Appendix E: References

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Tables

E-1 References

This appendix compiles several "references" lists or lookup tables. First is provided a listing of reference materials relevant to the REA (Table E - 1), including published papers, reports, theses, dissertations, and other documents. Many of them have URLs referenced within the citation.

Other sections of the appendix provide a short section of useful URLs for websites, but this is not comprehensive by any means. This appendix also has the project glossary (Table E - 2) and list of acronyms (Table E - 3).

One request from AMT members was for a cross-walk of the scientific names used for plant species in the terrestrial coarse-filter conceptual models; Table E - 4 provides this list, with the taxonomic standard NatureServe uses in our descriptive materials, the common name for the plants, and the name used in the NRCS PLANTS database. The sort order is alphabeitcal by scientific name.

The last section of this appendix is the list of management questions addressed in the REA, both those initially proposed by BLM and the AMT, and those ansered by the assessments. Also provided are comments relevant to why the MQ was not answered, the original MQ, and the final MQ. These are provided in Table E - 5.

E-1.1 Master Reference List

Below are provided full citations for many reports, published papers and gray literature that is relevant to this REA. Many of these have been cited in either the report chapters or one of the appendices. Many others have not and are provided for reference. PDFs are not necessarily provided for all them, although many were delivered to BLM in PDF format. Many of them are copyrighted material, and hence cannot be wholesale provided. They are sorted alphabetically by the first authoers last name. In addition a "short citation" is provided for many of them which cross-references to the text citations of these references.

Table E - 1. Citations for references used in the REA.

Full Citation	Short Citation (used in text)
Abatzoglou, J. T., and C. A. Kolden. 2011. Climate change in western U.S. deserts: Potential for increased wildfire and invasive annual grasses. Rangeland Ecology and Management 64:471-478.	Abatzoglou and Kolden 2011
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E-1.2 Other Sources: Websites

Listed here are websites cited in the reports, and some additional sites.

There are many dozens more that could be added; we have not attempted to be comprehensive; the references cited above often have URLs listed as well.

NatureServe websites

http://www.natureserve.org/

http://www.natureserve.org/explorer/

http://www.natureserve.org/explorer/ranking.htm
http://www.natureserve.org/prodServices/heritagemethodology.jsp

Federal Agency Websites
http://plants.usda.gov/dl_all.html
http://soils.usda.gov/
http://soils.usda.gov/use/hydric/intro.html
http://fishadvisories.utah.gov/advisories.htm#utah
http://www.cec.org/Page.asp?PageID=122&ContentID=1329&SiteNodeID=498
http://www.gap.uidaho.edu/padus/State_Standard2011_May24.pdf
http://www.mojavedata.gov/mdi.html
http://www.landfire.gov/index.php
http://sagemap.wr.usgs.gov/

Natural Heritage Programs and Conservation Data Centers
http://www.azgfd.gov/w_c/edits/species_concern.shtml
http://www.dfg.ca.gov/biogeodata/
http://heritage.nv.gov/index.htm
http://dwrcdc.nr.utah.gov/ucdc/

Miscellaneous software, University, and NGO Websites
http://www.circuitscape.org
http://essa.com/tools/vddt/
http://www.drecp.org/about/index.html
http://www.usu.edu/buglab/
http://www.gbfiresci.org/

E-2 Glossaries

E-2.1 Project glossary

Table E - 2. Glossary of terms used in the REA.

Term	Definition
Areas of Critical Environmental Concern (ACEC)	Areas within the public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes, or to protect life and safety from natural hazards (FLPMA 1976).
Aridisols	The central concept of Aridisols is that of soils that are too dry for mesophytic plants to grow. They have either: (1) an aridic moisture regime and an ochric or anthropic epipedon and one or more of the following with an upper boundry within 100 cm of the soil surface: a calcic, cambic, gypsic, natric, petrocalcic petrogypsic, or a salic horizon or a duripan or an argillic horizon, or (2)A salic horizon and saturation with water within 100 cm of the soil surface for one month or more in normal years. An aridic moisture regime is one that in normal years has no water available for plants for more than half the cumulative time that the soil temperature at 50 cm below the surface is >5° C. and has no period as long as 90 consecutive days when there is water available for plants while the soil temperature at 50 cm is continuously >8° C.
Assessment Management Team (AMT)	BLM's team that provides overall direction and guidance to the REA and makes decisions regarding ecoregional goals, resources of concern, conservation elements, change agents, management questions, tools, methodologies, models, and output work products. The team generally consists of State Resources Branch Managers from the ecoregion, a POC, and possibly agency partners.
Attribute	A defined characteristic of a geographic feature or entity.
Biophysical Setting (BpS)	As developed for LANDFIRE aims to depict the potential distribution of the ecosystem, given natural landscape disturbance regimes like wildfire. As used by LANDFIRE, the biophysical setting equates to the historic distribution of the ecosystem type, prior to alterations by European settlement and current human activities.
Change Agent	An environmental phenomenon or human activity that can alter/influence the future status of resource condition. Some change agents (e.g., roads) are the result of direct human actions or influence. Others (e.g., climate change, wildland fire, and invasive species) may involve natural phenomena or be partially or indirectly related to human activities.

Coarse Filter	A focus of ecoregional analysis that is based upon conserving resource elements that occur at coarse scales, such as ecosystems, rather than upon finer scale elements, such as specific species. The concept behind a coarse filter approach is that preserving coarse-scale conservation elements will preserve elements occurring at finer spatial scales.
Community	Interacting assemblage of species that co-occur with some degree of predictability and consistency.
Conservation Element	A renewable resource object of high conservation interest often called a conservation target by others. For purposes of this TO, conservation elements will likely be types or categories of areas and/or resources including ecological communities or larger ecological assemblages.
Core Conservation Elements	The set of conservation elements that has been reduced from the complete set of conservation elements identified during the assessment initiation and pre-assessment phases.
Data Management Plan (DMP)	The assessment's plan for managing data, provided by the BLM, describing data standards, responsibilities, security, and other requirements for data management.
Dataset	A collection of related data.
Deductive models	Using existing mapped information, and then recombine them according to a set of rules determined by the modeler; typically working within ArcGIS, ModelBuilder™ was used to describe interactions among spatial datasets.
Development	A type of change (change agent) resulting from urbanization, industrialization, transportation, mineral extraction, water development, or other non-agricultural/silvicultural human activities that occupy or fragment the landscape or that develops renewable or non-renewable resources.
Didymo	*Didymosphenia geminate*, a species of diatom considered to be a nuisance species
Distribution (as in *species distribution*)	In this REA the spatial methods employed was mapping of actual **distribution** as best possible, whether current known occupied habitat or predicted habitat. (see *Range Mapping*)
Ecological Integrity	The ability of an ecological system to support and maintain a community of organisms that have the species composition, diversity, and functional organization comparable to those of natural habitats within the ecoregion.
Ecological Status	The condition of a criterion (biological or socio-economic resource values or conditions) within a geographic area (e.g., watershed, grid). A rating (e.g., low, medium, or high) or ranking (numeric) is assigned to specific criteria to describe status. The rating or ranking will be relative, either to the historical range of variability for that criterion (e.g., a wildland fire regime criterion) or relative to a time period when the criterion did not exist (e.g., an external partnerships/collaboration criterion). (also see *Status)*

Ecoregion	An ecological region or ecoregion is defined as an area with relative homogeneity in ecosystems. Ecoregions depict areas within which the mosaic of ecosystem components (biotic and abiotic as well as terrestrial and aquatic) differs from those of adjacent regions (Omernik and Bailey 1997).
Ecosystem	The interactions of communities of native fish, wildlife, and plants with the abiotic or physical environment.
Element Occurrence	A term used by Natural Heritage Programs. An element occurrence generally delineates the location and extent of a species population or ecological community stand, and represents the geo-referenced biological feature that is of conservation or management interest. Element occurrences are documented by voucher specimens (where appropriate) or other forms of observations. A single element occurrence may be documented by multiple specimens or observations taken from different parts of the same population, or from the same population over multiple years.
Extent	The total area under consideration for an ecoregional assessment. For the BLM, this is a CEC Level III ecoregion or combination of several such ecoregions plus the buffer area surrounding the ecoregion. (see *Grain*).
Fine Filter	A focus of ecoregional analyses that is based upon conserving resource elements that occur at fine scale, such as specific species. A fine-filter approach is often used in conjunction with a coarse-filter approach (i.e., a coarse-filter/fine-filter framework) because coarse filters do not always capture some concerns, such as when a T&E species is a conservation element.
Fire Regime	Description of the patterns of fire occurrences, frequency, size, severity, and sometimes vegetation and fire effects as well, in a given area or ecosystem. A fire regime is a generalization based on fire histories at individual sites. Fire regimes can often be described as cycles because some parts of the histories usually get repeated, and the repetitions can be counted and measured, such as fire return interval (NWCG 2006).
Forecast; Forecasted	refering to future predicted distributions or future conditions, such as climate change, future development, or future ecological status of CEs. In some places “projections” is a term used interchangeably with forecasts.
Fragmentation	The process of dividing habitats into smaller and smaller units until their utility as habitat is lost (BLM 1997).
Geographic Information System (GIS)	A computer system designed to collect, manage, manipulate, analyze, and display spatially referenced data and associated attributes.

Grain	Grain is the spatial unit of analysis for ecoregional assessment and is the smallest area analyzed and used for regional planning purposes. The many data and model outputs incorporated into an ecoregional analysis are usually upscaled or downscaled to grain scale. The grain for ecoregional analysis may be a regular size and shape (e.g., square, hexagon) but also may be defined by a particular level of hydrologic unit or similar geographic feature.
Grid Cell	When used in reference to raster data, a grid cell is equivalent to a pixel (also see *pixel*). When a raster data layer is converted to a vector format, the pixels may instead be referred to as grid cells.
Habitat	A place where an animal or plant normally lives for a substantial part of its life, often characterized by dominant plant forms and/or physical characteristics (BLM 1990).
Heritage	See *Natural Heritage Program.*
Heritage Program	See *Natural Heritage Program.*
Hydrologic Unit	An identified area of surface drainage within the U.S. system for cataloging drainage areas, which was developed in the mid-1970s under the sponsorship of the Water Resources Council and includes drainage-basin boundaries, codes, and names. The drainage areas are delineated to nest in a multilevel, hierarchical arrangement. The hydrologic unit hierarchical system has four levels and is the theoretical basis for further subdivisions that form the *watershed boundary dataset* 5th and 6th levels. (USGS 2009).
Indicator	Components of a system whose characteristics (e.g., presence or absence, quantity, distribution) are used as an index of an attribute (e.g., land health) that are too difficult, inconvenient, or expensive to measure (USDA et al. 2005).
Inductive models	Geo-referenced observations (e.g., known observations of a given species) are combined with maps of potential explanatory variables (climate, elevation, landform, soil variables, etc.). Statistical relationships between dependent variables (observations) and independent explanatory variables are used to derive a new spatial model.
Information Platform	Information Technology infrastructure used to support communication and collaboration of BLM's Ecoregional Assessments. Platform includes GIS hardware and software tools to manage, store, archive, and share data within the BLM and with our partners.
Invasive Species	Species that are not part of (if exotic non-natives), or are a minor component of (if native), an original community that have the potential to become a dominant or co-dominant species if their future establishment and growth are not actively controlled by management interventions, or that are classified as exotic or noxious under state or federal law. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasives (Modified from BLM Handbook 1740-2, Integrated Vegetation Handbook).

Key Ecological Attribute	An attribute, feature, or process that defines and characterizes an ecological community or system or entity; in conjunction with other key ecological attributes, the condition or function of this attribute or process is considered critical to the integrity of the ecological community or system in question. In the BLM REAs, various analyses were conducted to calculate scores or indexes indicating the status of key ecological attributes for various Conservation Elements (CEs).
Land Health	Degree to which the integrity of the soil and the ecological processes of ecosystems are sustained (BLM Handbook H-4180-1).
Landscape Species	Biological species that use large, ecologically diverse areas and often have significant impacts on the structure and function of natural ecosystems (Redford et al. 2000).
Landscape Unit	Because an REA considers a variety of phenomena, there will be many phenomena and process (or intrinsic) grain sizes. These will necessarily be scaled to a uniform support unit, which herein is called a *landscape unit*. This landscape unit will be the analysis scale used for reporting and displaying ecoregional analyses.
Land-Use Plan (LUP)	A set of decisions that establishes management direction for land within an administrative area, as prescribed under the planning provisions of FLPMA; an assimilation of land-use-plan-level decisions developed through the planning process outlined in 43 CFR 1600, regardless of the scale at which the decisions were developed. The term includes both resource management plans and management framework plans (BLM 2007).
Management Questions	Questions from decision-makers that usually identify problems and request how to fix or solve those problems.
Metadata	The description and documentation of the content, quality, condition, and other characteristics of geospatial data.
Model	Any representation, whether verbal, diagrammatic, or mathematical, of an object or phenomenon. Natural resource models typically characterize resource systems in terms of their status and change through time. Models imbed hypotheses about resource structures and functions, and they generate predictions about the effects of management actions. (Adaptive Management: DOI Technical Guide).
Mollisols	The central concept of Mollisols is that of soils that have a dark colored surface horizon and are base rich; they are typically formed in grasslands. Nearly all have a mollic epipedon. Many also have an argillic or natric horizon or a calcic horizon. A few have an albic horizon. Some also have a duripan or a petrocalic horizon.
Native Plant and Animal Populations and Communities	Populations and communities of all species of plants and animals naturally occurring, other than as a result of an introduction, either presently or historically in an ecosystem. (BLM Manual H-4180-1).
Native Species	Species that historically occurred or currently occur in a particular ecosystem and were not introduced (BLM 2007b).
Natural Community	An assemblage of organisms indigenous to an area that is characterized by distinct combinations of species occupying a common ecological zone and interacting with one another (BLM 2007b).

Natural Heritage Program	An agency or organization, usually based within a state or provincial natural resource agency, whose mission is to collect, document, and analyze data on the location and condition of biological and other natural features (such as geologic or aquatic features) of the state or province. These programs typically have particular responsibility for documenting at-risk species and threatened ecosystems. (See natureserve.org/ for additional information on these programs.)
Occurrence	See *Element Occurrence*.
Pixel	A pixel is a cell or spatial unit comprising a raster data layer; within a single raster data layer, the pixels are consistently sized; a common pixel size is 30 x 30 meters square. Pixels are usually referenced in relation to spatial data that are in raster format. In this REA, some pixels sizes included 90 x 90 m, 4 x 4 km, and 15 x 15 km (also see *Grid Cell*).
Population	Individuals of the same species that live, interact, and migrate through the same niche and habitat.
Projection	refering to future predicted distributions or future conditions, such as climate change, future development, or future ecological status of CEs. In most places "forecast" is the term used interchangeably with projection.
Range Mapping (as in *Species Range*)	A spatially coarse depiction; the generalized area of possible occurrence of a species or ecosystem, such as one might find in a wildlife field guide; was not utilized in this REA.
Rapid Ecoregional Assessment (REA)	The methodology used by the BLM to assemble and synthesize that regional-scale resource information, which provides the fundamental knowledge base for devising regional resource goals, priorities, and focal areas, on a relatively short time frame (less than 2 years).
Rapid Ecoregional Assessment Work Plan (REAWP)	The work plan (scope of services) that guides the Phase II Assessment component of a REA. This document fully establishes the design of the Phase II effort, and is essentially the 'blueprint' for that work effort and resulting products.
Regionally-Significant Resource	A native plant, wildlife, or fish resource or other ecosystem resource or service that has more than locally significant qualities, which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to other similar resources. Generally, regionally-significant resources within a specific ecoregion occur in two or more field offices.
Resource Value	An ecological value, as opposed to a cultural value. Examples of resource values are those species, habitats, communities, features, functions, or services associated with areas with abundant native species and few non-natives, having intact, connected habitats, and that help maintain landscape hydrologic function. Resource values of concern to the BLM can be classified into three categories: native fish, wildlife, or plants of conservation concern; regionally-important terrestrial ecological features, functions, and services; and regionally-important aquatic ecological features, functions, and services.

Scale	Refers to the characteristic time or length of a process, observation, model, or analysis. ***Intrinsic scale*** refers to the scale at which a pattern or process actually operates. Because nature phenomena range over at least nine orders of magnitude, the intrinsic scale has wide variation. This is significant for ecoregional assessment, where multiple resources and their phenomena are being assessed. ***Observation scale***, often referred to as sampling or measurement scale, is the scale at which sampling is undertaken. Note that once data are observed at a particular scale, that scale becomes the limit of analysis, not the phenomenon scale. ***Analysis*** or ***modeling scale*** refers to the resolution and extent in space and time of statistical analyses or simulation modeling. ***Policy scale*** is the scale at which policies are implemented and is influenced by social, political, and economic policies.
Scaling	The transfer of information across spatial scales. ***Upscaling*** is the process of transferring information from a smaller to a larger scale. ***Downscaling*** is the process of transferring information to a smaller scale.
Special Status Species (SSS)	Plant and animal species that are federally listed as threatened or endangered; proposed threatened or endangered; candidate species; state listed as threatened or endangered or listed by a BLM state director as sensitive (BLM 2001b).
Status	The condition of a criterion (biological or socio-economic resource values or conditions) within a geographic area (e.g., watershed, grid). A rating (e.g., low, medium, or high) or ranking (numeric) is assigned to specific criteria to describe status. The rating or ranking will be relative, either to the historical range of variability for that criterion (e.g., a wildland fire regime criterion) or relative to a time period when the criterion did not exist (e.g., an external partnerships/collaboration criterion).
Step-Down	A step-down is any action related to regionally-defined goals and priorities discussed in the REA that are acted upon through actions by specific State and/or Field Offices. These step-down actions can be additional inventory, a finer-grained analysis, or a specific management activity.
Stressor	A factor causing negative impacts to the biological health or ecological integrity of a Conservation Element. Factors causing such impacts may or may not have anthropogenic origins. In the context of the REAs, these factors are generally anthropogenic in origin.
Subwatershed	A subdivision of a *watershed*. A *subwatershed* is the 6th-level, 12-digit unit and smallest of the hydrologic unit hierarchy. Subwatersheds generally range in size from 10,000 to 40,000 acres. (USGS 2009).
Value	See *Resource Value*.
Watershed	A watershed is the 5th-level, 10-digit unit of the hydrologic unit hierarchy. Watersheds range in size from 40,000 to 250,000 acres. Also used as a generic term representing a drainage basin or combination of hydrologic units of any size (USGS 2009).

Watershed Boundary Dataset (WBD)	A National geospatial database of drainage areas consisting of the 1st through 6th hierarchical hydrologic unit levels. The WBD is an ongoing multiagency effort to create hierarchical, and integrated hydrologic units across the Nation (USGS 2009).
Wildland Fire	Any non-structure fire that occurs in the wildland. Three distinct types of wildland fire have been defined and include wildfire, wildland fire use, and prescribed fire (NWCG 2006).

E-2.2 Acronym List

Table E - 3. List of acronyms used in the REA.

Acronym	Definition
AADT	Annual Average Daily Traffic
ACEC	Area of Critical Environmental Concern
AFB	Air Force Base
AGI	Annual Grasses Index
AML	Appropriate Management Level
AMT	Assessment Management Team
AR4	Intergovernmental Panel on Climate Change - Fourth Assessment Report
ArcGIS	Arc Geographic Information System
ARRA	American Recovery and Reinvestment Act
AUC	Area Under the (ROC) Curve
AUM	Animal Unit Month
AWC	Available Water Capacity
AWS	Associate Weather Services
BCM	Basin Characterization Model
BLM	Bureau of Land Management
BpS	Biophysical Settings
CA	Change Agent
CA GAP	California Gap Analysis Project
CA ReGAP	California Regional Gap Analysis Project
CART	Classification and Regression Tree
CBR	Central Basin and Range
CCVI	Climate Change Vulnerability Index
CD	Compact Disc
CE	Conservation Element
CEC	Commission for Environmental Cooperation
CO	Contracting Officer
COR	Contracting Officer's Representative
CVS	Conservation Value Summary
DCMP	Desert Conservation Management Plan
DDTF	Data Delivery Tracking Form
DEM	Digital Elevation Model
DMP	Data Management Plan
DOD	Department of Defense
DOE	Department of Energy
DOI	Department of Interior
DQE	Data Quality Evaluation
DRECP	Desert Renewable Energy Conservation Plan
DRI	Desert Research Institute

Acronym	Definition
DRS	Division of Resource Services
DSS	Decision Support System
DVD	Digital Versatile Disc
EFC	Environmental Flow Components
EIA	Ecological Integrity Assessment
EIS	Environmental Impact Statement
ENSO	El Nino Southern Oscillation
EO	Element Occurrence
EPA	Environmental Protection Agency
EPCA	Energy Policy and Conservation Act
ERA	Ecoregional Assessment
ESA	Endangered Species Act
ESD	Ecological Site Description
ESRI®	Environmental Systems Research Institute, Inc.
ET	Evapotranspiration
EVT	Existing Vegetation Type
FAO	Food and Agriculture Organization
FCC	Federal Communications Commission
FGDC	Federal Geographic Data Committee
FLPMA	Federal Land Policy and Management Act
FO	Field Office
FRCC	Fire Regime Condition Class
FRI	Fire Return Interval
FTP	File Transfer Protocol
G-1, G-3	Globally Imperiled-Globally Vulnerable
GA	Grazing Allotment
GAP	Gap Analysis Project
GBPJW	Great Basin Pinyon-Juniper Woodland
GCM	General Circulation Model
GFDL	Geophysical Fluid Dynamics Laboratory
GFF	government-furnished facilities
GFM	government-furnished material
GFP	government-furnished property
GIS	Geographic Information System
GSG	Greate
HA	Herd Area
HMA	Herd Management Area
HMAs	Herd Management Areas
HRV	Historic Range of Variation
HU	Hydrologic Unit
HUC	Hydrologic Unit Code
IBA	Important Bird Areas

Acronym	Definition
ICLUS	Integrated Climate and Land Use Scenarios
IDIQ	Indefinite Delivery/Indefinite Quantity
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organization for Standardization
JPEG	Joint Photographic Experts Group
KEA	Key Ecological Attribute
Kw	K factor (soil erodibility)
LANDFIRE	Landscape Fire and Resource Management Planning Tools Project
LCM	Landscape Condition Model
LF	LANDFIRE
LFRDB	LANDFIRE Reference Database
LRU	Landscape Reporting Unit
LU/LC	Land Use/Land Cover
LUP	Land Use Plan
MaxEnt	Maximum Entropy (modeling software)
MBR	Mojave Basin and Range
MDI	Mojave Desert Initiative
MQ	Management Question
MRDS	USGS Mineral Resource Data System
MRLA	Multiple Resource Land Area
NADP	National Atmospheric Deposition Program
NAMC	National Aquatic Monitoring Center
NAS	USGS Nonindigenous Aquatic Species
NCAR	National Center for Atmospheric Research
NCEP	National Centers for Environmental Prediction
NED	National Elevation Dataset
NEPA	National Environmental Policy Act
NGO	Non-Governmental Organization
NHD	National Hydrography Dataset
NHD Plus	National Hydrography Dataset Plus
NID	National Inventory of Dams
NL	Natural Landscapes
NLCD	National Land Cover Dataset
NOC	BLM National Operations Center
NPMS	National Pipeline Mapping System
NRCS	Natural Resource Conservation Service
NREL	National Renewable Energy Laboratory
NRV	Natural Range of Variability
NTAD	National Transportation Atlas Database
NVDEP	Nevada Department Environmental Protection
NWI	National Wetland Inventory
OHV	Off-Highway Vehicles

Acronym	Definition
ORV	Off-road Vehicle
PADUS	Protected Area Database of the U.S. *(see USPAD)*
PCM	Parallel Climate Model
PEIS	Programmatic Environmental Impact Statement
PET	Potential Evapotranspiration
PJ	Pinyon-Juniper
PL	Place
PLSS	Public Land Survey System
POC	Point-of-Contact
PRISM	Parameter-elevation Regressions on Independent Slopes Model
PWS	Public Water Supply
QA/QC	Quality Assurance/Quality Control
QC	Quality Control
RAS	Rangeland Administration System
REA	Rapid Ecoregional Assessment
REAWP	Rapid Ecoregional Assessment Work Plan
ReGAP	Regional Gap Analysis Project
RegCM	International Centre for Theoretical Physics Regional Climate Model
RETI	Renewable Energy Transmission Initiative
RMP	Resource Management Plan
ROC	Receiver Operating Characteristic
SAGEMAP	Sagebrush and Grassland Ecosystem Map Assessment Project
SAR	Sodium Adsorption Ratio
SClass	Succession Class
SDM	Species Distribution Model
SERGoM	Spatially Explicit Regional Growth Model
SMA	Surface Management Agency
SO	State Office
SOW	Statement of Work
SSURGO	Soil Survey Geographic Database
STATSGO	State Soil Geographic Database
STDV (stdv)	Standard Deviation (also *stdev*)
SUNY	State University of New York
SW ReGAP	Southwest Regional Gap Analysis Project
SWAP	State Wildlife Action Plan
SWEMP	Southwest Exotic Plant Mapping Program
SWPA	Southwest Principal Aquifer study
T&E	Threatened and Endangered
TNC	The Nature Conservancy
TO	Task Order
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture

Acronym	Definition
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
USGS-CD	USGS 15km dynamically downscaled climate model outputs
USPAD	U.S. Protected Areas Database *(see PADUS)*
VDDT	Vegetation Dynamics Development Tool
WAFWA	Western Associations of Fish and Wildlife Agencies
WBD	Watershed Boundary Dataset
WGA	Western Governors' Association
WHB	Wild Horse and Burro
WMC	Western Center for Monitoring and Assessment of Freshwater Ecosystems

E-2.3 Scientific-common name master list for plants

Many hundreds of plant species are listed in the coarse filter conceptual models. At the request of AMT reviewers, the below crosswalk from the Contractor's taxonomy to the USDA Natural Resources Conservation Service (NRCS) PLANTS Database is provided (**Error! Reference source not found.**). Readers of the conceptual models can look up plant scientific names to find the common name and NRCS PLANTS scientific name (if different). The NRCS PLANTS names were downloaded from http://plants.usda.gov/dl_all.html in January 2011.

Table E - 4. Plant scientific names used in the coarse-filter conceptual models , with NRCS PLANTS common name and scientific name (if different) . The USDA Natural Resources Conservation Service (NRCS) PLANTS Database checklist used here was downloaded in January 2011 from http://plants.usda.gov/dl_all.html.

Scientific Name	PLANTS Common Name	PLANTS Scientific Name
Abies concolor	white fir	
Abies grandis	grand fir	
Abies lasiocarpa	subalpine fir	
Acacia greggii	catclaw acacia	
Acacia neovernicosa	viscid acacia	
Acamptopappus sphaerocephalus	rayless goldenhead	
Acer glabrum	Rocky Mountain maple	
Acer grandidentatum	bigtooth maple	
Acer negundo	boxelder	
Achillea millefolium	common yarrow	
Achnatherum	needlegrass	
Achnatherum hymenoides	Indian ricegrass	
Achnatherum nelsonii ssp. dorei	Dore's needlegrass	
Achnatherum nelsonii ssp. nelsonii	Columbia needlegrass	
Achnatherum occidentale	western needlegrass	
Achnatherum speciosum	desert needlegrass	

Scientific Name	PLANTS Common Name	PLANTS Scientific Name
Achnatherum thurberianum	Thurber's needlegrass	
Agrostis stolonifera	creeping bentgrass	
Allenrolfea occidentalis	iodinebush	
Alnus incana	gray alder	
Alnus oblongifolia	Arizona alder	
Ambrosia deltoidea	triangle bur ragweed	
Ambrosia dumosa	burrobush	
Amelanchier	serviceberry	
Amelanchier alnifolia	Saskatoon serviceberry	
Amelanchier utahensis	Utah serviceberry	
Antennaria rosea	rosy pussytoes	
Aquilegia scopulorum	Utah columbine	
Arabis drummondii	Drummond's rockcress	
Arceuthobium campylopodum	western dwarf mistletoe	
Arctostaphylos	manzanita	
Arctostaphylos glauca	bigberry manzanita	
Arctostaphylos patula	greenleaf manzanita	
Arctostaphylos pringlei	Pringle manzanita	
Arctostaphylos pungens	pointleaf manzanita	
Arctostaphylos uva-ursi	kinnikinnick	
Arenaria	sandwort	
Arenaria congesta	ballhead sandwort	
Arenaria kingii	King's sandwort	
Aristida	threeawn	
Aristida purpurea	purple threeawn	
Aristida purpurea var. fendleriana	Fendler's threeawn	
Aristida ternipes	spidergrass	
Arnica cordifolia	heartleaf arnica	
Artemisia	sagebrush	
Artemisia arbuscula	little sagebrush	
Artemisia arbuscula ssp. arbuscula	little sagebrush	
Artemisia arbuscula ssp. longicaulis	little sagebrush	
Artemisia arbuscula ssp. longiloba	little sagebrush	
Artemisia arctica	boreal sagebrush	
Artemisia bigelovii	Bigelow sage	
Artemisia cana	silver sagebrush	
Artemisia cana ssp. cana	silver sagebrush	
Artemisia cana ssp. viscidula	silver sagebrush	
Artemisia filifolia	sand sagebrush	
Artemisia frigida	prairie sagewort	
Artemisia ludoviciana	white sagebrush	
Artemisia nova	black sagebrush	
Artemisia tridentata	big sagebrush	
Artemisia tridentata ssp. spiciformis	big sagebrush	
Artemisia tridentata ssp. tridentata	basin big sagebrush	

Scientific Name	PLANTS Common Name	PLANTS Scientific Name
Artemisia tridentata ssp. vaseyana	mountain big sagebrush	
Artemisia tridentata ssp. wyomingensis	Wyoming big sagebrush	
Artemisia tridentata ssp. xericensis	big sagebrush	
Artemisia tripartita ssp. tripartita	threetip sagebrush	
Astragalus	milkvetch	
Astragalus kentrophyta	spiny milkvetch	
Astragalus lentiginosus	freckled milkvetch	
Astragalus platytropis	broadkeel milkvetch	
Atriplex	saltbush	
Atriplex canescens	fourwing saltbush	
Atriplex confertifolia	shadscale saltbush	
Atriplex gardneri	Gardner's saltbush	
Atriplex hymenelytra	desertholly	
Atriplex lentiformis	big saltbush	
Atriplex parryi	Parry's saltbush	
Atriplex polycarpa	cattle saltbush	
Atriplex spinifera	spinescale saltbush	
Baccharis salicifolia	mule-fat	
Baccharis sarothroides	desertbroom	
Balsamorhiza	balsamroot	
Balsamorhiza sagittata	arrowleaf balsamroot	
Bebbia juncea	sweetbush	
Betula glandulosa	resin birch	
Betula occidentalis	water birch	
Boerhavia	spiderling	
Bothriochloa barbinodis	cane bluestem	
Bouteloua breviseta	gypsum grama	
Bouteloua curtipendula	sideoats grama	
Bouteloua eriopoda	black grama	
Bouteloua gracilis	blue grama	
Bouteloua hirsuta	hairy grama	
Brassica tournefortii	Asian mustard	
Brickellia laciniata	splitleaf brickellbush	
Bromus carinatus	California brome	
Bromus inermis	smooth brome	
Bromus japonicus	field brome	Bromus arvensis
Bromus madritensis	compact brome	
Bromus rubens	red brome	
Bromus tectorum	cheatgrass	
Bursera microphylla	elephant tree	
Calamagrostis montanensis	plains reedgrass	
Calamagrostis purpurascens	purple reedgrass	
Calamagrostis rubescens	pinegrass	
Calamovilfa longifolia	prairie sandreed	
Canotia holacantha	crucifixion thorn	

Scientific Name	PLANTS Common Name	PLANTS Scientific Name
Carex	sedge	
Carex duriuscula	needleleaf sedge	
Carex elynoides	blackroot sedge	
Carex filifolia	threadleaf sedge	
Carex geyeri	Geyer's sedge	
Carex haydeniana	cloud sedge	
Carex nardina	spike sedge	
Carex rossii	Ross' sedge	
Carex rupestris	curly sedge	
Carex scirpoidea	northern singlespike sedge	
Carex siccata	dryspike sedge	
Carnegia gigantea	saguaro	Carnegiea gigantea
Castilleja	Indian paintbrush	
Ceanothus greggii	desert ceanothus	
Ceanothus leucodermis	chaparral whitethorn	
Ceanothus martinii	Martin's ceanothus	
Ceanothus prostratus	prostrate ceanothus	
Ceanothus velutinus	snowbrush ceanothus	
Celtis laevigata var. reticulata	netleaf hackberry	
Cercocarpus intricatus	littleleaf mountain mahogany	
Cercocarpus ledifolius	curl-leaf mountain mahogany	
Cercocarpus ledifolius var. intercedens	curl-leaf mountain mahogany	
Cercocarpus ledifolius var. ledifolius	curl-leaf mountain mahogany	
Cercocarpus montanus	alderleaf mountain mahogany	
Cercocarpus montanus var. glaber	birchleaf mountain mahogany	
Chamaebatiaria millefolium	desert sweet	
Chamaesyce	sandmat	
Chilopsis linearis	desert willow	
Chorizanthe rigida	devil's spineflower	
Chrysolepis sempervirens	bush chinquapin	
Chrysothamnus	rabbitbrush	
Chrysothamnus viscidiflorus	yellow rabbitbrush	
Chrysothamnus viscidiflorus ssp. lanceolatus	yellow rabbitbrush	
Chrysothamnus viscidiflorus ssp. puberulus	yellow rabbitbrush	
Cirsium eatonii	Eaton's thistle	
Cleome isomeris	bladderpod spiderflower	
Coleogyne	coleogyne	
Coleogyne ramosissima	blackbrush	
Collinsia parviflora	maiden blue eyed Mary	
Cornus sericea	redosier dogwood	
Crataegus rivularis	river hawthorn	
Croton californicus	California croton	
Croton wigginsii	Wiggins' croton	
Cryptantha	cryptantha	

Scientific Name	PLANTS Common Name	PLANTS Scientific Name
Cymopterus cinerarius	gray springparsley	
Cymopterus nivalis	snowline springparsley	
Dactylis glomerata	orchardgrass	
Dalea	prairie clover	
Dalea purpurea	purple prairie clover	
Danthonia intermedia	timber oatgrass	
Danthonia parryi	Parry's oatgrass	
Dasyochloa pulchella	low woollygrass	
Delphinium	larkspur	
Deschampsia caespitosa	tufted hairgrass	Deschampsia cespitosa
Descurainia	tansymustard	
Dicoria canescens	desert twinbugs	
Digitaria californica	Arizona cottontop	
Distichlis spicata	saltgrass	
Dryas octopetala	eightpetal mountain-avens	
Echinocactus polycephalus	cottontop cactus	
Elaeagnus angustifolia	Russian olive	
Eleocharis palustris	common spikerush	
Elymus elymoides	squirreltail	
Elymus glaucus	blue wildrye	
Elymus lanceolatus	thickspike wheatgrass	
Elymus lanceolatus ssp. lanceolatus	thickspike wheatgrass	
Elymus trachycaulus	slender wheatgrass	
Encelia	brittlebush	
Encelia farinosa	brittlebush	
Ephedra	jointfir	
Ephedra californica	California jointfir	
Ephedra cutleri	Cutler's jointfir	
Ephedra funerea	Death Valley jointfir	
Ephedra nevadensis	Nevada jointfir	
Ephedra torreyana	Torrey's jointfir	
Ephedra viridis	mormon tea	
Eragrostis intermedia	plains lovegrass	
Ericameria	goldenbush	
Ericameria discoidea	whitestem goldenbush	
Ericameria linearifolia	narrowleaf goldenbush	
Ericameria nauseosa	rubber rabbitbrush	
Ericameria nauseosa var. hololeuca	rubber rabbitbrush	
Ericameria nauseosa var. salicifolia	rubber rabbitbrush	
Ericameria nauseosa var. speciosa	rubber rabbitbrush	
Ericameria parryi	Parry's rabbitbrush	
Ericameria teretifolia	green rabbitbrush	
Erigeron	fleabane	
Erigeron compositus	cutleaf daisy	
Erigeron pygmaeus	pygmy fleabane	

Scientific Name	PLANTS Common Name	PLANTS Scientific Name
Erigeron speciosus	aspen fleabane	
Erigeron tener	slender fleabane	
Eriogonum	buckwheat	
Eriogonum deserticola	Colorado Desert buckwheat	
Eriogonum fasciculatum	Eastern Mojave buckwheat	
Eriogonum gracilipes	White Mountain buckwheat	
Eriogonum holmgrenii	Snake Range buckwheat	
Eriogonum inflatum	desert trumpet	
Eriogonum ovalifolium	cushion buckwheat	
Eriogonum umbellatum	sulphur-flower buckwheat	
Eucephalus engelmannii	Engelmann's aster	
Fallugia paradoxa	Apache plume	
Ferocactus	barrel cactus	
Festuca	fescue	
Festuca arizonica	Arizona fescue	
Festuca brachyphylla	alpine fescue	
Festuca campestris	rough fescue	
Festuca idahoensis	Idaho fescue	
Festuca thurberi	Thurber's fescue	
Forestiera pubescens	stretchberry	
Fouquieria splendens	ocotillo	
Fragaria vesca	woodland strawberry	
Fragaria virginiana	Virginia strawberry	
Fraxinus velutina	velvet ash	
Fremontodendron californicum	California flannelbush	
Galium boreale	northern bedstraw	
Garrya flavescens	ashy silktassel	
Garrya wrightii	Wright's silktassel	
Geraea canescens	hairy desertsunflower	
Geranium viscosissimum	sticky purple geranium	
Geum	avens	
Geum rossii	Ross' avens	
Glossopetalon spinescens	spiny greasebush	
Glyceria striata	fowl mannagrass	
Grayia spinosa	spiny hopsage	
Gutierrezia sarothrae	broom snakeweed	
Halogeton glomeratus	saltlover	
Helianthus annuus	common sunflower	
Heracleum sphondylium	eltrot	
Hesperostipa	needle and thread	
Hesperostipa comata	needle and thread	
Heterotheca	false goldenaster	
Holodiscus	oceanspray	
Holodiscus discolor	oceanspray	
Hymenoclea monogyra	singlewhorl burrobrush	

Scientific Name	PLANTS Common Name	PLANTS Scientific Name
Hymenoclea salsola	burrobrush	
Hymenoxys hoopesii	owl's-claws	
Iris missouriensis	Rocky Mountain iris	
Jatropha dioica var. graminea	leatherstem	
Juglans major	Arizona walnut	
Juglans microcarpa	little walnut	
Juncus	rush	
Juniperus	juniper	
Juniperus californica	California juniper	
Juniperus communis	common juniper	
Juniperus deppeana	alligator juniper	
Juniperus monosperma	oneseed juniper	
Juniperus occidentalis	western juniper	
Juniperus occidentalis var. australis	western juniper	
Juniperus osteosperma	Utah juniper	
Juniperus scopulorum	Rocky Mountain juniper	
Kobresia myosuroides	Bellardi bog sedge	
Kochia americana	green molly	Bassia americana
Koeleria macrantha	prairie Junegrass	
Krameria	ratany	
Krameria erecta	littleleaf ratany	
Krameria grayi	white ratany	
Krascheninnikovia lanata	winterfat	
Lactuca serriola	prickly lettuce	
Larrea tridentata	creosote bush	
Lathyrus	pea	
Lepidium perfoliatum	clasping pepperweed	
Leptochloa dubia	green sprangletop	
Leptodactylon pungens	granite prickly phlox	Linanthus pungens
Leucopoa kingii	spike fescue	
Leymus cinereus	basin wildrye	
Leymus flavescens	yellow wildrye	
Leymus salinus	saline wildrye	
Liatris punctata	dotted blazing star	
Ligusticum filicinum	fernleaf licorice-root	
Lupinus	lupine	
Lupinus argenteus	silvery lupine	
Lycium	desert-thorn	
Lycium andersonii	water jacket	
Lycium shockleyi	Shockley's desert-thorn	
Lycurus phleoides	common wolfstail	
Mahonia repens	creeping barberry	
Maianthemum stellatum	starry false lily of the valley	
Menodora spinescens	spiny menodora	
Mertensia arizonica	aspen bluebells	

Scientific Name	PLANTS Common Name	PLANTS Scientific Name
Mertensia lanceolata	prairie bluebells	
Muhlenbergia	muhly	
Muhlenbergia montana	mountain muhly	
Muhlenbergia porteri	bush muhly	
Muhlenbergia pungens	sandhill muhly	
Muhlenbergia richardsonis	mat muhly	
Nama	fiddleleaf	
Nassella	needlegrass	
Nassella viridula	green needlegrass	
Nolina	beargrass	
Nolina bigelovii	Bigelow's nolina	
Nolina parryi	Parry's beargrass	
Oenothera	evening primrose	
Olneya tesota	desert ironwood	
Opuntia	pricklypear	
Opuntia acanthocarpa	buckhorn cholla	Cylindropuntia acanthocarpa
Opuntia basilaris	beavertail pricklypear	
Opuntia bigelovii	teddybear cholla	Cylindropuntia bigelovii
Opuntia schottii	Big Bend pricklypear	Grusonia schottii
Oryzopsis	ricegrass	
Osmorhiza berteroi	sweetcicely	
Packera werneriifolia	hoary groundsel	
Palafoxia arida var. gigantea	giant Spanish needle	
Palafoxia arida var. gigantea		Palafoxia linearis
Panicum urvilleanum	desert panicgrass	
Parkinsonia florida	blue paloverde	
Parkinsonia microphylla	yellow paloverde	
Parthenium incanum	mariola	
Pascopyrum smithii	western wheatgrass	
Paxistima myrsinites	Oregon boxleaf	
Penstemon	beardtongue	
Penstemon caespitosus	mat penstemon	
Penstemon leiophyllus	smoothleaf beardtongue	
Penstemon thurberi	Thurber's penstemon	
Peraphyllum ramosissimum	wild crab apple	
Petalonyx thurberi	Thurber's sandpaper plant	
Petrophyton caespitosum	mat rockspirea	Petrophytum caespitosum
Peucephyllum schottii	Schott's pygmycedar	
Phacelia	phacelia	
Phleum pratense	timothy	
Phlox	phlox	
Phlox hoodii	spiny phlox	
Phlox pulvinata	cushion phlox	
Physocarpus malvaceus	mallow ninebark	
Physocarpus monogynus	mountain ninebark	

Scientific Name	PLANTS Common Name	PLANTS Scientific Name
Picea engelmannii	Engelmann spruce	
Picea engelmannii X glauca		
Picea pungens	blue spruce	
Picrothamnus desertorum	bud sagebrush	
Pinus	pine	
Pinus albicaulis	whitebark pine	
Pinus balfouriana	foxtail pine	
Pinus contorta	lodgepole pine	
Pinus contorta var. murrayana	Sierra lodgepole pine	
Pinus edulis	twoneedle pinyon	
Pinus flexilis	limber pine	
Pinus jeffreyi	Jeffrey pine	
Pinus longaeva	Great Basin bristlecone pine	
Pinus monophylla	singleleaf pinyon	
Pinus ponderosa	ponderosa pine	
Piptochaetium	speargrass	
Platanus racemosa	California sycamore	
Platanus wrightii	Arizona sycamore	
Pleuraphis jamesii	James' galleta	
Pleuraphis rigida	big galleta	
Pluchea sericea	arrowweed	
Poa	bluegrass	
Poa arctica	arctic bluegrass	
Poa cusickii	Cusick's bluegrass	
Poa fendleriana	muttongrass	
Poa fendleriana ssp. longiligula	muttongrass	
Poa lettermanii	Letterman's bluegrass	
Poa pratensis	Kentucky bluegrass	
Poa secunda	Sandberg bluegrass	
Polemonium viscosum	sticky polemonium	
Poliomintha incana	frosted mint	
Polygonum bistortoides	American bistort	
Populus angustifolia	narrowleaf cottonwood	
Populus balsamifera ssp. trichocarpa	black cottonwood	
Populus deltoides	eastern cottonwood	
Populus deltoides ssp. wislizeni	Rio Grande cottonwood	
Populus fremontii	Fremont cottonwood	
Populus tremuloides	quaking aspen	
Potentilla	cinquefoil	
Potentilla diversifolia	varileaf cinquefoil	
Prosopis	mesquite	
Prosopis glandulosa	honey mesquite	
Prosopis velutina	velvet mesquite	
Prunus	plum	
Prunus fasciculata	desert almond	

Scientific Name	PLANTS Common Name	PLANTS Scientific Name
Prunus virginiana	chokecherry	
Pseudoroegneria spicata	bluebunch wheatgrass	
Pseudotsuga menziesii	Douglas-fir	
Psoralidium lanceolatum	lemon scurfpea	
Psorothamnus arborescens	Mojave indigobush	
Psorothamnus emoryi	dyebush	
Psorothamnus fremontii	Fremont's dalea	
Psorothamnus polydenius	Nevada dalea	
Psorothamnus spinosus	smoketree	
Pteridium aquilinum	western brackenfern	
Puccinellia lemmonii	Lemmon's alkaligrass	
Puccinellia nuttalliana	Nuttall's alkaligrass	
Purshia stansburiana	Stansbury cliffrose	
Purshia tridentata	antelope bitterbrush	
Quercus berberidifolia	scrub oak	
Quercus chrysolepis	canyon live oak	
Quercus cornelius-mulleri	Muller oak	
Quercus gambelii	Gambel oak	
Quercus john-tuckeri	Tucker oak	
Quercus toumeyi	Toumey oak	
Quercus turbinella	Sonoran scrub oak	
Redfieldia flexuosa	blowout grass	
Rhus microphylla	littleleaf sumac	
Rhus ovata	sugar sumac	
Rhus trilobata	skunkbush sumac	
Ribes	currant	
Ribes cereum	wax currant	
Ribes montigenum	gooseberry currant	
Robinia neomexicana	New Mexico locust	
Rosa woodsii	Woods' rose	
Rubus parviflorus	thimbleberry	
Rudbeckia occidentalis	western coneflower	
Salazaria mexicana	Mexican bladdersage	
Salicornia	pickleweed	
Salix amygdaloides	peachleaf willow	
Salix bebbiana	Bebb willow	
Salix boothii	Booth's willow	
Salix brachycarpa	shortfruit willow	
Salix drummondiana	Drummond's willow	
Salix eriocephala	Missouri River willow	
Salix exigua	narrowleaf willow	
Salix geyeriana	Geyer willow	
Salix gooddingii	Goodding's willow	
Salix irrorata	dewystem willow	
Salix laevigata	red willow	

Scientific Name	PLANTS Common Name	PLANTS Scientific Name
Salix lasiolepis	arroyo willow	
Salix lemmonii	Lemmon's willow	
Salix lucida	shining willow	
Salix lutea	yellow willow	
Salix monticola	park willow	
Salix planifolia	diamondleaf willow	
Salix scouleriana	Scouler's willow	
Salix wolfii	Wolf's willow	
Salsola tragus	prickly Russian thistle	
Sapindus saponaria	wingleaf soapberry	
Sarcobatus vermiculatus	greasewood	
Saxifraga	saxifrage	
Schismus	Mediterranean grass	
Scirpus	bulrush	
Selaginella densa	lesser spikemoss	
Selaginella watsonii	Watson's spikemoss	
Senecio	ragwort	
Senna armata	desertsenna	
Shepherdia argentea	silver buffaloberry	
Shepherdia canadensis	russet buffaloberry	
Sibbaldia procumbens	creeping sibbaldia	
Silene acaulis	moss campion	
Simmondsia chinensis	jojoba	
Solidago	goldenrod	
Sphaeralcea coccinea	scarlet globemallow	
Spiraea betulifolia	white spirea	
Sporobolus	dropseed	
Sporobolus airoides	alkali sacaton	
Sporobolus cryptandrus	sand dropseed	
Sporobolus flexuosus	mesa dropseed	
Suaeda	seepweed	
Symphoricarpos	snowberry	
Symphoricarpos albus	common snowberry	
Symphoricarpos oreophilus	mountain snowberry	
Symphyotrichum ascendens	western aster	
Tamarix	tamarisk	
Taraxacum officinale	common dandelion	
Tetradymia	horsebrush	
Tetradymia canescens	spineless horsebrush	
Tetradymia tetrameres	fourpart horsebrush	
Thalictrum fendleri	Fendler's meadow-rue	
Tiquilia	crinklemat	
Tiquilia hispidissima	hairy crinklemat	
Tiquilia palmeri	Palmer's crinklemat	
Tiquilia plicata	fanleaf crinklemat	

Scientific Name	PLANTS Common Name	PLANTS Scientific Name
Trifolium dasyphyllum	alpine clover	
Trifolium gymnocarpon	hollyleaf clover	
Trifolium nanum	dwarf clover	
Trifolium parryi	Parry's clover	
Trisetum spicatum	spike trisetum	
Typha	cattail	
Vaccinium	blueberry	
Valeriana occidentalis	western valerian	
Viguiera parishii	Parish's goldeneye	
Vulpia octoflora	sixweeks fescue	
Wyethia amplexicaulis	mule-ears	
Yucca	yucca	
Yucca baccata	banana yucca	
Yucca brevifolia	Joshua tree	
Yucca elata	soaptree yucca	
Yucca schidigera	Mojave yucca	
Zigadenus elegans	mountain deathcamas	

E-3 Management Questions

The table provided here is a record of all the Management Questions proposed for this REA (discussed, revised, re-phrased, archived and answered) during the assesssment. These MQs were managed for both CBR and MBR in a MS Excel workbook, and were combined into one list for both REAs after the Work Plans were completed. There are very few MQs that were answered for one but not the other REA. This table includes all the MQs that were not answered due to being out of scope, or unanswerable due to lack of data or other issues (MQ status = Inactive for dropped MQs). Only a sub-set of the columns in the workbook are presented here, however the entire workbook has been delivered to BLM separately with all of the additional information tracked by the Contractor for each MQ. Some final changes to MQs took place during Task 6, and are tracked in the "Final MQ" column with strikethrough or red font.

For each MQ, the original MQ, the final MQ and a rationale for archiving or dropping an MQ was tracked. Some MQs were duplicative with others and information is provided as to which MQ duplicates which or if 2 MQs were combined. Other fieldsin the workbook included (but are not provided here) discussions of feasability, issues requiring AMT guidance, data proposed to answer the MQ, issues relating to lack of data or scientific justification for the MQ, and necessary clarifications. Most of these were provided in the Phase I Task Memoranda, and were presented at the AMT Workshops. Many of these were discussed during workshops or webinars.

The table is sorted by the final "active" MQs grouped by general subject; then the inactive or archived/dropped mQs are listed, in the same grouping by general subject.

Table E - 5. List of management questions addressed in this REA , with prelimnary versions provided by BLM or the AMT, the final question; organized by general subjects. Also provided is a record of dropped management questions and reasons for dropping.

FINAL MQ Num	Which Ecoreg	MQ Status	MQ Group	Sort	Task 6 Assessment Type	Fate of Preliminary MQ	Final Management Question	Preliminary MQ Proposed by BLM	Rationale for Fate	Clarifications
ACTIVE, ANSWERED MANAGEMENT QUESTIONS										
1	CBR, MBR	Active	Species	A	1. Where Are CEs and CAs?	Rephrased	What is the current distribution of potential habitat for each species CE?	What is the current distribution of occupied habitat for each CE, including seasonal habitat, and movement corridors?		Few landscape species and species assemblage CEs have data containing current locations of occupied habitat, and therefore this question may not be possible to answer for every landscape species and species assemblage. Current location data are primarily available for local species CEs. Seasonal habitat and movement corridors addressed through habitat modeling in MQ 3; data generally not available for current known locations of seasonal habitat and corridors.
2	CBR, MBR	Active	Species	A	3. Where Do CAs Intersect CEs?	Rephrased	Where are current locations of species CEs that are potentially affected by **existing** change agents (and thus potentially at risk)?	Where are species populations at risk?		This question addresses **current known** locations of CEs and **existing** distribution of CAs. Can mainly be answered for local species CEs due to data availability on **known** locations.
3	CBR, MBR	Active	Species	A	1. Where Are CEs and CAs?	Refined	What is the current distribution of suitable habitat, including seasonal habitat and movement corridors, for each landscape species and species assemblage CE?	What is the current distribution of suitable habitat for each CE?		
4	CBR, MBR	Active	Species	A	3. Where Do CAs Intersect CEs?	Accepted as originally proposed by BLM	Where are **existing** change agents potentially affecting this current habitat and/or movement corridors, for landscape species and species	Where are change agents potentially affecting this habitat and/or movement corridors?		This question addresses **current** suitable habitats for CEs and **existing** distribution of CAs. Can mainly be answered for local species CEs due to data availability on **known** locations.

FINAL MQ Num	Which Ecoreg	MQ Status	MQ Group	Sort	Task 6 Assessment Type	Fate of Preliminary MQ	Final Management Question	Preliminary MQ Proposed by BLM	Rationale for Fate	Clarifications
							assemblage CEs?			
5	CBR, MBR	Active	Species	A	3. Where Do CAs Intersect CEs?	Reframed	Where are species CEs whose current locations or suitable habitats overlap with the potential future distribution of CAs (other than climate change)?	What/where is the potential for future change to this species?		This question addresses **current** suitable habitats and potential **future** distributions of CAs.
6	CBR, MBR	Active	Species	A	1. Where Are CEs and CAs?	Accepted as originally proposed by BLM	What is the relative survey intensity to date within the ecoregion for species CEs ?	What areas have been surveyed and what areas have not been surveyed (i.e., data gap locations)?		These will be ecoregion-level assessments of survey intensity for each CE, rather than detailed listing of specific areas that have and have not been surveyed.
7	CBR, MBR	Active	Species	A	5. Special Assessment	Reframed	Given current and anticipated future locations of change agents, which habitat areas remain as opportunities for habitat enhancement/ restoration? MSR: 4/2012: will be addressed for a small subset of CEs as prototyping of possible ways to answer (GSG, DT, bighorn, one coarse-filter)	Where are potential habitat restoration areas?		For species CE habitats, ecological integrity scores will be calculated at the watershed level. The mid-level integrity ranking will be "Transitioning." Any areas for any CE identified as "Transitioning" will be considered a habitat restoration or enhancement opportunity, particularly in light of potential losses of high integrity examples due to CA expansion.
8	CBR, MBR	Active	Species	A	5. Special Assessment	Reframed; limitied to Desert Tortoise and Sage Grouse	Where are potential areas to restore connectivity for landscape species and species assemblage CEs, based on current locations of change agents? MSR 4/2012- being answered for GSG and DT, rephramed to "Where are potential areas to restorse connecitivity or intact habitat for [greater sage grouse or desert tortoise] based on current locations of change agents?"	Where are potential areas to restore connectivity?		CircuitScape will identify "pinch points" in species habitat connectivity based on current CAs; these are potential areas for restoring connectivity. Forecasts for Change Agents vary in spatial resolution sufficiently to preclude use of CircuitScape in 2025 or 2060 forecast scenarios.
9	CBR, MBR	Active	Species	A	4. Relative Effects of CAs on CEs	Added	Where will landscape species ~~and species assemblage~~ CEs experience climate outside their current climate envelope? MSR 4/2012: climate envelope			addressed by Climate envelope models for species; assemblages would need intersect with climate space trends data

FINAL MQ Num	Which Ecoreg	MQ Status	MQ Group	Sort	Task 6 Assessment Type	Fate of Preliminary MQ	Final Management Question	Preliminary MQ Proposed by BLM	Rationale for Fate	Clarifications
							models for species to answer this			
10	CBR, MBR	Active	Native Plant Communities	B	2. What is the Current Condition of CEs	Accepted as originally proposed by BLM	Where are intact CE vegetative communities located?	Where are intact CE vegetative communities located?		
11	CBR, MBR	Active	Native Plant Communities	B	2. What is the Current Condition of CEs	Reframed	Where are the likeliest **current** locations for high-integrity examples of each major terrestrial ecological system?			
12	CBR, MBR	Active	Native Plant Communities	B	3. Where Do CAs Intersect CEs?	Reframed	Where are **existing** and **potential future** CAs (aside from climate change) likeliest to affect current communities?	What/where is the potential for future change to the community?		Climate change is excluded because it is addressed in a separate MQ.
13	CBR, MBR	Active	Native Plant Communities	B	4. Relative Effects of CAs on CEs	Added	Where will current locations of these communities experience significant deviations from normal climate variation?			addressed by climate envelope models
14	CBR, MBR	Active	Terrestrial Sites of High Biodiversity	C	1. Where Are CEs and CAs?	Accepted as originally proposed by BLM	Where are sites identified (but not necessarily designated) for High Biodiversity?	Where are High Biodiversity sites?		Sites of (terrestrial) high biodiversity are defined as priority sites identified through previous planning efforts, including SWAPs, TNC ecoregional portfolio sites, and other selected efforts. They may or may not have formal management or protection designations.
15	CBR, MBR	Active	Terrestrial Sites of High Biodiversity	C	3. Where Do CAs Intersect CEs?	Reframed	Where will CAs (aside from climate change) potentially affect sites of high biodiversity?	"Potential for future change" should be framed from the CA list		Climate change is excluded because it is addressed in a subsequent MQ for terrestrial high biodiversity sites. NOTE: we are treating these sites as potential reporting units for this type of analysis. Current deliverables will focus on watershed reporting units.
16	CBR, MBR	Active	Terrestrial Sites of High Biodiversity	C	4. Relative Effects of CAs on CEs	Added	Where will locations of these High Biodiversity sites experience significant deviations from normal climate variation?			Climate space trends analyses will be reported by 4th level watershed; which may be subsequently combined with these sites as needed.

FINAL MQ Num	Which Ecoreg	MQ Status	MQ Group	Sort	Task 6 Assessment Type	Fate of Preliminary MQ	Final Management Question	Preliminary MQ Proposed by BLM	Rationale for Fate	Clarifications
18	CBR, MBR	Active	Aquatic Sites of High Biodiversity	D	1. Where Are CEs and CAs?	Accepted as originally proposed by BLM	Where are Aquatic High Biodiversity sites?	Where are Aquatic High Biodiversity sites?		Taken from existing priority-setting efforts, same as for terrestrial.
19	CBR, MBR	Active	Aquatic Sites of High Biodiversity	D	3. Where Do CAs Intersect CEs?	Reframed	Where will these Aquatic High Biodiversity sites be potentially affected by Change Agents (aside from climate change)?	What/where is the potential for future change to these high-biodiversity sites?		Climate change is excluded because it is addressed in a subsequent MQ for aquatic high biodiversity sites.
20	CBR, MBR	Active	Aquatic Sites of High Biodiversity	D	4. Relative Effects of CAs on CEs	Added	Where will current locations of these Aquatic High Biodiversity sites experience significant deviations from normal climate variation?			
21	CBR, MBR	Active	Specially Designated Areas of Ecological Value	E	1. Where Are CEs and CAs?	Accepted as originally proposed by BLM	Where are specially designated areas of ecological or cultural value?	Where are specially designated areas of ecological value?		
28	CBR, MBR	Active	Soils	F	1. Where Are CEs and CAs?	Reframed	Where are sensitive soil types within the ecoregion?	Where are these areas within the ecoregion?		Sensitive soils are those soils that are extremely susceptible to impacts or that may be more difficult to restore or reclaim after disturbance: soils having high erosion potential, high salinity, high gypsum content, low water holding capacity, or hydric qualities
29	CBR, MBR	Active	Soils	F	3. Where Do CAs Intersect CEs?	Reframed	Where will target soil types overlap with CAs (aside from climate change) under each time scenario?	What/where is the potential for future change in conditions, such as due to climate change?		Climate change is excluded because it is addressed in a separate MQ for sensitive soils.
36	CBR, MBR	Active	Aquatic Ecological Function and Structure	G	2. What is the Current Condition of CEs	Rephrased	What is the condition (ecological integrity) of aquatic conservation elements?	What is the condition of target aquatic systems? OR What is the condition of target aquatic systems in terms of PFC?		
39	CBR, MBR	Active	Aquatic Ecological Function and Structure	G	2. What is the Current Condition of CEs	Rephrased	Where are the aquatic CE occurrences with the most degraded condition (ecological integrity)?	Where are the degraded aquatic systems (e.g., water quality)?		Rephrased to align with MBR MQ 39 [dpb 4/15/11]
23	CBR, MBR	Active	Grazing, Wild Horses and Burros	H	5. Special Assessment	Accepted as originally proposed by BLM	Where are the current Herd Management Areas (HMAs)?	Where are the current Herd Management Areas (HMAs)?		

FINAL MQ Num	Which Ecoreg	MQ Status	MQ Group	Sort	Task 6 Assessment Type	Fate of Preliminary MQ	Final Management Question	Preliminary MQ Proposed by BLM	Rationale for Fate	Clarifications
26	CBR, MBR	Active	Grazing, Wild Horses and Burros	H	5. Special Assessment	Added/ reframed	Where will CAs (excluding climate change) overlap HAs, HMAs, and GAs under each time scenario?			Climate change is excluded because it is addressed in a separate MQ for HAs, etc.
27	CBR, MBR	Active	Grazing, Wild Horses and Burros	H	5. Special Assessment	Added	Which HA's, HMA's and GA's will experience climate outside their current climate envelope?			Climate space trends analyses will be reported by 4th level watershed; which may be subsequently combined with these sites as needed.
40	CBR, MBR	Active	Fire History	I	1. Where Are CEs and CAs?	Reframed	Where have fires greater than 1000 acres occurred?	Where are the areas that have been changed from wildfire?		
42	CBR, MBR	Active	Fire Potential	J	1. Where Are CEs and CAs?	Reframed	What areas now have unprecedented fuels composition (invasive plants), and are therefore at high potential for fire?	Where are the areas of potential future change from predicted wildfire? *(BLM amendment)*		
43	CBR, MBR	Active	Fire Potential	J	4. Relative Effects of CAs on CEs	Deferred	Where are areas that in the future will have high potential for fire?	Where are the areas of potential future change from predicted wildfire? *(BLM amendment)*		
44	CBR, MBR	Active	Invasive Species	K	1. Where Are CEs and CAs?	Reframed	What is the current distribution of invasive species included as CAs?	Where are areas dominated by these invasive species?		
45	CBR, MBR	Active	Invasive Species	K	2. What is the Current Condition of CEs	Reframed	What areas are significantly ecologically affected by invasive species?	Where are areas dominated by these invasive species?		
47	CBR, MBR	Active	Invasive Species	K	1. Where Are CEs and CAs?	Reframed	Given current patterns of occurrence and expansion of the invasive species included as CAs, what is the potential future distribution of these invasive species?	Where are the areas of potential future encroachment from this invasive species?		bradley models for invasive plants will be clipped and used for this MQ
48	CBR, MBR	Active	Development	L	1. Where Are CEs and CAs?	Reframed	Where are current locations of development CAs?	Where are current locations of relevant development types?		
49	CBR, MBR	Active	Development	L	1. Where Are CEs and CAs?	Reframed	Where are areas of planned or potential development CAs?	Where are areas of planned or potential development (outside of current urban areas) (e.g., under lease, plans of operation, governmental planning), including transmission corridors?		

FINAL MQ Num	Which Ecoreg	MQ Status	MQ Group	Sort	Task 6 Assessment Type	Fate of Preliminary MQ	Final Management Question	Preliminary MQ Proposed by BLM	Rationale for Fate	Clarifications
50	CBR, MBR	Active	Development	L	4. Relative Effects of CAs on CEs	Reframed	Where do development CAs cause significant loss of ecological integrity?	Where are the areas of significant ecological change from these anthropogenic activities?		In CBR, phrased as "Where are the areas of CEs that fall below their EI threshold due to development CAs?"
51	CBR, MBR	Active	Development	L	3. Where Do CAs Intersect CEs?	Added/ reframed	Where do current locations of CEs overlap with development CAs?			This development CA-specific MQ will be coordinated with previous MQs that address the intersection of multiple types of CAs with CEs (e.g., MQs 2, 4, 5, and 12).
52	CBR, MBR	Active	Development	L	3. Where Do CAs Intersect CEs?	Added; then rephramed (dropped "ecological areas" & "significant")	Where is recreational use? ~~Where are ecological areas with significant recreational use?~~			3 proposed CEs from AMT5 workshop summary (desert tortoise, GSG, erodable soils); 3 days time to do
83	CBR, MBR	Active	Oil, Gas, and Mining Development	M	1. Where Are CEs and CAs?	Reframed	Where are the current locations of oil, gas, and mineral extraction?	Where are the current locations of Oil, Gas, and Mining (including gypsum) development?		
81	CBR, MBR	Active	Renewable Energy Development	N			Where will locations of renewable energy [development] potentially exist by 2025?			
87	CBR, MBR	Active	Renewable Energy Development	N	1. Where Are CEs and CAs?	Added	Where are the current locations of renewable energy development (solar, wind, geothermal, transmission)?			
88	CBR, MBR	Active	Renewable Energy Development	N	1. Where Are CEs and CAs?	Accepted as originally proposed by BLM	Where are the areas identified by NREL as potential locations for renewable energy development?	Where are the areas identified by NERL as potential and physically possible locations for renewable energy development?		
89	CBR, MBR	Active	Renewable Energy Development	N	1. Where Are CEs and CAs?	Added	Where are the areas of low renewable and non-renewable energy development that could potentially mitigate impacts to CEs from potential energy development?		answered	BLM to give direction on how to address this question.

FINAL MQ Num	Which Ecoreg	MQ Status	MQ Group	Sort	Task 6 Assessment Type	Fate of Preliminary MQ	Final Management Question	Preliminary MQ Proposed by BLM	Rationale for Fate	Clarifications
90	CBR, MBR	Active	Renewable Energy Development	N	3. Where Do CAs Intersect CEs?	Added	Where do current locations of CEs overlap with areas of potential future locations of renewable energy development (MQ 65)?			
30	CBR, MBR	Active	Surface and Subsurface Water Availability	O	1. Where Are CEs and CAs?	Reframed	Where are current natural and man-made surface water resources?	Where are these aquatic areas?		
31	CBR, MBR	Active	Surface and Subsurface Water Availability	O	1. Where Are CEs and CAs?	Reframed	Of the current surface water resources (both natural and man-made), which are perennial, ephemeral, etc?	What is the persistence of the flow (e.g., perennial, ephemeral) of these systems?		
34	CBR, MBR	Active	Surface and Subsurface Water Availability	O	1. Where Are CEs and CAs?	Reframed	Where are the likely recharge areas within a HUC?	Where are the aquifers and their recharge areas?		
35	CBR, MBR	Active	Surface and Subsurface Water Availability	O	3. Where Do CAs Intersect CEs?	Reframed	Where will the likely recharge areas (relating to aquatic CEs) identified in MQ 37 potentially be affected by Change Agents? (rephrased 1/24/12)	What/where is the potential for future change in extent and flows from change agents?		Although this MQ will address both aquifers and recharge areas as identified in previous MQs, this MQ does not attempt to identify the linkages between aquifers and recharge areas because that is frequently unknown.
54	CBR, MBR	Active	Groundwater Extraction and Transportation	P	4. Relative Effects of CAs on CEs	Reframed	Where will change agents potentially impact groundwater-dependent aquatic CEs? [springs and seeps only]	Where are the areas of potential future change from groundwater extraction?		
56	CBR, MBR	Active	Groundwater Extraction and Transportation	P	1. Where Are CEs and CAs?	Reframed	What is the present distribution of municipal and agricultural water use of groundwater resources in relation to the distribution of aquatic CEs?			
57	CBR, MBR	Active	Groundwater Extraction and Transportation	P	1. Where Are CEs and CAs?	Reframed	Where are the aquatic CEs showing degraded ecological integrity from existing groundwater extraction? [only partially spatial otherwsie narrative review]	Where are the areas showing effects from existing groundwater extraction?		We cannot go beyond the information generated for MQ# 33.
58	CBR, MBR	Active	Surface Water Consumption and Diversion	Q	1. Where Are CEs and CAs?	Accepted as originally proposed by BLM	Where are artificial water bodies including evaporation ponds, etc.? [duplicative with MQ31]	Where are artificial water bodies including evaporation ponds, etc.?		This is a subset of the information that will be generated to answer MQ 31. (Duplicative MQ 77 was removed.)
60	CBR, MBR	Active	Surface Water Consumption and Diversion	Q	1. Where Are CEs and CAs?	Added	Where are the areas of potential future change in surface water consumption and diversion?			This is a parallel question to MQ 69, the former focused on groundwater and this one (MQ 74) focused on surface water

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62	CBR, MBR	Active	Surface Water Consumption and Diversion	Q	2. What is the Current Condition of CEs	Added	Where are the CEs showing degraded ecological integrity from existing surface water diversion?			
80	CBR, MBR	Active	Atmospheric Deposition	R	1. Where Are CEs and CAs?	Added	Where are areas affected by atmospheric deposition of pollutants, as represented specifically by nitrogen deposition, acid deposition, and mercury deposition?			
65	CBR, MBR	Active	Climate Change: Terrestrial Resource Issues	S	4. Relative Effects of CAs on CEs	Reframed	Where will changes in climate be greatest relative to normal climate variability?	Where are the areas of potential future change from climate change?		
66	CBR, MBR	Active	Climate Change: Terrestrial Resource Issues	S	5. Special Assessment	Reframed	Given anticipated climate shifts and the direction shifts in climate envelopes for CEs, where are potential areas of significant change in extent?	Where are the areas of potential for fragmentation?		Climate envelopes for selected terrestrial coarse filter CEs and landscape species CEs will be addressed. Climate envelope shift models may show increased patchiness of a CE if its extent is reduced in an area due to climate change. But given the relative spatial resolution of forecasts, results should be interpreted as approximate change in extent, rather than as indications of habitat fragmentation.
67	CBR, MBR	Active	Climate Change: Terrestrial Resource Issues	S	4. Relative Effects of CAs on CEs	Reframed	Which native plant communities will experience climate completely outside their normal range?	How will the distributions of native plant communities change with climate change?		
68	CBR, MBR	Active	Climate Change: Terrestrial Resource Issues	S	4. Relative Effects of CAs on CEs	Reframed	Where will current wildlife habitats experience climate completely outside its normal range?	Where are the areas of potential of change of wildlife habitat?		
69	CBR, MBR	Active	Climate Change: Terrestrial Resource Issues	S	4. Relative Effects of CAs on CEs	Added	Where are wildlife species ranges (on the list of species CEs) that will experience significant deviations from normal climate variation?			

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71	CBR, MBR	Active	Climate Change: Aquatic Resource Issues	T	4. Relative Effects of CAs on CEs	Reframed	Where will aquatic CEs experience significant deviations from historic climate variation that potentially could affect the hydrologic and temperature regimes of these aquatic CEs?	Where are the areas of potential future change from climate change?		This question was reframed to address climate-related drivers of hydrology, rather than changes in climate generically. Incorporates concerns of deleted MQs 86, 87, and 88 (CBR #s 72, 73, 74), to extent they can be addressed at REA scale.
76	MBR	Active	Military Constrained Areas	U	1. Where Are CEs and CAs?	Reframed	Where are areas of planned expansion of military use?	Where might these areas change in the future?	msr 4/12: added back, they want the 29 Palms expansion boundaries. We delivered 3 options	lack of data
INACTIVE, DROPPED, MERGED MANAGEMENT QUESTIONS										
78	CBR	Inactive	Species	A	1. Where Are CEs and CAs?	Integrated with other MQ	Where are active Bald Eagle nests?	Where are they?	Bald eagles will be addressed as part of Landscape Species CE MQs	
79	CBR	Inactive	Species	A	1. Where Are CEs and CAs?	Integrated with other MQ	Where are active Golden Eagle nests?	Where are they?	Golden eagles will be addressed as part of Landscape Species CE MQs	
XX	CBR, MBR	Inactive	Species	A		Research that is out of scope		Where are habitats that may be limiting species sustainability? Clarify "sustainability", but this concept is difficult and is a research question beyond the scope of the REA. Clarify the meaning of "habitats that limit"		
17	CBR	Inactive	Aquatic Sites of High Biodiversity	D	1. Where Are CEs and CAs?	Merged	What has been the general level of survey effort (ecoregion-wide, not site-specific) for spring snails and other species of concern?	What areas have been (and have not been) surveyed for spring snails and other species of concern?		merged with #6; we are not able to provide site-specific review of survey effort.
29.5	CBR, MBR	Inactive	Soils	F	4. Relative Effects of CAs on CEs	Added	Where will current sensitive soil types experience significant deviations from normal climate variation?		dropped, 4/12	Climate space trends analyses will be reported by 4th level watershed; which may be subsequently combined with these sites as needed.

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N/A	MBR	Inactive	Soils	F		Deleted	Where are areas of nitrogen deposition beyond "normal" levels?	Where are areas of nitrogen deposition?	Duplicate	Can be addressed with MQ 92. [dpb 4/15/11]
21	CBR, MBR	Inactive	Grazing, Wild Horses and Burros	H		Deferred	Where are the current herds of wild horses?	Where are the current Herds of Wild Horses?	Data availability	
22	CBR, MBR	Inactive	Grazing, Wild Horses and Burros	H		Deferred	Where are the current herds of burros?	Where are the current Herds of Burros?	Data availability	
24	CBR, MBR	Inactive	Grazing, Wild Horses and Burros	H		Deferred	Which HMAs are exceeding AML?	Which HMAs are exceeding AML?	No data	
XX	CBR, MBR	Inactive	Grazing, Wild Horses and Burros	H		Deferred	Which current HMA will overlap with the distribution of Change Agents?		Duplicate of MQ 26	Duplicative with #26
XX	CBR, MBR	Inactive	Grazing, Wild Horses and Burros	H		Research that is out of scope		Are there sufficient forage, unrestricted space, and available surface water to sustain wild horse and burro herds for the long term in existing Herd Management Areas and Herd Areas?		
XX	CBR, MBR	Inactive	Grazing, Wild Horses and Burros	H		Research that is out of scope		Can the habitat sustain these populations across the landscape, while providing for both rangeland and herd health?		
41	CBR, MBR	Inactive	Fire History	I	3. Where Do CAs Intersect CEs?	Deferred	In places that have experienced fire, which sites have shifted to a vegetative state dominated by invasive plants and, without active restoration, will be unlikely to return to the previously occurring vegetative state?	What is the current status of these habitats?	Outside of scope	
46	CBR, MBR	Inactive	Invasive Species	K	2. What is the Current Condition of CEs	Reframed	Focusing on the distributions of terrestrial and aquatic CEs that are significantly affected by invasives, which areas have restoration potential?	Where are areas with restoration potential?	answered as part of MQ#7, using invasives along with climate & development	See notes in Data Sources

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50	CBR	Inactive	Development	**L**	2. Where Do CAs Intersect CEs?	Deleted	Where are the areas of CEs that fall below their EI threshold due to development CAs?	Where will these developments have the potential to affect water resources?	Duplicate with MBR 54	Incorporated into MBR 54. Original BLM MQs appeared to have a terrestrial / aquatic split
84	CBR, MBR	Inactive	Oil, Gas, and Mining Development	M	1. Where Are CEs and CAs?	Reframed and consolidated	Where will locations of oil, gas, and mineral extraction potentially exist by 2025?	Where are areas under plans of operation?	MSR 4/12: no future data avaialble to answer this	only available data is in the Copeland dataset; email exchanges with Karl in ___ revealed no other future oil& gas data are available; Copeland shows very vewryminor areas in CBR and none in MBR
85	CBR, MBR	Inactive	Oil, Gas, and Mining Development	M	1. Where Are CEs and CAs?	Accepted as originally proposed by BLM	Where are the areas of potential future locations of Oil, Gas, and Mining (including gypsum) development (locatable, salable, and fluid and solid leasable minerals)?	Where are the areas of potential future locations of Oil, Gas, and Mining (including gypsum) development (locatable, salable, and fluid and solid leasable minerals?	MSR 4/12: no future data avaialble to answer this	lack of data for future extractive energy & mineral deposits.
86	CBR, MBR	Inactive	Oil, Gas, and Mining Development	M	3. Where Do CAs Intersect CEs?	Added	Where do locations of current CEs overlap with areas of potential future locations of non-renewable energy development?		MSR 4/12: no future data avaialble to answer this	lack of data for the future energy development cannot intersect with CEs.
N/A	MBR	Inactive	Oil, Gas, and Mining Development	M	1. Where Are CEs and CAs?	Deleted	Where are areas under lease?	Where are areas under lease?	Integrated with MQ 58	
N/A	MBR	Inactive	Oil, Gas, and Mining Development	M	1. Where Are CEs and CAs?	Deleted	Where are areas with mineral deposits, free use permits, or community pits?	N/A	Integrated with MQ 57	
N/A	MBR	Inactive	Oil, Gas, and Mining Development	M	5. Special assessment	Deleted	Where are the areas of low non-renewable energy development that could potentially mitigate impacts to CEs from potential energy development?		Integrated with MQ 66	This is duplicated in MQ #66; MQ 66 was broadened to include both non-renewable and renewable energy.
N/A	MBR	Inactive	Oil, Gas, and Mining Development	M		Added, then Deleted	ADD: Prioritizing ecoregional sustainability. How many additional oil, gas, and mineral leases are feasible in the ecoregion?		No data	
N/A	MBR	Inactive	Renewable Energy Development	N		Deleted	BLM ADD: Prioritizing ecoregional sustainability. How many acres of renewable energy development are feasible in the ecoregion?		Duplicate	Redundant with MQ 65
N/A	MBR	Inactive	Renewable Energy Development	N		Out of scope	Where are areas suitable for development outside of study areas?			

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32	CBR, MBR	Inactive	Surface and Subsurface Water Availability	O	1. Where Are CEs and CAs?	Deferred	Of the current perennial surface water resources (both natural and man-made) contributing to aquatic CEs, which are likely supported by groundwater discharges and what aquifers most likely provide this groundwater support?	Of these water resources, what is their surface water/groundwater connectivity?		
33	CBR, MBR	Inactive	Surface and Subsurface Water Availability	O	1. Where Are CEs and CAs?	Deleted	What is the natural range of variation in high and low water levels or flows (e.g., frequency, timing, duration of high and low water levels or flows)?	What are the frequencies & magnitudes of flows?	Replaced with MQ 36	Deleted this in favor of MQ 36 [dpb 4/15/11]
82	CBR, MBR	Inactive	Surface and Subsurface Water Availability	O	1. Where Are CEs and CAs?	Reframed	What is the natural variation of monthly discharge and monthly base flow for streams and rivers? [made inactive 1/24/12]			Reframed from MBR MQ 35, CBR MQ 33
53	CBR, MBR	Inactive	Groundwater Extraction and Transportation	P		Deleted	Where are aquifers and their recharge zones?	Where are aquifers and their recharge zones?	Duplicate of MBR 37	
55	CBR, MBR	Inactive	Groundwater Extraction and Transportation	P		Deleted	Where are **groundwater** resources capable of meeting sustained water demand for renewable energy projects without degrading aquatic ecosystems that also depend on these **groundwater** resources?	Where are the areas of high and low groundwater potential in relation to supporting solar power, sustaining species, etc.?	Not feasible with REA-scale data	We cannot go beyond the information generated for MQ# 33. [MQ 33 is "Of the current water resources (both natural and man-made), what is their surface water/groundwater connectivity?"] There are two versions of this question: One for groundwater (MQ 70) and one for surface water (MQ 75)
59	CBR, MBR	Inactive	Groundwater Extraction and Transportation	P		Deleted	Where are the areas with groundwater basins in an overdraft condition?		Duplicate of MQ 71/57	Technically this is not the same as MQ 71, but MQ 71 is the one we need to answer. "Overdraft" means that withdrawals exceed recharge over the long-term. Such overdrafting is irrelevant for our REAs unless it affects or could affect a CE, which is why MQ 71 is the only question we need to answer w/r/t current conditions. Our CA assessment will address the "future" version of same. [dpb 4/15/11]

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58	CBR, MBR	Inactive	Surface Water Consumption and Diversion	Q	1. Where Are CEs and CAs?	Deleted	Where are artificial water bodies including evaporation ponds, etc.?		Duplicate	Same as MQ 72. [Question had been listed once under Surface Water Consumption and Diversion and once for Groundwater Extraction and Transportation.] MQ 72 really is just a subset of MQ 31, as noted above for MQ 72 [dpb 4/15/11]
61	CBR, MBR	Inactive	Surface Water Consumption and Diversion	Q		Deleted	Where are the areas with **surface water** resources available to sustain solar power, and other forms of development without degrading aquatic ecosystems that also depend on these **surface water** resources? **DPB 4-15-11 If retained, this should be reframed as,** "Where are the areas with surface water resources available to sustain solar power, and other forms of development without degrading aquatic ecosystems that also depend on these surface water resources?" However, best to delete it.		Out of scope or no data	There are two versions of this question: One for groundwater (MQ 70) and one for surface water (MQ 75)
64	CBR, MBR	Inactive	Surface Water Consumption and Diversion	Q		Deleted	Where are the areas with existing surface water extraction that has caused natural aquatic communities to become entirely dry, either seasonally or perennially?		Duplicate	See MQ 76. This is essentially the same question as the one about "areas showing effects from existing surface water exploitation." [MQ 71 is parallel question for groundwater resources.] Deleted because this is merely a rephrasing of MQ #76, except that it asks about where we have lost surface flow entirely, and that is not aswerable with regional data at present. [dpb 4/15/11]
70	CBR, MBR	Inactive	Climate Change: Terrestrial Resource Issues	S		Deferred	Based on recent distributions and expansion patterns of insect pests and disease, what are expected distributions in the future?	How might climate change impact disease agents and vectors [strategy, future data/research need]?	Beyond scope	

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72	CBR, MBR	Inactive	Climate Change: Aquatic Resource Issues	T		Deleted	Where are aquatic resources that will experience significant deviations from normal flow regime or mean water levels?	Where are the areas of potential of flow change?	Out of scope or no data	This is not a matter of "merging" with MQ 85. The old MQ 86 contained the irrelevant term "abrupt," refered to "aquatic resources" instead of to "aquatic CEs," and asked to assess changes in stream hydrology rather than the climate drivers of that hydrology. We need to reframe MQ 85 so that it specifically addresses changes in climate drivers of hydrology rather than changes in climate generically.
73	CBR, MBR	Inactive	Climate Change: Aquatic Resource Issues	T		Deleted	Where will aquatic resources experience significant deviations from normal temperature regime?	Where are the areas of potential of temperature change?	Out of scope or no data	See MQ 85 And see comments for MQ 86 as well [dpb 4/15/11]
74	CBR, MBR	Inactive	Climate Change: Aquatic Resource Issues	T		Deleted	Where are aquatic resources that will experience additional effects on physical habitat such as channel morphology due to significant deviations in climate and hydrologic regimes?	Where are the areas of potential of change of aquatic habitat?	Out of scope or no data	Deleted because question is impossible to answer with REA-scale data and assessments. The proposed rephrasing of MQ 85 takes care of that. [dpb 4/15/11]
N/A	MBR	Inactive	Climate Change: Aquatic Resource Issues	T		Deleted; redundant with MQ others in this section	How will water availability change with climate change?			
75	CBR, MBR	Inactive	Military Constrained Areas	U	1. Where Are CEs and CAs?	Deferred	Where are military constrained areas?	Where are military constrained areas?		Data for this are inaccessible.