderness Preservation System
- USFS Wilderness Areas
- USFS National Grasslands
- Protected Areas Database of the United States National Estuaries Restoration Inventory
- USFS Basic Ownership
- US Fish and Wildlife Service Regional Boundaries
- USFS Wild and Scenic Rivers
- USFS Other National Designated Areas
- Administrative Boundaries of National Park System Units
- Protected Areas Database
- Federal Lands
- National Conservation Easement Database
- National Marine Sanctuary Area Boundaries
- Sole Source Aquifers

Water and Wetlands
- Streams
- Water Bodies
- National Wetlands Inventory
- Watersheds/Hydrologic Units (HUC)
- Q3 Flood Hazards
- Flood Hazard Zones

Habitat
- North American Bird Conservation Joint Ventures Map Services
- FWS Critical Habitat
- Riparian Areas of the Western United States
- Areas without Roads

Built Environment

Environmental Contamination
- Ozone 8-hour (by 1997 and 2008 standards)
- Lead (by 2008 standard)
- Fine Particle (PM2.5) Annual (by 1997 and 2006 standards)
- Hazardous Waste (RCRAInfo)
- Air emissions (AFS)
- Water dischargers (PCS/ICIS)
- Toxic releases (TRI)
- Superfund (CERCLIS)
- Brownfields (ACRES)
- RADInfo
- Toxic Substances Control Act (TSCA)
- USGS water monitors (NWIS)
- EPA water monitors (STORET)
- Impaired Streams and Water bodies

Land Use
- Road Density
- Major land uses in the United States
- Transportation Systems

Cultural/Social

Demographics
- Demographic Characteristics (Race, Ethnicity, Gender, etc. as available from 1990, 2000, and 2010 Census)
- Housing Historic Density (1979 and 2010)
- Housing Historic Density (Projected 2050)
- Population Density (2000 and 2010)

Political Boundaries
- States
- Cities
- Counties
- Urban Areas
- Legislative Boundaries
- MPO Boundaries

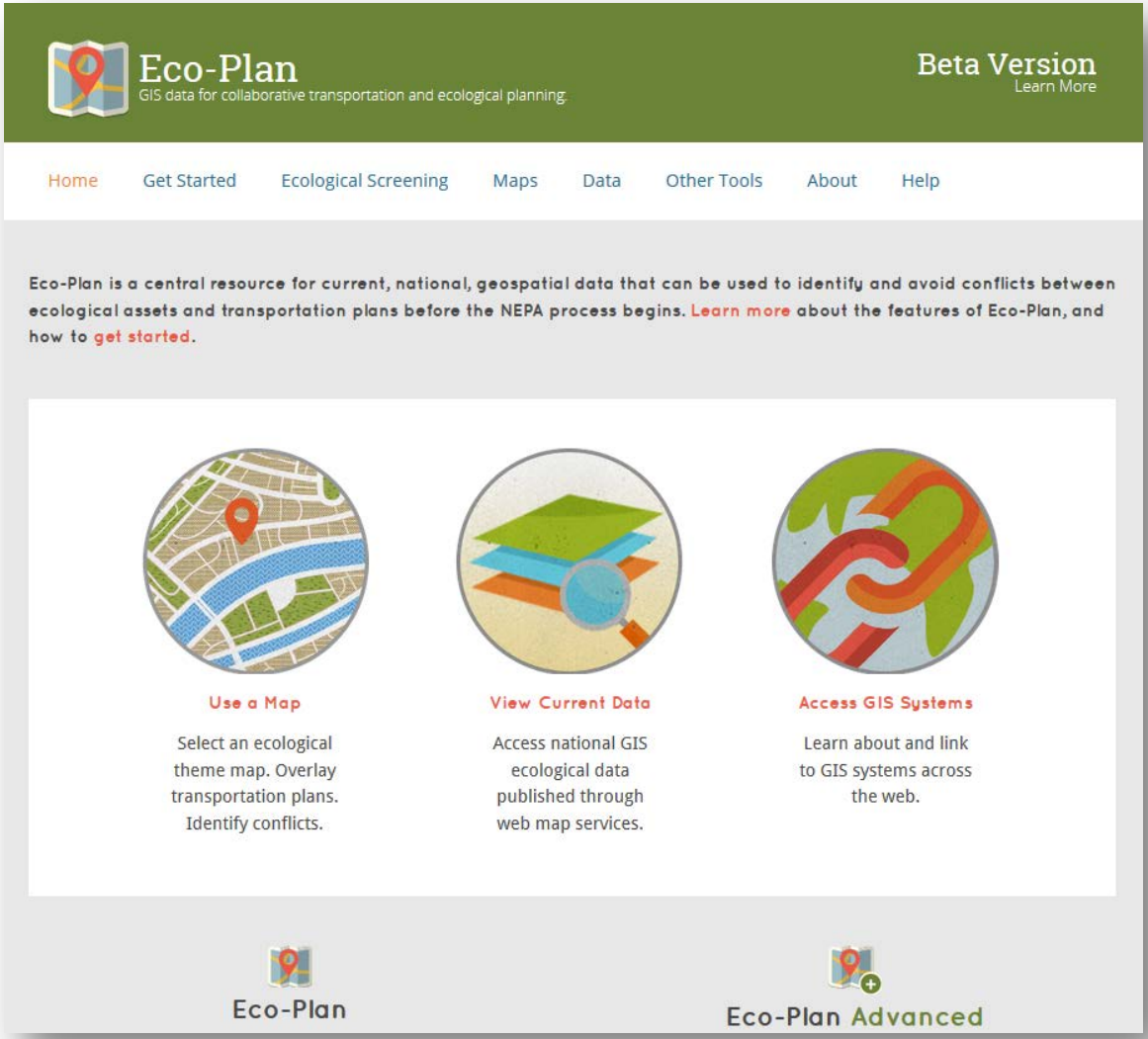
Eco-Plan Overview

Demo

- **Live demo with slides as backup**

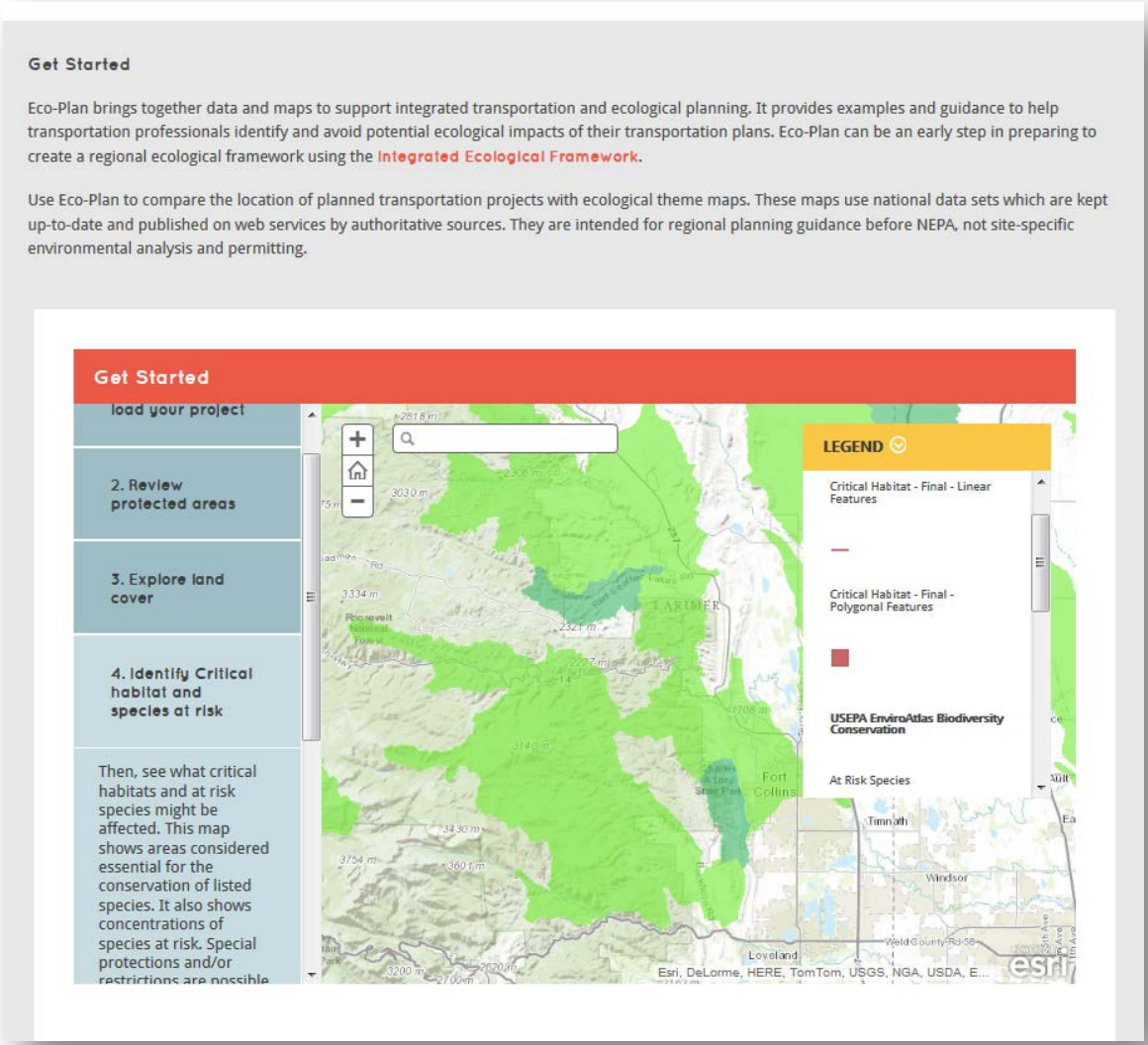
Home

- Introduce the user to the tool
- Encourage the user to use a map, view data, or see other tools
- Describe Eco-Plan and Eco-Plan Advanced



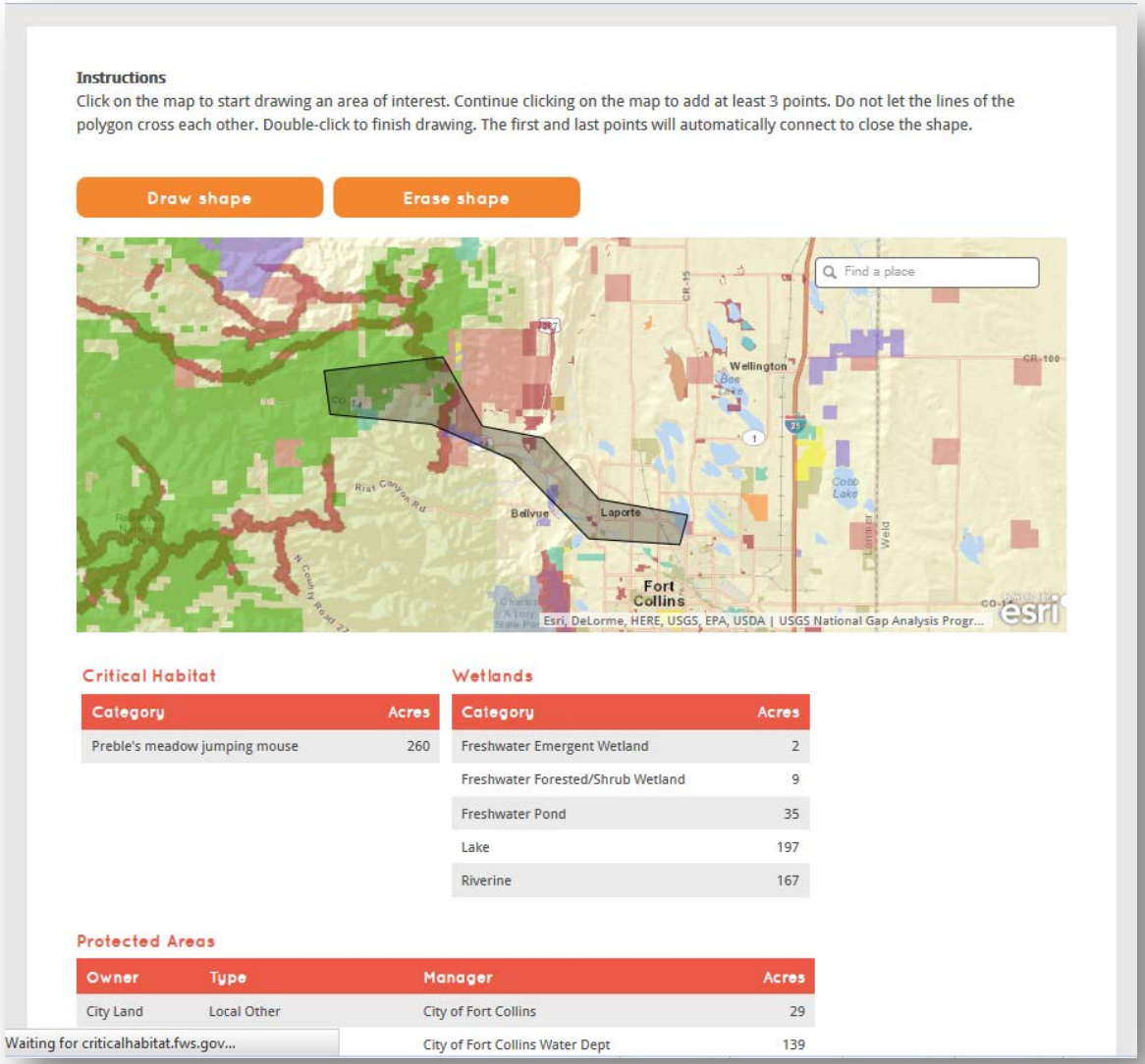
Get Started

- Introduce the user to the theme maps
- Provide an interactive view of several themes of data



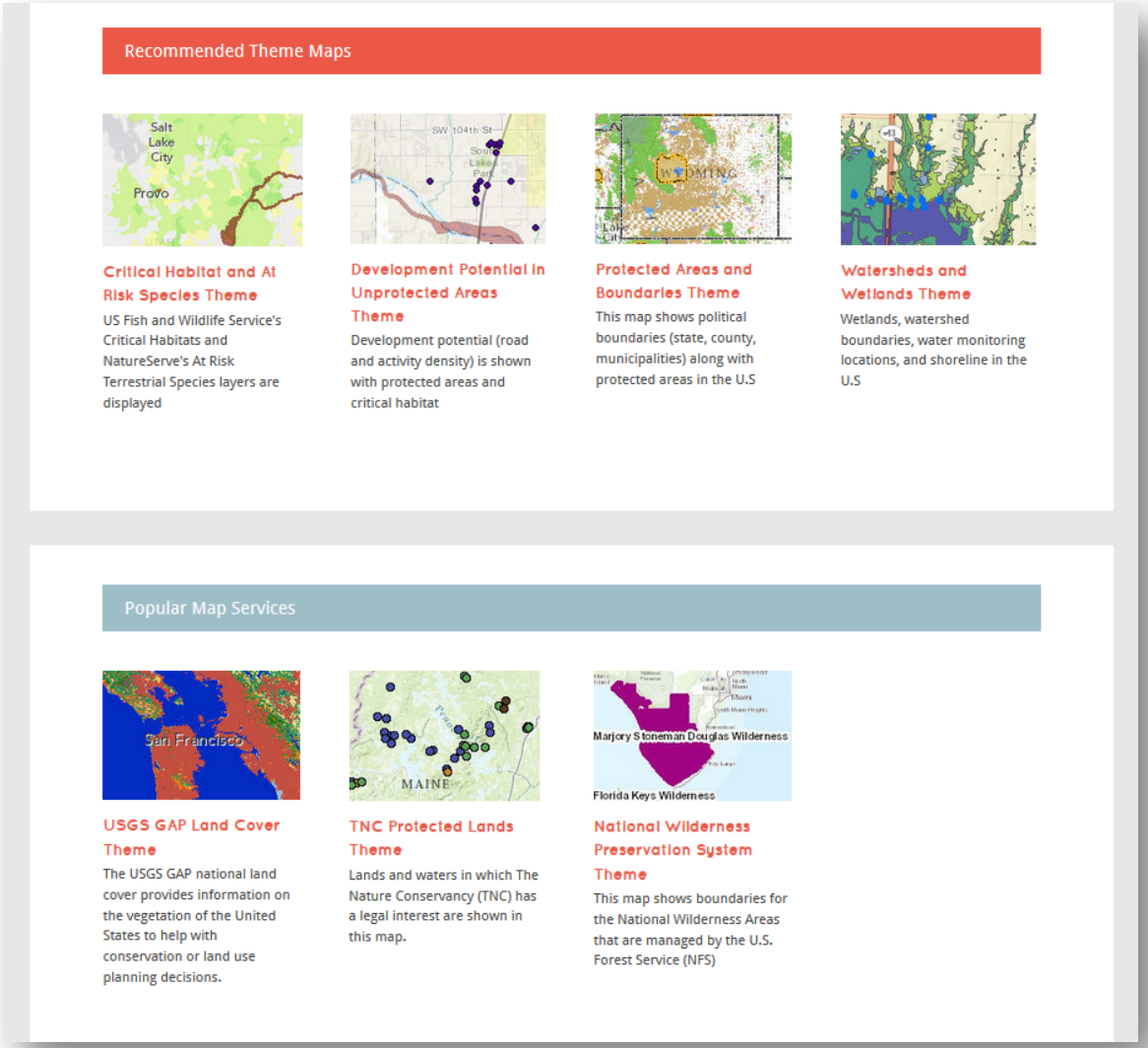
Ecological Screening

- Provide a simple ecological screening tool based on the user's shape
- Prototype functionality limited to
  - Several states
  - Only critical habitat, wetlands, and protected areas data
- Waiting for future owner to expand



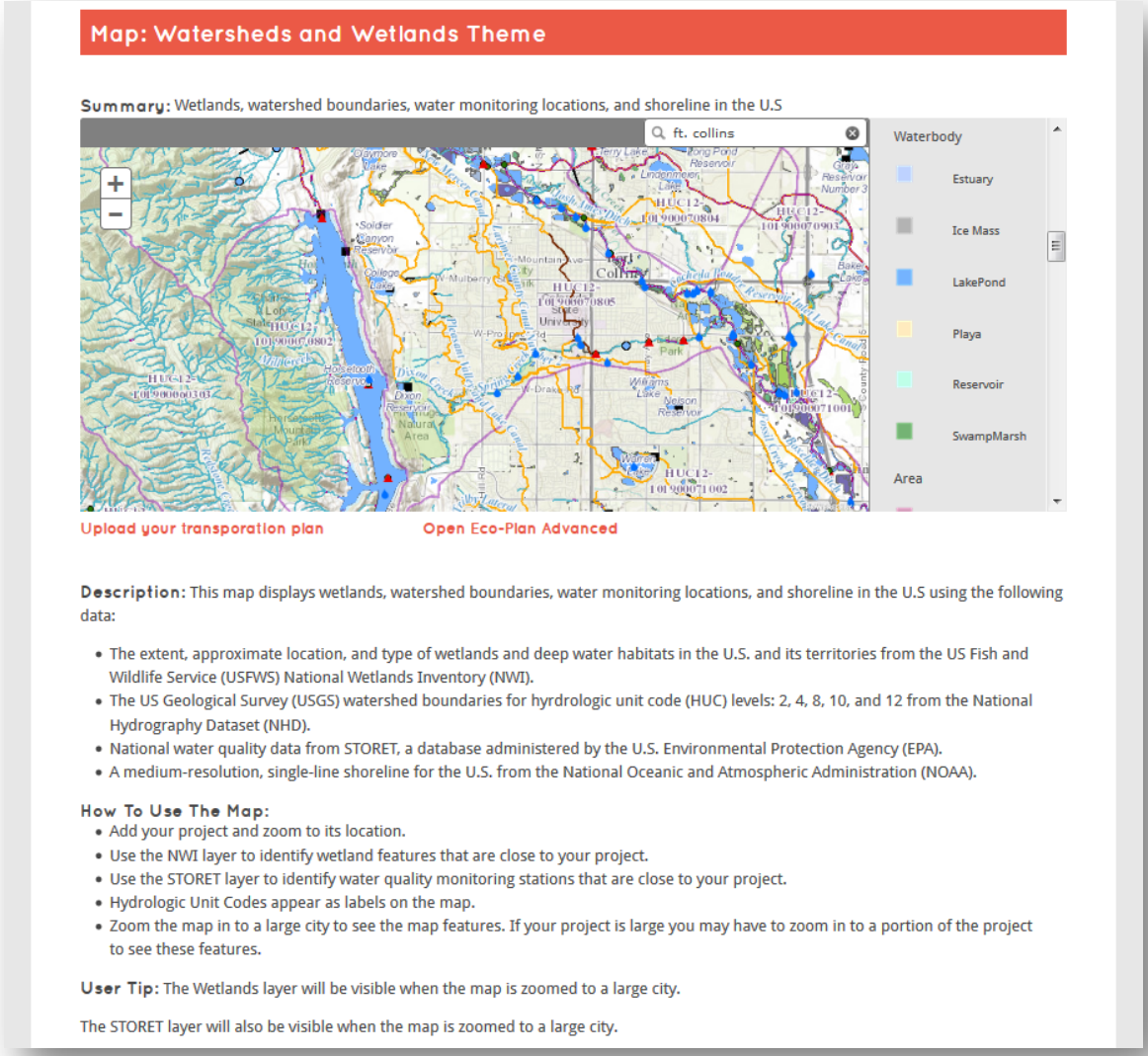
Maps

- Gallery of themes maps and popular data services



Map Details

- Detailed information on the theme maps
  - Description
  - How To Use
  - Tips
  - Things To Be Aware Of
  - Data Services



Map: Watersheds and Wetlands Theme

Summary: Wetlands, watershed boundaries, water monitoring locations, and shoreline in the U.S

Upload your transporation plan Open Eco-Plan Advanced

Description: This map displays wetlands, watershed boundaries, water monitoring locations, and shoreline in the U.S using the following data:

- The extent, approximate location, and type of wetlands and deep water habitats in the U.S. and its territories from the US Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI).
- The US Geological Survey (USGS) watershed boundaries for hyrdrologic unit code (HUC) levels: 2, 4, 8, 10, and 12 from the National Hydrography Dataset (NHD).
- National water quality data from STORET, a database administered by the U.S. Environmental Protection Agency (EPA).
- A medium-resolution, single-line shoreline for the U.S. from the National Oceanic and Atmospheric Administration (NOAA).

How To Use The Map:

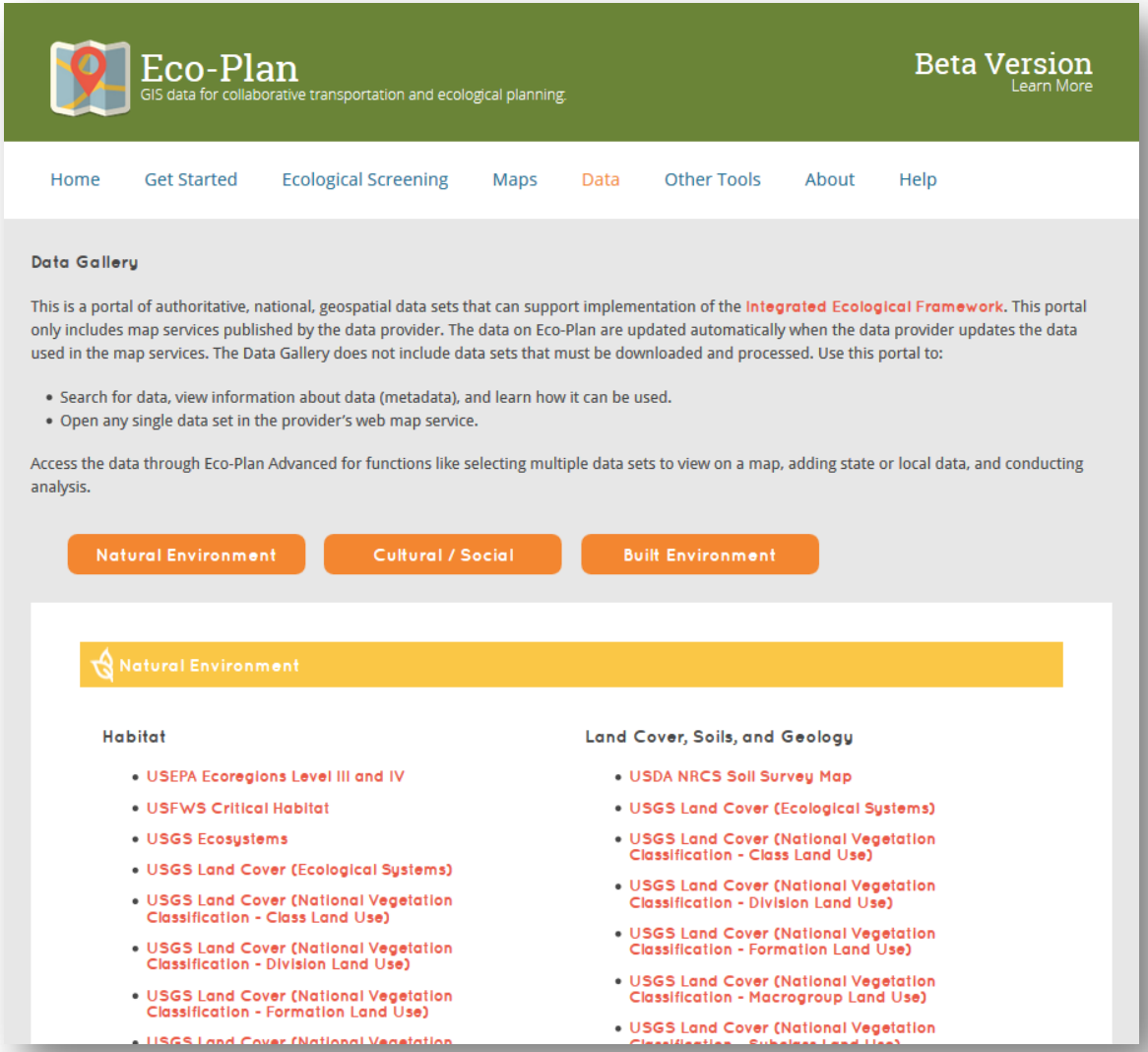
- Add your project and zoom to its location.
- Use the NWI layer to identify wetland features that are close to your project.
- Use the STORET layer to identify water quality monitoring stations that are close to your project.
- Hydrologic Unit Codes appear as labels on the map.
- Zoom the map in to a large city to see the map features. If your project is large you may have to zoom in to a portion of the project to see these features.

User Tip: The Wetlands layer will be visible when the map is zoomed to a large city.

The STORET layer will also be visible when the map is zoomed to a large city.

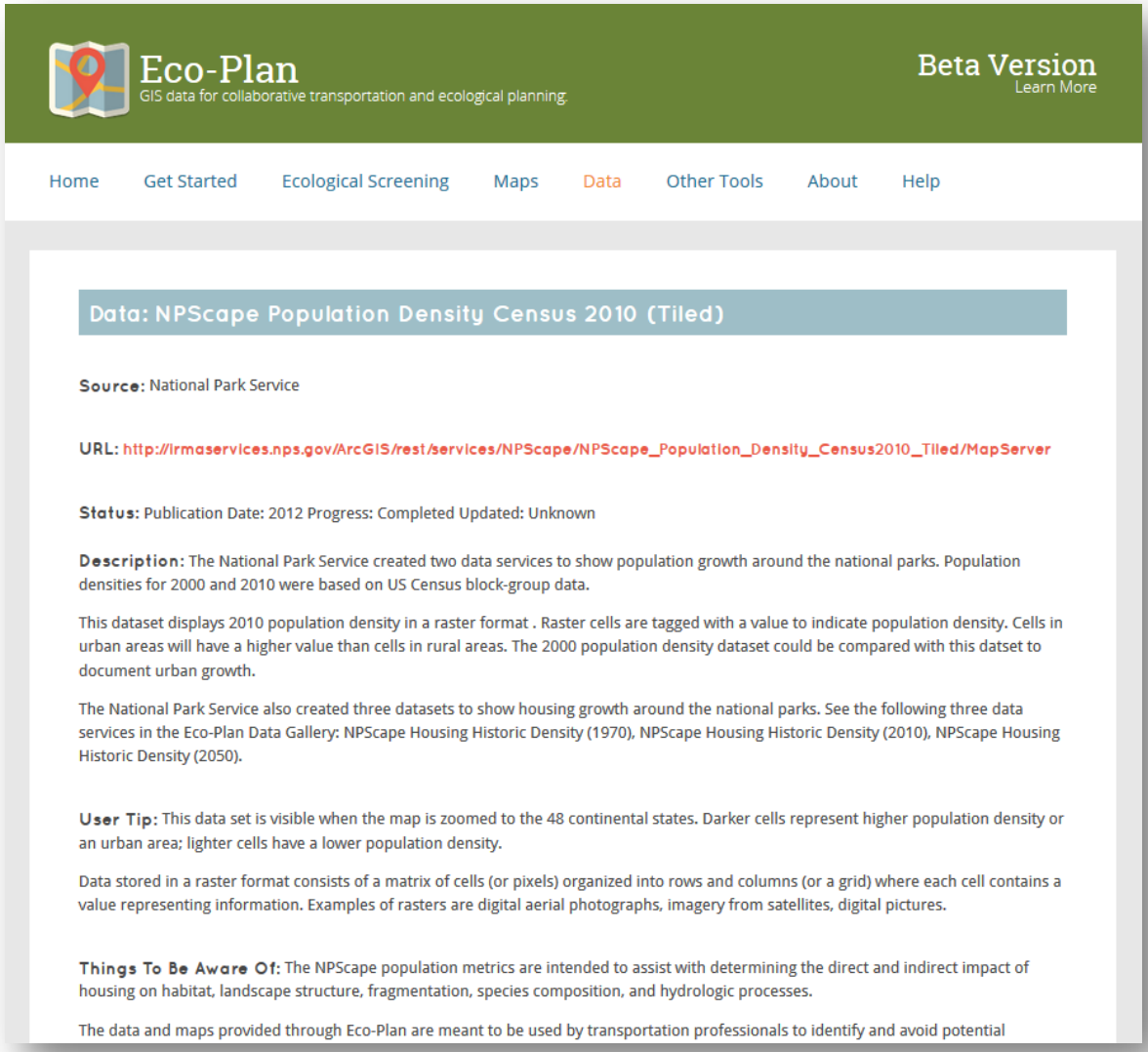
Data

- List of authoritative data sources useful in transportation planning and resource conservation
  - Natural Environment
  - Cultural/Social
  - Built Environment



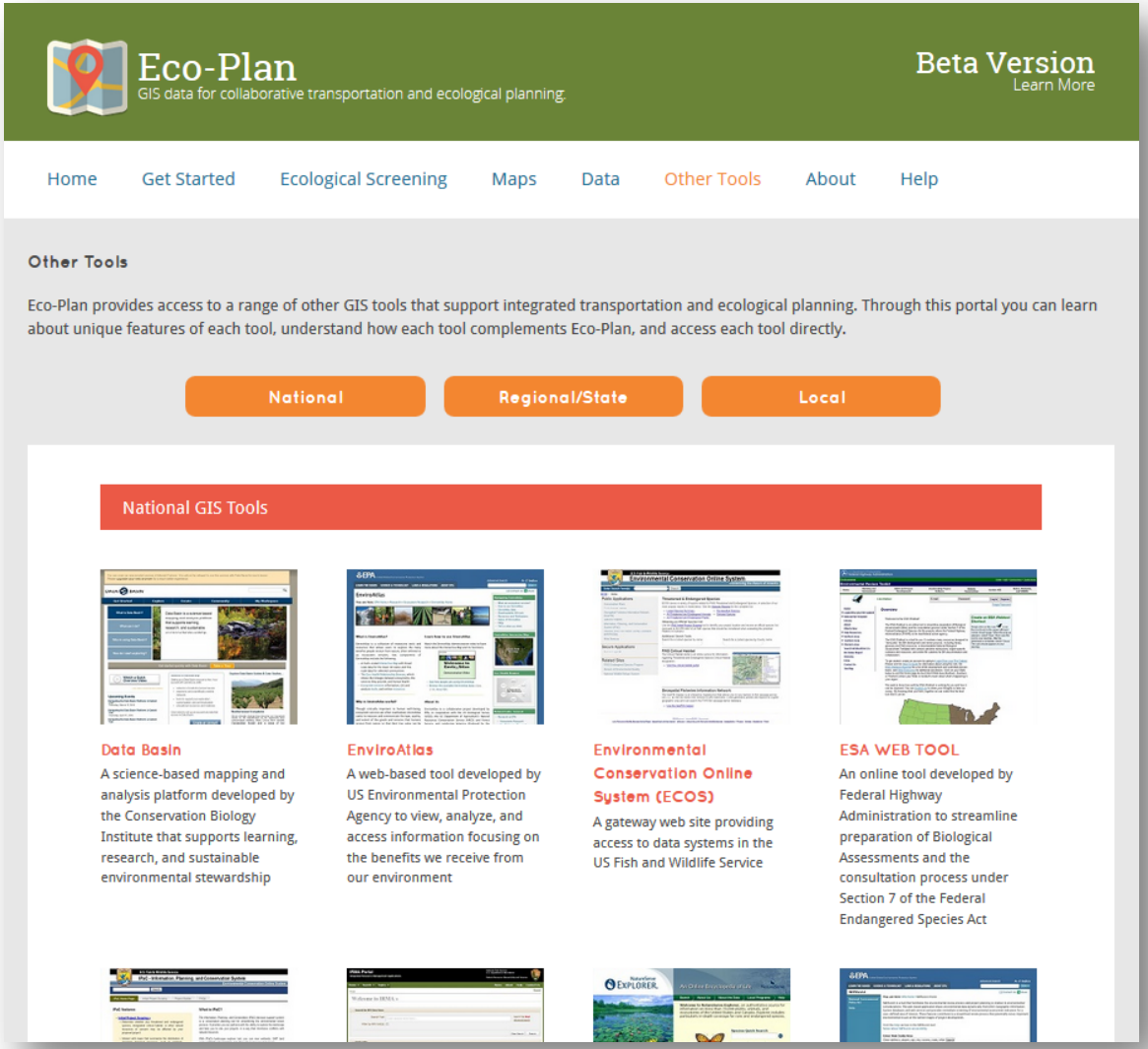
Data Details

- Details on authoritative data sets
  - Source
  - URL
  - Status
  - Description
  - User Tips
  - Things To Be Aware Of
  - Additional Information



Other Tools

- Gallery of other useful GIS planning tools



Other Tools Details

- Details of other user GIS planning tools
  - URL
  - Geographic Scope
  - Source
  - Analytical Functions and Reports Available
  - Data Types
  - Highlights
  - When To Use
  - Things To Be Aware Of

Eco-Plan
GIS data for collaborative transportation and ecological planning

Beta Version
Learn More

Home | Get Started | Ecological Screening | Maps | Data | Other Tools | About | Help

Information Planning and Conservation System (IPAC)

The Information, Planning, and Conservation (IPaC) decision support system is a conservation planning tool for streamlining the environmental review process. It provides the ability to explore the landscape and help to site your projects in a way that minimizes conflicts with natural resources. With IPaC's landscape explorer tool, the user can view wetlands, GAP land cover, USFWS critical habitat, and other nature resource map layers. It also provides a preliminary USFWS species list and, in many locations across the U.S., a USFWS Official Species list. Available, too, are links to species life history information, the USFWS Migratory Bird program, Bald and Golden Eagle Protection Act information, and more.

URL: http://ecos.fws.gov/ipac/

Geographic Scope: National

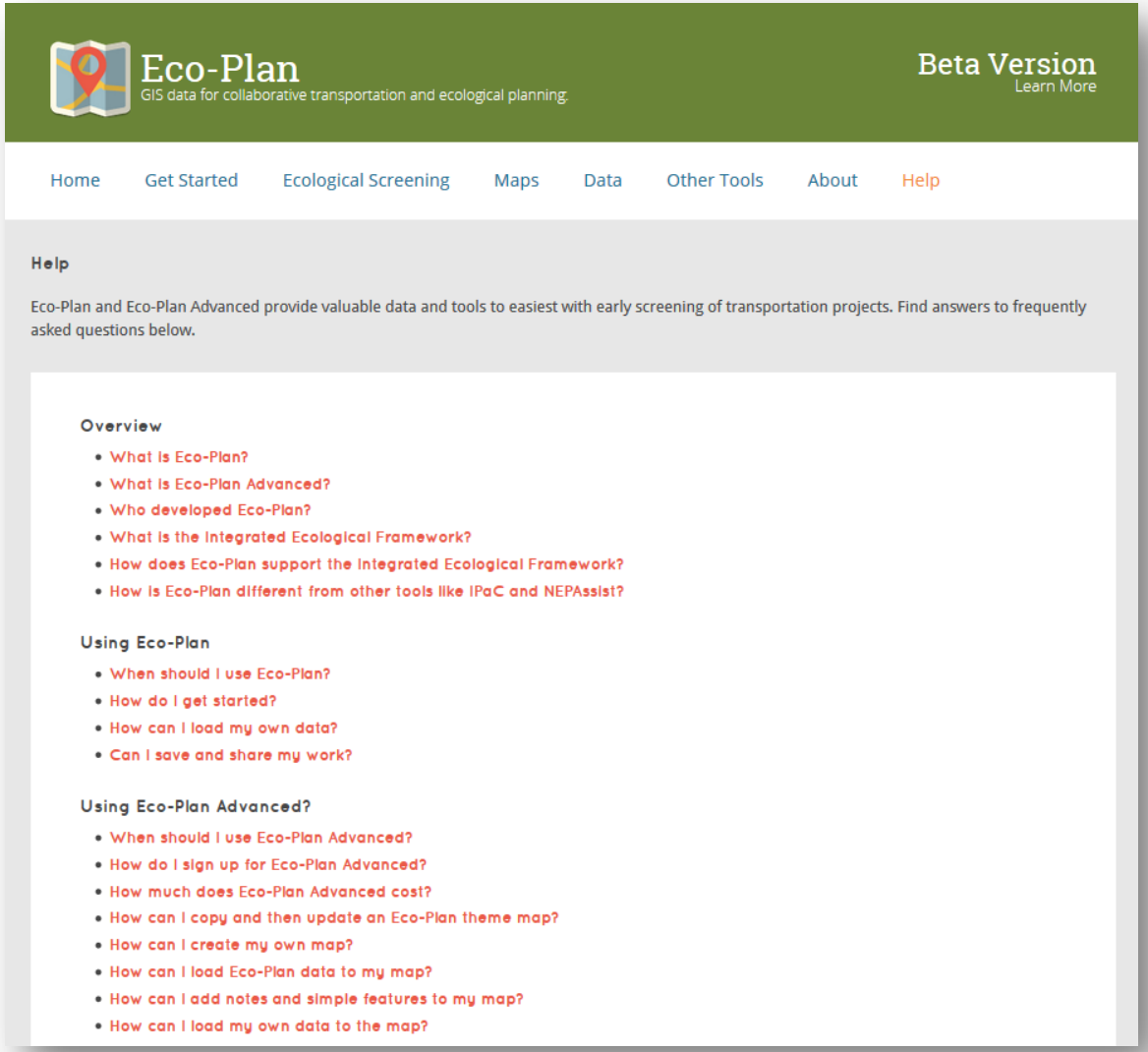
Source: US Fish and Wildlife Service

Analytical Functions and Reports Available:
- Spatial query (list features within the analysis boundary)
- Provides a report

Data Types or Data Sets Used: IPAC's landscape explorer tool allows users to view wetlands, GAP land cover, USFWS critical habitat, and other natural resource map layers. It provides lists of species and identifies resource conservation measures available in the project

Help

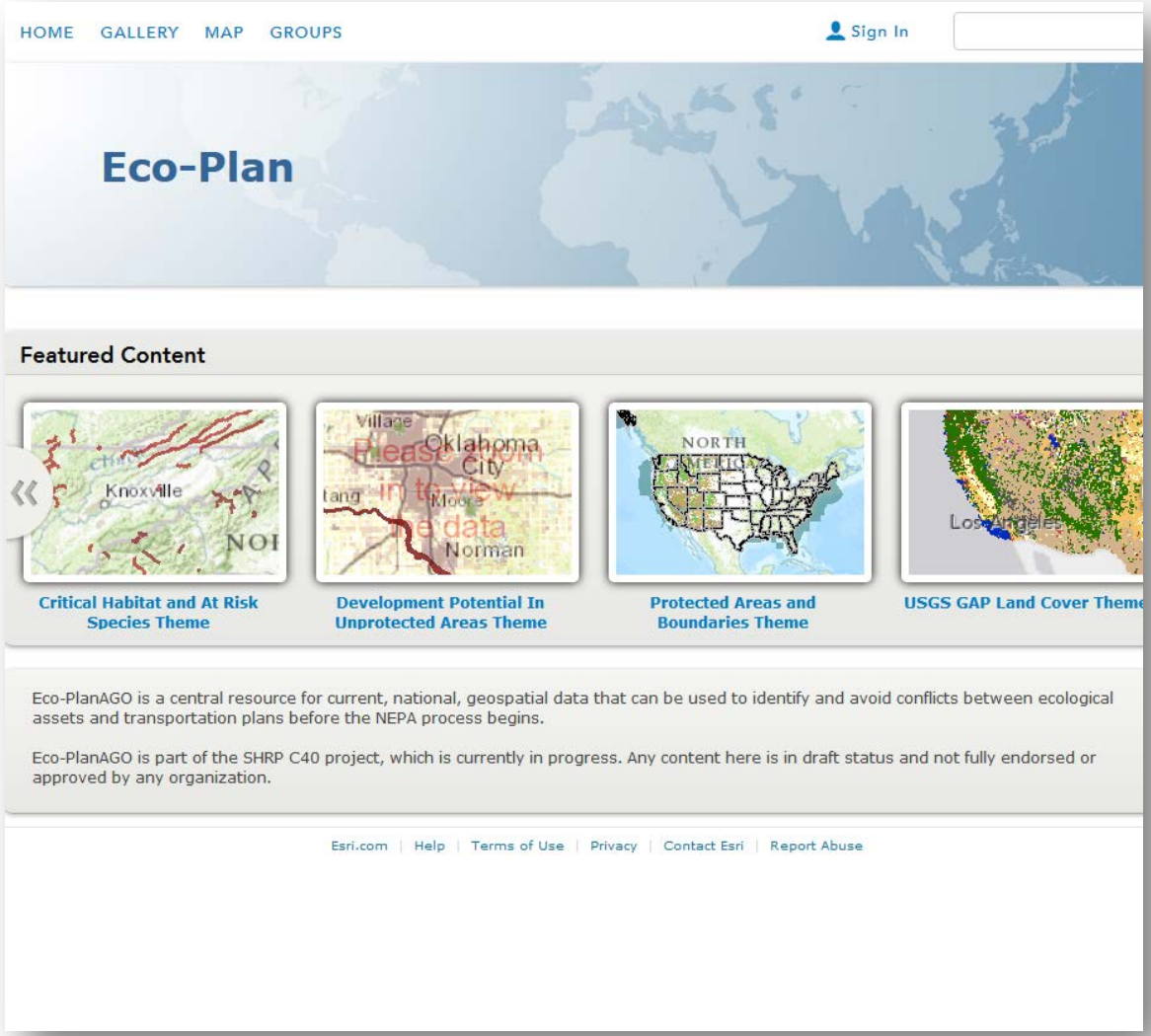
- Frequently Asked Questions



Eco-Plan Advanced Overview

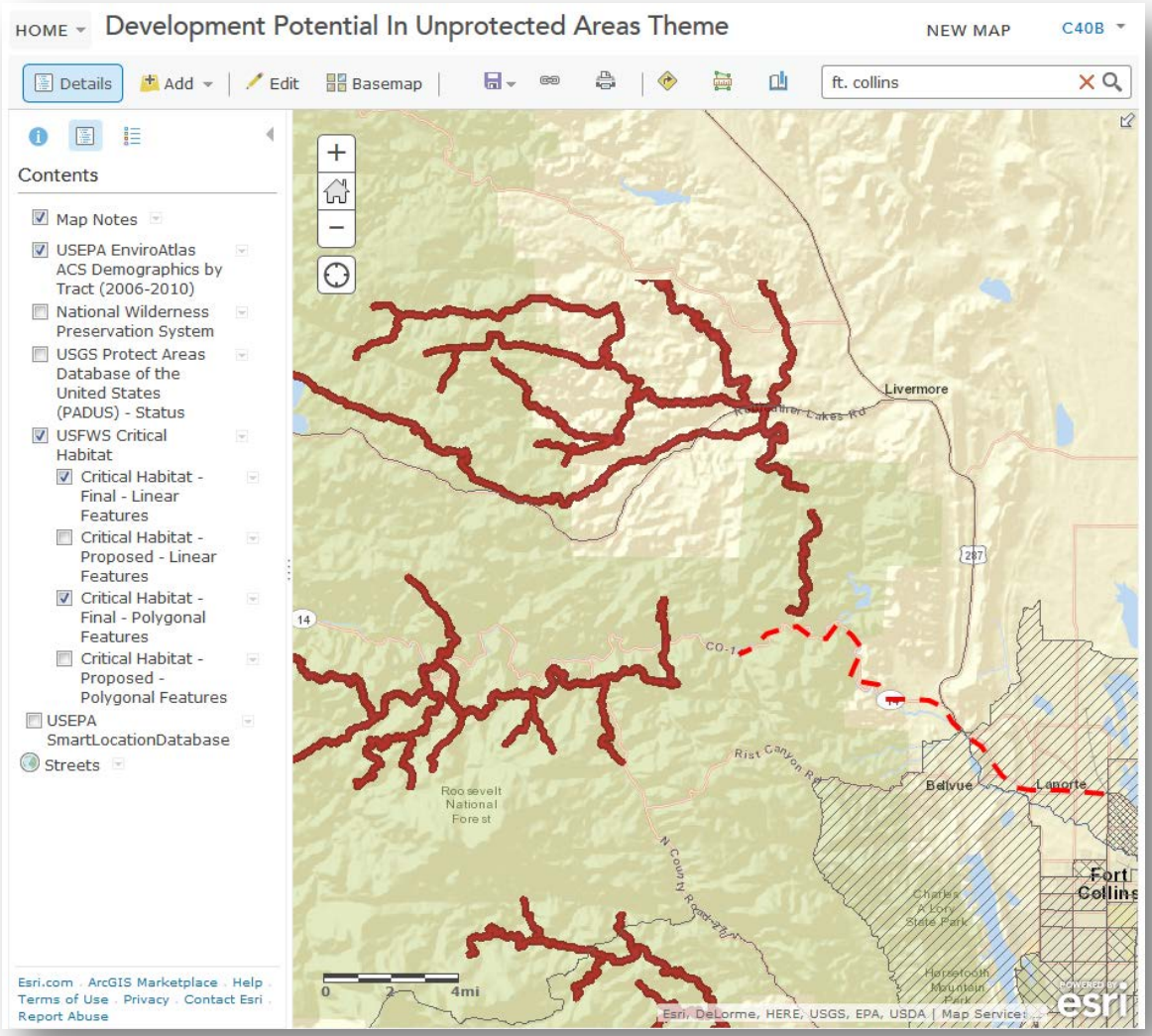
Eco-Plan Advanced Home

- Gallery of recent maps



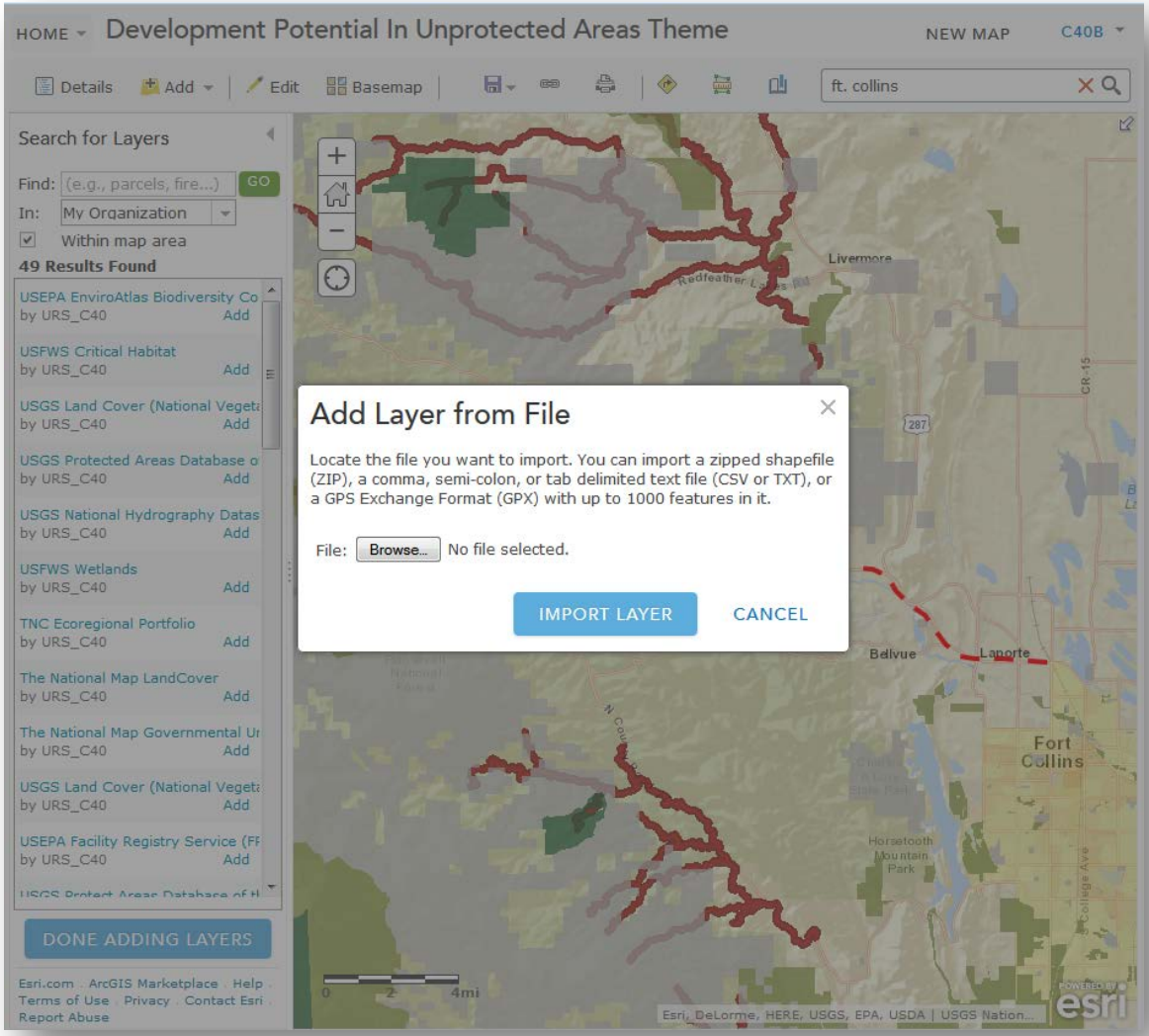
Customize Maps

- Find and copy existing theme maps for customization
- Show/hide data layers



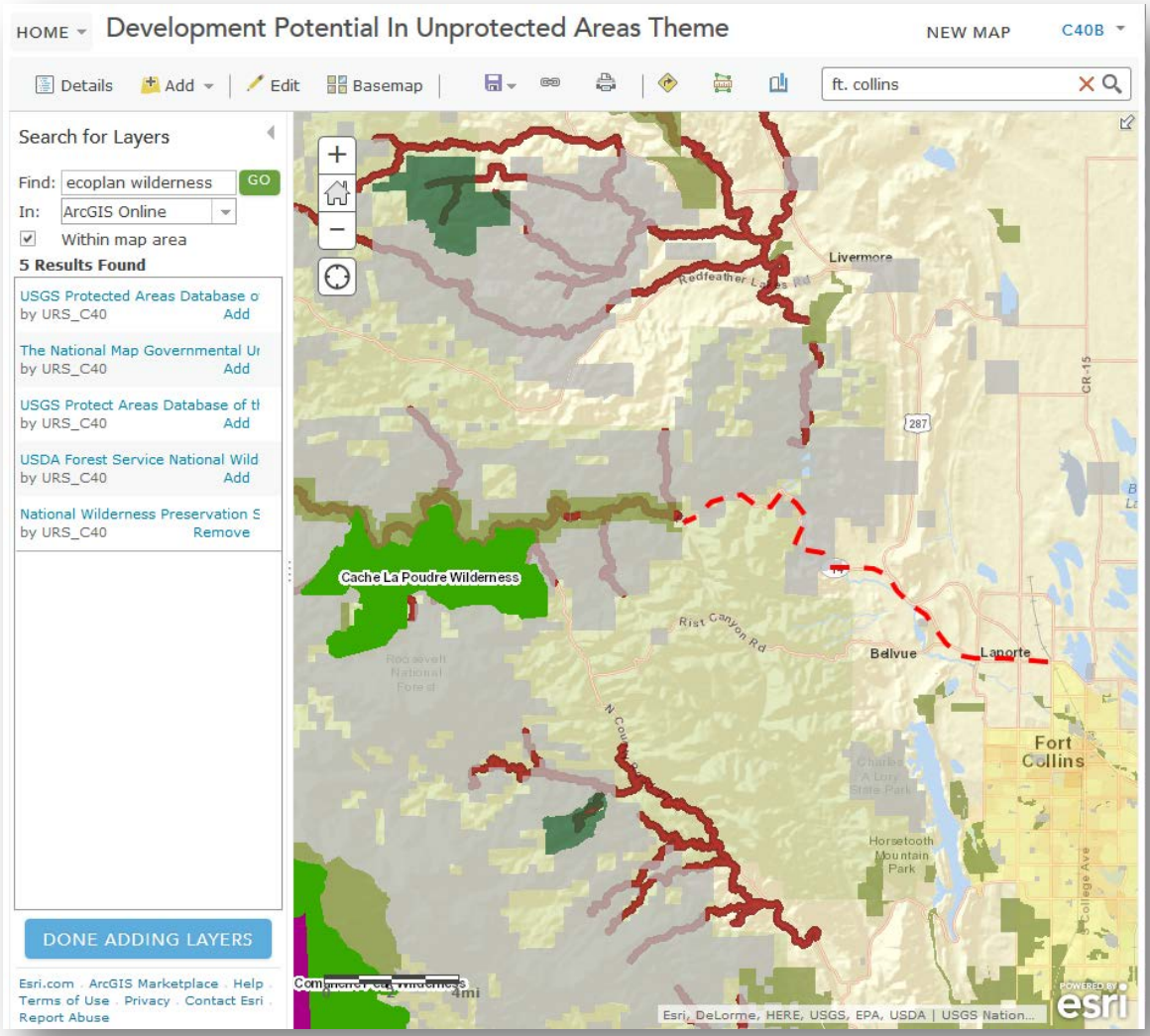
Add Local Data

- Add your own local data from shape files



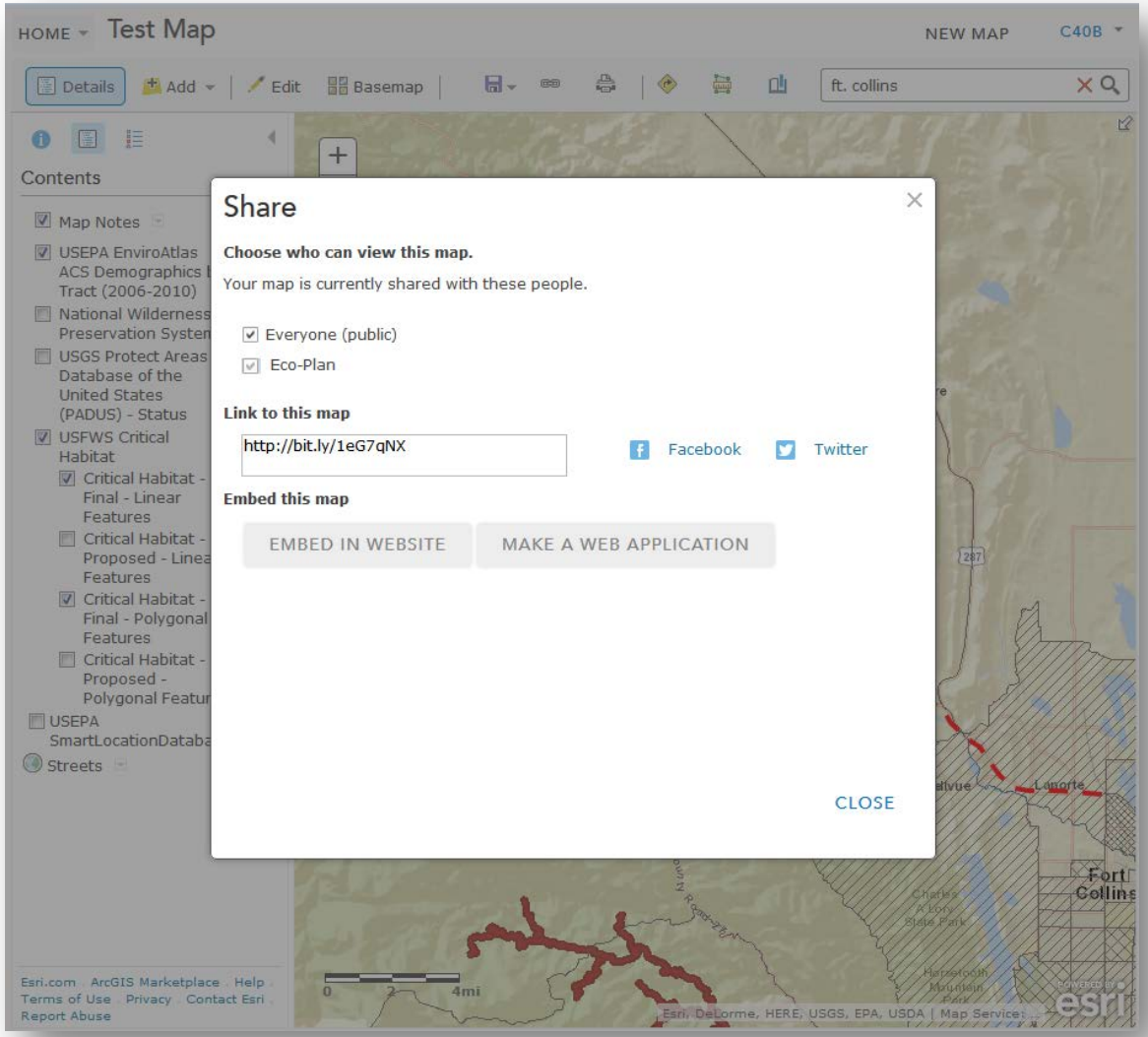
Add Other Data From Web

- Search for authoritative data sets identified by Eco-Plan
- Add data sets from ArcGIS Online or the Web



Share

- Share maps/data with the public or selected groups



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