FINAL MEMORANDUM I-2-C
MIDDLE ROCKIES
RAPID ECOREGIONAL ASSESSMENT

Prepared for:

Department of Interior
Bureau of Land Management
Rapid Ecological Assessments

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LIST OF ACRONYMS AND ABBREVIATIONS

AMT	Assessment Management Team
BHRF	Big Hole River Foundation
BLM	Bureau of Land Management
CA	change agent
CAPS	Crucial Areas Planning System
CE	conservation element
CLM	Common Land Model
DOI	Department of Interior
DQE	data quality evaluation
DSS	Decision Support Systems
EVC	existing vegetation cover
EVT	existing vegetation type
GAP	Gap Analysis Program
GIS	geographic information system
ICLUS	Integrated Climate and Land Use System
MQ	management question
NDI	National Inventory of Dams
NREL	National Renewable Energy Laboratory
NWI	National Wetland Inventory
NWIS	National Water Information System
REA	Rapid Ecoregional Assessment
ReGAP	Regional Gap Analysis Program
SAIC	Science Applications International Corporation
SERGOM	spatially explicit regional growth model
SOW	statement of work
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geologic Survey
WGA	Western Governors Association

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EXECUTIVE SUMMARY

This memorandum documents the work completed under Task 2 of Phase I of the Rapid Ecoregional Assessment (REA) for the Middle Rockies ecoregion. The goal of this assessment is to produce documents, maps, and other materials that will provide Bureau of Land Management (BLM) land managers tools and information that will assist in the decision making process. In order to achieve this goal, geospatial data is needed for the analysis and modeling of Conservation Elements (CEs) and Change Agents (CAs) to answer the Management Questions (MQs) identified in Task 1.

The primary objective of this memorandum is to identify, evaluate, and recommend datasets to be used throughout the REA.

Task 2 Objectives:

1. Identify and Obtain Potential REA Datasets
2. Data Quality Evaluation
3. Data Gap Identification
4. Dataset Recommendation

Data sources were identified based on their potential affect on the CE and CA categories derived through conversations with the Assessment Management Team (AMT). In many instances, dataset features contained characteristics that were representative of both CEs and CAs (e.g., elevation, vegetation, water, etc). Geographic information system (GIS) analysts and ecologists obtained BLM datasets and publicly available spatial data to determine which features provide the coverage required for future analysis. Science Applications International Corporation (SAIC) identified and obtained over 400 datasets from more than 50 data sources. The primary data sources identified to date consist of BLM, USFS, USGS, USFWS, state agencies, ReGAP, GAP, and LANDFIRE.

Data identification and procurement was actively managed through the use of a master data list. This list is amended on a regular basis in order to maintain a “living” spreadsheet that was centrally located within the SAIC Sharepoint domain. During AMT workshop 1, representatives from Montana Fish, Wildlife and Parks (FWP) informed the AMT that much of the data necessary for the Montana portion of this ecoregion had already been collected and could be available to the BLM for this REA. If this data is provided, it is anticipated that it would be used throughout the REA process. The AMT has provided clear direction that, to the extent possible, CE data that is currently being used by a state agency would be utilized as the primary data for that resource.

SAIC ecologists worked with GIS staff in identifying data needs to answer the MQs. Data needs and data gaps were identified by CEs and CAs. These tables can be found in Section 2. Many of the data gap issues that have been identified are in the CE category, where data may be available, but may be sensitive to the data steward. We hope to work with the AMT in gaining approval to contact these sources and obtain additional data.

After data is obtained each dataset is evaluated using a multi-stage approach. Each dataset is compared and documented for quality and usability against the 11 BLM criteria identified from the 2008 DOI Data Quality Management Guide. The data quality

evaluation (DQE) process is currently ongoing and is anticipated to continue until all data has been obtained and evaluated.

After identifying and obtaining the initial datasets and performing a limited data evaluation, SAIC recommended extending Task 2, due to the lengthy DQE process and complexity of obtaining sensitive data. The AMT approved this recommendation.

1.0 INTRODUCTION

Rapid Ecoregional Assessment (REA) is the Bureau of Land Management's (BLM's) first step toward a broader initiative to systematically develop and incorporate landscape-scale information into the evaluation and eventual management of public land resources. REAs look across an ecoregion to more fully understand ecological conditions and trends; natural and human influences; and opportunities for resource conservation, restoration, and development. They seek to identify important resource values and patterns of environmental change that may not be evident when managing smaller, local land areas. REAs describe and map areas of high ecological value. REAs then gauge the potential of these values to be affected by environmental change agents.

REAs are organized into phases with specific tasks in each phase (Table 1-1). Phase I includes all of the tasks that are required prior to conducting the REA: refinement of management questions (MQs), and selection of conservation elements (CEs) and change agents (CAs). Phase I also includes the identification and evaluation of potential data used for the Middle Rockies REA. Phase II includes: analysis of the data relative to the identified CAs and CEs, documentation of the results, and culminates in the REA document which will guide BLM and other land managers in developing and prioritizing planning and management strategies. This memorandum summarizes efforts for Phase I Task 2 (Table 1-1): acquisition of potentially useful datasets, evaluation of dataset quality, and evaluation of remaining data gaps for the REA. The data will be used in geographic information system (GIS) analysis and modeling to attempt to answer regional or landscape-scale resource MQs.

Table 1-1. REA Phases and Tasks

Phase	Task #	Product
I. Pre-assessment	1	Refine MQs
	2	Identify and recommend datasets for analysis
	3	Identify and recommend analytical models and tools
	4	Prepare REA work plan
II. Assessment	1	Synthesize datasets
	2	Conduct analyses and generate findings
	3	Prepare REA report, maps, and supporting documents

1.1 ECOREGION

The Middle Rockies ecoregion includes portions of western Montana and Wyoming, eastern Idaho, and several small, non-contiguous areas in central Montana, northeastern Wyoming, and western South Dakota (Figure 1-1). The spatial boundary for this REA will include this ecoregion (Middle Rockies Level III Ecoregion – 6.2.10), as defined by the Commission for Environmental Cooperation (2006), plus a buffer consisting of those 5th level Hydrologic Unit Code (HUC) watersheds that overlap the ecoregion boundary. The purpose of the buffer is to help ensure a seamless boundary between mapped layers generated for REAs in neighboring regions, and to avoid problems associated with "edge effects" during geographic information system (GIS) analyses. With the buffer area, the extent of the Middle Rockies REA will be approximately 105,000 square miles (mi^2) (271,949 square kilometers [km^2]).

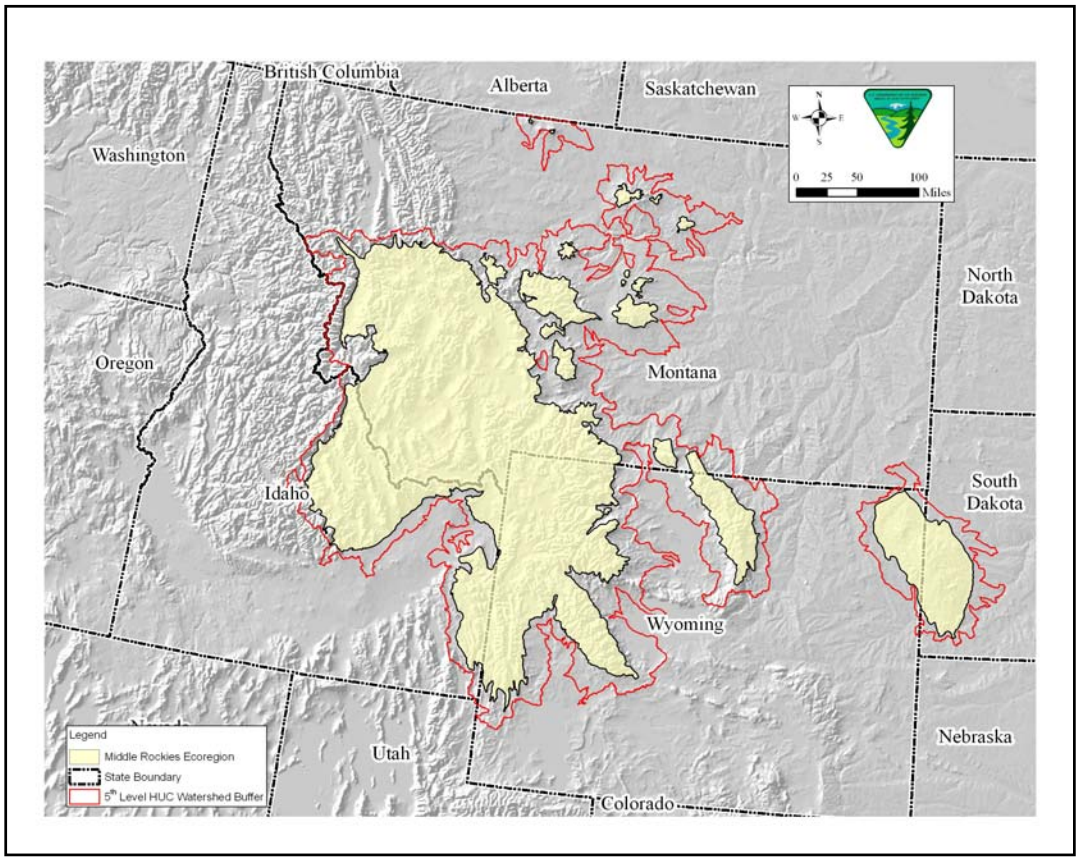

Figure 1-1. Extent of the Middle Rockies Ecoregion

1.2 OBJECTIVES

The primary objective of this task is to identify, evaluate, and recommend datasets that will help to address the MQs and the CEs and CAs finalized in Task 1. SAIC has also identified data for which a source could not be located (data gaps) but would be useful to address landscape-scale issues identified in Task 1. In addition, a Forest Mortality Assessment Report (FMAR) will be prepared concurrently with the REA; thus, Task 2 includes identifying datasets related to forest mortality in the Middle Rockies Ecoregion. The AMT recommended setting deadlines for data identification and obtaining data. The data identification deadline was June 10, 2011. The deadline for obtaining data is July 2, 2011. This memorandum represents the data identification process that continued through Phase I, Task 3 of the REA process.

1.2.1 Memo Expectations

The Phase I Task 2 memo provides the AMT with information about what data sources SAIC has acquired and what data sources it feels will be required to properly describe the CE's, CA's and answer MQ's. There were many areas where SAIC requested feedback and direction from the AMT on the best sources of data and how to contact the data holders. Data gaps have been identified and have been discussed with the AMT to address whether they are actual gaps. SAIC has made recommendations regarding if the data gap can be filled as the REA continues or whether the CE or CA should be removed.

2.0 IDENTIFICATION OF POTENTIAL RAPID ECOREGIONAL ASSESSMENT DATASETS

This task requires the identification of datasets relevant to the analysis requirements of upcoming Task 3, which includes the development of conceptual models. The intent of this task is to identify, obtain, and evaluate the data needed to address BLM MQs and to determine which data are required for modeling CE distribution, condition, and extent and severity of potential CA effects.

2.1 DATA SOURCE IDENTIFICATION

The identification of potential datasets was orchestrated under the assumption that specific physical habitat features are required for a particular CE to be present within an ecoregion. Similar assumptions applied to the effect of CAs on CEs. Potential data sources were identified based on the likelihood that baseline conditions, resources and/or agents of change contained in these datasets would be relevant to the modeling and analysis efforts in Task 3 and subsequent tasks. The Task 1 memo identified numerous CE and CA categories that were determined to be important to the ecoregion. The categories were characterized as either coarse filter or fine filter ecological systems. Coarse filter CEs include the major ecosystem types that occur within the assessment area, and should represent the predominant natural ecosystem functions and services in the ecoregion. The fine filter focuses on species and species assemblages, which include rare species and landscape/keystone species.

Datasets were initially selected based on broad habitat features and subsequently on more detailed requirements. In many instances dataset features contained characteristics that were representative of both CEs and CAs (e.g. elevation, vegetation, water, etc). GIS analysts and ecologists obtained BLM datasets and publicly available spatial data to determine which features provide the coverage required for future analysis. In most cases, the data consisted of features that are regularly used in spatial analysis, making identification of these features relatively straightforward. Other features, such as species occurrence data, were more specialized and therefore more difficult to obtain. Often it was clear which features were desired or preferred, but difficult to determine a potential source for the information. SAIC has identified more than 50 data sources. The BLM, USGS, USFS, USFWS, state agencies, ReGAP, GAP, and LANDFIRE were the primary data sources identified to date.

SAIC and the AMT recognize that various state and federal agencies, partner organizations, and stakeholders have dedicated valuable resources to the identification, collection, and evaluation of many datasets that will be directly applicable to the REA process. The AMT has provided clear direction to SAIC that, to the extent practical, those datasets will be utilized. In addition, a data needs suggestion form was handed out at the AMT Workshop 2. AMT and partners were asked to fill out the form to identify any additional information that may be useful in the CE analysis. SAIC staff contacted the sources and where applicable obtained geospatial data for CEs for the REA.

Data source identification became more complex throughout the process as the search for data became more specific. Because the ecoregion covers numerous states, the scale of data identification and acquisition varies greatly. The scale of nation-wide data often lacks the detail required for this type of ecoregion analysis and therefore state or regional data is preferred. This state and regional data is often more difficult to locate.

Another concern was the availability of data at the state level. The availability and quality of data from state agencies varies widely, resulting in the identification of pertinent data in one state and the inability to obtain similar data in another.

Data identification and procurement was actively managed through the use of a master data list. The data file "Att6.2-DMP-DataLayers.xlsx", provided by BLM, was used as a basis for the current SAIC master data list (see Appendix A). As new information was obtained, SAIC periodically amended the list in order to update the data. Although the original format of the BLM data file remained intact in its entirety, SAIC continued to improve upon the context of the list. Additionally, variations of this list were used in data management by GIS analysts. The purpose of this effort was to maintain a "living" spreadsheet that was centrally located within the SAIC Sharepoint domain. This enabled input from various professionals involved in the REA process, and assisted SAIC analysts in obtaining additional pertinent datasets.

Datasets were compiled by several GIS analysts working closely together. This process was actively managed by the GIS project manager. The goal of this process was to locate as much pertinent information as possible without duplicating the work of another analyst, while identifying and eliminating all possible data gaps. Analysts identified and obtained relevant spatial data and stored the data in secure locations on SAIC servers. Subsequently, the data were securely uploaded to a single SAIC server. The data were then compiled and filed appropriately in preparation for analysis. Details and methodology on data needs and evaluation are provided in the sections below.

2.2 MIDDLE ROCKIES RAPID ECOREGIONAL ASSESSMENT DATA NEEDS

The ultimate goal of the REA process is to answer MQs that relate to the CEs and CAs identified in the early stages of the REA. For this reason, SAIC's approach to data identification and evaluation was to summarize spatial data by CE and CA. Also, the data relating to the Forest Mortality Assessment Report will be discussed in the following sections. Listed below is the list of CEs identified in the Middle Rockies Ecoregion – Memorandum I-1-C (Table 2-1).

Table 2-1. Middle Rockies CEs

Conservation Element	Coarse/Fine Filter
Terrestrial Systems	Coarse Filter
Aquatic/Riparian/Floodplain and Wetland Systems	Coarse Filter
Grizzly Bear	Fine Filter
Forest Carnivore Assemblage (C. Lynx, Wolverine, Marten)	Fine Filter
Greater sage-grouse	Fine Filter
Big Game Crucial Winter Range and Parturition Areas (Mule Deer, Elk, Rocky Mountain bighorn sheep)	Fine Filter
Pronghorn (migration corridors)	Fine Filter
Native Cold Water Aquatic assemblage (Cutthroat Trout, Summer Steelhead, Bull Trout, Sockeye, Chinook, Fluvial Arctic Grayling)	Fine Filter
Five Needle Pine Assemblage (Whitebark Pine, Limber Pine)	Fine Filter
Golden Eagle	Fine Filter

2.2.1 Coarse-Filter Conservation Elements

Coarse-filter CEs include the major ecosystem types (both terrestrial and aquatic) that occur within the assessment area, and should represent the predominant natural ecosystem functions and services in the ecoregion. The desired outcome of coarse-filter selection is to provide coverage for the vast majority of species that occur in the ecoregion. The primary datasets obtained for both terrestrial and aquatic CEs were the National Gap Analysis Program (GAP) analysis and LANDFIRE. Data for coarse-filter CEs was readily available and easy to obtain. GAP and Regional Gap Analysis Program (ReGAP) data was provided by BLM and was also available regionally and statewide for this ecoregion. This data was considered to be of high quality and directly related to the analysis requirements for coarse filters. Further information regarding coarse filter data analysis is available in Table 2-2.

Table 2-2. Coarse-Filter CE Data Analysis

Coarse Filter Conservation Element						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE [4] Score**
Terrestrial Systems						
Ecological Systems	GAP Land Cover Northwest ReGAP North Central GAP	USGS	Raster (30m)	Acquired	Yes	M
	LANDFIRE	LANDFIRE	Raster	Acquired	Yes	H
Soils Data	SSURGO			Acquired	No[2]	TBD
	STATSGO2				Yes	M
Aquatic/Riparian/Floodplain and Wetland Systems						
Ecological Systems	GAP Land Cover Northwest ReGAP North Central GAP	USGS	Raster (30m)	Acquired	Yes	M
	LANDFIRE	LANDFIRE	Raster	Acquired	Yes	H
Wetland/Riparian Systems	NWI	USFWS	Polygon	Acquired	Yes	NR
	NWIS	USGS	Point	Acquired	Yes	TBD
Wetland/Riparian Systems	NHD	USGS	Point, Line, Polygon	Acquired	Yes	NR
Soils Data	SSURGO			Acquired	No[2]	TBD
	STATSGO2				Yes	M

Table 2-2. Coarse-Filter CE Data Analysis (cont'd)

Coarse Filter Conservation Element (cont'd)						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE [4] Score**
Recently Disturbed Ecosystems						
Ecological Systems	GAP Land Cover Northwest ReGAP North Central GAP	USGS	Raster (30m)	Acquired	Yes	M
	LANDFIRE	LANDFIRE	Raster	Acquired	Yes	H
Soils Data	SSURGO STATSGO2			TBD Acquired	No[2] Yes	TBD M

1. Data gap
2. Scale is inappropriate
3. Better data is available
4. Data Quality Evaluation Score (0-15 = Low Quality, 16-30 = Medium, 30+ = High, NR = Not Required, TBD = To Be Done

For the Middle Rockies Ecoregion, the Northwest and North Central GAP definitions of vegetation types were obtained. The GAP classification approach provides several levels of detail that can be used to characterize and map vegetation cover (USGS 2010). The Middle Rockies ecoregion includes a mosaic of GAP data sources, including the two National GAP land cover regions mentioned above. The source data for the Northwest region was the Northwest ReGAP dataset that improved upon the original Northwest GAP analysis.

Similarly, LANDFIRE is based on a 30m grid derived from satellite imagery (http://landfire.gov/). LANDFIRE uses the same classification system for their vegetation and derived model layers. For existing vegetation we obtained the LANDFIRE existing vegetation type (EVT) and the LANDFIRE existing vegetation cover (EVC). The LANDFIRE EVT layer represents the current vegetation present at a given site using nationally consistent ecological systems classification (Comer and others 2003). The LANDFIRE EVC depicts the average percent cover of existing vegetation for a 30 m grid cell. For vegetation types that may have been dominant across the ecoregion before Euro-American settlement LANDFIRE biophysical settings (BPS) was also obtained.

Wetland areas are important biological resources throughout the ecoregion because of their influence on spatial heterogeneity and biodiversity. Because of the importance of wetland habitat, specific data identification efforts focused on this resource. The national GAP analysis and LANDFIRE are also primary datasets for the Aquatic/Riparian/Flood Plain and Wetland systems. National Wetland Inventory (NWI) datasets are also used in determining wetland areas. These datasets are infrequently updated and often lacking in adequate detail. However, they can be a useful tool in determining historical changes to wetland habitat. National Water Information System (NWIS) datasets can also be used to attribute surface water information to wetland areas, but are not specifically maintained for that purpose. The NHD also provides surface water feature information, but is not maintained at an adequate scale for some types of analysis. In other cases,

data is missing or is out of date. SSURGO data contains information pertaining to hydric soil types, and is updated more frequently than the other data types. Field wetland delineations offer the best information for detailed analysis, but are impractical at this scale. The best available data in this instance is a combination of NWI, NWIS, NHD, and STATSGO data. Therefore all of these features were identified, obtained, and evaluated for use in the coarse feature dataset. The state of Montana has completed a GIS wetland analysis using a combination of the data mentioned above. If this data is provided, it is anticipated that this could be used for the Montana portion of this ecoregion.

2.2.2 Fine-Filter Conservation Elements

Fine-filter CEs are landscape species and species assemblages that include landscape/keystone species considered to be regionally significant. Species assemblages are groups of species whose habitats and distribution are sufficiently similar that they may be treated as a single unit of analysis. Keystone species play a lead role in their ecosystems, helping to determine the types and numbers of various other species that co-occur in the system. For example, species that are strongly associated with a major coarse-filter ecological system may be adequately represented by assessment of the ecological system. Landscape species are widespread across the ecoregion, but many of them should be addressed as individual CEs because they have habitat requirements that are different from other species of concern, or range over wide areas. All of the fine-filter CEs selected in Phase I Task 1 of the REA were considered to be regionally significant by consensus of the AMT and partners, and therefore, were the subjects of the search for datasets in Task 2.

Fine-filter CE datasets varied greatly with regard to data quality and accessibility. Species data was obtainable as modeled habitat in most cases, but much more difficult to obtain when considering species occurrence data. Additionally, modeling data was not consistent among datasets, which resulted in data quality variation. Montana FWP has completed species distribution models as part of the Crucial Areas Planning System (CAPS) using Maxent for the majority of CE species in this ecoregion. However, this information is not available for these species in the other states in this ecoregion. SAIC is partnering with state partners and BLM to complete Maxent modeling for species where species occurrence data exists.

Species occurrence data was more difficult to obtain as it is generally not available for download from agency websites. However, there are several pending data sharing agreements with partnering states to obtain species occurrence data for CEs. Habitat for these CEs will be derived from Maxent modeling. It is anticipated that state natural heritage program datasets and species data from state fish and wildlife agencies will become available as a result of these pending data sharing agreements. It is anticipated that the most comprehensive and up-to-date species-specific datasets will be obtained from state agencies, NGOs, or other sources that conduct relevant surveys and habitat modeling. Data availability and quality with regard to species is likely to be a function of public interest and funding for the species in question. Species of conservation concern (i.e. endangered species) often are the objects of greater monitoring effort and therefore data quality may be higher for these species, but not necessarily availability. Big game species and upland bird programs often are the recipients of better funding and the species receive more active management than non-game species, resulting in higher quality datasets. Charismatic species, such as raptors, are actively monitored by a

variety of NGOs, offering an abundance of data, but often of varying quality and difficult to obtain. The most difficult CE dataset category to access and evaluate was the aquatic CE species category. Although sport fishing is popular and programs addressing these species have generated some data, fisheries datasets were generally difficult to locate. The large scale used to record stream data also affected the quality and utility of spatial fisheries datasets. Tables 2-3 through 2-20, contained in the following sections, represent the data identification effort for each of the fine-filter CEs.

2.2.2.1 Grizzly Bear

Suitable Grizzly Bear habitat models were acquired from GAP and NatureServe for portions of the ecoregion (Table 2-3). Other data important for this species could include state (Maxent) known occurrences from natural heritage programs, and recent management plans from USFS, NPS, and USFWS. However, at this time natural heritage program occurrence is listed as a data gap and there has been no Maxent modeling completed. There are also WGA DSS Pilot Projects underway that will generate models and datasets for the ecoregion; however, no data is currently available. If SAIC can obtain the USFWS/USGS grizzly bear range dataset for the Northern Continental Divide ecosystem (NCDE) these data will be included in the assessment phase of the REA. This species has been recorded from Idaho, Montana, and Wyoming.

Table 2-3. Fine-Filter CE Datasets – Grizzly Bear

Conservation Element						
Grizzly Bear						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE [4] Score**
Modeled Suitable Habitat	GAP Habitat Models	USGS	Raster (30m)	Acquired	No[3]	M
	NatureServe Habitat Model	NatureServe	Polygon	Acquired	No[3]	M
	GYE Range	USFWS, USGS	Polygon	Acquired	Yes	TBD
	Northern Divide (NCDE) Range	USFWS, USGS	Polygon	Acquired	Yes	TBD
Denning Areas		**USFS, NPS, USGS, USFWS**	**Point**	**Require Data**	**No[1]**	**TBD**
Occurrences	**State Natural Heritage Databases**	**Natural Heritage Programs – ID, MT, WY**	**Point**	**Data Gap**	**No[1]**	**TBD**
Habitat	Bison Winter Range	USFWS (GYE only)	Polygon	Acquired	Yes	TBD
	Elk Winter Ranges	RMEF	Polygon	Acquired	Yes	M
	Yellowstone Cutthroat Trout	StreamNet (MT only)	Polyline	Acquired	Yes	H

Table 2-3. Fine-Filter CE Datasets – Grizzly Bear (cont'd)

Conservation Element						
Grizzly Bear						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE [4] Score**
Areas with Potential for Restoration of Habitat or Habitat Connectivity	Management Plan Areas	NPS, USGS, USFWS	Polygon	Same as Range	Yes	TBD
	Grizzly Bear Distribution Areas and Recovery Zones	USFS Region 1	Polygon	Acquired	Yes	H

1. Data gap **(represented by bold text)**
2. Scale is inappropriate
3. Better data are available
4. Data Quality Evaluation Score (0-15 = Low Quality, 16-30 = Medium, 30+ = High, NR = Not Required, TBD = To Be Done

2.2.2.2 Forest Carnivores – Canada Lynx

Canada Lynx critical habitat data is available from the USFWS. Habitat data models for this species are also available from GAP and NatureServe (Table 2-4). The NPS also has data on modeled suitable habitat for the Greater Yellowstone Area and Northern Rockies. The Northern Rockies dataset only covers the northwest corner of the Middle Rockies ecoregion outside of the GYE. However, SAIC hopes to obtain modeled habitat data covering the southern portion of the ecoregion from USFS. Montana has been trying to acquire these data from USFS and is having some difficulty. Wyoming has a Maxent model for the Lynx and there are pending data sharing agreements for the occurrence data. There are also WGA DSS Pilot Projects underway that will generate models and datasets for the ecoregion; however, no data is currently available. There are many data requirements listed below for this species. These include denning areas, occurrences from natural heritage programs, and information on management plans or restoration areas. The lynx will be modeled using Maxent with occurrences provided by natural heritage programs for the assessment phase of the REA if the data can be acquired. This species has been recorded from Idaho, Montana, and Wyoming.

Table 2-4. Fine-Filter CE Datasets – Forest Carnivores – Canada Lynx

Conservation Element						
Forest Carnivores - Canada Lynx						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE[4] Score**
Modeled Suitable Habitat	GAP Habitat Models	USGS	Raster (30m)	Acquired	No[3]	M
	NatureServe Habitat Model	NatureServe	Polygon	Acquired	No[3]	H
	State-Derived Models	**ID, MT, WY State Agencies**	**Raster (30-90m)**	**Pending DSA**	**Yes**	**TBD**
	WGA DSS Models	WGA Pilot Crucial Habitat	Raster	Future Dataset	No[1]	TBD
	Lynx Habitat Analysis for Greater Yellowstone Area	NPS	Polygon	Acquired	Yes	H
	Lynx Habitat (2005)	USFS	Raster	Acquired	Yes	

Table 2-4. Fine-Filter CE Datasets – Forest Carnivores – Canada Lynx (cont'd)

Conservation Element						
Forest Carnivores - Canada Lynx						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE[4] Score**
Occurrences	**State Natural Heritage Databases**	**Natural Heritage Programs – ID, MT, WY**	**Point**	**Pending DSA**	**Yes**	**TBD**
Areas with Potential for Restoration of Habitat or Habitat Connectivity	**Management Plan Areas**	**USFS, NPS, BLM, USFWS**	**Polygon**	**Data Gap**	**Yes**	**TBD**
Designated Critical Habitat	Canada Lynx Critical Habitat	USFWS	Polygon	Acquired	Yes	H
Denning Areas		**USFS, NPS, BLM, USFWS**	**Point**	**Require Data**	**No[1]**	**TBD**
Travel Corridors	WGA DSS Datasets	WGA	Polygon	Future Dataset	No[1]	TBD
	Linkage Areas	USFS	Polygon	Acquired	Yes	L

1. Data gap **(represented by bold text)**
2. Scale is inappropriate
3. Better data is available
4. Data Quality Evaluation Score (0-15 = Low Quality, 16-30 = Medium, 30+ = High, NR = Not Required, TBD = To Be Done

DSA: Data Sharing Agreement

2.2.2.3 Forest Carnivores – Wolverine

Suitable Wolverine habitat models were acquired from GAP and NatureServe for portions of the ecoregion (Table 2-5). Key data requirements for this species include other habitat modeling efforts from states or, occurrences from natural heritage programs, data from the USFS, and any information on management plans or habitat restoration. Presumably, additional datasets from the USFWS and the USFS exist, since the wolverine was proposed in December 2010 for evaluation for addition to the endangered species list. The USFWS is evaluating the impact of climate change on denning habitat. AMT and state partners suggested we use data from the Wildlife Conservation Society (WCS) during discussion of available data and modeling. There are also WGA DSS Pilot Projects underway that will generate models and datasets for the ecoregion; however, no data is currently available. SAIC has requested BLM to assist in obtaining data from WCS. This is currently a data gap. SAIC will model the wolverine with occurrences provided by WCS or natural heritage programs for the assessment phase of the REA pending data sharing agreements. This species has been recorded from Idaho, Montana, and Wyoming.

Table 2-5. Fine-Filter CE Datasets – Forest Carnivores – Wolverine

Conservation Element						
Forest Carnivores – Wolverine						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE [4] Score**
Modeled Suitable Habitat	GAP Habitat Models	USGS	Raster (30m)	Acquired	No[3]	M
	NatureServe Habitat Model	NatureServe	Polygon	Acquired	No[3]	H
	State Derived Models	**ID, MT, WY State Agencies**	**Raster (30-90m)**	**Pending DSA**	**Yes**	**TBD**
	WGA DSS Models	WGA Pilot Crucial Habitat	Raster	Future Dataset	No[1]	TBD
Occurrences	**State Natural Heritage Databases**	**Natural Heritage Programs – ID, MT, WY**	**Point**	**Pending DSA**	**Yes**	**TBD**
	WCS	**Wildlife Conservation Society**	**Point**	**Data Gap**	**Yes**	**TBD**
Ungulate Carrion (Winter Range)	Winter Ranges	RMEF, WAFWA	Polygon	Pending	Yes	M
Areas with Potential for Restoration of Habitat or Habitat Connectivity	**Management Plan Areas**	**USFS, NPS, WCS, USFWS**	**Polygon**	**Data Gap**	**No[1]**	**TBD**
Denning Areas		**USFS, USFWS, WCS**	**Point**	**Data Gap**	**No[1]**	**TBD**

1. Data gap **(represented by bold text)**
2. Scale is inappropriate
3. Better data is available
4. Data Quality Evaluation Score (0-15 = Low Quality, 16-30 = Medium, 30+ = High, NR = Not Required, TBD = To Be Done

DSA: Data Sharing Agreement

2.2.2.4 Forest Carnivores – Pine Marten

Suitable Pine Marten habitat models were acquired from GAP and NatureServe for portions of the ecoregion (Table 2-6). The WGA Pilot Crucial habitat program could have data available for this species in the future, but currently there is no data available. Key data requirements include other habitat modeling efforts from states occurrences from natural heritage programs and any information on management plans or habitat restoration. SAIC will use Maxent modeling for distribution of the pine marten pending data sharing agreements.

Table 2-6. Fine-Filter CE Datasets – Forest Carnivores – Pine Marten

Conservation Element						
Forest Carnivores – Pine Marten						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE [4] Score**
Modeled Suitable Habitat	GAP Habitat Models	USGS	Raster (30m)	Acquired	No[3]	M
	NatureServe Habitat Model	NatureServe	Polygon	Acquired	No[3]	H
	State Derived Models	**ID, MT, WY State Agencies**	**Raster (30-90m)**	**Pending DSA**	**Yes**	**TBD**
	WGA DSS Models	WGA Pilot Crucial Habitat	Raster	Future Dataset	No[1]	TBD
Occurrences	**State Natural Heritage Databases**	**Natural Heritage Programs – ID, MT, WY**	**Point**	**Pending DSA**	**Yes**	**TBD**
Areas with Potential for Restoration of Habitat or Habitat Connectivity	**Management Plan Areas**	**USFS, NPS, BLM, USFWS**	**Polygon**	**Require Data**		**TBD**

1. Data gap **(represented by bold text)**
2. Scale is inappropriate
3. Better data is available
4. Data Quality Evaluation Score (0-15 = Low Quality, 16-30 = Medium, 30+ = High, NR = Not Required, TBD = To Be Done

DSA: Data Sharing Agreement

2.2.2.5 Greater Sage-Grouse

This species has an abundance of information available via various data sources such as Sagemap, eBird and data provided from BLM on core areas and lek locations (Table 2-7). Other key data for this species could include habitat models from state (Maxent) agencies and WGA DSS sources, occurrences from natural heritage programs, and management plans with information about habitat connectivity. Because this species has been the focus of recent intense evaluation, the AMT and state partners recommended we use state provided core habitat and lek areas to be consistent across the various programs. Montana FWP has tried to use Maxent to model this species with limited success and recommended using state's core and lek areas. SAIC intends on using this information for the assessment phase of the REA.

Table 2-7. Fine-Filter CE Datasets – Greater Sage-Grouse

Conservation Element						
Greater Sage-Grouse						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE [4] Score**
Modeled Suitable Habitat	GAP Habitat Models	USGS	Raster (30m)	Acquired	No[3]	M
	Breeding Bird Density (Core Areas)	BLM	Polygon	Acquired	Yes	H
	State Derived Core and Lek Areas	**MT, WY, ID, SD State Agencies**	**Polygon/ Raster**	**Pending DSA**	**Yes**	**TBD**
	WGA DSS Models	WGA Pilot Crucial Habitat	Raster	Future Dataset	No[1]	TBD
Occurrences	**State Natural Heritage Databases**	**MT, WY, ID, SD Natural Heritage Programs and Fish and Game Agencies**	**Point**	**Pending DSA**	**Yes**	**TBD**
	Breeding Bird Survey	USGS	Polygon	Acquired	Yes	H
	eBird	Avian Knowledge Network	Point	Acquired	No[3]	L
Areas with Potential for Restoration of Habitat or Habitat Connectivity	**Management Plan Areas**	**USFS, NPS, BLM, USFWS**	**Polygon**	**Not Available**	**No[1]**	**TBD**
Location of Core Areas	Core Sage Grouse	BLM	Polygon	Acquired	Yes	H
Location of Leks, Nesting, Brood-Rearing, and Winter Habitat	BLM 2006 Compilation of States	BLM; MT, WY, ID, SD Fish and Game Agencies	Point 1:24k	Acquired	Yes	H
Habitat Connectivity	WGA DSS Data	WGA	Polygon	Future Dataset	No[1]	TBD

1. Data gap **(represented by bold text)**
2. Scale is inappropriate
3. Better data is available
4. Data Quality Evaluation Score (0-15 = Low Quality, 16-30 = Medium, 30+ = High, NR = Not Required, TBD = To Be Done

DSA: Data Sharing Agreement

2.2.2.6 Big Game – Mule Deer

Suitable Mule Deer habitat models were acquired from GAP and NatureServe (Table 2-8). Habitat data for this species was also acquired from Utah State University. The most important datasets for mule deer are the locations of crucial and severe winter range, parturition areas, and travel and migration corridors. There are also WGA DSS Pilot Projects underway that could generate models and datasets for the ecoregion; however, no data is currently available. The Western Association of Fish and Wildlife Agencies (WAFWA) layer will be used for mule deer distribution. We have requested assistance from BLM in acquiring this data. SAIC intends to use this information for the assessment phase of the REA.

Table 2-8. Fine-Filter CE Datasets – Big Game – Mule Deer

Conservation Element						
Big Game - Mule Deer						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE [4] Score**
Modeled Suitable Habitat	GAP Habitat Models	USGS	Raster (30m)	Acquired	No[3]	M
	NatureServe Habitat Model	NatureServe	Polygon	Acquired	No[3]	H
	WAFWA Mule Deer Ranges	WAFWA	Polygon	Pending	Yes	TBD
	WGA DSS Models	WGA Pilot Crucial Habitat	Raster	Future Dataset	No[1]	TBD
	Mule Deer Habitat	Utah State University	Polygon (1:250k)	Acquired	No[3]	M
Crucial and Severe Winter Ranges	Crucial and Winter Range	MT, WY, ND, SD State Fish and Game		Using WAFWA	No[3]	TBD
Travel Corridors	Travel Corridors	MT, WY, ND, SD State Fish and Game		Pending DSA	Yes	TBD
Migration Corridors	Migration Corridors	WGA; MT, WY, ND, SD State Fish and Game		Pending DSA	Yes	TBD

1. Data gap
2. Scale is inappropriate
3. Better data is available
4. Data Quality Evaluation Score (0-15 = Low Quality, 16-30 = Medium, 30+ = High, NR = Not Required, TBD = To Be Done

DSA: Data Sharing Agreement

2.2.2.7 Big Game – Elk

The most important datasets for elk include the locations of crucial and severe winter range, parturition areas, travel corridors, and migration corridors. Because Elk are actively managed in this ecoregion, it is anticipated that additional datasets will be identified. SAIC intends on using the Rocky Mountain Elk Foundation Elk range data for the assessment phase of the REA (Table 2-9).

Table 2-9. Fine-Filter CE Datasets – Big Game – Elk

Conservation Element						
Big Game - Elk						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE [4] Score**
Modeled Suitable Habitat	GAP Habitat Models	USGS	Raster (30m)	Acquired	No[3]	M
	NatureServe Habitat Model	NatureServe	Polygon	Acquired	No[3]	H
	RMEF Elk Ranges	Rocky Mountain Elk Foundation	Polygon	Acquired	Yes	M
	WGA DSS Models	WGA Pilot Crucial Habitat	Raster	Future Dataset	No[1]	TBD
Crucial and Severe Winter Ranges	Crucial and Winter Range	MT, WY, ND, SD State Fish and Game Agencies		Using RMEF	No[3]	M
Parturition Areas	**Parturition Areas**	**State Fish and Game Agencies**		**Data Gap**	**Data Gap**	**TBD**
Travel Corridors	**Travel Corridors**	**WGA; MT, WY, ND, SD, State Fish and Game Agencies**		**Data Gap**	**Data Gap**	**TBD**
Migration Corridors	**Migration Corridors**	**WGA; MT, WY, ND, SD State Fish and Game Agencies**		**Data Gap**	**Data Gap**	**TBD**

1. Data gap **(represented by bold text)**
2. Scale is inappropriate
3. Better data is available
4. Data Quality Evaluation Score (0-15 = Low Quality, 16-30 = Medium, 30+ = High, NR = Not Required, TBD = To Be Done

2.2.2.8 Big Game – Bighorn Sheep

Suitable Bighorn Sheep habitat models were acquired from GAP and NatureServe for portions of the ecoregion (Table 2-10). Important datasets for bighorn sheep include the locations of crucial and severe winter range, parturition areas, and travel and migration corridors. This species has been recorded in Idaho, Montana, Wyoming, and South Dakota. There are also WGA DSS Pilot Projects underway that could generate models and datasets for the ecoregion; however, no data is currently available. The Western Association of Fish and Wildlife Agencies (WAFWA) will be releasing the update to the bighorn sheep layer. We have requested assistance from BLM in acquiring this data. SAIC intends to use this information for the assessment phase of the REA.

Table 2-10. Fine-Filter CE Datasets – Big Game – Bighorn Sheep

Conservation Element						
Big Game – Bighorn Sheep						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE [4] Score**
Modeled Suitable Habitat	GAP Habitat Models	USGS	Raster (30m)	Acquired	No[3]	M
	NatureServe Habitat Model	NatureServe	Polygon	Acquired	No[3]	H
	WAFWA Big Horn Sheep Ranges	WAFWA	Polygon	Acquired	Yes	TBD
	WGA DSS Models	WGA Pilot Crucial Habitat	Raster	Future Dataset	No[1]	TBD
Crucial and Severe Winter Ranges	Crucial and Winter Range	ID, MT, WY, SD State Fish and Game Agencies		Using WAFWA	No[3]	TBD
Parturition Areas	**Parturition Areas**	**WAFWA, ID, MT, WY, SD State Fish and Game Agencies**		**Data Gap**	**No[1]**	**TBD**
Travel Corridors	**Travel Corridors**	**WAFWA; ID, MT, WY, SD State Fish and Game Agencies**		**Data Gap**	**No[1]**	**TBD**
Migration Corridors	**Migration Corridors**	**WAFWA; ID, MT, WY, SD State Fish and Game Agencies**		**Data Gap**	**No[1]**	**TBD**

1. Data gap **(represented by bold text)**
2. Scale is inappropriate
3. Better data is available
4. Data Quality Evaluation Score (0-15 = Low Quality, 16-30 = Medium, 30+ = High, NR = Not Required, TBD = To Be Done

2.2.2.9 Big Game – Pronghorn

The most important datasets required for pronghorn are their travel corridors and migration corridors. The only data located for this species was the GAP and NatureServe habitat models. The AMT recommended relying on state fish and game agencies as the best sources of data for this CE (Table 2-11). This species has been recorded in Montana, Wyoming, and South Dakota. Expert knowledge from the ecoregion states or the WCS may be used as a potential data source. Currently this geospatial data is a data gap.

Table 2-11. Fine-Filter CE Datasets – Big Game – Pronghorn

Conservation Element						
Big Game – Pronghorn						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE [4] Score**
Modeled Suitable Habitat	GAP Habitat Models	USGS	Raster (30m)	Acquired	No[3]	M
	NatureServe Habitat Model	NatureServe	Polygon	Acquired	No[3]	H
	State Derived Models	**MT, WY, ND, SD, NE State Fish and Game Agencies**	**Raster**	**Require Data**	**Yes**	**TBD**
	WGA DSS Models	WGA Pilot Crucial Habitat	Raster	Future Dataset	No[1]	TBD
Crucial and Severe Winter Ranges	**Crucial and Winter Range**	**MT, WY, ND, SD, NE State Fish and Game Agencies**		**Require Data**	**Yes**	**TBD**
Parturition Areas	**Parturition Areas**	**MT, WY, ND, SD, NE State Fish and Game Agencies**		**Require Data**	**Yes**	**TBD**
Travel Corridors	**Travel Corridors**	**WGA; MT, WY, ND, SD, NE State Fish and Game Agencies**		**Require Data**	**Yes**	**TBD**
Migration Corridors	**Migration Corridors**	**WGA; MT, WY, ND, SD, NE State Fish and Game Agencies**		**Require Data**	**Yes**	**TBD**

1. Data gap **(represented by bold text)**
2. Scale is inappropriate
3. Better data is available
4. Data Quality Evaluation Score (0-15 = Low Quality, 16-30 = Medium, 30+ = High, NR = Not Required, TBD = To Be Done

2.2.2.10 Golden Eagle

Habitat models from NatureServe and GAP for this species are available (Table 2-12). There are also datasets of bird observations available from eBird, Hawkwatch, and Hawkcount. These sightings contain a range of spatial uncertainty since various collectors will note their spatial location differently. Some observers may obtain the center point of the area/transect being observed while others may record each position with a GPS. Key missing data requirements identified are the location of nest sites and sensitive areas. There is currently a pending data sharing agreement with the participating states for Golden Eagle occurrence data. SAIC will use Maxent modeling for distribution of the Golden Eagle pending data sharing agreements. This species has been recorded in Idaho, South Dakota, Montana, and Wyoming.

Table 2-12. Fine-Filter CE Datasets – Golden Eagle

Conservation Element						
Golden Eagle						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE [4] Score**
Modeled Suitable Habitat	GAP Habitat Models	USGS	Raster (30m)	Acquired	No[3]	M
	NatureServe Habitat Model	NatureServe	Polygon	Acquired	No[3]	H
	State Derived Models	**ID, MT, WY, SD State Agencies**	**Raster**	**Pending DSA**	**Yes**	**TBD**
	WGA DSS Models	WGA Pilot Crucial Habitat	Raster	Future Dataset	No[1]	TBD
Occurrences	**State Natural Heritage Databases**	**Natural Heritage Programs – ID, MT, WY, SD**	**Point**	**Pending DSA**	**Yes**	**TBD**
	eBird	Avian Knowledge Network	Point	Acquired	No[3]	L
	Breeding Bird Survey	USGS	Polygon	Acquired	Yes	H
	Christmas Bird Count	Audubon		Acquired	No[3]	L
Sensitive Areas	Audubon Important Bird Areas	Audubon	Polygon	Acquired	No[2]	H
	Bird Conservation Areas	Partners in Flight	Polygon	Require Data	No[2]	H
Nest Sites	**Nests and Roosting Areas**	**BLM, ID, MT, WY, SD State Fish and Game Agencies**	**Point**	**Pending DSA**	**Yes**	**TBD**

1. Data gap **(represented by bold text)**
2. Scale is inappropriate
3. Better data is available
4. Data Quality Evaluation Score (0-15 = Low Quality, 16-30 = Medium, 30+ = High, NR = Not Required, TBD = To Be Done

DSA: Data Sharing Agreement

2.2.2.11 Native Coldwater Aquatic Assemblage –West Slope and Yellowstone Cutthroat Trout

Habitat models and species distribution data were acquired from NatureServe and StreamNet (Table 2-13). Key data for this species includes the locations of spawning and rearing areas, areas with potential for restoration of connectivity, and locations of barriers to fish passage such as dam locations. At the AMT workshop 2 the AMT and state partners recommended using StreamNet as the data source for West Slope and Yellowstone Cutthroat Trout. The Yellowstone Cutthroat Trout has been recorded in Idaho, Montana, and Wyoming; however, the West Slope Cutthroat Trout has only been recorded in Idaho and Montana.

Table 2-13. Fine-Filter CE Datasets – West Slope and Yellowstone Cutthroat Trout

Conservation Element						
Native Coldwater Aquatic Assemblage - Cutthroat Trout (West Slope, Yellowstone Subsp.)						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE[4] Score**
Spawning and Rearing Areas		**ID, MT, WY State Fish and Game Agencies**		**Require Data**	**No[1]**	**TBD**
Important Angling Areas		**ID, MT, WY State Fish and Game Agencies**		**Require Data**	**No[1]**	**TBD**
Areas with Potential for Restoration of Habitat or Habitat Connectivity	**Fish Restoration Priority Watersheds**	**ID, MT, WY State Fish and Game Agencies**		**Require Data**	**No[1]**	**TBD**
Current Distribution	StreamNet, MFISH	USFWS, ID, MT State Natural Heritage Programs	Polyline	Acquired	Yes	H
	Yellowstone Trout for WY	**WY State Fish and Game Agencies**	**Polyline**	**Require Data**	**Yes**	**TBD**
Dams and Fish Ladders	**National Inventory of Dams**	**USACE**	**Point**	**Pending NDA**	**Yes**	**TBD**
	Fish Ladders	NHD	Point	Acquired	Yes	H

1. Data gap **(represented by bold text)**
2. Scale is inappropriate
3. Better data is available
4. Data Quality Evaluation Score (0-15 = Low Quality, 16-30 = Medium, 30+ = High, NR = Not Required, TBD = To Be Done

NDA: Non Disclosure Agreement

2.2.2.12 Native Coldwater Aquatic Assemblage – Summer Steelhead

Sources of data for this species include StreamNet, NatureServe's distribution model and NMFS critical habitat (Table 2-14). Some key data requirements for this species include spawning and rearing areas, areas with potential for habitat restoration and connectivity, along with the locations of fish ladders and barriers to fish passage such as dam locations. At the AMT workshop 2 the AMT and state partners recommended using StreamNet as the data source for Summer Steelhead. This species is known only from the Snake River Basin in Idaho.

Table 2-14. Fine-Filter CE Datasets – Summer Steelhead

Conservation Element						
Native Coldwater Aquatic Assemblage – Summer Steelhead						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE [4] Score**
Critical Habitat	Summer Steelhead Critical Habitat	NMFS	Polygon	Acquired	Yes	M

Table 2-14. Fine-Filter CE Datasets – Summer Steelhead (cont'd)

Conservation Element						
Native Coldwater Aquatic Assemblage – Summer Steelhead						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE[4] Score**
Spawning and Rearing Areas		**ID, MT State Fish and Game Agencies, Trout Unlimited**		**Require Data**	**No[1]**	**TBD**
Important Angling Areas		**ID, MT State Fish and Game Agencies, Trout Unlimited**		**Require Data**	**No[1]**	**TBD**
Areas with Potential for Restoration of Habitat or Habitat Connectivity	**Fish Restoration Priority Watersheds**	**ID, MT State Fish and Game Agencies**		**Require Data**	**No[1]**	**TBD**
Current Distribution	StreamNet	NMFS, USFWS, ID, MT Natural Heritage Programs	Polyline	Acquired	Yes	H
Dams and Fish Ladders	**National Inventory of Dams**	**USACE**	**Point**	**Pending NDA**	**Yes**	**TBD**
	Fish Ladders	NHD	Point	Acquired	Yes	H

1. Data gap **(represented by bold text)**
2. Scale is inappropriate
3. Better data is available
4. Data Quality Evaluation Score (0-15 = Low Quality, 16-30 = Medium, 30+ = High, NR = Not Required, TBD = To Be Done

NDA: Non Disclosure Agreement

2.2.2.13 Native Coldwater Aquatic Assemblage – Bull Trout

Sources of data identified for this species include StreamNet and USFWS critical habitat locations (Table 2-15). Some important data requirements identified for this species include spawning and rearing areas, areas with potential for habitat restoration and connectivity, and barriers to fish passage such as dam locations. At the AMT workshop 2 the AMT and state partners recommended using StreamNet as the data source for Bull Trout. This species is present in many drainages in Idaho and northwestern Montana.

Table 2-15. Fine-Filter CE Datasets – Bull Trout

Conservation Element						
Native Coldwater Aquatic Assemblage – Bull Trout						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE [4] Score**
Critical Habitat	Bull Trout Critical Habitat	USFWS	Polygon	Acquired	Yes	H

Table 2-15. Fine-Filter CE Datasets – Bull Trout (cont'd)

Conservation Element						
Native Coldwater Aquatic Assemblage – Bull Trout						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE[4] Score**
Spawning and Rearing Areas		**ID, MT State Fish and Game Agencies**		**Require Data**	**No[1]**	**TBD**
Important Angling Areas		**ID, MT State Fish and Game Agencies**		**Require Data**	**No[1]**	**TBD**
Areas with Potential for Restoration of Habitat or Habitat Connectivity	**Fish Restoration Priority Watersheds**	**ID, MT State Fish and Game Agencies**		**Require Data**	**No[1]**	**TBD**
Current Distribution	StreamNet	USFWS; ID, MT Natural Heritage Programs	Polyline	Acquired	Yes	H
Dams and Fish Ladders	**National Inventory of Dams**	**USACE**	**Point**	**Pending NDA**	**Yes**	**TBD**
	Fish Ladders	NHD	Point	Acquired	Yes	H

1. Data gap **(represented by bold text)**
2. Scale is inappropriate
3. Better data is available
4. Data Quality Evaluation Score (0-15 = Low Quality, 16-30 = Medium, 30+ = High, NR = Not Required, TBD = To Be Done

NDA: Non Disclosure Agreement

2.2.2.14 Native Coldwater Aquatic Assemblage – Sockeye Salmon

Sources of data for this species include StreamNet, NatureServe's distribution model and NMFS critical habitat (Table 2-16). Some key data requirements for this species include spawning and rearing areas, areas with potential for habitat restoration and connectivity, along with the locations of fish ladders and barriers to fish passage such as dam locations. At the AMT workshop 2 the AMT and state partners recommended using StreamNet as the data source for Sockeye Salmon. This species is present in the Snake River Basin in Idaho.

Table 2-16. Fine-Filter CE Datasets – Sockeye Salmon

Conservation Element						
Native Coldwater Aquatic Assemblage - Sockeye Salmon						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE [4] Score**
Spawning and Rearing Areas		**ID Fish and Game**		**Require Data**	**No[1]**	**TBD**
Important Angling Areas		**ID Fish and Game**		**Require Data**	**No[1]**	**TBD**
Areas with Potential for Restoration of Habitat or Habitat Connectivity	**Fish Restoration Priority Watersheds**	**ID Fish and Game**		**Require Data**	**No[1]**	**TBD**

Table 2-16. Fine-Filter CE Datasets – Sockeye Salmon (cont'd)

Conservation Element						
Native Coldwater Aquatic Assemblage - Sockeye Salmon						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE [4] Score**
Current Distribution	StreamNet	NMFS; ID Natural Heritage Programs	Polyline	Acquired	Yes	H
Dams and Fish Ladders	**National Inventory of Dams**	**USACE**	**Point**	**Pending NDA**	**Yes**	**TBD**
	Fish Ladders	NHD	Point	Acquired	Yes	H

1. Data gap **(represented by bold text)**
2. Scale is inappropriate
3. Better data is available
4. Data Quality Evaluation Score (0-15 = Low Quality, 16-30 = Medium, 30+ = High, NR = Not Required, TBD = To Be Done

NDA: Non Disclosure Agreement

2.2.2.15 Native Coldwater Aquatic Assemblage – Spring/Summer Chinook Salmon

Sources of data for this species include StreamNet, NatureServe's distribution model and NMFS critical habitat (Table 2-17). Some key data requirements for this species include spawning and rearing areas, areas with potential for habitat restoration and connectivity, along with the locations of fish ladders and barriers to fish passage such as dam locations. At the AMT workshop 2 the AMT and state partners recommended using StreamNet as the data source for Spring/Summer Chinook Salmon. This species is present in the Snake River Basin in Idaho.

Table 2-17. Fine-Filter CE Datasets – Spring/Summer Chinook Salmon

Conservation Element						
Native Coldwater Aquatic Assemblage - Spring/Summer Chinook Salmon						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE [4] Score**
Spawning and Rearing Areas		**State Fish and Game Agencies**		**Require Data**	**No[1]**	**TBD**
Important Angling Areas		**State Fish and Game Agencies**		**Require Data**	**No[1]**	**TBD**
Areas with Potential for Restoration of Habitat or Habitat Connectivity	**Fish Restoration Priority Watersheds**			**Require Data**	**No[1]**	**TBD**
Current Distribution	StreamNet	State Natural Heritage Programs	Polyline	Acquired	Yes	H

Table 2-17. Fine-Filter CE Datasets – Spring/Summer Chinook Salmon (cont'd)

Conservation Element						
Native Coldwater Aquatic Assemblage - Spring/Summer Chinook Salmon						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE[4] Score**
Dams and Fish Ladders	**National Inventory of Dams**	**USACE**	**Point**	**Pending NDA**	**Yes**	**TBD**
	Fish Ladders	NHD	Point	Acquired	Yes	H

1. Data gap **(represented by bold text)**
2. Scale is inappropriate
3. Better data is available
4. Data Quality Evaluation Score (0-15 = Low Quality, 16-30 = Medium, 30+ = High, NR = Not Required, TBD = To Be Done

NDA: Non Disclosure Agreement

2.2.2.16 Native Coldwater Aquatic Assemblage – Fluvial Arctic Grayling

Sources of data for this species include StreamNet, NatureServe's distribution model and USFWS critical habitat (Table 2-18). Because the USFWS recently determined that the upper Missouri River basin population of arctic grayling warrants protection under the ESA, they may have distribution, spawning and rearing data. One other data source identified for this species is the Bighole Watershed Committee. Some key data requirements identified for this species include spawning and rearing areas, areas with potential for habitat restoration, locations of fish ladders and locations of barriers to fish passage including dams and weirs. At the AMT workshop 2 the AMT and state partners recommended using StreamNet as the data source for the Arctic Grayling. Within the Middle Rockies ecoregion the fluvial life form of this species is located only in of the Bighole River drainage in western Montana.

Table 2-18. Fine-Filter CE Datasets – Fluvial Arctic Grayling

Conservation Element						
Native Coldwater Aquatic Assemblage - Fluvial Arctic Grayling						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE [4] Score**
Spawning and Rearing Areas		**State Fish and Game Agencies**		**Require Data**	**No[1]**	**TBD**
Important Angling Areas		**State Fish and Game Agencies**		**Require Data**	**No[1]**	**TBD**
Areas with Potential for Restoration of Habitat or Habitat Connectivity	**Fish Restoration Priority Watersheds**	**State Fish and Game Agencies**		**Require Data**	**No[1]**	**TBD**
Current Distribution	StreamNet	USFWS, State Fish and Game Agencies, Natural Heritage Programs	Polyline	Acquired	Yes	H

Table 2-18. Fine-Filter CE Datasets – Fluvial Arctic Grayling (cont'd)

Conservation Element						
Native Coldwater Aquatic Assemblage - Fluvial Arctic Grayling						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE[4] Score**
Dams and Fish Ladders	**National Inventory of Dams**	**USACE**	**Point**	**Pending NDA**	**Yes**	**TBD**
	Fish Ladders	NHD	Point	Acquired	Yes	H

1. Data gap **(represented by bold text)**
2. Scale is inappropriate
3. Better data is available

NDA: Non Disclosure Agreement

2.2.2.17 Five Needle Pine Assemblage – Whitebark and Limber Pine

Predictive distribution models whitebark and limber pine acquired from GAP and LANDFIRE for the ecoregion (Table 2-19 and 2-20, respectively). The USFS has studied these species and datasets are readily available and have been acquired. In addition SAIC staff traveled to the Boise Idaho BLM office and obtained additional expert knowledge data. These species occur in Idaho, Montana, and Wyoming.

Table 2-19. Fine-Filter CE Datasets – Whitebark Pine

Conservation Element						
Five Needle Pine Assemblage – Whitebark Pine						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE [1] Score**
Distribution	Healthy Stands	USFS		Acquired	Yes	M
	Declining Stands	USFS		Acquired	Yes	M
	Deceased Stands	USFS		Acquired	Yes	M
	Protected Stands	USFS		Acquired	Yes	M
	Unprotected Stands	USFS		Acquired	Yes	M
Predicted Distribution	GAP Vegetation			Acquired	Yes	M
	LANDFIRE			Acquired	Yes	H

Table 2-20. Fine-Filter CE Datasets – Limber Pine

Conservation Element						
Five Needle Pine Assemblage – Limber Pine						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE [1] Score**
Distribution	Healthy Stands	USFS		Acquired	Yes	M
	Declining Stands	USFS		Acquired	Yes	M
	Deceased Stands	USFS		Acquired	Yes	M
	Protected Stands	USFS		Acquired	Yes	M
	Unprotected Stands	USFS		Acquired	Yes	M
Predicted Distribution	GAP Vegetation			Acquired	Yes	M
	LANDFIRE			Acquired	Yes	H

1. Data Quality Evaluation Score (0-15 = Low Quality, 16-30 = Medium, 30+ = High, NR = Not Required, TBD = To Be Done

2.2.3 Change Agents

Development of the CAs started with the evaluation of those proposed by the BLM in the SOW and included a thorough evaluation of ecoregion-specific literature that has identified threats to the resources in this ecoregion. Five major categories of CAs were identified. These include: fire; development; invasive species, insect outbreaks/diseases; and climate change (Table 2-21). Within each of these categories are subcategories that further specify the threat of the CA to resources within the ecoregion. Data needs are separated into the five CA categories listed below. CA datasets varied greatly with regard to data quality and accessibility. A large portion of CA data was available, either through online sources or directly from the BLM or state and federal partners. This data is generally associated with basic spatial necessities as they relate to analysis. As a result, this information was readily available and generally of high quality. The primary factor affecting CA data is the scale at which the data was derived. The quality and accessibility of CA data also varied greatly with regard to subject matter. Specific information pertaining to CA data sources and data gaps is contained in the sections below.

Table 2-21. Change Agents

Change Agents
Fire
Development
Urban and Exurban
Agricultural
Hydrological
Invasive Species
Terrestrial
Aquatic
Climate Change
Insect Outbreaks and Diseases

2.2.3.1 Climate Change

Climate Change data was readily available in real time in some instances, and available in historical datasets in others.

The Task Order (TO) requires that the REA use the NatureServe Climate Change Vulnerability Index (NSCCVI) to assess the potential effects of climate change on species CEs. The NSCCVI process uses a range of attributes of the species that are assessed while the forecasted climatic change determines a species' vulnerability.

The NSCCVI anticipates using data from an ensemble of Global Climate Models (GCMs) that are statistically downscaled and bias corrected and appended to USDA Parameter-elevation Regression on Independent Slopes Model (PRISM) data at either 3 x 4 km or 400 x 400 m resolution (Young et al. 2010). However, the BLM indicated that the REAs would use the USGS RegCM 15 x 15 km (RegCM) dynamic downscaled data (provided by Steve Hostetler) that is appended to either PRISM 15 x 15 km data or to National Centers for Environmental Protection (NCEP) (Messinger et al. 2006) simulation data (S. Hostetler pers. com.). For purposes of this REA, it is assumed that bias correction has been completed for both PRISM and NCEP data by the USGS and that spatial resolution of the models which the RegCM data are appended to is 15 x 15 km to match the spatial resolution of RegCM.

A very significant complication in applying the vulnerability analysis to the REA region is the lack of a dataset that provides a continuous coverage of the distributions of each species across the region at an equivalent spatial resolution. Additionally, the TO does not explicitly state that the vulnerability assessment be conducted at the HUC6 level and leaves the spatial extent of the analysis dependant on the scale of the available data. The only method to both analyze the vulnerabilities of the various species with respect to climate and to produce maps of the distributions of the species that meet the vulnerability thresholds will be to model each species distribution dataset independently for each GIS coverage and to produce a composite map of the various coverages. The result of these non-equivalent GIS coverages is that the vulnerability analysis must be qualitative and described in the text of the memorandum. Examples of what the analysis might look like are contained in a variety of recent reports (Ashton et al. 2010; McWethy et al. 2010).

As noted above, PRISM data is available at finer grid scales than 15 x 15 km – all the way to 400 x 400 m grid scale. However, it is not clear if this finer resolution data can be used in conjunction with the RegCM or whether it is appropriate to combine the fine resolution PRISM data with the coarser RegCM data. Additionally, there will be scale issues with respect to the species distribution data.

The current climate change data was either provided by BLM or readily available via download from websites (Table 2-22). The climate data was downloaded from the provided ftp site from Oregon State University.

Table 2-22. CA Datasets – Climate Change

Change Agents						
Climate Change						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE [4] Score**
Current Climate	PRISM	OSU	Raster (4km)	Acquired	Yes	TBD
	DAYMET	Oak Ridge National Lab	Raster (1km)	Acquired	Yes	TBD
	NCEP Climate Datasets	NCEP, NCAR	Polygon	Acquired	Yes	NR
	Climate Impacts Group (CIG)	U of Washington	Raster (various)	TBD	Yes	TBD
	Isobioclimates (Thermotype and ombrotype)	USGS	Raster (1km)	Acquired	Yes	H
	Topographic Moisture Potential	USGS	Raster (30m)	Acquired	Yes	TBD
	Groundwater Climate Response Network	USGS	Point	Acquired	Yes	H
	Snowpacks/Glacier Extents	USGS NLCD	Raster (30m)	Acquired	Yes	H
Future Climate	NCEP			Acquired	Yes	NR
	PRISM	USGS	Raster (4km)	Acquired	Yes	TBD
	NWS CPC Datasets	NWS		Acquired	Yes	TBD
	Modeled Areas Expected to Substantially Change			REA Product	Yes	TBD
	Data on Changes/Shifts in Plant and Animal Phenology			**Not Available**	**No[1]**	**TBD**

1. Data gap **(represented by bold text)**
2. Scale is inappropriate
3. Better data is available
4. Data Quality Evaluation Score (0-15 = Low Quality, 16-30 = Medium, 30+ = High, NR = Not Required, TBD = To Be Done

2.2.3.2 Development

CA data associated with development was the most readily available dataset. This information exists in a variety of formats and scales, covering many areas related to the analysis requirements. Identifying the best datasets and determining their level of quality was challenging due to the large number of datasets available. Generally, however, these datasets offered high quality data coverage for the entire ecoregion.

2.2.3.2.1 Development - Urban/Exurban

Spatial data related to the location of urban areas and future development plans will be important for the REA process. The Integrated Climate and Land Use System (ICLUS) project provides information and data related to population growth scenarios by county.

This data will be important for determining growth scenarios throughout this ecoregion. In addition, the Montana Crucial Areas Planning System (CAPS) contains data layers on projected housing densities from 1970 through 2020. This data was based on a spatially explicit regional growth model (SERGOM) developed by Dr. David Theobold of Colorado State University. Sources of similar data for the other states in this ecoregion were evaluated. There has been some initial release of statistics from the 2010 census. Depending on the census attributes being analyzed, census data from 2000, 2005 or 2010 will selected.

A variety of data related to energy resources and transportation was provided by BLM (Table 2-24). Renewable energy projects across the ecoregion include, biomass, wind, ethanol and geothermal. The National Renewable Energy Laboratory (NREL) currently shows no biomass power plants in this ecoregion, but there could be proposed developments seeking permitting. Wind energy is the most predominant form of renewable energy in the ecoregion along with geothermal energy, which is used mostly in Idaho. Currently the NREL has information about wind and geothermal power capacity shown below in Table 2-23. These data, however, were not available across the ecoregion, and in some cases were limited greatly in quality and scale.

Table 2-23. Wind and Geothermal Use Throughout Ecoregion States

Current Installed Wind Power Capacity		Current Installed Geothermal Capacity	Planned Geothermal Capacity
State	**Megawatts**	**Megawatts**	**Megawatts**
Idaho	164	15.8	413-676
Montana	386	-	-
South Dakota	412	-	-
Wyoming	1101	0.25	0.28
Source: NREL 12/14/2010 (www.windpoweringamerica,gov/wind_installed_capacity.asp)		Source: NREL 05/05/2010 (www.nrel.gov/gis/images/2010-05-05%20Geothermal%20Capacity.jpg)	

A variety of data related to energy resources and transportation was provided by BLM. Oil and gas exploration and development is the largest energy influence in the ecoregion. For example, Wyoming ranks 7th in oil production and 2nd in natural gas production in the U.S., contributing $2.3 billion to the state's economy in 2009. The BLM serves as the lead agency in energy and minerals management in this area because many of these resources occur on BLM lands. BLM maintains extensive databases on potential oil and gas resources, leases, and the locations of current energy projects. BLM also has data on proposed energy corridors that likely overlap with other agency jurisdictions. Argonne National laboratory has mapped potential oil and gas and strata unit areas for which GIS has also been obtained. Oil and gas pads were sought in addition to point locations because of their spatial influence on some CEs. However, this data was unavailable. Potentially, it is possible to use a buffered well location as a surrogate for oil and gas pads.

Data for transmission lines and pipelines will be important for the REA analysis process. Although some GIS data related to electric transmission lines has been provided and some data is available through Sagemap, data on lower voltage distribution lines was

difficult to obtain. The National Pipeline Mapping System which is maintained by the Pipeline and Hazardous Materials Safety Administration (PHMSA) has data for all major gas and hazardous liquid transmission lines for this ecoregion. However, obtaining this data would require a formal request by the BLM. SAIC and BLM have sought additional data resources through pending data sharing agreements.

2.2.3.2.2 Development - Agriculture

The grazing dataset was not included under agriculture as previously agreed upon in Workshop 1. The crop land data layer for 2010 was just released and is available for download. SSURGO soils data is available in the study area. However, this layer is usually developed at a county or special project area level and at a much higher resolution than the STATSGO soils layer. Because of the scale of this data, gaps in coverage may also be an issue. The SSURGO datasets for the large ecoregion are numerous, large, and there is no guarantee that adjacent counties will be easily matched up.

Fence layers were sought for the identification of areas creating hazards or impeding migration, however this layer is unavailable at the ecoregion level.

2.2.3.2.3 Development - Hydrological

The USACE maintains the National Inventory of Dams (NID) dataset that will be necessary to locate impediments for migratory fish. This dataset is only available to users with a .gov or .mil address. The BLM has requested this dataset which is in process, pending a data sharing agreement.

Table 2-24. CA Datasets – Development (Urban/Exurban, Agriculture, Hydrological)

Change Agents						
Development (Urban, Agriculture, Industrial and Water)						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE [4] Score**
Agriculture	Cropland Data Layer	USDA NASS	56m	Acquired	Yes	M
	Agriculture Census	USDA	Raster (1:20 million)	Acquired	Yes	H
	Livestock Grazing Areas	BLM	Polygon	Only BLM Land	Yes	H
	Fences	**BLM, USFS, State**	**Polyline**	**Not Available**	**No[1]**	**TBD**
	STATSGO Soils	NRCS	Polygon	Acquired	Yes	M
	SSURGO Soils	NRCS	Polygon	TBD	No[2]	TBD
	Surficial Geology	USGS	Polygon	Acquired	Yes	H
	Surficial Materials Lithology	USGS	Raster (1km)	Acquired	Yes	M
	National Hydrography Dataset	USGS	Vector	Acquired	Yes	H
	Watershed Boundary Database	USGS	Polygon	Acquired	Yes	H
	Aquifers	USGS	Polygon	Acquired	Yes	TBD

Table 2-24. CA Datasets – Development (Urban/Exurban, Agriculture, Hydrological) (cont'd)

Change Agents						
Development (Urban, Agriculture, Industrial and Water)						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE [4] Score**
Aquatic	National Inventory of Dams	USACE	Point	Pending NDA	Yes	TBD
	Fish Ladders	NHD	Point	Acquired	Yes	H
	Integrated Restoration and Protection Strategy (IRPS)	USFS	Polygon	Acquired	Yes	TBD
	Water Quality	NWIS	Point	Acquired	Yes	L
	Water Quantity	NWIS	Point	Acquired	Yes	L
	Pollution Source Points	EPA	Point	Acquired	Yes	M
	Impaired Rivers and Lakes (303d)	EPA	Point	Acquired	Yes	M
	Oil and Gas Leases	BLM	Polygon	Acquired	Yes	TBD
Industrial	Oil and Gas Wells	BLM	Point	Acquired	Yes	M
	Oil and Gas Pads	**BLM**	**Polygon**	**Not Available**	**No[1]**	**TBD**
Energy/Transportation	Proposed Energy Developments and Corridors	BLM		Acquired	Yes	TBD
	Oil and Gas Developable Area and Strata Unit Area	Argonne National Laboratory	Polygon	Acquired	Yes	TBD
	Wind Resources	NREL	Polygon	Acquired	Yes	M
	Wind Turbines	**BLM, DOE, State**	**Point**	**Not Available**	**No[1]**	**TBD**
	Potential Geothermal	NREL/BLM	Polygon	Acquired	Yes	M
	Lands Targeted for Renewable Energy	BLM		Acquired	Yes	TBD
	Section 368 Energy Corridors	Argonne National Library	Vector	Acquired	Yes	H
	Cellular Towers	FCC		Acquired	Yes	H
	Transmission Lines	SAGEMAP		Acquired	Yes	M
	Linear Features	**BLM**	**Polyline**	**TBD**	**Yes**	**TBD**
	Census Data	US Census Bureau	Vector	Acquired	Yes	TBD
	ESRI Streetmap	ESRI	Polyline	Acquired	Yes	H
	ICLUS	EPA	Model	Acquired	Yes	TBD
	Military Expansion	**DOD**	**Vector**	**Not Available**	**No[1]**	**TBD**
	Roadless Areas			Acquired	Yes	TBD

Table 2-24. CA Datasets – Development (Urban/Exurban, Agriculture, Hydrological) (cont'd)

Change Agents						
Development (Urban, Agriculture, Industrial and Water)						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE [4] Score**
Human	Existing and Proposed ACECs, RNAs, NWRs, Wilderness Areas, NCAs, etc.	BLM		Acquired	Yes	H
	Urban/ExUrban Areas	US Census Bureau	Polygon	Acquired	Yes	TBD
	Human Footprint in West	USGS	Raster (180m)	Acquired	Yes	H

1. Data gap **(represented by bold text)**
2. Scale is inappropriate
3. Better data is available
4. Data Quality Evaluation Score (0-15 = Low Quality, 16-30 = Medium, 30+ = High, NR = Not Required, TBD = To Be Done

NDA: Non Disclosure Agreement

2.2.3.3 Invasive Species

A variety of state and federal agencies collect data and information related to invasive species and were the best sources for this data. Data for most terrestrial invasive species were not readily available. Aquatic species data were maintained by the USGS and obtained for use in this REA (Table 2-25). Other data sources for invasive species could include LANDFIRE and GAP. Other species-specific data sources for species such as leafy spurge, knapweed, cheat grass, Russian-olive, and tamarisk were identified, but much of the data was limited in scale, quality, and number of occurrences.

Some New Zealand mudsnail distribution data is available from the USGS as part of the Non-indigenous Aquatic Species (NAS) database. Montana State University has carried out extensive research on this invasive species, but data maintained by the university was limited in comparison to the USGS dataset. The USGS also maintains distribution data for didymo. A potential data gap exists for this invasive due to its rapid spread and redistribution. Possible sources of information regarding didymo (NAWQA and EMAP) were considered, but limited data availability and spatial distribution precluded the use of didymo as an invasive species for this analysis. Zebra mussels, which occur across the region, have also been considered in the data identification and acquisition, and are included in the non-native aquatic invasive species dataset.

Table 2-25. CA Datasets – Invasive Species

Change Agents						
Invasive Species						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE [4] Score**
Terrestrial	Infestation Location	NISIMS	Polygon	Acquired	Yes	L
	Survey Area	NISIMS	Polygon	Acquired	No[3]	L
	Treatment Boundaries	NISIMS	Polygon	Acquired	Yes	L
	Weed Management Areas	NISIMS	Polygon	Acquired	Yes	M
	National Agricultural Pest Information System	USDA	Website	Acquired	Yes	TBD
	Aerial Insect and Disease Survey	USFS	Polygon	Acquired	Yes	M
	Forest Insect and Disease Risk	USFS	Polygon	Require Data	No[3]	M
	Vulnerable Areas			**Require Data**	**Yes**	**TBD**
Aquatic	Non-native Aquatic Invasives	USGS	Point	Acquired	Yes	M
	Nonindigenous Aquatic Species (IMS Website)	USGS	Point	Require Data	No[3]	M
	Vulnerable Areas			**Require Data**	**Yes**	**TBD**
	Infestation Locations	NISIMS	Polygon		No[2]	L

1. Data gap **(represented by bold text)**
2. Scale is inappropriate
3. Better data is available
4. Data Quality Evaluation Score (0-15 = Low Quality, 16-30 = Medium, 30+ = High, NR = Not Required, TBD = To Be Done

2.2.3.4 Fire

Data for fire was readily available (Table 2-26). LANDFIRE was identified as a primary data source for fire data. The USFS also maintains various datasets relating to fire. There was an abundance of information on fire from various sources such as USFS, GeoMac, and MTBS.

Table 2-26. CA Datasets – Fire

Change Agents						
Fire						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE [4] Score**
Vegetation	LANDFIRE Fuel Models	LANDFIRE	Raster (30m)	Acquired	Yes	H
	LANDFIRE EVT	LANDFIRE	Raster (30m)	Acquired	Yes	H
	GAP Vegetation	GAP	Raster (30m)	Acquired	Yes	M
	National Land Cover Dataset	MRLC	Raster (30m)	Acquired	Yes	M

Table 2-26. CA Datasets – Fire (cont'd)

Change Agents						
Fire						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE [4] Score**
Fire Locations	Fire Occurrence Data	GeoMac	Polygon	Acquired	Yes	TBD
	Fire History	USFS	Polygon	Acquired	Yes	TBD
	Fire Potential	USFS	Raster (1km)	Acquired	Yes	TBD
	Fire Perimeters	MTBS	Polygon	Acquired	Yes	H
	Fire Occurrence	MTBS	Point	Acquired	Yes	H
	Burn Severity	MTBS	Raster	Acquired	Yes	H
Sources	National Lightning Detection Network	NLDN, BLM	Point	Real Time Only	TBD	TBD
	Wildland Urban Interface	USFS	Polygon	Acquired	Yes	M
	Future Prescribed Burns			**Not Available**	**No[1]**	**TBD**

1. Data gap **(represented by bold text)**
2. Scale is inappropriate
3. Better data is available
4. Data Quality Evaluation Score (0-15 = Low Quality, 16-30 = Medium, 30+ = High, NR = Not Required, TBD = To Be Done

2.2.3.5 Insect Outbreak and Disease

Insect outbreak data was also readily available (Table 2-27). The USFS maintains a variety of datasets relating to insect outbreaks and disease. The USFS has excellent coverage of information on insects and disease affecting forests throughout the West.

Table 2-27. CA Datasets – Insect Outbreak and Disease

Change Agents						
Insect Outbreak and Disease						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in REA**	**DQE [4] Score**
Insect Outbreak	Aerial Insect and Disease Surveys	USFS		Acquired	Yes	M
	FHTET	USFS		Acquired	Yes	H
Disease	White Bark Pine Blister Rust Infection for US	USFS		Acquired	Yes	M
	White Bark and Limber Pine Information System	USFS		Acquired	Yes	H
	Aerial Insect and Disease Surveys	USFS		Acquired	Yes	M
	FHTET	USFS		Acquired	Yes	H

2.2.4 Forest Mortality Assessment Report

In addition to the Middle Rockies REA, a separate Forest Mortality Assessment Report (FMAR) is being completed for the Middle Rockies Ecoregion. The FMAR will include a summary of forest ecosystems and recent tree mortality due to mortality agents. In particular, the FMAR will assess forest ecosystems and mortality by: insects/disease outbreaks and fire.

An aggregate of both ReGAP and LANDFIRE land cover datasets, will potentially be used to extract forest data layer for analysis (Table 2-28). USFS Forest Inventory and Analysis (FIA) data and Aerial Detection Survey (ADS) maps will be used to assess insect and disease in the ecoregion. The USFS has an abundant amount of fire-related GIS data readily available including: fire history; fire perimeter; and numerous risk models. In addition, SAIC was has obtained State Forestry Assessments from Idaho, Montana, Wyoming, and South Dakota. SAIC is in the process of contacting personnel to obtain datasets from those documents relevant to the Middle Rockies FMAR. Below is a list of data that has been identified for the FMAR.

However, some data limitations have been identified. Some models developed for critical habitat and species are based on 1000m grid. This grid size may be too large for the purposes of this assessment. In addition, there is very little readily available carbon sequestration data. SAIC is currently evaluating the National Biomass and Carbon Dataset (NBDC). The NBDC is a nationwide dataset that combines Forest Service FIA data with high resolution satellite imagery. If applicable to the FMAR this data will be used.

Table 2-28. FMAR Datasets

Forest Mortality Assessment Report						
Forest Mortality						
Data Needs	**Dataset Name**	**Source Agency**	**Type/Scale**	**Status**	**Use in FMAR**	**DQE [5] Score**
Forest Habitat	NIDRM	USFS	Raster (1000m)	Acquired /Scale Issues?	No[3]	TBD
	FIA	USFS	Polygon		Yes	TBD
	GAP	USGS	Raster (30-90m)	Acquired	Yes	M
	LANDFIRE	LANDFIRE	Raster	Acquired	Yes	H
Insect and Disease Occurrences	ADS 2000-2009	USFS	Polygon	Acquired	Yes	M
Forest and Disease Risk	FHTET	USFS		Acquired		TBD
Fire History/Fire Occurrence	Fire History 1985-2009	USFS	Polygon Point	Acquired	Yes	TBD
	MTBS	MTBS				H
	GeoMac	USGS				TBD
Forest Fuels	LANDFIRE	LANDFIRE		Acquired	Yes	H
Climate Modeling	PRISM	Oregon State	Raster	Acquired		TBD
Carbon Sequestration Data	NBCD	Woods Research Center	Raster (30m)	Acquired	Yes[4]	TBD
Wildland Urban Interface	NIDRM	USFS	Raster	Acquired	No[2]	TBD
	IRPS		Polygon		Yes	TBD

1. Data gap
2. Scale is inappropriate
3. Better data is available
4. Pending evaluation
5. Data Quality Evaluation Score (0-15 = Low Quality, 16-30 = Medium, 30+ = High, NR = Not Required, TBD = To Be Done

2.2.5 Basemap Data Layers

The BLM data management team provided SAIC with a variety of data sources to be used within the REA. The basemap style datasets such boundaries, roads, railroads, etc. will be used throughout the REA process for analysis and cartography. SAIC will rely on the datasets provided along with ESRI data layers which usually have a high level of precision for basemap style data. BLM data management team is also creating a new linear features dataset that should provide an up to date roads and rails layer. SAIC used a variety of image sources to provide a variety of scaled aerial imagery. Depending on the scale, NAIP imagery and Bing maps imagery are two available data sources that have adequate quality. The Bing maps provided through ESRI are mapserver based images that stream over the internet to the ArcMap session. They are scaled mosaics that cover the entire ecoregion and will provide imagery where available down to one foot in resolution. The NAIP imagery collected in 2009 and 2010 over the ecoregion needs to be downloaded by county and consists of one meter resolution.

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3.0 OBTAIN REA DATASETS

3.1 COORDINATION AND PROCESS OF DATA COLLECTION

In the early stages of spatial data collection data either originated from BLM or was downloaded from websites for evaluation. Many other datasets have been identified but because of the sensitivity associated with making contact with data providers, much data took longer to collect. In addition there are several datasets that are pending data sharing agreements.

Once data sharing agreements are final, SAIC can provide a password protected file transfer protocol (FTP) site that stakeholders, AMT members, or NGO's can individually access and upload their information. The size of some datasets may preclude the ability to transfer via FTP. For large datasets that exceed file transfer capabilities, SAIC can provide an external hard drive (thumb drive, portable HD, etc.) to facilitate data transfer.

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4.0 DATA QUALITY EVALUATION

The REA process requires that relevant spatial data be indentified and evaluated for accuracy prior to implementation of use for the modeling to be completed as part of Task 3. The purpose of this evaluation is to ensure that the data used in the modeling process is appropriate to derive a suitable outcome in the analysis stage. The goal of the evaluation process is to determine the best datasets available from public and private entities, and to provide results that could be replicated among all states within the Middle Rockies Ecoregion. Because of the scale of the ecoregion, the data evaluation process focused on data that was accurate and attributable at a landscape level.

A large number of datasets have been acquired and data acquisition and evaluation will continue through to Phase I, Task 3, of the BLM REA process. Geospatial data is currently being evaluated using a multi-stage approach. After completing a comprehensive data search, geospatial analysts perform a standard data evaluation, identify any gaps within the data and document associated weaknesses of the individual datasets. Each dataset is compared and documented for quality and usability against the 11 BLM criteria identified from the 2008 DOI Data Quality Management Guide. With the exception of the 17 datasets defined as “required” in the SOW Attachment 6.2 list of data layers provided by BLM, SAIC will provide a data quality evaluation (DQE) for each dataset.

An initial DQE is a requirement and deliverable in the Data Evaluation Task. The objective of the DQE is ensuring the data are the right type and quality to meet REA objectives. The data is compared to the 11 criteria mentioned above to provide information to the AMT so they have a reasonable understanding data is available to answer the MQs. In cases where a dataset may score “low,” but is the only data available we would discuss with AMT on whether it is “correct enough” to use. However, in many cases dealing with data on both CEs and CAs SAIC has been given instruction with the AMT on what data is available and to be used to meet the REA objectives.

A GIS will be used to evaluate all spatial data. The data was opened and viewed in GIS to determine the geographic extent, coverage and scale of the data relative to the ecoregion extent. Spatial accuracy and extent of coverage are then determined through the use of two specific established GIS datasets. Data is then compared against imagery data that is readily available through ESRI. This imagery offers quality resolution and exists at a scale suited for use as a comparative model of spatial accuracy. In addition to the imagery, SAIC accessed ESRI StreetMap data, which features high quality street layers in the form of vector data. Combining the StreetMap data with the ESRI imagery provides a high quality spatially referenced display of a base map on which to view and assess the quality of spatial features collected. The combination of both base map layers enables the GIS analysts to compare acquired dataset features relative to vegetation, topography, linear man-made features, and other pertinent datasets. This method allows for an objective method of spatial analysis.

In addition to observable spatial accuracy, attribute tables were evaluated to determine if attribute information is relevant for that particular dataset. The level of detail associated with the attributes varies widely among the various data sources. For example, species occurrence data from one source could contain attribute information such as county location, frequency, population, etc. but the same data from a different source might not contain frequency or population attribute information. The attribute

information can be used in the modeling phase of the process, and will often assist the analyst in determining which features should be included in each stage of the analysis.

Metadata offers additional information relating to the spatial reference, accuracy, creation, workflow, and dynamics of a GIS data layer. Federal Geographic Data Committee (FGDC) compliant data must contain metadata as part of the data source information. Metadata was either acquired as part of the GIS data layer, or as additional files paired with the data. The information contained within the metadata file is often relevant to the data quality itself. Therefore, each dataset that was acquired throughout this process was examined to determine the quality of the associated metadata. Figure 4-1 illustrates the DQE process that will be used for datasets throughout the REA process. Table 4-1, below, contains the evaluation criteria that will be used in the DQE process.

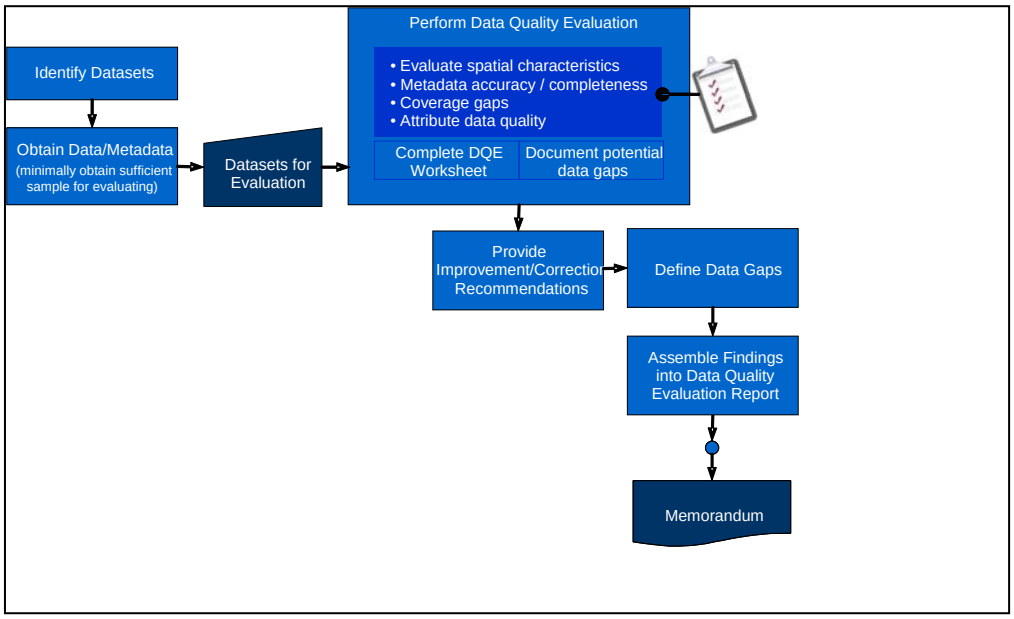

Figure 4-1. Data Quality Evaluation Process

Table 4-1. Data Quality Evaluation Criteria from BLM Data Quality Management Guide

Data Quality Evaluation	Description	Software	Method
Validity	The degree to which data conforms to their definitions, domain values and business rules	ArcCatalog	If there are domains, check to see if they are properly used (geodatabase only). Check attributes for strange entries (email column with a phone number
Non-Duplication	The degree to which there are no redundant occurrences of the same real world object or event.	ArcCatalog	Export attributes to excel and use 'Remove Duplicates' to find if there are any identical records.

Table 4-1. Data Quality Evaluation Criteria from BLM Data Quality Management Guide (cont'd)

Data Quality Evaluation	Description	Software	Method
Completeness	The degree to which the required data are known. This includes having the required data elements (the facts about the object or event), having the required records, and having the required values	ArcCatalog	Rate how complete the attributes are filled in. Note some spatial data standards have many fields that will never all be filled in.
Relationship Validity	The degree to which related data conform to the associate business rules	ArcCatalog	Review the attributes to see if the values in each column are logically connected. Does one column give a sighting count of 2 with other columns tracking male, female, juveniles, etc. have totals that do not equal 2?
Consistency	The degree to which redundant facts are equivalent across two or more databases in which the facts are maintained	ArcCatalog	If the dataset being evaluated is part of a series of datasets from the same source with redundant data, is the redundant the data the same
Concurrency	The timing of updates to ensure that duplicate data stored in redundant files are equivalent. This is a measure of the data float (the time elapsed from the initial acquisition of the data in one file or table to the time they are propagated to another file or table	ArcCatalog	Open the metadata viewer and review the date of data acquisition and process steps to see if the data was processed and made available in a timely fashion. This would minimize the chance of something changing and making the data irrelevant.
Timeliness	The degree to which data are available to support a given information consumer or process when required	ArcCatalog	Open the metadata view and review the date of acquisition, update frequency, etc. Was it collected recently? Is it year two of a ten year project? How accurately does it represent the current condition?
Spatially Accurate	The degree to which data accurately reflect the real-world object or event being described. Includes spatial, temporal and thematic accuracy	ArcCatalog ArcMap	Look for data collection methods (GPS, type accuracy) and when the data was collected. In ArcMap, overlay the layer with ESRI Roads/Streetmap, detailed county layer, or aerial imagery (NAIP, Seamless, etc). Do the positions make sense to reflect the scale that they data will be used?

Table 4-1. Data Quality Evaluation Criteria from BLM Data Quality Management Guide (cont'd)

Data Quality Evaluation	Description	Software	Method
Thematic Accuracy	The degree to which the attributes represented in the map are reflective of reality on the ground	ArcCatalog	In ArcCatalog, review the metadata details for accuracy information used in the layer. Is there a threshold or confidence interval that the data needed to exceed to be classified a certain way? Does that same threshold or interval match the requirements for it to be used in the REA?
Precision	The degree to which data are known to the right level of detail (e.g., the right number of decimal digits to the right of the decimal point). Includes spatial, temporal and thematic precisions	ArcCatalog	In ArcCatalog, review the attributes to see if the proper fields are used for numbers to ensure enough accuracy in recording results. This will be most notable for latitude and longitude (should have at least six decimal points). If there are less the three decimal points the data may not be worthwhile using due to accuracy. Look at other columns storing numeric data. Is the precision acceptable for this data type (precipitation measurements, etc)?
Derivation Integrity	The correctness with which derived data are calculated from their base data		In ArcCatalog, review the metadata to see what the original data is based on or level of accuracy it has. Was the trail digitized off an aerial image or topographic map? Did the roads layer use ESRI Streetmap or Tiger roads layer for its origins. In ArcMap, add the layer along with the original basemap layer. Do they still line up or did it get bumped along the way?

Each data quality criterion was given a score from 0-4 (0 = unknown, 1= low, 2 = moderate, 3 = high, 4 = very high) for a total possible score of forty-four. A detailed description of the scoring criteria for each DQE category is available in Appendix A. This section contains an explanation of the rational used to select a score based on the DQE categories listed in Table 4-1. The totaling of the eleven data quality criteria allowed for a quantitative comparison of all the criteria. One additional item SAIC is tracking is the relative dataset coverage across the ecoregion. This information was not included in the dataset total score, as some species distributions do not cover the entire ecoregion;

however, it is another criterion that can be used for comparing datasets where applicable. A subset of the preliminary results of the data quality evaluation can be viewed in Table 4-2.

Table 4-2. Data Quality Evaluation Summary (Subset) for Middle Rockies Ecoregion

REA Use	ISO Category	Category	Dataset Name	Source	Score (out of 44)	Notes
CA Development (Energy)	Utilities/Comm	Renewable Energy	Biomass (2005)	NREL	35	Coverage for the entire US at the county level, good metadata
CA Development (Energy)	Utilities/Comm	Renewable Energy	Biomass (2008)	NREL	21	Coverage for the entire US at the county level, no metadata
CA Development (Energy)	Utilities/Comm	Renewable Energy	Potential Geothermal Area	NREL	18	Partial Ecoregion Coverage
CA Development (Energy)	Utilities/Comm	Renewable Energy	Transmission Lines	FEMA	19	Full US coverage, limited attributes
CE Greater Sage Grouse	Biota	Greater Sage Grouse	Sage Grouse Core Area	BLM	34	

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5.0 DATASET RECOMMENDATIONS

The objective of Phase I, Task 2, is to identify, evaluate, and recommend datasets for the Middle Rockies REA. Because this task also includes a FMAR, additional emphasis has been placed on identifying data related to forest mortality in the Middle Rockies. A selection of data layers to address the CEs, CAs and MQs is imperative for the REA process. However this process was very time-consuming due to the large number of available datasets.

For terrestrial course-filter CEs, SAIC recommends that the Northwest ReGAP and North Central GAP be used. However, for fire-related MQs and CAs, LANDFIRE may be evaluated and chosen as the preferred dataset. SAIC also recommends using the Northwest ReGAP and North Central Gap for Aquatic/Riparian/Floodplain and Wetland Systems. In addition to the GAP data, SAIC will use existing NWI, NHD, and SSURGO soils for future spatial analysis and modeling tasks.

Fine-filter species dataset recommendations can be found in Tables 2-3 through 2-20. SAIC will continue to work with state agencies and other entities to obtain datasets that will be used for habitat and distribution modeling. Many of these datasets are pending data sharing agreements; however, it is anticipated that they will be utilized instead of creating new datasets for the same resource.

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6.0 SUMMARY

This memorandum documents the work completed under Phase I, Task 2. This draft memorandum summarizes SAICs data identification, needs, evaluation and recommendations needed to address MQs and CEs finalized in Task 1. The development of this memorandum was an iterative process that could continued into Phase I, Task 3 of the REA process.

SAIC describes the data source identification approach in selecting potential data for CEs and CAs that will be used to answer MQs through analysis and modeling in Task 3.

Datasets were initially selected based on broad habitat features and subsequently on more detailed requirements and were generally easy to find. However, other features, such as species occurrence data, were more specialized and therefore more difficult to obtain. Over 200 datasets have been obtained, with over 50 data sources to date. The primary data sources include federal, state and non-profit agencies.

After the potential datasets were identified SAIC ecologists worked with GIS staff in identifying data needs to answer the MQs. This information will be crucial in identifying the data gaps. This is an important step in the data gathering process to see where data fall short and where possible collaboration with AMT will be required to obtain data.

After completing a comprehensive data search, geospatial analysts performed a standard data evaluation, identified data gaps, and documented associated weaknesses of the individual datasets. Each dataset has been compared and documented for quality and usability against 11 BLM criteria identified from the 2008 DOI Data Quality Management Guide. With the exception of the 17 datasets defined as “required” in the SOW Attachment 6.2 list of data layers provided by BLM, SAIC will provide a DQE for each dataset. To date we have evaluated over 400 datasets.

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7.0 REFERENCES

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APPENDIX A

DATA QUALITY EVALUATION WORKSHEET

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Data Quality Evaluation Criteria Scoring Explanations

Validity - The degree to which data conforms to definitions, domain values, and business rules.

0 - Data outside AOI

1 - Low; domains not used, or many errors in entries (wrong types of data entered in columns)

2 - Fair; domains may not be used, some errors or blank entries

3 - Moderate; domains may not be used, but entries filled in consistently, few errors

4 - High; domains may be used, entries filled in consistently, little or no errors

Non-Duplication - The degree to which there are no redundant occurrences of the same real world object or event.

0 - Data outside AOI

1 - Low; many different entries report same object or event (duplicate entries in same database)

2 - Fair; some entries report same object or event (different surveys may report same event such as aerial detection surveys)

3 - Moderate; few entries report same object or event

4 - High; no apparent duplications of same event

Completeness - The degree to which the required data are known. This includes having he required data elements, required records, and values.

0 - Data outside AOI

1 - Low; many blank entries across many fields

2 - Fair; may have blank entries due to different databases combined, or duplicate columns

3 - Moderate; few blank entries

4 - High; little or no blank entries

Relationship Validity - The degree to which related data conform to the associate business rules.

0 - Data outside AOI

1 - Low; values in columns are not logically connected, many records where individual counts do not add up to total counts

2 - Fair; some inconsistencies in records

3 - Moderate; few inconsistencies in records

4 - High; data are consistent

Consistency - The degree to which redundant facts are equivalent across two or more databases in which the facts are maintained.

0 - Data outside AOI

1 - Low; many duplicates

2 - Fair; some duplicates

3 - Moderate; few duplicates

4 - High; no duplicates, or only one database for data

Concurrency - The timing of updates to ensure that duplicate data stored in redundant files are equivalent.

0 - Data outside AOI

1 - Low; data not made available in timely fashion

2 - Fair; data may be out of date and not represent actual conditions on ground

3 - Moderate; data may be slightly out of date depending on type of observations (point sightings of highly mobile species)

4 - High; data collected recently

Timeliness - Metadata was examined to determine the degree to which data was produced, collected, updated in a timely fashion.

0 - Data outside AOI

1 - Low; Time period unknown

2 - Fair; Slightly old or not updated

3 - Moderate; Somewhat current or updated frequently

4 - High; Very current or updated recently

Spatially Accurate - The degree to which the data accurately reflect the real-world object or event.

0 - Data outside AOI, not evaluated

1 - Low level of spatial accuracy; may have problems with boundaries lining up, locations not making sense (aquatic species plotted on land), drawn according to 'expert opinions'

2 - Fair level of spatial accuracy; may have minor issues with boundaries, digitizing scale too small for data

3 - Moderate level of spatial accuracy; may have one minor issue with boundary, or digitizing scale, but overall good

4 - High level of spatial accuracy; accurate methods of digitizing used, boundaries line up, points make sense

Thematic Accuracy - The degree to which the attributes represented in the map are reflective of reality on the ground.

0 - Data outside AOI

1 - Low; may be based on user submitted sightings

2 - Fair; may be based on expert opinions, or small number of samples or sightings, or out of date data which may not reflect accurately current conditions on ground

3 - Moderate; may have either small number of samples or slightly old data, but still good representation

4 - High; current data, appropriate number of samples to accurately represent conditions on ground

Precision - The degree to which data are known to the right level of detail (the correct number of decimal places)

0 - Data outside AOI

1 - Low; insufficient number of decimal places in points locations, inaccurate or unknown data collection methods (such as user submitted bird sightings), will adversely affect accuracy

2 - Fair; may have less than wanted decimal places, may have effect on accuracy

3 - Moderate; correct number of decimal places, may have some inconsistencies (one entry uses higher precision than next entry) little or no effect on accuracy

4 - High; all values use appropriate decimal places, all entries consistently completed

Derivation Integrity - Correctness with which derived data are calculated from their base data. Metadata was examined to determine the steps taken to transform original data into GIS data.

0 - Data outside AOI

1 - Low; metadata may not be complete, or unknown methods

2 - Fair; may be some issues with alignments, or complete documentation

3 - Moderate; may not have complete documentation

4 - High; Has good documentation, source data links available, complete history of data and steps used for derivation

Coverage - Scores given based on extent of data compared to AOI. Data was scored according to the following values in cases where extent was limited by study, for example, state data only within state boundaries when known ranges of animals extend beyond state boundaries.

0 - Data outside AOI

1 - Less than 25% coverage

2 - 25-50% coverage

3 - 50-75% coverage

4 - >75% coverage

Table A-1. Data Quality Evaluation Worksheet

ISO Category	Category	Database or Folder	Name	Validity	Non-Duplication	Completeness	Relationship Validity	Consistency	Concurrency	Timeliness	Spatially Accurate	Thematic Accuracy	Precision	Derivation Integrity	Coverage of MIR	Coverage of NGP	Total Score
Planning/Cadastre	Coal_Methane_Bed		CMBBasins_Reserv06_Prod06														
Planning/Cadastre	Coal_Methane_Bed		CBMfield_Boundaries_2007														
Planning/Cadastre	Coal_Methane_Bed		CBMBasin_Resources_2006														
Biota	Sage Grouse Core Area	GRSageGrouseHabitat.gdb	COH_2008	3	4	4	4	2	3	3	3	3	3	3	3	2	40
Biota	Sage Grouse Core Area	GRSageGrouseHabitat.gdb	COH_2008_Albers	3	4	4	4	2	3	3	3	3	3	3	3	2	40
Biota	Sage Grouse Core Area	GRSageGrouseHabitat.gdb	GRSG_CO_BroodArea08202009	3	4	4	4	2	3	4	3	3	3	3	3	2	41
Biota	Sage Grouse Core Area	GRSageGrouseHabitat.gdb	GRSG_CO_HistoricHabitat08202009	3	4	4	4	2	3	4	3	3	3	3	3	2	41
Biota	Sage Grouse Core Area	GRSageGrouseHabitat.gdb	GRSG_CO_OverallRange08202009	3	4	4	4	2	3	4	3	3	3	3	3	2	41
Biota	Sage Grouse Core Area	GRSageGrouseHabitat.gdb	GRSG_COProductionArea08202009	3	4	4	4	2	3	4	3	3	3	3	3	2	41
Biota	Sage Grouse Core Area	GRSageGrouseHabitat.gdb	GRSG_SevereWinterRange0802009	3	4	4	4	2	3	4	3	3	3	3	3	2	41
Biota	Sage Grouse Core Area	GRSageGrouseHabitat.gdb	GRSG_CO_WinterRange08202009	3	4	4	4	2	3	4	3	3	3	3	3	2	41
Biota	Sage Grouse Core Area	GRSageGrouseHabitat.gdb	GRSG_NatureServe_clip	3	4	2	4	2	2	2	3	3	3	3	3	2	36
Biota	Sage Grouse Core Area	GRSageGrouseHabitat.gdb	GRSG_Occurences_GBIF_6_2010	3	3	2	3	0	1	4	3	2	3	3	3	2	32
Biota	Sage Grouse Core Area	GRSageGrouseHabitat.gdb	KeyHab_2006	3	4	4	4	2	2	3	3	3	3	3	3	2	39
Biota	Sage Grouse Core Area	GRSageGrouseHabitat.gdb	KeyHab_2006_Albers	3	4	4	4	2	2	3	3	3	3	3	3	2	39
Biota	Sage Grouse Core Area	GRSageGrouseHabitat.gdb	WY_basin_EA_sagegr	4	4	4	4	2	1	2	3	3	3	3	3	2	38
Biota	Sage Grouse Core Area	Layer File	Range-wide Breeding Densities_Doherty_etal_9_2010.lyr	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Biota	Sage Grouse Core Area	GunnisonSageGrouse.gdb	GunnSG_CO_BroodArea08202009	4	3	4	3	2	3	3	2	3	3	1	1	1	33
Biota	Sage Grouse Core Area	GunnisonSageGrouse.gdb	GunnSG_CO_HistoricHabitat08202009	4	3	4	3	2	3	3	2	3	3	1	1	1	33
Biota	Sage Grouse Core Area	GunnisonSageGrouse.gdb	GunnSG_CO_OverallRange08202009	4	3	4	3	2	3	3	2	3	3	1	1	1	33
Biota	Sage Grouse Core Area	GunnisonSageGrouse.gdb	GunnSG_CO_ProductionArea08202009	4	3	4	3	2	3	3	2	3	3	1	1	1	33
Biota	Sage Grouse Core Area	GunnisonSageGrouse.gdb	GunnSG_CO_SevereWinterRange08202009	4	3	4	3	2	3	3	2	3	3	1	1	1	33
Biota	Sage Grouse Core Area	GunnisonSageGrouse.gdb	GunnSG_CO_WinterRange08202009	4	3	4	3	2	3	3	2	3	3	1	1	1	33
Biota	Sage Grouse Core Area	GunnisonSageGrouse.gdb	GUSG_Merge_Albers	4	3	1	3	2	2	3	1	3	2	1	1	1	27

Table A-1. Data Quality Evaluation Worksheet

ISO Category	Category	Database or Folder	Name	Validity	Non-Duplication	Completeness	Relationship Validity	Consistency	Concurrency	Timeliness	Spatially Accurate	Thematic Accuracy	Precision	Derivation Integrity	Coverage of MIR	Coverage of NGP	Total Score
Biota	Sage Grouse Core Area	GunnisonSageGrouse.gdb	GUSG_NatureServe_clip	4	3	1	3	2	1	2	2	3	3	1	1	1	27
Biota	Sage Grouse Core Area	GunnisonSageGrouse.gdb	GUSG_Occupied	4	3	2	3	2	3	3	2	3	3	1	1	1	31
Biota	Sage Grouse Core Area	GunnisonSageGrouse.gdb	GUSG_Occupied_Albers	4	3	2	3	2	3	3	2	3	3	1	1	1	31
Biota	Sage Grouse Core Area	GunnisonSageGrouse.gdb	GUSG_PAD_Identity	4	2	1	3	2	2	3	2	3	3	1	1	1	28
Biota	Sage Grouse Core Area	GunnisonSageGrouse.gdb	GUSG_StateBndys_Int	4	3	2	3	2	2	3	2	3	3	1	1	1	30
Biota	Sage Grouse Core Area	GunnisonSageGrouse.gdb	GUSG_Utah_2010	4	3	4	3	2	3	3	2	3	3	1	1	1	33
Biota	Sage Grouse Core Area	GunnisonSageGrouse.gdb	GUSG_Utah_2010_Albers	4	3	4	3	2	3	3	2	3	3	1	1	1	33
Biota	Black-tailed Prairie dog Colonies	n/a	Colonies1970_2002.shp	3	0	1	0	0	0	3	2	3	0	2	2	3	19
Biota	Invasives	WeedsAddSchema.gdb	ProposedTreatmentLocation	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Biota	Invasives	WeedsAddSchema.gdb	TreatmentComponentLocation	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Biota	Invasives	WeedsAddSchema.gdb	WeedInfestationLocation	2	1	1	0	1	1	1	1	1	1	0	2	2	14
Biota	Invasives	WeedsAddSchema.gdb	WeedManagementArea	2	3	2	2	2	1	1	2	2	1	0	2	3	23
Biota	Invasives	WeedsAddSchema.gdb	WeedSurveyLocation	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Biota	Invasives	WeedsAddSchema.gdb	PhotoLocation	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Biota	Desert Tortoise	n/a	USGS_HabModel.lyr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Biota	T&E Species	Clipped_T&E	crithab_line.shp	4	4	3	3	3	0	1	3	3	3	3	1	1	32
Biota	T&E Species	Clipped_T&E	crithab_poly.shp	4	4	3	3	3	0	1	3	3	3	3	1	1	32
Biota	T&E Species	Clipped_T&E	crithab_line_Clip_SOD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Biota	T&E Species	Clipped_T&E	crithab_poly_Clip_MBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Biota	T&E Species	Clipped_T&E	crithab_poly_Clip_SOD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utilities/Comm	Renewable Energy	Solar_Energy_Study_Areas	solar_energy_study_areas.shp		0	0	0	0	0	0	0	0	0	0	0	0	0
Utilities/Comm	Renewable Energy	Solar_Energy_Study_Areas	solar_energy_study_areas_Clip_COP.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utilities/Comm	Renewable Energy	Solar_Energy_Study_Areas	solar_energy_study_areas_Clip_MBR.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utilities/Comm	Renewable Energy	Solar_Energy_Study_Areas	solar_energy_study_areas_Clip_SOD.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utilities/Comm	Renewable Energy	Potential Geothermal Area	Potential_Geothermal_Area.shp	3	3	2	1	2	1	3	3	1	0	0	2	2	23
Utilities/Comm	Renewable Energy	Potential Geothermal Area	Potential_Geothermal_Area_Clip_MBR.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utilities/Comm	Renewable Energy	Potential Geothermal Area	Potential_Geothermal_Area_Clip_SOD.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utilities/Comm	Renewable Energy	LATITL	ANNUAL_10km_USA_PV.jpg	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utilities/Comm	Renewable Energy	LATITL	us9805_latilt.shp	4	4	4	4	4	4	4	4	4	4	4	4	4	52

Table A-1. Data Quality Evaluation Worksheet

ISO Category	Category	Database or Folder	Name	Validity	Non-Duplication	Completeness	Relationship Validity	Consistency	Concurrency	Timeliness	Spatially Accurate	Thematic Accuracy	Precision	Derivation Integrity	Coverage of MIR	Coverage of NGP	Total Score
Utilities/Comm	Renewable Energy	Biomass (2005)	Biomass.shp	4	4	4	4	3	2	2	3	3	4	3	4	4	44
Utilities/Comm	Renewable Energy	Biomass (2008)	Biomass.shp	2	2	2	2	2	1	3	2	2	3	2	4	4	31
Utilities/Comm	Transmission Lines	Transmission_lines	fema.shp	3	2	2	0	2	0	1	2	2	2	3	4	4	27
Utilities/Comm	Renewable Energy	Wind Resources	pnw_50mwindnouma.shp	3	3	2	0	2	2	3	4	0	3	2	3	2	29
Utilities/Comm	Renewable Energy	Wind Resources	nebraska_50mwind	3	3	2	0	2	2	3	4	0	3	2	0	1	25
Utilities/Comm	Oil Gas	EPCA3\ (27) Montana Thrust Belt.mdb	MTB_beaverLUPModel.shp	0	2	2	3	3	0	1	2	2	3	0	3	0	21
Utilities/Comm	Oil Gas	EPCA3\ (27) Montana Thrust Belt.mdb	MTB_brecgpLUPModel.shp	0	2	2	3	3	0	1	2	2	3	0	1	1	20
Utilities/Comm	Oil Gas	EPCA3\ (27) Montana Thrust Belt.mdb	MTB_dillonLUPModel.shp	0	2	2	3	3	0	1	2	2	3	0	2	0	20
Utilities/Comm	Oil Gas	EPCA3\ (27) Montana Thrust Belt.mdb	MTB_hdwtrsLUPModel.shp	0	2	2	3	3	0	1	2	2	3	0	2	1	21
Utilities/Comm	Oil Gas	EPCA3\ (27) Montana Thrust Belt.mdb	MTB_lewclkLUPModel.shp	0	2	2	3	3	0	1	2	2	3	0	1	1	20
Utilities/Comm	Oil Gas	EPCA3\ (27) Montana Thrust Belt.mdb	MTB_misgarLUPModel.shp	0	2	2	3	3	0	1	2	2	3	0	1	0	19
Utilities/Comm	Oil Gas	EPCA3\ (27) Montana Thrust Belt.mdb	MTB_ModelMaster.shp	0	2	2	3	3	0	1	2	2	3	0	1	3	22
Utilities/Comm	Oil Gas	EPCA3\ (31) Williston Basin.mdb	WIL_bigdryLUPModel.shp	0	2	2	3	3	0	1	2	2	3	0	0	1	19
Utilities/Comm	Oil Gas	EPCA3\ (31) Williston Basin.mdb	WIL_brecgpLUPModel.shp	0	2	2	3	3	0	1	2	2	3	0	0	1	19
Utilities/Comm	Oil Gas	EPCA3\ (31) Williston Basin.mdb	WIL_coeomaLUPModel.shp	0	2	1	3	3	0	1	2	2	3	0	0	2	19
Utilities/Comm	Oil Gas	EPCA3\ (31) Williston Basin.mdb	WIL_dpgrasLUPModel.shp	0	2	2	3	3	0	1	2	2	3	0	0	1	19
Utilities/Comm	Oil Gas	EPCA3\ (31) Williston Basin.mdb	WIL_ModelMaster.shp	0	2	2	3	3	0	1	2	2	3	0	1	3	22
Utilities/Comm	Oil Gas	EPCA3\ (31) Williston Basin.mdb	WIL_nordakLUPModel.shp	0	2	1	3	3	0	1	2	2	3	0	0	2	19
Utilities/Comm	Oil Gas	EPCA3\ (31) Williston Basin.mdb	WIL_powderLUPModel.shp	0	2	1	3	3	0	1	2	2	3	0	1	0	18
Utilities/Comm	Oil Gas	EPCA3\ (31) Williston Basin.mdb	WIL_soudakLUPModel.shp	0	2	1	3	3	0	1	2	2	3	0	1	0	18
Utilities/Comm	Oil Gas	EPCA3\ (31) Williston Basin.mdb	WIL_valleyLUPModel.shp	0	2	2	3	3	0	1	2	2	3	0	0	2	20
Utilities/Comm	Oil Gas	EPCA3\ (36) Wyoming Thrust Belt.mdb	WTB_bearrvLUPModel.shp	0	2	2	3	3	0	1	2	2	3	0	1	0	19
Utilities/Comm	Oil Gas	EPCA3\ (36) Wyoming Thrust Belt.mdb	WTB_boxeutLUPModel.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utilities/Comm	Oil Gas	EPCA3\ (36) Wyoming Thrust Belt.mdb	WTB_breccoLUPModel.shp	0	2	1	3	3	0	1	2	2	3	0	2	0	19
Utilities/Comm	Oil Gas	EPCA3\ (36) Wyoming Thrust Belt.mdb	WTB_brecpnLUPModel.shp	0	2	2	3	3	0	1	2	2	3	0	2	0	20
Utilities/Comm	Oil Gas	EPCA3\ (36) Wyoming Thrust Belt.mdb	WTB_brecutLUPModel.shp	0	2	2	3	3	0	1	2	2	3	0	2	0	20
Utilities/Comm	Oil Gas	EPCA3\ (36) Wyoming Thrust Belt.mdb	WTB_brgrtnLUPModel.shp	0	2	2	3	3	0	1	2	2	3	0	3	0	21
Utilities/Comm	Oil Gas	EPCA3\ (36) Wyoming Thrust Belt.mdb	WTB_carbouLUPModel.shp	0	2	2	3	3	0	1	2	2	3	0	2	0	20
Utilities/Comm	Oil Gas	EPCA3\ (36) Wyoming Thrust Belt.mdb	WTB_kemmerLUPModel.shp	0	2	1	3	3	0	1	2	2	3	0	2	0	19
Utilities/Comm	Oil Gas	EPCA3\ (36) Wyoming Thrust Belt.mdb	WTB_ModelMaster.shp	0	2	2	3	3	0	1	2	2	3	0	2	0	20
Utilities/Comm	Oil Gas	EPCA3\ (36) Wyoming Thrust Belt.mdb	WTB_poctelLUPModel.shp	0	2	2	3	3	0	1	2	2	3	0	1	0	19
Utilities/Comm	Oil Gas	EPCA3\ (36) Wyoming Thrust Belt.mdb	WTB_ponyutLUPModel.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Utilities/Comm	Oil Gas	EPCA3\ (36) Wyoming Thrust Belt.mdb	WTB_targheLUPModel.shp	0	2	1	3	3	0	1	2	2	3	0	2	0	19
Utilities/Comm	Oil Gas	EPCA3\ (36) Wyoming Thrust Belt.mdb	WTB_wstchcLUPModel.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utilities/Comm	Oil Gas	EPCA3\ (37) Southwestern Wyoming.mdb	SWW_bearrvLUPModel.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utilities/Comm	Oil Gas	EPCA3\ (37) Southwestern Wyoming.mdb	SWW_breccoLUPModel.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utilities/Comm	Oil Gas	EPCA3\ (37) Southwestern Wyoming.mdb	SWW_brgrtnLUPModel.shp	0	2	2	3	3	0	1	2	2	3	0	1	0	19
Utilities/Comm	Oil Gas	EPCA3\ (37) Southwestern Wyoming.mdb	SWW_dmdmtnLUPModel.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utilities/Comm	Oil Gas	EPCA3\ (37) Southwestern Wyoming.mdb	SWW_ExtrapolatedAreas.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utilities/Comm	Oil Gas	EPCA3\ (37) Southwestern Wyoming.mdb	SWW_glenspLUPModel.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utilities/Comm	Oil Gas	EPCA3\ (37) Southwestern Wyoming.mdb	SWW_jmhcapLUPModel.shp	0	2	2	3	3	0	1	2	2	3	0	1	0	19
Utilities/Comm	Oil Gas	EPCA3\ (37) Southwestern Wyoming.mdb	SWW_kemmerLUPModel.shp	0	2	1	3	2	0	1	2	2	3	0	1	0	17
Utilities/Comm	Oil Gas	EPCA3\ (37) Southwestern Wyoming.mdb	SWW_landerLUPModel.shp	0	2	1	3	3	0	1	2	2	3	0	1	0	18
Utilities/Comm	Oil Gas	EPCA3\ (37) Southwestern Wyoming.mdb	SWW_ltlsnkLUPModel.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utilities/Comm	Oil Gas	EPCA3\ (37) Southwestern Wyoming.mdb	SWW_ModelMaster.shp	0	2	2	3	3	0	1	2	2	3	0	1	0	19
Climatology	PRISM Climate	Climatology\PRISM\Monthly_Precipitation	NO DATA PROVIDED	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Climatology	PRISM Climate	Climatology\PRISM\Monthly_Temperatur e	NO DATA PROVIDED	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Environment	Fire	Clipped_Fire_Occurence	mtbs_fod_pts_20091118_Clip_COP.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Environment	Fire	Clipped_Fire_Occurence	mtbs_fod_pts_20091118_Clip_MBR.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Environment	Fire	Clipped_Fire_Occurence	mtbs_fod_pts_20091118_Clip_SOD.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Environment	Fire	Clipped_Fire_Perimeters	mtbs_perims_Clip_COP.prj	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Environment	Fire	Clipped_Fire_Perimeters	mtbs_perims_Clip_SOD.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Environment	Fire	Clipped_Fire_Perimeters	mtbs_perims_Clip_MBR.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Environment	Fire	Clipped_Wildland	uswui3_Clip_COP.prj	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Environment	Fire	Clipped_Wildland	uswui3_Clip_MBR.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Environment	Fire	Clipped_Wildland	uswui3_Clip_SOD.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Environment	Fire	Fire_Occurrence\Fire Occurance Location	mtbs_fod_pts_20091118.shp	4	4	4	4	4	3	3	2	4	4	1	4	4	45
Environment	Fire	Fire_Occurrence\Burn Area Boundaries Data	mtbs_perims_1984-2007_DD_20091118.shp	4	4	4	4	4	3	3	2	4	4	1	3	2	42
Environment	Fire	Wildland_Urban_Interface\uswui3.gdb	uswui3.shp	2	1	2	1	2	0	0	2	2	3	0	4	4	23
Environment	Protected Areas	Clipped_PAD	PADUS_v1_No_Water_Clip_COP.prj	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Environment	Protected Areas	Clipped_PAD	PADUS_v1_No_Water_Clip_MBR.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Environment	Protected Areas	Clipped_PAD	PADUS_v1_No_Water_Clip_SOD.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Environment	Protected Areas	PAD.gdb	PADUS_v1_No_Water.shp	4	4	4	4	4	3	3	4	4	4	3	4	3	
Geoscientific (actually in Environment)	Soils	Clipped_STATSGO2	gsmsoilmu_a_us_Clip_COP.prj	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Geoscientific (actually in Environment)	Soils	Clipped_STATSGO2	gsmsoilmu_a_us_Clip_MBR.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Geoscientific (actually in Environment)	Soils	Clipped_STATSGO2	gsmsoilmu_a_us_Clip_SOD.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Geoscientific (actually in Environment)	Soils	STATSGO2\soildb_US_2002	soildb_US_2002.mdb	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Geoscientific (actually in Environment)	Soils	STATSGO2\spatial	gsmsoilmu_a_us.shp	2	1	3	2	3	0	0	3	3	3	0	4	4	28
Geoscientific (actually in Environment)	Soils	STATSGO2\Tabular	Several text files	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Geoscientific (actually in Environment)	Soils	STATSGO2	soildb_US_2002.gdb	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Inlandwaters	Water Quantity	NWIS\Water_quantity	NO DATA PROVIDED	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Inlandwaters	Water Quality	NWIS\Water_quality	NO DATA PROVIDED	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Society	1990 Census	1990_US_Census_Database	ce1990t.dbf	4	4	4	4	4	4	4	4	4	4	4	4	4	52
Society	2000 Census	2000_US_Census_Database	ce2000t.dbf	4	4	4	4	4	4	4	4	4	4	4	4	4	52
Society	Population	Cities&Towns_US	cities.shp	4	4	3	3	3	2	2	2	4	3	3	4	4	41
Society	Population	North_American_Atlas_Populated_Places	pop_pnt.shp	3	3	3	3	3	2	2	1	3	3	2	3	3	34
Society	Population	Urban_Areas_US	urbanap.shp	3	3	3	3	3	2	1	1	2	3	2	3	3	32
Transportation	Linear features	Railroads	rail_l.shp	3	3	2	2	2	2	2	1	2	2	1	4	4	30
Transportation	Linear features	Clipped_railroads	rail_l_Clip_COP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transportation	Linear features	Clipped_railroads	rail_l_Clip_MBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transportation	Linear features	Clipped_railroads	rail_l_Clip_SOD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transportation	Roads	Roads	roadtrl.shp	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Transportation	Roads	GTLF_template.gdb	GTLF_ln.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Biota	Breeding bird survey	Grid_RelAbundance_data_1966_2003	Various text files	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Biota	Breeding bird survey	Route_RelAbundance_data_1966_2003	Various text files	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Biota	Breeding bird survey	BreedingBirdSurvey	bbsgrid.shp	4	4	4	3	3	3	3	4	3	4	4	4	4	47
Biota	Breeding bird survey	BreedingBirdSurvey	ENTER_SPECIES_BBS_RelAb_1966_2003.lyr	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

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Biota	Breeding bird survey	BreedingBirdSurvey	nabbs02_mis_alb.shp	3	4	0	3	3	3	3	4	0	4	0	4	4	35
Utilities/Comm	GeothemalEnergy	NILS_downloads_9_2010	Fast_track_geothermal_projectsshp.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utilities/Comm	GeothemalEnergy	NILS_downloads_9_2010	GeothermalAgreementsAuthorized.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utilities/Comm	GeothemalEnergy	NILS_downloads_9_2010	GeothermalKnownLeasingAreas.shp	3	0	0	0	0	0	0	3	0	3	0	1	0	10
Utilities/Comm	GeothemalEnergy	NILS_downloads_9_2010	GeothermalLeasesProducing.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utilities/Comm	GeothemalEnergy	NILS_downloads_9_2010	GeothermalProspectiveAreas_NILS_9_2010.shp	3	3	3	0	0	2	3	3	0	3	0	3	3	26
Utilities/Comm	GeothemalEnergy	USGS	FavorabilitySurface.shp	3	3	3	0	3	3	3	4	4	4	3	3	2	38
Utilities/Comm	GeothemalEnergy	USGS	GeoThermPotentialWest_SMU_2002.shp	3	3	3	0	3	3	3	1	3	1	3	3	2	31
Biota	Wild Horse/Burro	Burros_WildHorses	BLM_Herd_Areas.shp	4	4	1	4	4	0	0	3	2	2	2	1	0	27
Biota	Wild Horse/Burro	Burros_WildHorses	BLM_Herd_Management_Areas.shp	4	4	1	4	4	0	0	3	2	2	2	1	0	27
Biota	Mule Deer	mule_deer	class_a to class_f	2	3	3	3	4	2	2	3	2	3	2	4	3	36
Biota	Big Horn Sheep	Montana bighornsheep upper clark river basin	BighornSheepWinter.shp	4	4	1	2	4	2	2	2	3	3	2	1	0	30
Biota	Big Horn Sheep	Wyomingbhs2008crucialrange	bhs2008cr.shp	4	3	1	4	4	3	3	2	3	3	1	1	0	32
Biota	Big Horn Sheep	Wyomingbhs2008migration route	bhs08mr.shp	2	4	1	4	4	2	2	3	3	3	2	1	0	31
Biota	Big Horn Sheep	wyomingbhs2008seasonal range	bhs08sr.shp	4	4	1	4	4	2	2	3	3	3	2	2	1	35
Biota	Elk	Montana elk upper clark river	Elkwinter.shp	4	4	1	4	4	2	2	2	1	3	2	1	0	30
Biota	Elk	Wyoming elk 2008 migration	elk08mr.shp	4	3	1	4	4	2	2	1	1	1	1	1	0	25
Biota	Elk	Wyoming elk 2010crucial range	elk10cr.shp	4	3	1	4	4	3	3	2	2	2	2	1	0	31
Biota	Elk	Wyoming elk2010seasonal range	elk10sr.shp	4	3	1	4	4	3	3	2	2	2	2	1	0	31
Biota	Falcon	wyoming falcon cody field office	falcon_habitat.shp	4	3	1	4	4	1	1	3	3	3	3	1	0	31
Biota	Ferret	wyoming ferret cody field office	ferret_habitat.shp	4	3	1	4	4	1	1	2	3	3	3	1	0	30
Biota	Inland Waters	Montana fishdistributionLakes	fishDistributionLakes.shp	4	4	2	4	4	1	3	2	2	2	1	3	2	34
Biota	Streams	Montana fishdistributionStreams	fishDistributionStreams.shp	4	4	2	4	4	3	3	3	3	3	2	3	2	40
Biota	Invasives	IdahoweedPresence_id_blm	weedPresence_id_blm.shp	1	1	1	1	1	1	2	1	1	1	1	1	0	13
Biota	Lynx	wyoming lynx cody field offic	lynx_habitat.shp	4	4	1	1	1	1	1	3	2	1	1	1	0	21
Biota	Mule Deer	MontanaMuleDeer	distributionMuleDeer.shp	4	4	1	1	4	2	2	3	2	1	1	2	2	29
Biota	Mule Deer	wyoming mule deer2010crucial range	mdr10cr.shp	4	3	1	4	4	3	3	2	2	2	2	1	0	31
Biota	Mule Deer	wyoming mule deer2010seasonal range	mdr10sr.shp	4	3	1	4	4	3	3	2	2	2	2	1	0	31
Biota	Mule Deer	wyoming mule deer2010migrationroute	mdr08mr.shp	4	3	1	4	4	2	2	1	1	1	1	1	0	25
Biota	Prairie Dog	wyoming prairie dog pinedale field office	pfo_dogtown.shp	1	4	1	1	1	1	1	0	1	0	0	1	0	12
Biota	Pronghorn	montana pronghorn distribution	distributionAntelope.shp	4	4	1	1	4	2	2	3	2	1	1	2	2	29
Biota	Pronghorn	wyoming antelope 2010crucial range	ant10cr.shp	4	3	1	4	4	3	3	2	2	2	2	1	0	31
Biota	Pronghorn	wyoming antelope 2010seasonal range	ant10sr.shp	4	3	1	4	4	3	3	2	2	2	2	1	0	31
Biota	Pronghorn	wyoming antelope 2008 migration route	ant08mr.shp	4	3	1	4	4	2	2	1	1	1	1	1	0	25
Biota	Sage Grouse	montanaSageGrouse	distributionSageGrouse.shp	4	4	3	3	4	1	1	3	3	3	3	1	2	35

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Biota	Sage Grouse	wyomingsagegrouse	sghab.shp	4	4	2	1	1	1	1	3	1	1	1	1	1	22
Biota	Sharp Tailed Grouse	montanaSharpTailedGrouse	distributionSharptailedGrouse.shp	4	4	1	1	4	2	2	3	3	1	1	2	2	30
Biota	Am. White Pelican	Avian_Knowledge_Network	America_White_Pelican.shp	2	2	1	1	1	3	3	2	2	0	0	3	3	23
Biota	Bald Eagle	Avian_Knowledge_Network	Bald_Eagle.shp	1	1	1	1	1	4	4	1	1	2	0	3	3	23
Biota	Burrowing Owl	Avian_Knowledge_Network	Burrowing_Owl.shp	1	1	1	1	1	4	4	1	1	1	0	3	3	22
Biota	Chestnut Collared Longspur	Avian_Knowledge_Network	Chestnut_collared_longspur.shp	1	1	1	1	1	4	4	1	1	1	0	1	2	19
Biota	Ferruginous Hawk	Avian_Knowledge_Network	Ferruginous_Hawk.shp	1	1	1	1	1	4	4	1	1	1	0	1	1	18
Biota	Flammulated Owl	Avian_Knowledge_Network	flammulated_owl.shp	1	1	1	1	1	4	4	1	1	1	0	1	0	17
Biota	Golden Eagle	Avian_Knowledge_Network	Golden_Eagle.shp	0	1	0	1	0	3	3	0	1	1	0	0	0	10
Biota	Greater Sage Grouse	Avian_Knowledge_Network	Greater_Sage_Grouse.shp	0	1	0	1	1	3	3	0	1	1	0	1	1	13
Biota	Lark Bunting	Avian_Knowledge_Network	Lark_Bunting.shp	0	1	0	1	1	3	3	0	1	1	0	2	2	15
Biota	Mountain Plover	Avian_Knowledge_Network	Mountain_Plover.shp	0	1	0	1	1	3	3	0	1	1	0	1	1	13
Biota	Northern Goshawk	Avian_Knowledge_Network	northern_Goshawk.shp	0	1	0	1	1	3	3	0	1	1	0	2	2	15
Biota	Peregrine Falcon	Avian_Knowledge_Network	Peregrine_Falcon.shp	0	1	1	1	1	3	3	0	1	1	0	2	1	15
Biota	Sharp Tailed Grouse	Avian_Knowledge_Network	Sharptail_Grouse.shp	0	1	0	1	1	3	3	0	1	1	0	1	2	14
Biota	Sharp Tailed Grouse	Avian_Knowledge_Network	Sharptail_Grouse_NGP.shp	0	1	0	1	1	3	3	0	1	1	0	0	2	13
Biota	Spragues Pipit	Avian_Knowledge_Network	Spragues_Pipit.shp	0	1	1	1	1	3	3	0	1	1	0	1	2	15
Biota	Critical Habitat	FWS_Critical_Habitat	CRITHAB_POLY.shp	4	4	3	4	4	3	3	3	3	3	3	2	1	40
Biota	White Pine Blister Rust	WhitebarkPineBlisterRustEstUs.gdb	WhitebarkPinBlisterRustEstUS	1	4	1	4	4	1	1	3	3	2	2	3	1	30
Biota	Fish	StreamNet_FishDist_July2010.gdb	FishDist_AllSpecies_July2010	3	4	2	4	4	4	4	4	3	2	3	2	0	39
Biota	Spectacled Bear	Grizzly\Natureserv\Ursidae	trem_orna_pl.shp														0
Biota	American Black Bear	Grizzly\Natureserv\Ursidae	ursu_amer_pl.shp	2	4	2	1	4	1	1	1	2	1	1	3	0	23
Biota	Brown Bear	Grizzly\Natureserv\Ursidae	ursu_arct_pl.shp	2	4	1	1	4	1	1	1	2	1	1	1	0	20
Biota	Grizzly Bear	Grizzly\USFS_ContDiv\ncdebmu	NcdeBmu.shp	4	4	4	4	4	4	4	2	4	1	3	1	0	39
Biota	Grizzly Bear	Grizzly\USFS_ContDiv\ncdercoveryzone	NCcdeRecoveryZone.shp	4	4	4	4	4	4	4	2	4	1	3	1	0	39
Biota	Grizzly Bear	GrizzlyDistributionRecoverZones.gdb	GrizzlyDistributionAreaSelkirk														0
Biota	Grizzly Bear	GrizzlyDistributionRecoverZones.gdb	GrizzlyRecoveryZoneSelkirk														0
Biota	Grizzly Bear	GrizzlyDistributionRecoverZones.gdb	GrizzlyDistributionAreaCabinetYaak														0
Biota	Grizzly Bear	GrizzlyDistributionRecoverZones.gdb	GrizzlyRecoveryZoneCabinetYaak														0
Biota	Grizzly Bear	GrizzlyDistributionRecoverZones.gdb	GrizzlyDistributionAreaNCDE	4	4	4	4	4	1	1	2	3	1	1	1	0	30
Biota	Grizzly Bear	GrizzlyDistributionRecoverZones.gdb	GrizzlyRecoveryZoneNCDE	4	4	4	4	4	1	1	2	3	1	1	1	0	30
Biota	Grizzly Bear	GrizzlyDistributionRecoverZones.gdb	GrizzlyDistributionAreaYellowstone	4	4	4	4	4	1	1	2	3	1	1	1	0	30
Biota	Grizzly Bear	GrizzlyDistributionRecoverZones.gdb	GrizzlyRecoveryAreaYellowstone	4	4	4	4	4	1	1	2	3	1	1	1	0	30

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Biota	Forest Mortality	AerialDetectionSurveyR12001_2008.gdb	FlyNoFlyZone2000	4	4	4	4	4	4	2	2	2	1	2	1	0	34
Biota	Forest Mortality	AerialDetectionSurveyR12001_2008.gdb	AerialDetectionSurveyR1_2000	1	2	4	1	4	2	3	2	2	2	2	1	0	26
Biota	Forest Mortality	AerialDetectionSurveyR12001_2008.gdb	FlyNoFlyZone2001	4	4	4	4	4	4	2	2	2	1	2	2	1	36
Biota	Forest Mortality	AerialDetectionSurveyR12001_2008.gdb	AerialDetectionSurveyR1_2001	1	2	4	1	4	2	3	2	2	2	2	2	1	28
Biota	Forest Mortality	AerialDetectionSurveyR12001_2008.gdb	FlyNoFlyZone2002	4	4	4	4	4	4	2	2	2	1	2	3	1	37
Biota	Forest Mortality	AerialDetectionSurveyR12001_2008.gdb	AerialDetectionSurveyR1_2002	1	2	4	1	4	2	3	2	2	2	2	3	1	29
Biota	Forest Mortality	AerialDetectionSurveyR12001_2008.gdb	FlyNoFlyZone2003	4	4	4	4	4	4	2	2	2	1	2	3	1	37
Biota	Forest Mortality	AerialDetectionSurveyR12001_2008.gdb	AerialDetectionSurveyR1_2003	1	2	4	1	4	2	3	2	2	2	2	3	1	29
Biota	Forest Mortality	AerialDetectionSurveyR12001_2008.gdb	FlyNoFlyZone2004	4	4	4	4	4	4	2	2	2	1	2	2	1	36
Biota	Forest Mortality	AerialDetectionSurveyR12001_2008.gdb	AerialDetectionSurveyR1_2004	1	2	4	1	4	2	3	2	2	2	2	2	1	28
Biota	Forest Mortality	AerialDetectionSurveyR12001_2008.gdb	FlyNoFlyZone2005	4	4	4	4	4	4	2	2	2	1	2	3	2	38
Biota	Forest Mortality	AerialDetectionSurveyR12001_2008.gdb	AerialDetectionSurveyR1_2005	1	2	4	1	4	2	3	2	2	2	2	3	2	30
Biota	Forest Mortality	AerialDetectionSurveyR12001_2008.gdb	FlyNoFlyZone2006	4	4	4	4	4	4	2	2	2	1	2	3	2	38
Biota	Forest Mortality	AerialDetectionSurveyR12001_2008.gdb	AerialDetectionSurveyR1_2006	1	2	4	1	4	2	3	2	2	2	2	3	2	30
Biota	Forest Mortality	AerialDetectionSurveyR12001_2008.gdb	FlyNoFlyZone2007	4	4	4	4	4	4	2	2	2	1	2	3	2	38
Biota	Forest Mortality	AerialDetectionSurveyR12001_2008.gdb	AerialDetectionSurveyR1_2007	1	2	4	1	4	2	3	2	2	2	2	3	2	30
Biota	Forest Mortality	AerialDetectionSurveyR12001_2008.gdb	FlyNoFlyZone2008	4	4	4	4	4	4	2	2	2	1	2	3	2	38
Biota	Forest Mortality	AerialDetectionSurveyR12001_2008.gdb	AerialDetectionSurveyR1_2008	1	2	4	1	4	2	3	2	2	2	2	3	2	30
Biota	Forest Mortality	AerialDetectionSurveyR12001_2008.gdb	AerialDetectionSurvey2000_2008	1	2	4	1	4	2	3	2	2	2	2	3	2	30
Boundaries	Forest Mortality	AerialDetectionSurveyR12001_2008.gdb	AerialDetectionSurveyR1Bndrys	4	4	4	4	4	4	4	2	2	2	2	3	2	41
Biota	Forest Mortality	2009_Insect_Disease_aerial_Survey	r1_ads2009bdy	1	2	4	1	4	3	3	2	2	2	2	2	2	30
Biota	Forest Mortality	2009_Insect_Disease_aerial_Survey	r1_ads2009dmg	1	2	4	1	4	3	3	2	2	2	2	2	2	30
Biota	Forest Mortality	aerial_Insect_and_disease_region_4	r4_ads2001bdy	1	2	4	1	4	3	3	2	2	2	2	2	0	28
Biota	Forest Mortality	aerial_Insect_and_disease_region_4	r4_ads2001dmg	1	2	4	1	4	3	3	2	2	2	2	2	0	28
Biota	Forest Mortality	aerial_Insect_and_disease_region_4	r4_ads2002bdy	1	2	4	1	4	3	3	2	2	2	2	2	0	28

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Biota	Forest Mortality	aerial_Insect_and_disease_region_4	r4_ads2002dmg	1	2	4	1	4	3	3	2	2	2	2	2	0	28
Biota	Forest Mortality	aerial_Insect_and_disease_region_4	r4_ads2003bdy	1	2	4	1	4	3	3	2	2	2	2	2	0	28
Biota	Forest Mortality	aerial_Insect_and_disease_region_4	r4_ads2003dmg	1	2	4	1	4	3	3	2	2	2	2	2	0	28
Biota	Forest Mortality	aerial_Insect_and_disease_region_4	r4_ads2004bdy	1	2	4	1	4	3	3	2	2	2	2	2	0	28
Biota	Forest Mortality	aerial_Insect_and_disease_region_4	r4_ads2004dmg	1	2	4	1	4	3	3	2	2	2	2	2	0	28
Biota	Forest Mortality	aerial_Insect_and_disease_region_4	r4_ads2005bdy	1	2	4	1	4	3	3	2	2	2	2	2	0	28
Biota	Forest Mortality	aerial_Insect_and_disease_region_4	r4_ads2005dmg	1	2	4	1	4	3	3	2	2	2	2	2	0	28
Biota	Forest Mortality	aerial_Insect_and_disease_region_4	r4_ads2006bdy	1	2	4	1	4	3	3	2	2	2	2	2	0	28
Biota	Forest Mortality	aerial_Insect_and_disease_region_4	r4_ads2006dmg	1	2	4	1	4	3	3	2	2	2	2	2	0	28
Biota	Forest Mortality	aerial_Insect_and_disease_region_4	r4_ads2007bdy	1	2	4	1	4	3	3	2	2	2	2	2	0	28
Biota	Forest Mortality	aerial_Insect_and_disease_region_4	r4_ads2007dmg	1	2	4	1	4	3	3	2	2	2	2	2	0	28
Biota	Forest Mortality	aerial_Insect_and_disease_region_4	r4_ads2008bdy	1	2	4	1	4	3	3	2	2	2	2	2	0	28
Biota	Forest Mortality	aerial_Insect_and_disease_region_4	r4_ads2008dmg	1	2	4	1	4	3	3	2	2	2	2	2	0	28
Biota	Forest Mortality	2009_Insect_Disease_aerial_Survey	r4_ads2009bdy	1	2	4	1	4	3	3	2	2	2	2	2	0	28
Biota	Forest Mortality	2009_Insect_Disease_aerial_Survey	r4_ads2009dmg	2	2	4	1	4	3	3	2	2	2	2	2	0	29
Biota	Forest Mortality	2010_Insect_Disease_aerial_Survey	r4_ads2010bdy														
Biota	Forest Mortality	2010_Insect_Disease_aerial_Survey	r4_ads2010dmg														
Biota	Forest Mortality	AerialDetectionSurveyR22001_2010.gdb	r201_dmg	2	3	1	3	3	2	2	2	2	2	2	2	1	27
Biota	Forest Mortality	AerialDetectionSurveyR22001_2010.gdb	r201_fln	2	3	1	3	3	2	2	2	2	2	2	2	1	27
Biota	Forest Mortality	AerialDetectionSurveyR22001_2010.gdb	r202_dmg_updated	2	3	1	3	3	2	2	2	2	2	2	2	1	27
Biota	Forest Mortality	AerialDetectionSurveyR22001_2010.gdb	r202_fln_updated	2	3	1	3	3	2	2	2	2	2	2	2	1	27
Biota	Forest Mortality	AerialDetectionSurveyR22001_2010.gdb	r203_dmg	2	3	1	3	3	2	2	2	2	2	2	1	2	27
Biota	Forest Mortality	AerialDetectionSurveyR22001_2010.gdb	r203_fln	2	3	1	3	3	2	2	2	2	2	2	1	2	27
Biota	Forest Mortality	AerialDetectionSurveyR22001_2010.gdb	r204_dmg	2	3	1	3	3	2	2	2	2	2	2	1	1	26
Biota	Forest Mortality	AerialDetectionSurveyR22001_2010.gdb	r204_fln	2	3	1	3	3	2	2	2	2	2	2	1	1	26
Biota	Forest Mortality	AerialDetectionSurveyR22001_2010.gdb	r205_dmg	2	3	1	3	3	2	2	2	2	2	2	1	2	27
Biota	Forest Mortality	AerialDetectionSurveyR22001_2010.gdb	r205_fln	2	3	1	3	3	2	2	2	2	2	2	1	2	27
Biota	Forest Mortality	AerialDetectionSurveyR22001_2010.gdb	r206_dmg	2	3	1	3	3	2	2	2	2	2	2	1	2	27
Biota	Forest Mortality	AerialDetectionSurveyR22001_2010.gdb	r206_fln	2	3	1	3	3	2	2	2	2	2	2	1	2	27
Biota	Forest Mortality	AerialDetectionSurveyR22001_2010.gdb	r207_dmg	2	3	1	3	3	2	2	2	2	2	2	1	2	27
Biota	Forest Mortality	AerialDetectionSurveyR22001_2010.gdb	r207_fln	2	3	1	3	3	2	2	2	2	2	2	1	2	27

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Biota	Forest Mortality	AerialDetectionSurveyR22001_2010.gdb	r208_dmg	2	3	1	3	3	2	2	2	2	2	2	1	2	27
Biota	Forest Mortality	AerialDetectionSurveyR22001_2010.gdb	r208_fln	2	3	1	3	3	2	2	2	2	2	2	1	2	27
Biota	Forest Mortality	AerialDetectionSurveyR22001_2010.gdb	r209_dmg	2	3	1	3	3	2	2	2	2	2	2	1	2	27
Biota	Forest Mortality	AerialDetectionSurveyR22001_2010.gdb	r209_fln	2	3	1	3	3	2	2	2	2	2	2	1	2	27
Biota	Forest Mortality	AerialDetectionSurveyR22001_2010.gdb	r210_dmg	2	3	1	3	3	2	2	2	2	2	2	1	2	27
Biota	Forest Mortality	AerialDetectionSurveyR22001_2010.gdb	r210_fln	2	3	1	3	3	2	2	2	2	2	2	1	2	27
Biota	Lynx	Lynx_USFS\lynx_linkage_n_rockies_1m	lynx_linkage_n_rockies_1m.shp	1	1	1	1	1	1	1	1	1	1	1	3	1	15
Biota	Lynx	LynxAnalysisUnitsFWS_Aug08.gdb	LynxAnalysisUnits_GYA_Aug08	1	4	2	4	4	2	2	3	3	2	2	2	0	31
Biota	Lynx	LynxAnalysisUnitsFWS_Aug08.gdb	LynxAnalysisUnits_NR_Aug08	1	4	2	4	4	2	2	3	3	2	2	1	0	30
Biota	American Marten	Natureserve\Mammals	American_marten.shp	4	4	2	4	4	1	2	2	2	2	2	2	1	32
Biota	Big Horn Sheep	Natureserve\Mammals	Bighorn_Sheep.shp	4	4	2	4	4	2	2	2	2	2	2	2	1	33
Biota	Black Footed Ferret	Natureserve\Mammals	Black_Foot_Ferret.shp	4	4	2	4	4	1	2	2	2	2	2	2	3	34
Biota	Black Tailed Prairie Dog	Natureserve\Mammals	Black_tailed_prairie_Dog.shp	4	4	2	4	4	1	2	2	2	2	2	2	3	34
Biota	Lynx	Natureserve\Mammals	Canada_lynx.shp	4	4	2	4	4	1	2	2	2	2	2	2	1	32
Biota	Elk	Natureserve\Mammals	Elk.shp	4	4	2	4	4	3	3	2	2	2	2	3	1	36
Biota	Grizzly Bear	Natureserve\Mammals	Grizzly_bear.shp	4	4	2	4	4	3	3	2	2	2	2	2	0	34
Biota	Mule Deer	Natureserve\Mammals	Mule_Deer.shp	4	4	2	4	4	3	3	2	2	2	2	4	4	40
Biota	Pronghorn	Natureserve\Mammals	Pronghorn.shp	4	4	2	4	4	2	2	2	2	2	2	2	3	35
Biota	Pygmy Rabbit	Natureserve\Mammals	Pygmy_Rabbit.shp	4	4	2	4	4	2	2	2	2	2	2	1	0	31
Biota	Swift Fox	Natureserve\Mammals	Swift_Fox.shp	4	4	2	4	4	2	2	2	2	2	2	1	1	32
Biota	Townsend's Big Eared Bat	Natureserve\Mammals	Townsends_Big_Eared_Bat.shp	4	4	2	4	4	2	2	2	2	2	2	3	2	35
Biota	Wolverine	Natureserve\Mammals	Wolverine.shp	4	4	2	4	4	2	2	2	2	2	2	1	0	31
Biota	American White Pelican	Natureserve\Birds	Amer_White_Pelican_line.shp	4	4	2	4	4	2	2	2	2	2	2	4	4	38
Biota	American White Pelican	Natureserve\Birds	Amer_White_Pelican_pt.shp														0
Biota	Bald Eagle	Natureserve\Birds	Bald_eagle.shp	4	4	2	4	4	2	2	2	2	2	2	4	3	37
Biota	Burrowing Owl	Natureserve\Birds	Burrowing_owl_line.shp	4	4	2	4	4	2	2	2	2	2	2	3	3	36
Biota	Burrowing Owl	Natureserve\Birds	Burrowing_owl_Pt.shp														0
Biota	Chestnut Collared Longspur	Natureserve\Birds	Chestnut_coll_Longspur_line.shp	4	4	2	4	4	2	2	2	2	2	2	2	4	36
Biota	Chestnut Collared Longspur	Natureserve\Birds	Chestnut_coll_Longspur_pt.shp														0

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Biota	Ferrinugous Hawk	Natureserve\Birds	Ferrinugous_Hawk.shp	4	4	2	4	4	2	2	2	2	2	2	3	3	36
Biota	Golden Eagle	Natureserve\Birds	Golden_Eagle.shp	4	4	2	4	4	2	2	2	2	2	2	4	4	38
Biota	Peregrine Falcon	Natureserve\Birds	Peregrine_Falcon_line.shp	4	4	2	4	4	2	2	2	2	2	2	2	0	32
Biota	Peregrine Falcon	Natureserve\Birds	Peregrine_Falcon_pt.shp														0
Biota	Mountain Plover	Natureserve\Birds	Mountain_plover_line.shp	4	4	2	4	4	2	2	2	2	2	2	2	2	34
Biota	Mountain Plover	Natureserve\Birds	Mountain_plover_pt.shp														0
Biota	Lark Bunting	Natureserve\Birds	Lark_Bunting.shp	4	4	2	4	4	2	2	2	2	2	2	2	4	36
Biota	Northern Goshawk	Natureserve\Birds	northern_goshawk.shp	4	4	2	4	4	2	2	2	2	2	2	4	4	38
Biota	Flammulated Owl	Natureserve\Birds	Flammulated_owl.shp	4	4	2	4	4	2	2	2	2	2	2	1	1	32
Biota	Cutthroat Trout	Fish Geodatabase.mdb	oncorhynchus_clarkii	4	4	3	3	3	2	2	3	3	3	3	3	1	37
Biota	Summer Steelhead	Fish Geodatabase.mdb	oncorhynchus_mykiss	4	4	3	3	3	2	2	3	3	3	3	1	0	34
Biota	Bull Trout	Fish Geodatabase.mdb	salvelinus_confluentus	4	4	3	3	3	2	2	3	3	3	3	1	0	34
Biota	Sockeye	Fish Geodatabase.mdb	oncorhychus_nerka														0
Biota	Chinook	Fish Geodatabase.mdb	oncorhycnchus_tshawytscha														0
Biota	Fluvial Arctic Grayling	Fish Geodatabase.mdb	thymallus_arcticus	4	4	3	3	3	2	2	3	3	3	3	2	0	35
Biota	Pallid Sturgeon	Fish Geodatabase.mdb	scaphirynchus_albus	4	4	3	3	3	2	2	3	3	3	3	1	2	36
Biota	Elk	Big Game	id_elkrange_cruc_summer.shp	1	4	1	1	1	2	2	1	1	1	1	1	0	17
Biota	Elk	Big Game	id_elkrange_cruc_winter.shp	1	4	1	1	1	2	2	1	1	1	1	1	0	17
Biota	Elk	Big Game	id_elkrange_gen_summer.shp	1	4	1	1	1	2	2	1	1	1	1	1	0	17
Biota	Elk	Big Game	id_elkrange_gen_winter.shp	1	4	1	1	1	2	2	1	1	1	1	1	0	17
Biota	Elk	Big Game	id_focus_elkfound.shp														0
Biota	Pronghorn	Big Game	pronghorn_wiinter.shp														0
Biota	Fish	fisheries	Challis_Fish_Streams.shp	3	1	1	1	3	2	2	3	3	1	1	1	0	22
Biota	Fish	fisheries	Challis_Spawn_Survey.shp	2	2	2	3	3	0	0	3	1	3	0	1	0	20
Biota	Fish	fisheries	Chinook_redds_ed.shp	2	2	2	3	3	3	3	3	1	3	2	1	0	28
Biota	Fish	fisheries	Electroshock_sites.shp	2	2	2	3	3	2	2	3	1	3	1	1	0	25
Biota	Fish	fisheries	Fish_Passage_Inventory.shp	2	2	2	2	2	1	1	3	3	3	1	1	0	23
Biota	Fish	fisheries	IDFG_fish_barriers.shp	2	2	2	2	3	1	1	3	3	2	1	1	0	23
Biota	Fish	fisheries	IDFG_Stream_survey.shp	2	2	2	2	2	1	1	2	2	2	1	1	0	20
Biota	Fish	FWS_Proposed_BT_CritHab	BT_PCH_Lakes_2010.shp	3	2	3	3	3	4	4	3	3	3	2	2	0	35
Biota	Fish	FWS_Proposed_BT_CritHab	BT_PCH_Streams_2010.shp	3	2	3	3	3	4	4	3	3	3	2	1	0	34
Biota	Fish	IDFG_FishDB	Bulltrout_Range_UTM11.shp	3	3	3	4	4	3	3	3	3	3	2	1	0	35
Biota	Fish	IDFG_FishDB	Bulltrout_UTM11.shp	2	3	2	3	2	1	1	2	2	3	3	1	0	25
Biota	Fish	IDFG_FishDB	chinook_range.shp	3	3	3	4	4	3	3	3	3	3	2	1	0	35
Biota	Fish	IDFG_FishDB	chinook_UTM11.shp	2	3	2	3	2	1	1	2	2	3	3	1	0	25
Biota	Fish	IDFG_FishDB	Cutthroat_Range_UTM11.shp	3	3	3	4	4	3	3	3	3	3	2	1	0	35
Biota	Fish	IDFG_FishDB	Cutthroat_UTM11.shp	2	3	2	3	2	1	1	2	2	3	3	1	0	25
Biota	Fish	IDFG_FishDB	Sockeye_Range.shp	3	3	3	4	4	3	3	3	3	3	2	1	0	35
Biota	Fish	IDFG_FishDB	Sockeye_UTM11.shp	2	3	2	3	2	1	1	2	2	3	3	1	0	25
Biota	Fish	IDFG_FishDB	Steelhead_Range.shp	3	3	3	4	4	3	3	3	3	3	2	1	0	35
Biota	Fish	IDFG_FishDB	Steelhead_UTM11.shp	2	3	2	3	2	1	1	2	2	3	3	1	0	25

Table A-1. Data Quality Evaluation Worksheet

ISO Category	Category	Database or Folder	Name	Validity	Non-Duplication	Completeness	Relationship Validity	Consistency	Concurrency	Timeliness	Spatially Accurate	Thematic Accuracy	Precision	Derivation Integrity	Coverage of MIR	Coverage of NGP	Total Score
Biota	Fish	NMFS_crit_hab	stsnr_chf1.shp	2	3	2	3	4	1	2	3	3	3	2	1	0	29
Biota	Fish	NMFS_crit_hab	stsnr_hab1.shp	2	3	2	3	4	1	2	3	3	3	2	1	0	29
Biota	Fish	FWS_Critical_Habitat	NMFS_Steelhead_Critical_Habitat.shp														0
Biota	Fish	FWS_Critical_Habitat	Sockeye_CH_lakes.shp														0
Biota	Fish	FWS_Critical_Habitat	Sockeye_CH_rivers.shp	2	3	2	3	3	1	1	3	3	3	2	1	0	27
Biota	Fish	FWS_Critical_Habitat	SOCKEYE_CH_WATERSHEDS.shp													0	0
Biota	Fish	FWS_Critical_Habitat	USFWS_Bull_Trout_Critical_Habitat.shp	3	3	2	3	4	4	4	3	3	2	3	2	0	36
Biota	Fish	FWS_Critical_Habitat	USFWS_Bull_Trout_Critical_Habitat_Lakes.shp	3	3	2	3	4	4	4	3	3	2	3	1	0	35
Biota	Grizzly Bear	Grizzly_Bear_ID	A001_V01_14420.shp														0
Biota	Grizzly Bear	Yellowstone_Grizzly_Bear	A001_V01_61130.shp	4	4	2	3	4	2	2	2	2	2	0	2	0	29
Biota	Lynx	Lynx_Analysis_Units_Idaho	A073_V01_14420.shp	2	3	3	3	4	3	3	3	3	3	3	2	0	35
Biota	Birds	Important_Bird_Areas	Idaho_IBAs.shp	2	2	2	2	1	3	3	2	2	2	1	1	0	23
Biota	Mule Deer	MuleDeer_WAFWA.gdb	muledeer_summer	2	3	3	3	4	2	2	3	2	3	2	1	0	30
Biota	Mule Deer	MuleDeer_WAFWA.gdb	muledeer_other_important_habitat	2	3	3	3	4	2	2	3	2	3	2	1	0	30
Biota	Mule Deer	MuleDeer_WAFWA.gdb	muledeer_winter	2	3	3	3	4	2	2	3	2	3	2	1	0	30
Biota	Mule Deer	MuleDeer_WAFWA.gdb	muledeer_winter_concentration	2	3	3	3	4	2	2	3	2	3	2	1	0	30
Biota	Mule Deer	MuleDeer_WAFWA.gdb	muledeer_year_round	2	3	3	3	4	2	2	3	2	3	2	1	0	30
Biota	Mule Deer	MuleDeer_WAFWA.gdb	muledeer_limited_range	2	3	3	3	4	2	2	3	2	3	2	1	0	30
Biota	Invasives	DeptofAg_delivery_weeds_march2009	Listed_Terrestrial_Noxious_Weeds_lines.shp	1	2	1	1	0	3	3	2	3	3	1	1	0	21
Biota	Invasives	DeptofAg_delivery_weeds_march2009	Listed_Terrestrial_Noxious_Weeds_points.shp	1	1	1	1	1	2	2	0	2	1	1	1	0	14
Biota	Invasives	DeptofAg_delivery_weeds_march2009	Listed_Terrestrial_Noxious_Weeds_poly.shp	0	1	1	1	1	3	3	2	3	3	1	1	0	20
Biota	Invasives	DeptofAg_delivery_weeds_Oct2007	Weed_Areas_2006.shp	1	1	2	1	1	2	2	3	2	2	1	1	0	19
Biota	Invasives	DeptofAg_delivery_weeds_Oct2007	Weed_Lines_2006.shp	1	1	2	1	1	2	2	3	2	2	1	1	0	19
Biota	Invasives	DeptofAg_delivery_weeds_Oct2007	Weed_Points_2006.shp	1	1	2	1	1	2	2	3	2	2	1	1	0	19
Biota	Invasives	WeedsMasterDatabaseXML.gdb	Idaho_Weeds_Presence_2005	1	1	1	1	1	2	2	2	2	1	1	1	0	16
Biota	Whitebark Pine	Whitebark Pine\GIS_Datasent_FWS	WB_GTEQ_80pct_BLM_Admin.shp	3	3	3	3	3	4	4	3	3	3	3	1	0	36
Biota	Whitebark Pine	Whitebark Pine\GIS_Datasent_FWS	BLM_Plus_Trees.shp	3	3	3	3	3	3	4	4	4	4	3	1	0	38
Biota	Five Needle Pine	Whitebark Pine\Montana	Five_needle_pine_survey_FORVIS_stands.shp	1	2	1	2	1	2	2	2	2	2	1	1	0	19
Environment	Inland Waters	rad_303d_20100801_fgdb.gdb	rad_303d_a	3	3	3	3	3	2	3	3	3	3	3	4	4	40
Environment	Inland Waters	rad_303d_20100801_fgdb.gdb	rad_303d_l	3	3	3	3	3	2	3	3	3	3	3	4	4	40
Environment	Inland Waters	rad_303d_20100801_fgdb.gdb	rad_303d_p	3	3	3	3	3	2	3	3	3	3	3	4	4	40
Environment	Inland Waters	rad_tmdl_20100801_fgdb.gdb	rad_tdml_a	3	3	3	3	3	2	3	3	3	3	3	4	4	40
Environment	Inland Waters	rad_tmdl_20100801_fgdb.gdb	rad_tdml_l	3	3	3	3	3	2	3	3	3	3	3	4	4	40
Environment	Inland Waters	rad_tmdl_20100801_fgdb.gdb	rad_tdml_p	3	3	3	3	3	2	3	3	3	3	3	4	4	40
Environment	Wetlands	ID_wetlands.gdb	CONUS_wet_poly	3	3	3	2	3	1	1	3	2	2	2	1	0	26
Environment	Wetlands	MT_wetlands.gdb	CONUS_wet_poly	3	3	3	2	3	1	1	3	2	2	2	3	1	29
Environment	Wetlands	SD_wetlands.gdb	CONUS_wet_poly	3	3	3	2	3	1	1	3	2	2	2	1	2	28
Environment	Wetlands	WY_wetlands.gdb	CONUS_wet_poly	3	3	3	2	3	1	1	3	2	2	2	2	1	28
Biota	Invasives	Weed Infestation	weed_infestation_location.shp	2	2	1	1	1	1	1	1	2	1	2	2	2	19
Biota	Aquatic Invertebrates	bug_lab_OE_pts2	bug_lab_OEpts2.shp	1	1	1	1	1	1	1	1	1	1	1	1	1	13
Biota	Fish	Salmon_NOAA_GIS_Data	RO.CHINOOK_FA_IC1301936169140.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Biota	Fish	Salmon_NOAA_GIS_Data	RO.CHINOOK_SPSU_IC1301936170484.shp	3	3	2	3	4	2	2	3	3	3	3	1	0	32
Biota	Fish	Salmon_NOAA_GIS_Data	RO.SOCKEYE_IC1301936180406.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Biota	Fish	Salmon_NOAA_GIS_Data	RO.STEELHEAD_SUWI_IC1301936155756.shp	3	3	2	3	4	2	2	3	3	3	3	1	0	32
Biota	Fish	Salmon_NOAA_Lower_Columbia	RO.CHINOOK_FA_LC1301940719484.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Biota	Fish	Salmon_NOAA_Lower_Columbia	RO.CHINOOK_SP_LC1301940721062.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Biota	Fish	Salmon_NOAA_Lower_Columbia	RO.CHUM_LC1301940721812.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Biota	Fish	Salmon_NOAA_Lower_Columbia	RO.COHO_LC1301940723468.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Biota	Fish	Salmon_NOAA_Lower_Columbia	RO.STEELHEAD_SU_LC1301940717296.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Biota	Fish	Salmon_NOAA_Lower_Columbia	RO.STEELHEAD_WI_LC1301940717912.shp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utilities/Comm	Mines	Abandoned_Inactive_Mines	mines_abandoned_inactive_mt.shp	2	2	1	2	2	1	1	2	2	2	1	2	1	21
Utilities/Comm	Mines	Active_Mines	mines_active_region1.shp	2	2	1	2	2	1	1	2	1	1	1	2	1	19
Utilities/Comm	Oil Gas	Potential_Wells_region1	oil_gas_potential_region1_100k.shp	2	1	1	1	2	1	1	1	1	1	1	2	1	16
	Oil Gas	Wells_region1	oil_gas_wells_region1.shp	1	0	1	0	1	0	0	1	1	0	0	2	2	9
Biota	Invasives	Weeds_NIISS	Tamarisk1_Point.shp	1	2	0	0	1	0	0	2	2	0	1	1	1	11
Biota	Invasives	Weeds_NIISS	Tamarisk1_Polyline.shp	1	2	0	0	1	0	0	2	2	0	1	1	1	11
Biota	Invasives	Weeds_NIISS	wyoming_weed_point.shp	1	2	0	0	1	2	0	2	2	0	1	1	1	13
RASTER		Raster															0
Imagery/EarthCover	Landcover	SWReGAP\co_landcover_esri	landcover.vat	4	0	4	0	4	2	2	3	4	4	2	0	0	29
Imagery/EarthCover	Landcover	SWReGAP\ut_landcover_esri	landcover.vat	4	0	4	0	4	2	2	3	4	4	2	1	0	30
Imagery/EarthCover	Landcover	SWReGAP\nv_landcover_esri	landcover.vat	4	0	4	0	4	2	2	3	4	4	2	0	0	29
Imagery/EarthCover	Landcover	SWReGAP\az_landcover_esri	landcover.vat	4	0	4	0	4	2	2	3	4	4	2	0	0	29
Imagery/EarthCover	Landcover	SWReGAP\nm_landcover_esri	landcover.vat	4	0	4	0	4	2	2	3	4	4	2	0	0	29
Imagery/EarthCover	Landcover	NWReGAP\gaplndcov_id_grid	gaplndcv6_id.vat	4	0	4	0	4	1	1	3	1	4	1	3	0	26
Imagery/EarthCover	Landcover	NWReGAP\gaplndcov_mt_grid	gaplndcv6_mt.vat	4	0	4	0	4	1	1	3	1	4	1	3	3	29
Imagery/EarthCover	Landcover	NWReGAP\gaplndcov_wy_grid	gaplndcv6_wy.vat	4	0	4	0	4	1	1	3	1	4	1	3	3	29
Imagery/EarthCover	Landcover	NWReGAP\gaplndcov_or_grid	gaplndcv6_or.vat	4	0	4	0	4	1	1	3	1	4	1	0	0	23
Imagery/EarthCover	Landcover	NWReGAP\gaplndcov_wa_grid	gaplndcv6_wa.vat	4	0	4	0	4	1	1	3	1	4	1	0	0	23
Imagery/EarthCover	Landcover	land_cover_change\ca_ca20012006	ca_01_06.img												0	0	0
Imagery/EarthCover	Landcover	land_cover_change\ca_ca2006	ca_06.img												0	0	0
Imagery/EarthCover	Landcover	land_cover_change\or_or20012006	or_01_06.img												0	0	0
Imagery/EarthCover	Landcover	land_cover_change\or_or2006	or_06.img												0	0	0
Imagery/EarthCover	Landcover	land_cover_change\wa_wa20012006	wa_01_06.img												0	0	0
Imagery/EarthCover	Landcover	land_cover_change\wa_wa2006	wa_06.img												0	0	0
Imagery/EarthCover	Landfire EVT	landfire_zXX (XX = zone #)	zXX_evt_final (XX = zone #)	4	0	4	0	4	3	3	3	4	4	4	4	2	39
Imagery/EarthCover	Landfire EVT	landfire_zXX (XX = zone #)	zXX_evt_final (XX = zone #)	4	0	4	0	4	3	3	3	4	4	4	2	4	39
Biota	Potential Vegetation	landfire_zXX (XX = zone #)	zXX_bps_final (XX = zone #)	4	0	4	0	4	3	3	3	4	4	4	4	2	39
Biota	Potential Vegetation	landfire_zXX (XX = zone #)	zXX_bps_final (XX = zone #)	4	0	4	0	4	3	3	3	4	4	4	2	4	39
Environment	Fire Models	landfire_zXX (XX = zone #)	zXX_fbfm13_f (XX = zone #)	4	0	4	0	4	3	3	3	4	4	4	4	2	39
Environment	Fire Models	landfire_zXX (XX = zone #)	zXX_fbfm13_f (XX = zone #)	4	0	4	0	4	3	3	3	4	4	4	2	4	39
Society	Nighttime Lights of North America	Night Time Lights 2003	niteltil.tif	2	0	2	0	4	2	2	1	1	1	2	2	2	21
Boundaries	Land Ownership	Great Northern LCC, Phase 1, Conservation Status	PADUS_v1_water.gdb	4	4	4	4	4	3	3	4	4	3	4	3	1	45
Society	Housing	Great Northern LCC, Phase 1, Housing	bhc(year)_16	4	0	3	0	4	3	3	4	4	4	4	3	1	37
Imagery/EarthCover	Landcover	Great Northern LCC, Phase 1, Landcover	landcover2001_fws_16.img	4	0	3	0	4	4	2	4	3	4	3	3	1	35
Society	Population	Great Northern LCC, Phase 1, Population	ppc, phc, pddptt.shp	4	3	4	4	4	3	2	3	3	4	3	3	1	41

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Imagery/EarthCover	Landcover	Great Norther LCC, Phase 2, Density Patterns	NALC_grassland(forest)	4	0	4	0	4	3	2	3	3	4	3	3	1	34
Imagery/EarthCover	Landcover	Great Northern LCC, Phase 2, Landcover	NALC_LAC.gdb	4	0	4	0	4	3	2	3	3	4	4	3	1	35
Transportation	Roads	Great Northern LCC, Phase 2, Roads															0
Boundaries	Land Ownership	Plains and Prairie LCC, Phase 1, Conservation	PADUS_v1_water.gdb	4	4	4	4	4	3	3	4	4	3	4	1	3	45
Society	Housing	Plains and Prairie LCC, Phase 1, Housing	bhc(year)_5	4	0	3	0	4	3	3	4	4	4	4	1	3	37
Imagery/EarthCover	Landcover	Plains and Prairie LCC, Phase 1, Landcover	landcover2001_fws_5.img	4	0	3	0	4	4	2	4	3	4	3	1	3	35
Society	Population	Plains and Prairie LCC, Phase 1, Population	ppc, phc, pddptt.shp	4	3	4	4	4	3	2	3	3	4	3	1	3	41
Imagery/EarthCover	Landcover	Plains and Prairie LCC, Phase 1, Density Patterns	NALC_grassland(forest)	4	0	4	0	4	3	2	3	3	4	3	1	3	34
Imagery/EarthCover	Landcover	Plains and Prairie LCC, Phase 1, Landcover	NALC_LAC.gdb	4	0	4	0	4	3	2	3	3	4	4	1	3	35
Transportation	Roads	Plains and Prairie LCC, Phase 1, Roads															0
Biota	Lynx Habitat	Lynx	lynxhab2005	4	0	4	4	4	2	2	1	2	2	2	3	1	31
Biota	Forest Mortality	CONUS_balossi	conus_balossi	4	0	4	0	4	2	2	2	2	4	2	4	4	34
Biota	Landcover	SPF_grid	conus_formask	4	0	0	0	4	2	2	2	2	2	2	4	4	28
Biota	Landcover	CONUS_Indiv_BA	(species)_ba	4	0	0	0	4	1	1	1	2	1	0	4	4	22
Biota	Critica Habitat	SPF_grid	crithab	1	0	0	0	1	2	2	2	1	2	0	4	4	19
Society	Housing	SPF_grid	dev	1	0	0	0	2	2	1	2	2	2	2	4	4	22
Environment	Fire Potential	SPF_grid	fire_pot	1	0	0	0	2	2	2	2	3	2	3	4	4	25
Biota	Forest Mortality	nidrm_2006	nidrm_2006	4	0	0	0	4	2	2	3	3	1	3	3	1	26
Biota	Sage Grouse	idaho sage grouse whrabnlc12010_id_icf	whrabnlc12010_id_icfwru.tif	4	0	0	0	4	2	2	3	3	2	3	2	0	25
Biota	Invasives	weeds	cheatgrass														0
Biota	Invasives	weeds	cheatgrass_30														0
Biota	Whitebark Pine	Whitebark Pine\GIS_Datasent_FWS	wb_prob	3	0	4	0	4	2	2	3	3	3	2	4	1	31
Imagery/EarthCover	Landcover	sagestitch	sagestitch1	1	0	3	0	4	0	0	3	2	2	0	4	3	22
Climate	Existing_Source_Datasets	Prism	us_ppt_1971_2000.14.txt	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
Climate	Existing_Source_Datasets	Prism	us_tmax_1971_2000.14.txt	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
Climate	Existing_Source_Datasets	Prism	us_tmin_1971_2000.14.txt	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
Climate	Existing_Source_Datasets	isobioclimates_1km	us_isobioclimate_1km_dd83.img	4	4	4	4	4	0	0	4	4	4	4	4	4	
Climate	Existing_Source_Datasets	land_surface_forms_30m	landforms_10classes_30m_dd83.img	4	4	4	4	4	0	0	4	4	4	4	4	4	
ImageryBasemapsEarthCover	MRLC_Landcover	area_3_landcover	landcover3_3k_022007.img	4	4	4	4	4	4	4	4	4	4	4	3	2	
ImageryBasemapsEarthCover	MRLC_Landcover	area_4_landcover	landcover4_3k_022007.img	4	4	4	4	4	4	4	4	4	4	4	1	1	
ImageryBasemapsEarthCover	MRLC_Landcover	area_6_landcover	landcover6_3k_022007.img	4	4	4	4	4	4	4	4	4	4	4	1	3	

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Enviroment	FireHistory_USFS_R1	fire_history_r1_1985_2009.gdb	fire_history_region1_2009_poly	3	4	3	4	4	4	4	4	4	4	4	1	1	
Farming	Crops_layer-2009	GreatPlains_CDL09	cdl_awifs_r_co_2009_utm13.tif	0	4	3	0	3	4	4	3	3	3	3	0	0	
Farming	Crops_layer-2009	GreatPlains_CDL09	cdllegend_r_co_2009.jpg	0	0	0	0	0	0	0	0	0	0	0	0	0	
Enviroment	GeoMac\wyoming_2009	Powerline 1	wy_powerline__20090512_1900_dd83.shp	4	4	3	4	4	0	3	4	0	4	3	1	0	
Biology	Farming	Ag_Stats_2007	agcensp020.shp	4	4	2	4	4	3	4	4	4	4	4	4	4	
Geoscientific	Lithology	lithology_1km	us_lithology_1km_dd83.img	4	4	2	4	4	0	0	4	0	4	4	4	4	
Geoscientific	Geology	US_Geology_Map	kbge.shp	4	4	4	4	4	1	3	3	4	2	4	4	4	
Pollution Source Points	InlandWater	ID_Water_Discharge_pnts	PCS_pt.shp	4	4	3	4	4	0	0	4	0	4	3	1	0	
Pollution Source Points	InlandWater	303d\ND	303D_poly.shp	3	4	3	4	4	0	0	4	0	4	4	0	2	
InlandWater	IRPS	IRPS_v101_Idaho	IRPS_v101_Idaho.gdb	4	4	4	4	4	4	4	4	4	4	4	0	0	
UtilitiesCommunication	Energy Corridors Public Final	shapefiles	sec368centerline.shp	4	4	4	4	4	2	3	4	4	4	3	2	1	
Boundaries	ACECs	Public_Lands_ACECs	Public_Lands_ACECs	4	4	3	4	4	0	0	4	3	4	4	1	1	
Climate	Inland_Waters	Groundwater_response_network	Gwwst0x020.shp	4	4	3	4	4	3	4	4	4	4	3	4	4	
Farming	grazing_allotments	Grazing_Alotments.gdb	grazing_allotments.shp	3	4	3	4	4	0	0	4	4	4	4	2	3	
Utilities	cell towers	cellular	Cellular.shp	4	4	3	4	4	0	0	4	4	4	4	4	4	
Transportation	Human_Footprint	Hfootprint	hfootprint (GRID format)	4	4	2	4	4	3	4	3	4	4	3	3	2	
Biota	Audubon	Important Bird Areas	Idaho_IBAs-shp	4	4	3	4	4	4	4	4	4	4	4	2	0	
Climate	Existing_Source_Datasets	Prism	us_ppt_1971_2000.14.txt	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
Climate	Existing_Source_Datasets	Prism	us_tmax_1971_2000.14.txt	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
Climate	Existing_Source_Datasets	Prism	us_tmin_1971_2000.14.txt	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
Climate	Existing_Source_Datasets	isobioclimates_1km	us_isobioclimate_1km_dd83.img	4	4	4	4	4	0	0	4	4	4	4	4	4	
Climate	Existing_Source_Datasets	land_surface_forms_30m	landforms_10classes_30m_dd83.img	4	4	4	4	4	0	0	4	4	4	4	4	4	
ImageryBasemapsEarthCover	MRLC_Landcover	area_3_landcover	landcover3_3k_022007.img	4	4	4	4	4	4	4	4	4	4	4	3	2	
ImageryBasemapsEarthCover	MRLC_Landcover	area_4_landcover	landcover4_3k_022007.img	4	4	4	4	4	4	4	4	4	4	4	1	1	
ImageryBasemapsEarthCover	MRLC_Landcover	area_6_landcover	landcover6_3k_022007.img	4	4	4	4	4	4	4	4	4	4	4	1	3	
Enviroment	FireHistory_USFS_R1	fire_history_r1_1985_2009.gdb	fire_history_region1_2009_poly	3	4	3	4	4	4	4	4	4	4	4	1	1	
Farming	Crops_layer-2009	GreatPlains_CDL09	cdl_awifs_r_co_2009_utm13.tif	0	4	3	0	3	4	4	3	3	3	3	0	0	
Farming	Crops_layer-2009	GreatPlains_CDL09	cdllegend_r_co_2009.jpg	0	0	0	0	0	0	0	0	0	0	0	0	0	

Table A-1. Data Quality Evaluation Worksheet

ISO Category	Category	Database or Folder	Name	Validity	Non-Duplication	Completeness	Relationship Validity	Consistency	Concurrency	Timeliness	Spatially Accurate	Thematic Accuracy	Precision	Derivation Integrity	Coverage of MIR	Coverage of NGP	Total Score
Enviroment	GeoMac\wyoming_2009	Powerline 1	wy_powerline__20090512_1900_dd83.shp	4	4	3	4	4	0	3	4	0	4	3	1	0	
Biology	Farming	Ag_Stats_2007	agcensp020.shp	4	4	2	4	4	3	4	4	4	4	4	4	4	
Geoscientific	Lithology	lithology_1km	us_lithology_1km_dd83.img	4	4	2	4	4	0	0	4	0	4	4	4	4	
Geoscientific	Geology	US_Geology_Map	kbge.shp	4	4	4	4	4	1	3	3	4	2	4	4	4	
Pollution Source Points	InlandWater	ID_Water_Discharge_pnts	PCS_pt.shp	4	4	3	4	4	0	0	4	0	4	3	1	0	
Pollution Source Points	InlandWater	303d\ND	303D_poly.shp	3	4	3	4	4	0	0	4	0	4	4	0	2	
InlandWater	IRPS	IRPS_v101_Idaho	IRPS_v101_Idaho.gdb	4	4	4	4	4	4	4	4	4	4	4	0	0	
UtilitiesCommunication	Energy Corridors Public Final	shapefiles	sec368centerline.shp	4	4	4	4	4	2	3	4	4	4	3	2	1	
Boundaries	ACECs	Public_Lands_ACECs	Public_Lands_ACECs	4	4	3	4	4	0	0	4	3	4	4	1	1	
Climate	Inland_Waters	Groundwater_response_network	Gwwst0x020.shp	4	4	3	4	4	3	4	4	4	4	3	4	4	
Farming	grazing_allotments	Grazing_Alotments.gdb	grazing_allotments.shp	3	4	3	4	4	0	0	4	4	4	4	2	3	
Utilities	cell towers	cellular	Cellular.shp	4	4	3	4	4	0	0	4	4	4	4	4	4	
Transportation	Human_Footprint	Hfootprint	hfootprint (GRID format)	4	4	2	4	4	3	4	3	4	4	3	3	2	
Biota	Audubon	Important Bird Areas	Idaho_IBAs-shp	4	4	3	4	4	4	4	4	4	4	4	2	0	
Biota	Partners in Flight	bcrfinalg	bcrfinalg polygon	4	3	4	4	4	0	0	3	4	4	3	4	4	