



Eco-Logical Successes

Introduction

From 2003 to 2006, eight Federal agencies came together to write the interagency document *Eco-Logical: An Ecosystem Approach to Developing Infrastructure Projects*. To promote ecosystem sustainability, these Federal agencies developed a document in response to a growing desire to better avoid, minimize, and mitigate the effects of infrastructure projects.

The Federal agencies that formed the interagency team included:

- 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 (FWS)

Leaders from each of these agencies signed the *Eco-Logical* document, acknowledging that it represented the shared vision of all of their agencies. The agencies envisioned an enhanced and sustainable natural environment where

necessary infrastructure can be developed in ways that are more sensitive to terrestrial and aquatic habitats. *Eco-Logical* encourages Federal, State, Tribal, and local partners involved in infrastructure planning, design, review, and construction to use flexibility in regulatory processes. Specifically, *Eco-Logical* establishes the conceptual groundwork for integrating plans across agency boundaries and endorses ecosystem-based mitigation, which is an innovative method of mitigating unavoidable infrastructure impacts.

This document identifies and explains each *Eco-Logical* signatory agency's strategic environmental programs, projects, and efforts that are either directly related to or share the vision set forth in *Eco-Logical*. A brief description of an agency's key program includes program activities and goals, contact information, and a list of other strategic initiatives being undertaken. Information from each agency's key programs and selected environmental initiatives is contained in a matrix following the program descriptions. Finally, this document identifies potential joint projects and opportunities for collaboration among the *Eco-Logical* signatory agencies.

Program Descriptions

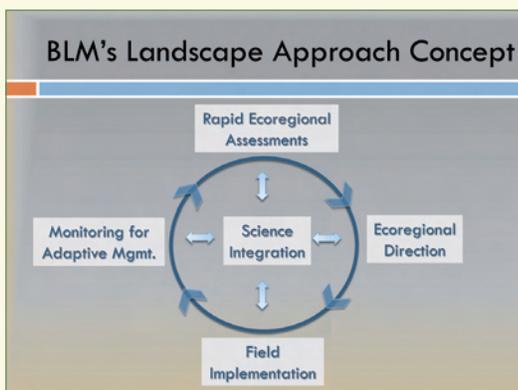
Bureau of Land Management (BLM)

Landscape Approach

- Program Description:** The Bureau of Land Management (BLM) is developing a landscape approach for assessing and managing lands and natural resources. Through this approach, the BLM will identify areas of high ecological value for conservation and restoration and will assemble and use landscape-scale information to facilitate planning and decisionmaking. The BLM will work with partners to achieve shared landscape-scale management goals.
- Program Activities:** Rapid assessments have been initiated to identify regionally important species of concern for conservation; regionally significant terrestrial and aquatic ecological attributes; and regionally significant change agents including fire, invasive species, climate change, and urban and industrial development.
- Program Goals:** To complete rapid assessments for seven Commission for Environmental Cooperation (CEC) Level III ecoregions by 2012; to conduct rapid assessments in other ecoregions with significant BLM ownership; and to make the information from these assessments available to partners and stakeholders to facilitate cooperative conservation design and resource management planning. The BLM will work with agency partners to update the assessments in the future.

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Source: BLM website



Source: FHWA Eco-Logical

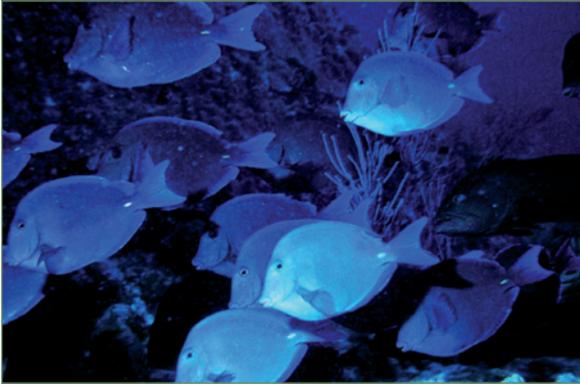
Federal Highway Administration (FHWA)

Eco-Logical

- Program Description:** The Federal Highway Administration (FHWA) *Eco-Logical* program includes a grant program that came about as a result of the 2006 interagency document *Eco-Logical: An Ecosystem Approach to Developing Infrastructure Projects*. *Eco-Logical* establishes a framework for pursuing mitigation at an ecosystem scale by using existing flexibilities in the regulatory process and increasing communication between agencies.
- Program Activities:** FHWA created the *Eco-Logical* grant program in 2007 to pilot the ecosystem-based infrastructure development approach. The program has funded 15 grant projects across the country since its inception in 2007. Grant projects include green infrastructure databases, GIS tools that identify regional ecological priorities, and outreach efforts associated with an urban transportation and stormwater construction project. In addition, FHWA has undertaken research projects aimed at understanding how the *Eco-Logical* approach functions in practice.
- Program Goals:** Future *Eco-Logical* activities include ongoing monitoring of the grant projects as well as other pilot efforts that will move towards a broader implementation of the *Eco-Logical* approach.
- Other Strategic Environmental Initiatives:** Planning and Environment Linkages, Surface Ecosystem Markets, Strategic Highway Research Program 2 (SHRP 2), Structured, Transparent, Accountable, Reproducible, Sustainable (STARS) workshops, Surface Transportation Environment and Planning Cooperative Research Program

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Source: NOAA Photo Library

National Oceanic and Atmospheric Administration (NOAA) Ecosystem Assessment Program

- Program Description:** The Ecosystem Assessment Program (EAP) is the observational and assessment backbone for all Living Marine Resources (LMR) related activities within the National Oceanic and Atmospheric Administration (NOAA). It represents a partnership between four NOAA Line Offices: National Environmental Satellite, Data, and Information Service (NESDIS), National Marine Fisheries Service (NMFS), Ocean Service (NOS), and Office of Oceanic and Atmospheric Research (OAR). The program seeks to provide trusted scientific information to foster healthy marine ecosystems for current and future generations.
- Program Activities:** Through this partnership, EAP directly responds to LMR management needs, providing necessary scientific monitoring, assessment and forecast data, and tools to support healthy marine ecosystems. In addition, EAP produces scientific and technical publications and provides outreach and education materials to foster public stewardship.
- Program Goals:** To support NOAA's Ecosystem Mission Goal: "To Protect, Restore, and Manage the Use of Coastal and Ocean Resources through an Ecosystem Approach to Science and Management."
- Other Strategic Environmental Initiatives:** Protected Species Conservation Grant Program, Integrated Ecosystem Assessments

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National Park Service (NPS) Inventory and Monitoring Program

- Program Description:** The National Park Service (NPS) Inventory & Monitoring Program (I&M Program) collects, organizes, and makes available natural resource data. Through analyzing, synthesizing, and modeling data, the I&M Program enhances the agency's scientific knowledge and contributes to improved park management. Another key purpose of the I&M Program is to share data with other natural resource agencies to transcend traditional program and funding boundaries.
- Program Activities:** Activities under the I&M Program include: NPScape, a landscape dynamics and monitoring program; the NPS Natural Resource Information Portal, a centralized web database for NPS natural resource data; and climate change briefs on climate-related impacts to NPS resources.
- Program Goals:** To integrate the I&M Program into NPS planning, management, and decisionmaking.
- Other Strategic Environmental Initiatives:** Rivers, Trails, and Conservation Assistance (RTCA) Program, Vital Signs Monitoring, Research Learning Centers, Natural Resources Program Center, Integration of Resource Management Applications

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Source: NPS Photo Library

U.S. Army Corps of Engineers (USACE)

Aquatic Ecosystem Restoration Program

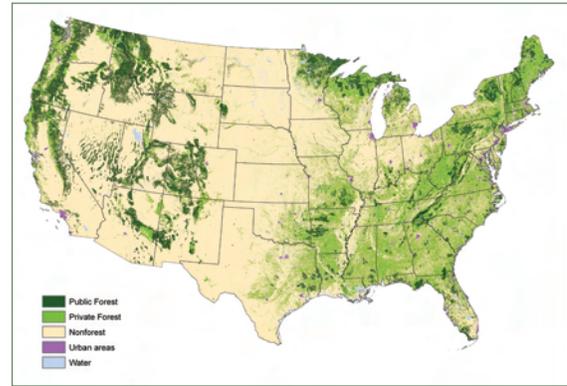
- **Program Description:** The U.S. Army Corps of Engineers (USACE) undertakes studies and projects in response to water resource problems and opportunities that are identified by local interests. The USACE Aquatic Ecosystem Restoration Program accomplishes the planning, design, and implementation of water resources projects. USACE carries out these projects under specific project and programmatic authorities.
- **Program Activities:** USACE develops Aquatic Ecosystem Restoration projects ranging in size from major projects such as the South Florida Ecosystem Restoration (Everglades) to small riparian and marsh restorations. Projects are evaluated based upon ecosystem contributions in areas of habitat scarcity, connectivity, and special status species as well as their ability to improve the hydrologic character and geomorphic condition of the project area.
- **Program Goals:** To restore the structure, function, and process of significantly degraded ecosystems; invest in restoration projects or features that positively contribute to the nation's environmental resources in a cost-effective manner; and work collaboratively with Federal, non-Federal, and non-governmental partners and stakeholders.
- **Other Strategic Environmental Initiatives:** To target specifically authorized projects as well as national programs such as S.1135 - Project Modifications for Improvement of the Environment and S.206 - Small Ecosystem Restoration Projects.

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Source: USACE website



Source: USFS

U.S. Forest Service (USFS)

Open Space Conservation Strategy

- **Program Description:** The U.S. Forest Service (USFS) developed the Open Space Conservation Strategy (OSCS) in 2007 to preserve public and private open space through four actions: 1) identification of priority open space; 2) promotion of national policies to help private landowners preserve open space; 3) provision of resources and tools to communities to expand and protect open space and; 4) participation in community growth planning to reduce the ecological impacts of development.
- **Program Activities:** USFS advises policymakers on national open space policy, coordinates interagency conservation efforts at a regional level, and provides funding and technical assistance to communities to implement the OSCS.
- **Program Goals:** To develop approaches that will improve collaboration across State boundaries to preserve and support existing networks of forest and grassland ecosystems.
- **Other Strategic Environmental Initiatives:** Forest Legacy Program, Urban and Community Forest Program

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Source: EPA Photo Library / Wayne Davis

U.S. Environmental Protection Agency (EPA) Regional Ecological Assessment Protocol

- Program Description:** The Regional Ecological Assessment Protocol (REAP) evaluates geospatial data layers to identify and rank important ecological areas in the South Central U.S. (corresponding to the U.S. Environmental Protection Agency (EPA) Region 6). Agencies use this information in project planning and in the National Environmental Policy Act (NEPA) process to develop alternatives and identify mitigation and avoidance opportunities.
- Program Activities:** The REAP provides derived ecological information for three ecological factors in each ecoregion, plus a fourth composite ranking. The ecological factors are:

 - Diversity:** Areas that have the most diverse land cover.
 - Rarity:** Areas that have the highest number of rare species and community types.
 - Sustainability:** Areas that can sustain ecosystems in the future with little or no human intervention.
 - Composite:** Diversity, rarity, and sustainability data layers are combined to create an overview of the ecologically important areas in EPA Region 6.
- Program Goals:** To improve project managers' understanding of the potential ecological impact of projects, whether at the metropolitan planning organization planning level or in the NEPA process, thereby producing better environmental assessments and enhancing the decisionmaking process.
- Other Strategic Environmental Initiatives:** Green Highways Partnership, Healthy Watersheds, NEPAAssist, Urban Waters, Watershed Resources Registry

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U.S. Fish and Wildlife Service (FWS)

Landscape Conservation Cooperatives and Strategic Habitat Conservation

- Program Description:** The U.S. Fish and Wildlife Service (FWS), along with many partner agencies and organizations, has established a national network of Landscape Conservation Cooperatives (LCC). Presently there are 21 LCCs across the United States and territories that are delineated based upon an ecoregional framework. Each LCC is guided by a steering committee comprised of key conservation partners from Federal, State, Tribal, and non-governmental organizations. The LCCs utilize a Strategic Habitat Conservation (SHC) approach, a science-based framework that aids in management decisionmaking on conservation priorities and projects at a landscape scale. SHC outlines a process for identifying conservation targets, conservation design, conservation planning, methods for monitoring conservation results, and continued research.
- Program Activities:** Each LCC identifies priority conservation issues as part of the SHC process as well as target areas or regions for research and conservation activities. LCCs are staffed by multiple agencies, including FWS and other Department of the Interior agencies. Other Federal, State, and local agencies work with LCCs by informing resource management actions that address environmental stressors within and across landscapes. Each LCC focuses on priority species and habitats indentified by LCC partners.
- Program Goals:** Utilize strong partnerships to implement a SHC approach that identifies critical conservation goals, targets conservation delivery, focuses research, and monitors results. A key component of the LCCs is working directly with U.S. Geological Survey Climate Science Centers to identify and prioritize research needs such as climate vulnerability analysis, downscale climate modeling, ecological response, assessment tools, and other conservation science that will assist the LCC partners in successful delivery of conservation programs.
- Other Strategic Environmental Initiatives:** State Wildlife Action Plans

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Source: FWS website

Table 1: Matrix of Example Programs and Strategic Environmental Initiatives

Agency	Program	Primary Activities					Primary Goals				Partners				Primary Locations				
BLM	Landscape Approach	Annual funding	Technical assistance	Data, collection, sharing, and analysis	Plan development	Project implementation	Species and habitat conservation	Land conservation	Community resource development/protection	Interagency collaboration	Federal	State	Local governments	Private / NGO	Urban areas	Rural areas	Watersheds	Ecoregions	Land management units (trails / parks / campgrounds)
BLM	Ecological Assessment			X			X	X		X	X	X						X	
EPA	Regional Ecological Assessment Protocol		X	X	X		X			X	X	X			X	X			
EPA	Urban Waters	X	X	X	X	X		X		X	X	X			X	X			X
FHWA	Eco-Logical	X					X	X		X								X	
FHWA	Planning and Environment Linkages	X	X							X	X				X			X	
FHWA	Strategic Highway Research Program 2	X	X				X			X	X						X	X	
FHWA	Surface Transportation Environment and Planning Cooperative Research Program	X	X				X		X	X	X	X			X	X	X	X	
FWS	Landscape Conservation Cooperatives	X	X	X	X		X	X		X	X	X						X	
NOAA	Ecosystem Assessment Program		X	X			X				X						X	X	
NOAA	Proactive Species Conservation Program	X			X		X	X			X	X					X		
NPS	Inventory and Monitoring Program			X			X	X			X	X							X
NPS	Rivers, Trails, and Conservation Assistance Program		X		X		X	X				X			X	X			X
USFS	Open Space Conservation Strategy			X			X				X	X						X	
USFS	Forest Legacy Program	X	X		X			X	X		X	X					X		X
USFS	Urban and Community Forest Program	X	X				X	X				X			X				X
USACE	Aquatic Ecosystem Restoration Program	X		X	X	X				X	X	X	X		X	X	X		X

Identifying Opportunities for Collaboration

While Table 1 captures descriptive elements of the signatory agencies’ programs and initiatives, Table 2 shows the opportunities for each signatory agency to collaborate on strategic environmental programs and projects. Through collaboration, agencies can provide or leverage resources that support interagency goals. The matrix lists each strategic environmental program and ways that each agency can contribute to or collaborate on that program.

Table 2: Matrix of Collaboration Opportunities

Agency	Program	Points of Collaboration				
		Funding	Data	Community outreach	Technical assistance	Partner identification
BLM	Landscape Approach		X	X		X
BLM	Ecoregional Assessment		X	X		X
EPA	Regional Ecological Assessment Protocol		X		X	
EPA	Urban Waters		X	X	X	X
FHWA	Eco-Logical	X	X		X	
FHWA	Planning and Environment Linkages	X			X	
FHWA	Strategic Highway Research Program 2		X		X	X
FHWA	Surface Transportation Environment and Planning Cooperative Research Program	X		X	X	
FWS	Landscape Conservation Cooperatives	X	X			X
NOAA	Ecosystem Assessment Program		X		X	
NOAA	Proactive Species Conservation Program	X				X
NPS	Inventory and Monitoring Program		X		X	X
NPS	Rivers, Trails, and Conservation Assistance Program	X	X	X		X
USFS	Open Space Conservation Strategy		X			X
USFS	Forest Legacy Program	X	X		X	X
USFS	Urban and Community Forest Program	X	X	X	X	
USACE	Aquatic Ecosystem Restoration Program	X	X	X		X

Eco-Logical Today

The strategic environmental programs, projects, and efforts of the *Eco-Logical* signatory agencies present important opportunities for interagency collaboration. Several common program activities demonstrate the relationships among the signatory agencies and support a common goal of future collaboration.

- **Data collection and sharing.** The collection of robust data sets enables agencies to develop plans or strategies at an ecosystem scale. Collecting data in a consistent format and sharing that data across agency boundaries reduces the duplication of effort and ensures a more unified approach to planning and management.
- **Ecosystem assessment tools that identify management priorities.** Ecosystem assessment tools strategically apply and analyze data to identify critical resources, mitigation opportunities, and management priorities. While the agencies designed each tool to meet specific program goals, the use of these tools across agencies has a broad and positive impact on resource and program management.
- **Monitoring ecosystem indicators and trends.** Natural and human-induced change agents transform ecosystems over time. Ecological indicators provide evidence of changing ecosystems, resource conditions, and potential threats. By monitoring these indicators and trends, the signatory agencies prepare, adapt, and/or reduce the impacts to critical ecological resources.
- **Protection and conservation of healthy resources.** Several signatory agency programs preserve and enhance forests and watersheds by providing resources and technical assistance. A focus on the protection and maintenance of healthy resources leads to the conservation of critical resources and intact ecosystems.
- **Collaboration with partner agencies.** All of the signatory agency programs maintain the goal of collaborating and sharing resources with partner agencies. Continued coordination supports and streamlines the activities and outcomes of each agency's programs and ensures that each program achieves its goals.

These activities suggest that while the strategic environmental programs of each signatory agency were developed independently, the agencies maintain a shared vision of ecosystem sustainability when developing and implementing infrastructure projects. Through continued interagency collaboration and communication, agencies can better develop strategic environmental programs and achieve common goals.

Eco-Logical Tomorrow

In 2010, the *Eco-Logical* signatory agencies reconvened to discuss methods and activities to more broadly implement the *Eco-Logical* approach in the daily practice of each agency and their local counterparts. Through recent signatory agency meetings, representatives from each agency identified opportunities to work together to further establish *Eco-Logical* principles in the programs and projects of each of agency. The joint opportunities and activities include:

- **Outreach Materials.** The signatory agencies plan to develop additional publications and tools that will help promote *Eco-Logical* and interagency coordination. These publications will include printed or online booklets, brochures, newsletters, and guides.
- **Ongoing Interagency Collaboration.** The *Eco-Logical* signatory agencies will continue to meet on an ongoing basis to develop implementation strategies for *Eco-Logical* and to oversee related pilot implementations.
- **Multi-Agency Technical Assistance.** The signatory agencies will serve as technical assistance experts to groups implementing the *Eco-Logical* approach. Technical assistance may include on-site regional workshops and on-call technical assistance specialists.

Through these activities the signatory agencies hope to ensure that *Eco-Logical* implementation will be achieved nationwide, leading to the efficient development of sustainable and environmentally sensitive infrastructure.

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