

# Eco-Logical Successes

Second Edition

## Introduction

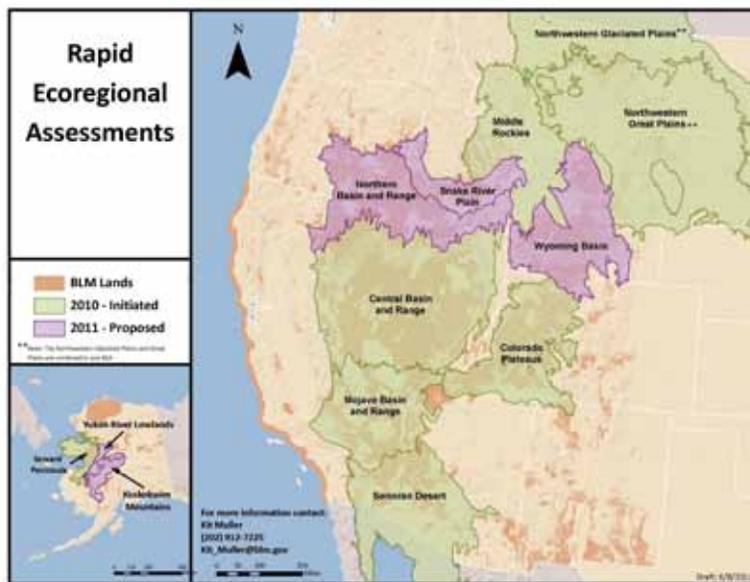
In 2006, leaders from eight Federal agencies signed the interagency document *Eco-Logical: An Ecosystem Approach to Developing Infrastructure Projects*. *Eco-Logical* is a document that outlines a shared vision of how to develop infrastructure projects in ways that are more sensitive to terrestrial and aquatic habitats, promoting advanced mitigation and early consideration of critical environmental resources.

The eight *Eco-Logical* signatory agencies are:

- Bureau of Land Management (BLM)
- Federal Highway Administration (FHWA)
- National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service
- National Park Service (NPS)
- U.S. Army Corps of Engineers (USACE)
- U.S. Department of Agriculture Forest Service (USFS)
- U.S. Environmental Protection Agency (EPA)
- U.S. Fish and Wildlife Service (USFWS)

Since signing the document, the eight agencies have continued to collaborate on efforts to promote the principles embodied in the *Eco-Logical* document. In January 2011, FHWA published the first *Eco-Logical Successes* document. The document featured at least one of each signatory agency's strategic environmental programs, projects, and efforts that are either directly related to or share the vision set forth in *Eco-Logical* and identified potential joint projects and opportunities for collaboration among the agencies. This, the second edition of *Eco-Logical Successes*, focuses on two agency programs: BLM's Landscape Approach and USFWS's Strategic Habitat Conservation Framework and Landscape Conservation Cooperatives, and provides a more in-depth discussion of these two programs and their linkages to *Eco-Logical*.

## Bureau of Land Management's Landscape Approach



*In 2010, BLM initiated seven Rapid Ecoregional Assessments (areas in green), and has proposed five additional (areas in purple). Source: BLM*

The Bureau of Land Management is developing a landscape approach for assessing and managing public lands and natural resources. A landscape approach to natural resource management enables BLM managers and its partners to examine the environmental conditions, trends, and challenges from a broader landscape perspective, and to use scientific research to inform, focus, and coordinate management efforts on the ground.

BLM's Landscape Approach consists of the following components:

### Rapid Ecoregional Assessments (REAs)

REAs synthesize existing information about the ecological conditions, trends, and natural and human influences within an ecoregion. An ecoregion is a large area of land and water defined by climate, geology, and species rather than by political boundaries. REAs identify and map key opportunities for resource conservation, restoration, and development and establish baseline ecological data to gauge the effect of future management actions. REAs contain valuable science-based information that can benefit all landowners and managers in an ecoregion.

Developing an REA involves a broad cross-section of Federal and State managers and technical specialists from within the ecoregion. These stakeholders collaborate on a series of tasks, which include:

- **Task 1:** Clarify the scope and identify management questions that have regional importance.
- **Task 2:** Identify and recommend datasets for analysis.
- **Task 3:** Identify and recommend analytical models and tools.
- **Task 4:** Prepare an REA work plan.
- **Task 5:** Synthesize datasets.
- **Task 6:** Conduct analyses and generate findings.
- **Task 7:** Prepare REA report, maps, and supporting documents.

Once drafted, the REA will undergo a science peer review process overseen by the U.S. Geological Survey. All of the information, data, and models developed through the REAs will be available to partner agencies.

### Ecoregional Directions

The information contained in the REAs is used to develop Ecoregional Directions, which outline the key management priorities for public lands within an ecoregion, and identify the priority areas for conservation and development on BLM-managed lands. Ecoregional Directions will be used to help focus and coordinate priority landscape-level management activities across BLM field offices.

### Field Implementation

BLM field offices and partner organizations will be responsible for putting the management strategies identified in the Ecoregional Direction into action on the ground. Activities will be implemented through existing place-based collaborations or new, formal partnerships may be developed.

Management plans and practices identified through the REAs and Ecoregional Directions will be flexible in order to address evolving research and monitoring. In support of its goal of adaptive management, BLM is modernizing its monitoring and mapping program to manage the information required. BLM seeks to standardize its data collection and retrieval systems so that information can be easily accessed, shared, and analyzed.

### Next Steps

Seven REAs are currently underway; several are expected to be finalized in spring 2012; several additional REAs were initiated in 2011. BLM is focusing on conducting REAs for ecoregions with a high percentage of BLM-owned land and facing significant natural resource management issues. For example, in the southwestern United States tremendous interest exists in developing renewable energy. The data and analysis included in the REAs for these ecoregions will help officials identify lands where renewable energy development and infrastructure are most appropriate.

For more information on BLM's Landscape Approach please contact:

Kit Muller  
(202) 912-7225  
Kit\_Muller@blm.gov

## BLM's Landscape Approach Supports *Eco-Logical* Concepts

The *Eco-Logical* framework includes three aspects: integrated planning, mitigation options, and performance measurement.

BLM's Landscape Approach embodies this recommended method.

**Integrated Planning:** Through its Rapid Ecoregional Assessments BLM works with partners to identify, synthesize, and analyze data to identify key opportunities for resource conservation.

**Mitigation Options:** Ecoregional Directions outlines key management priorities and practices within an ecoregion.

**Performance Measurement:** BLM will monitor the success of the management practices outlined in Ecoregional Directions. BLM will utilize the data collected to evaluate and refine implementation actions.



## U.S. Fish and Wildlife Service Strategic Habitat Conservation Framework and Landscape Conservation Cooperatives

### Strategic Habitat Conservation Framework

USFWS uses the Strategic Habitat Conservation (SHC) framework to encourage conservation and habitat management decisions based on landscape-scale resource threats. The goal of SHC is to improve the efficiency and transparency of natural resource management agencies by using a collaborative, adaptive process that strategically targets priority species. The SHC framework is a way of approaching conservation delivery where each conservation action contributes to strategic goals and objectives determined through data-driven modeling of existing conditions, resources, and opportunities. Conservation activities are monitored for their effectiveness and research is conducted into the relationships that form the basis for planning and delivery decisions. The results of monitoring and research are used to inform future conservation planning and delivery.

SHC is an iterative process with five consecutive elements that feed into each other, leading to continually improving results. The five elements are:

- **Biological Planning:** Identify priority resources, determine associated population objectives, and model relationships between habitat and populations.
- **Conservation Design:** Identify priority areas for conservation and determine population-based objectives.
- **Conservation Delivery:** Implement conservation actions through partnerships and programs.
- **Outcome-Based Monitoring:** Evaluate the success of conservation delivery activities to inform future Biological Planning, Conservation Design, and Conservation Delivery.
- **Assumption-Based Research:** Test standard assumptions used in Biological Planning to improve future activities.



USFWS Strategic Habitat Conservation Framework. Source: USFWS

### Landscape Conservation Cooperatives

Building on the SHC concept, USFWS is developing a national network of public-private partnerships called Landscape Conservation Cooperatives (LCCs). There are 21 LCCs; each one covers a large area that roughly corresponds with an aggregation of existing Bird Conservation Districts. The LCCs cover all 50 United States and extend across international borders into neighboring areas of Canada, Mexico, and several Pacific Island Territories. Each LCC will provide scientific and technical support while facilitating partnerships that enable resource agencies and stakeholders to deliver more efficient landscape-scale conservation through collaboration. The role of the LCCs is to identify best practices, connect the efforts of conservation agencies, identify gaps in conservation delivery, avoid duplication through improved conservation planning and design, and to disseminate high-quality information.

USFWS's Strategic Habitat Conservation Framework embodies the three elements of the Ecological framework:

**Integrated Planning:** As part of the SHC iterative process, USFWS works with its partners to collect, share, and analyze data to identify appropriate conservation and habitat management actions.

**Mitigation Options:** The identification of priority conservation areas by the LCCs and State-level prioritization efforts like the USFWS Alabama Ecological Services Field Office's SHUs, provide valuable information about where best to direct mitigation efforts.

**Performance Measurement:** The final step in the SHC process is outcome-based monitoring, which feeds back into conservation planning, beginning the iterative process anew. In this way, SHC ensures that future conservation planning and delivery is based on data-driven evidence of the effectiveness of past efforts.

### Field Implementation – USFWS Alabama Ecological Services Field Office

The USFWS Alabama Ecological Services Field Office has implemented SHC concepts in the way they plan, study, implement, and monitor conservation activities. Although the two LCCs that cover the majority of the land area in Alabama are not yet fully implemented, the Alabama Ecological Services Field Office has already been forming partnerships with other agencies and non-governmental organizations (NGOs), and directing resources to priority conservation areas on a statewide basis. This SHC approach helps Field Office staff leverage partnerships with other conservation agencies and NGOs to better target limited resources to areas that will be most effective.

Alabama is home to the third-highest number of listed species in the United States and has the highest number of listed aquatic species. Many of the imperiled species are freshwater snails, mussels, and fishes that live in the extraordinarily diverse Mobile River and Tennessee River basins. With much of the prime habitat for these aquatic species degraded by decades of poor land use practices and the construction of large hydropower impoundments, the Ecological Services Field Office is using SHC techniques to identify the best remaining conservation opportunities and to direct limited resources to those areas. The Field Office partnered with the Geological Survey of Alabama and Alabama Department of Conservation and Natural Resources (ADCNR) to identify 26 Strategic Habitat Units (SHUs) in the Mobile River Basin. These SHUs represent the best remaining aquatic habitat in the State. Other important partners include the ADCNR Aquatic Biodiversity Center, which developed a new hatchery facility for studying and raising imperiled aquatic species for reintroduction, and the Alabama Clean Water Partnership, a nonprofit organization that maintains basin coordinators throughout Alabama—key partners in developing water quality plans and in outreach to private landowners and the public.

The SHC approach to conservation planning, delivery, and monitoring led to a physical habitat pilot study on the North River, one of the 26 SHUs. There, the North River Team developed a watershed management plan which encourages the agriculture, silviculture, and mining industries to implement best management practices for reducing impacts to stream water quality. The Field Office is also physically monitoring strategic places within the SHU to identify the composition of aquatic species that occupy various habitat types. By gathering this data in advance, the Field Office seeks to evaluate the effectiveness of the conservation delivery activities they and their partners have undertaken, and to inform future conservation planning and delivery.

### Next Steps

In Alabama, the Ecological Services Field Office views the further implementation of the LCC concept as an opportunity to strengthen and formalize existing partnerships and to increase needed technical capacity in GIS and modeling. Meanwhile, the Field Office continues to build on the value of existing partnerships while looking ahead to new potential collaborations. The SHU concept is currently being expanded to cover areas outside the Mobile River Basin, and the concept of stream mitigation banking is being considered at the State level as a means to better direct stream mitigation efforts to high-value areas.

For more information on Alabama Ecological Services Field Office's SHC activities please contact:

Jeff Powell  
 (251) 441-5858  
 Jeff\_Powell@fws.gov

## Shared Goals: Sustaining Natural Resources through Collaboration

*Eco-Logical* suggests a method for achieving an ecosystem approach that expects agencies to work together to integrate their respective plans to determine environmental priority areas. With priorities understood, mitigation options can be explored where impacts are unavoidable. The performance of implemented mitigation can then be measured, providing useful information to future iterations of the integrated planning process. BLM's Landscape Approach and FWS's Strategic Habitat Conservation Framework both embody this recommended ecosystem approach.

BLM's Landscape Approach and FWS's Strategic Habitat Conservation Framework are complementary efforts that will become more fully integrated through the LCCs. The LCCs will facilitate partnerships among the public and private agencies and organizations in an area, through which conservation and natural resource management can be coordinated.



*Alabama River at Dixie Crossing. Source: Jeff Powell, USFWS*

## Eco-Logical Program Update

FHWA is currently involved in several activities designed to further promote implementation of an ecosystem approach to conservation.

### Implementation Tools

The Strategic Highway Research Program (SHRP 2), a targeted, short-term research program led by the Transportation Research Board (TRB), is funding projects designed to provide the tools needed to implement the *Eco-Logical* approach. One such tool is the Integrated Ecological Framework or IEF. The IEF is a step-by-step, peer-reviewed, science-based process that guides natural resource and transportation practitioners in developing conservation and restoration priorities and integrating such information into transportation planning, and regional and local land use planning. The IEF is available online as part of the Transportation for Communities (TCAPP) tool at: [http://www.transportationforcommunities.com/shrpc01/resource\\_agency#ief](http://www.transportationforcommunities.com/shrpc01/resource_agency#ief).

FHWA is currently working with agency partners to identify how to best use and deliver the decision support tools developed through the SHRP 2 research projects to transportation and environmental practitioners.

### Outreach and Education

In addition to its activities to support the integration of SHRP 2 products into the *Eco-Logical* program, FHWA is also conducting an *Eco-Logical* webinar series. The webinars provide a forum for agencies to share their experiences and relate emerging topics in transportation to the *Eco-Logical* process. Previous webinar topics include:

- Mitigation Banking, Conservation Banking, and In-Lieu Fee Programs: Mitigation Options Using the *Eco-Logical* Approach
- *Eco-Logical* and Webinar Crossings: Concepts in Innovative Planning
- Using *Eco-Logical* to Identify Priorities for Conservation and Mitigation

Information about the webinar series, including previous presentations, is available at [http://www.environment.fhwa.dot.gov/ecological/eco\\_webinar\\_series.asp](http://www.environment.fhwa.dot.gov/ecological/eco_webinar_series.asp).

*Prepared for:*  
Office of Project Development and Environmental Review, Federal Highway Administration,  
U.S. Department of Transportation

*Prepared by:*  
John A. Volpe National Transportation Systems Center, Research and Innovative Technology Administration  
U.S. Department of Transportation

*This document was funded by FHWA's Office of Planning, Environment,  
and Realty's Surface Transportation Environment and Planning Cooperative Research Program (STEP).*