



# Madrean Archipelago Rapid Ecoregional Assessment



Issued September 2013

## Rapid Ecoregional Assessments

Working with agency partners, BLM is conducting rapid ecoregional assessments (REAs) covering much of the American West. The goal of REAs is to characterize 1) the status of ecological resources, 2) their potential to change at a landscape scale in response to increasing development, changing climate, the spread of invasives, and altered fire regimes, and 3) potential priority areas for conservation, restoration, and development. REAs are a first step in BLM's Landscape Approach, which considers larger geographic areas to more fully recognize natural resource conditions, processes, and trends, natural and human influences, and opportunities for resource conservation, restoration, and development. The landscape approach seeks to identify important ecological values and patterns of environmental change that may not be evident when managing smaller, local land areas.

REAs are rapid, landscape-scale assessments of the resource values of an ecoregion, their distribution and status, their interactions with major change agents, and their projected future status. REAs include:

- Assessment of current and forecasted trends in change agents and their effects on conservation elements
- Characterization of overall ecoregion integrity
- A baseline on resource and change agent status to evaluate and guide future management actions
- Conceptual models that characterize valuable natural resources and describe key ecological attributes and indicators of ecological status
- An ecoregion-wide geospatial data library that can be used to inform local scale activities, actions, and projects and place them into a more ecologically meaningful context
- Information that may be used for cumulative impacts analyses
- Context for existing land use plan decisions

## Phase 2, Task 1 Update

This brochure highlights the assessment work plan and assessment approach.

## Input and Review Opportunities

Update webinars will be held at the end of each REA task to update stakeholders on task completion and provide an opportunity for input on the next task.

## REA Phases and Tasks

### PHASE I: PRE-ASSESSMENT

#### Task 1: Initiate Project

- Engage Team Members and Participants
- Develop Work Plan for Pre-Assessment

#### Task 2: Conduct Pre-Assessment

- Characterize the Ecoregion
- Select Conservation Elements (CEs), Change Agents (CAs), and Management Questions (MQs)

### PHASE II: ASSESSMENT

#### Task 1: Assessment Work Plan

- Develop Work Plan: Characterize Assessments to Be Conducted, Assessment Approach

#### Task 2: Data And Methods For Assessments

- Inventory, Acquire, Evaluate Datasets
- Develop Process Models

#### Task 3: Conduct Assessments

- Conduct Analyses
- Generate Data, Findings

#### Task 4: Final Report

- Prepare Final REA Report, Documents

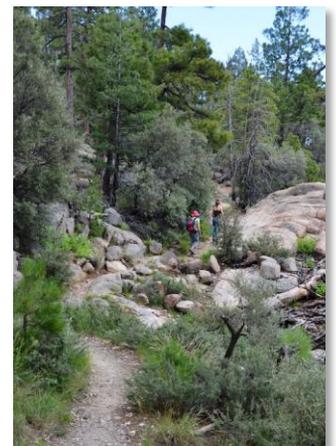
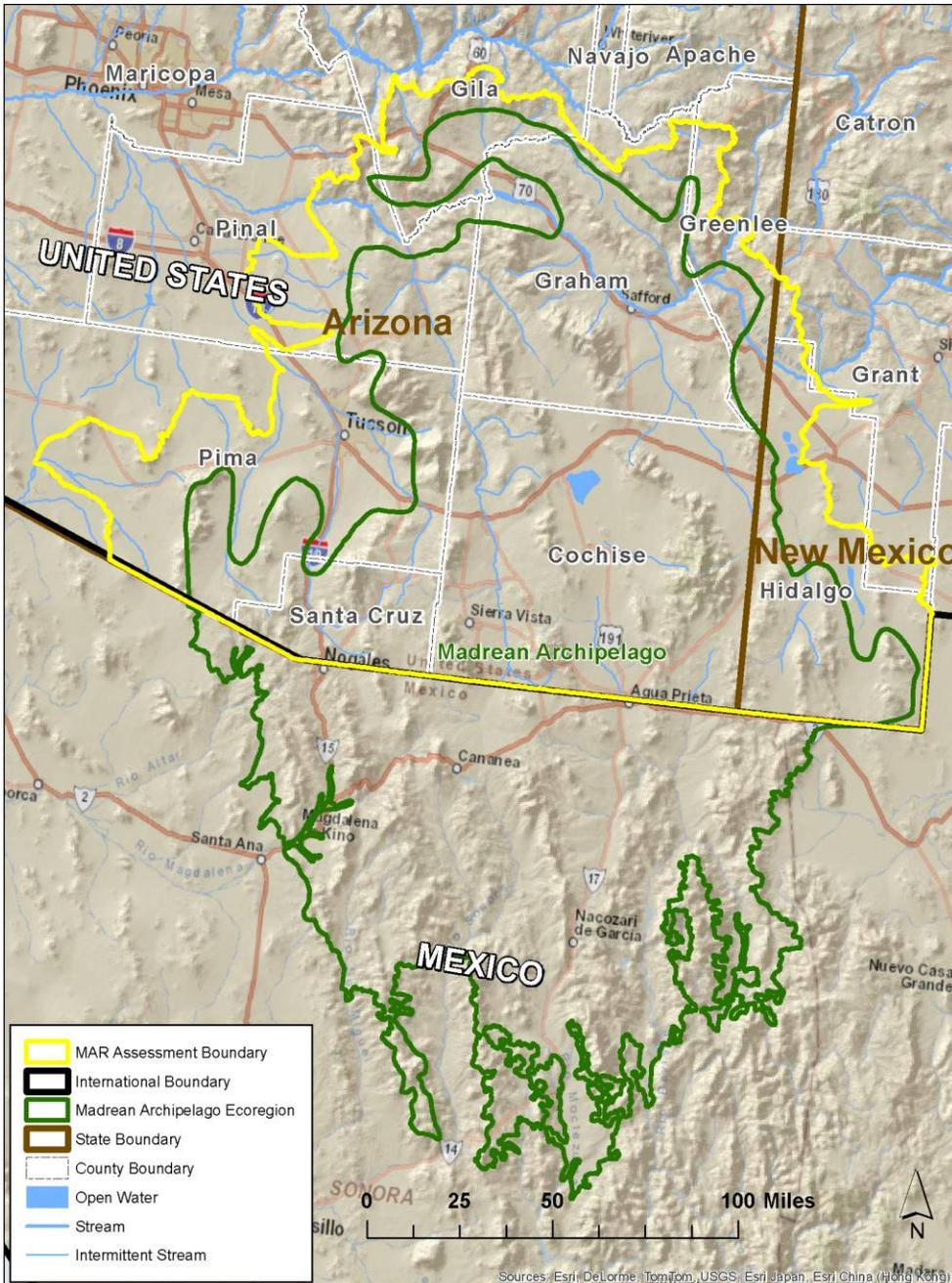
For more information:

[http://www.blm.gov/wo/st/en/prog/more/Landscape\\_Approach/reas/madrean.html](http://www.blm.gov/wo/st/en/prog/more/Landscape_Approach/reas/madrean.html)

## Madrean Archipelago Ecoregion

Spanning the U.S.-Mexico border, the 18.5 million-acre Madrean Archipelago ecoregion is located in southeastern Arizona, southwestern New Mexico, and north central Mexico; it is shown as the green outline in the map below. The yellow boundary in the map outlines the 15.7 million-acre area being assessed in this REA. The ecoregion is characterized by isolated, forested mountain ranges surrounded by a virtual sea of intervening deserts and grasslands; thus, the mountains in this area are known as “Sky Islands.” The basin and range topography, diversity of soils, and arid, monsoonal climate, are the physical drivers shaping its biological diversity, while hydrology and fire are among the major natural ecosystem processes influencing the biota of this ecoregion. The ecoregion is located within the Madrean Pine – Oak Woodlands, a globally significant biodiversity hot spot, and harbors the highest diversity of mammals, birds, bees, and ants in the contiguous United States. Large elevation gradients and topographic roughness contribute to high diversity of species and

biotic communities. The ecoregion is at the intersection of the temperate zone to the north and sub-tropics to the south where several major desert and forest biotic influences converge, including the Rocky Mountains, Sierra Madre, the piedmont and plains of the western Sierra Madre, Sonoran Desert, and Chihuahuan Desert.



## Phase 2: Assessment

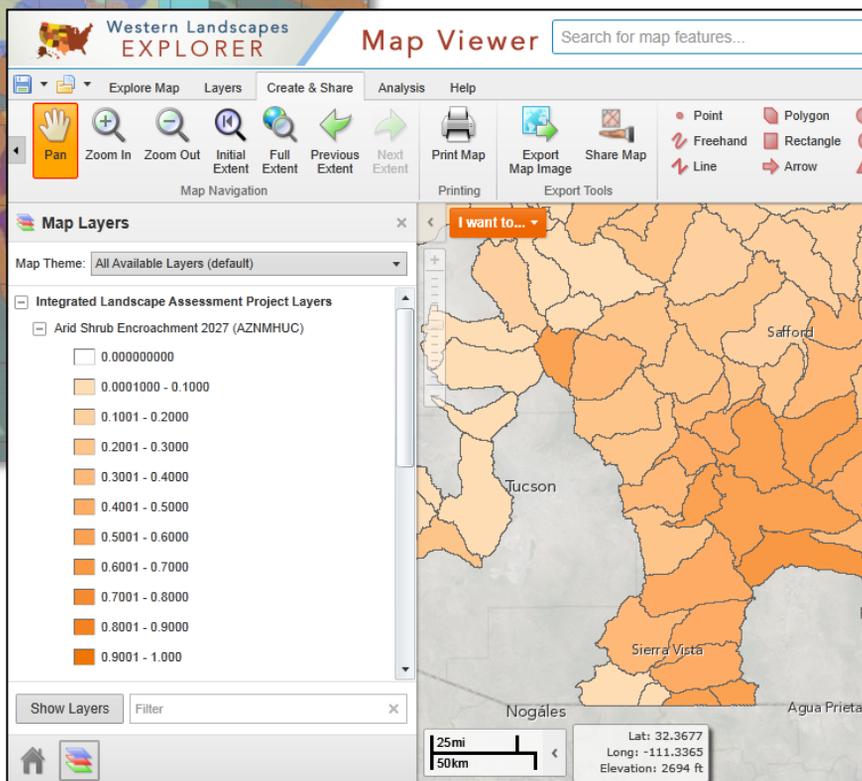
The assessment work plan describes the REA team's approach and projected time frames for conducting the assessment, including the values and issues to be analyzed, the data collection and evaluation approach, and the analysis and reporting process

### Assessment Needs

Based on the characterization of the ecoregion and the identification of management questions, conservation elements, and change agents during the pre-assessment, the REA team identified several assessment needs. In general, there is a need to understand the current status of the conservation elements, the current interactions between change agents and conservation elements, and the likely future effects of change agents on conservation elements.

### Gathering Data for the Assessment

Most of the assessments in an REA are geospatial analyses. The REA team has numerous base data layers on hand, as well as distribution data for both conservation elements and change agents. The REA team will work with partners and other contacts to locate additional, available, ecoregion-wide datasets to characterize the values and issues identified in the Pre-Assessment Report.



## Assessments To Be Conducted

The fundamental goal of the REAs is to provide an understanding of the current ecological status of conservation elements (CEs) in the ecoregion, which change agents (CAs) are impacting them and where, the potential future status of conservation elements in relation to future projections of change agents, and the ecological integrity of the ecoregion as a whole. Informed by the management information needs (MQs) identified for this REA, geospatial assessments of the ecological status of conservation elements, the ecological integrity of the ecoregion, and other assessments of the relationships between CAs and CEs will be conducted to meet this goal.

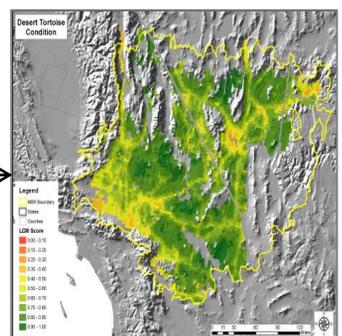
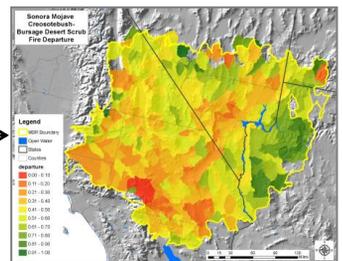
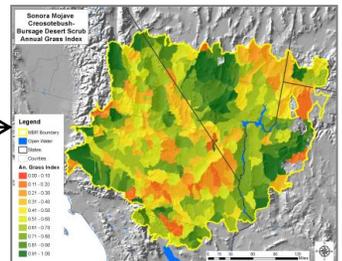
### Change Agents (CAs)



### Conservation Elements (CEs)



### Ecological Status and Integrity

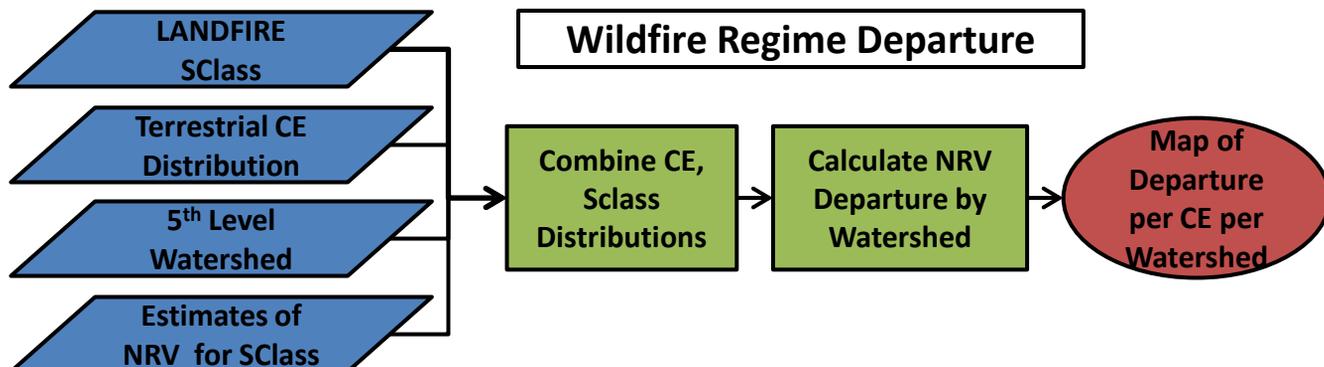


**Conceptual Models**  
link CAs, ecological stressors, and their effects on a CE

**Spatial Models**  
show geoprocessing steps to use data to assess status of CEs

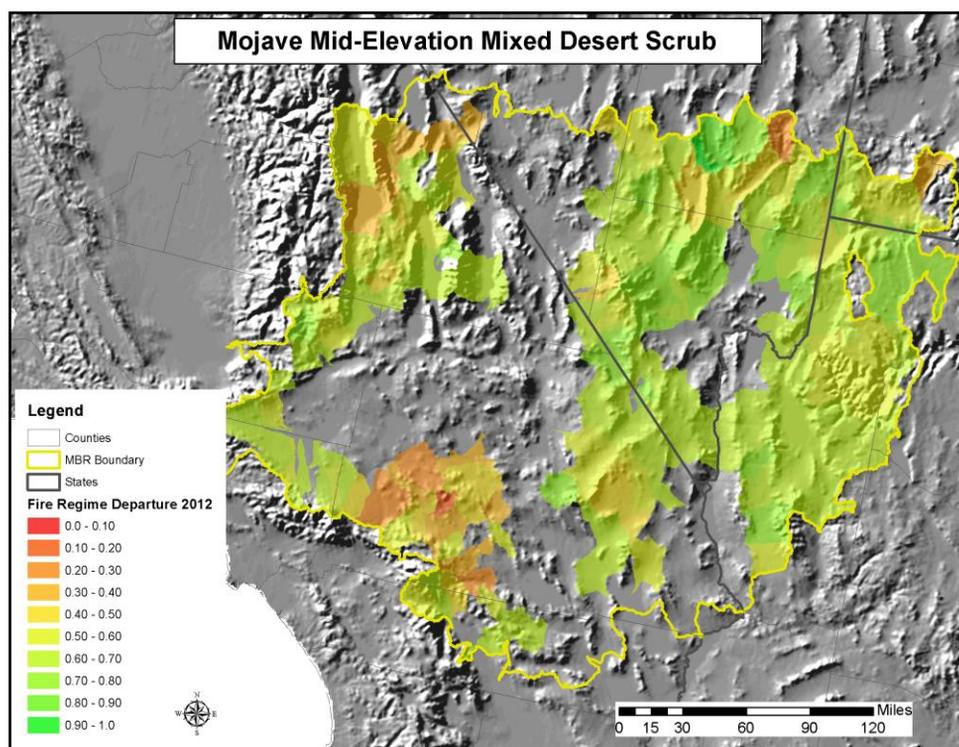
## Assessment Approaches

A series of analyses will be conducted to understand the current status of conservation elements in the ecoregion and their current and likely future interactions with change agents. The REA team develops approaches for conducting these analyses based on the conceptual models and key attributes identified in the Pre-Assessment Report.



## Geospatial Analysis

Using the agreed-upon methods, the REA team uses geoprocessing tools to conduct the analyses. The analysis methods are carefully documented and packaged with the analysis results. The geospatial analysis results are a key product of the REA.



## Final Report

The REA team synthesizes and interprets the results of the analyses to describe the current status of conservation elements, their current interactions with change agents, and potential effects of change agents into the future. Other potential applications of the analysis results are also provided, along with a summary of data and information gaps.