Riparian Proper Functioning Condition (PFC)

DATA STANDARD REPORT

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Version 1.1

United States Department of Interior
Bureau of Land Management
National Operations Center
Data Resource Services
Denver Federal Center
Denver, Colorado 80225

Purpose of Data Standard Report

The Data Standard Report is the necessary document for a new or revised National Data Standard. DOI Data standards process requires certain pieces of information to be documented for a data standard to be valid. The Data Standard Report is the tool BLM uses to accomplish this documentation. The completed Report is distributed for review and comment on the content of the standard. The comments are gathered and resolutions are developed through working with the appropriate data stewards, commenters, and other Subject Matter Experts. More iterations can occur depending on comments and complexity of the data standard. Once all comments are resolved, the data standard report is then finalized.

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INTRODUCTION

Description of Standard

The data used for the Proper Functioning Condition (PFC) methodology to assess the physical functioning of riparian-wetland areas. The term PFC is used to describe both the **assessment** process, and a defined, on-the-ground **condition** of a riparian-wetland area. PFC defines a minimum level or starting point for assessing riparian-wetland areas. The PFC **assessment** provides a consistent approach for assessing the physical functioning of riparian-wetland areas through consideration of hydrology, vegetation, and/or soil/landform attributes.

This data standard will be used in conjunction with the Riparian, Wetland and Aquatic Location Data Standard for Reaches and Sites.

Affected Groups

Riparian PFC Assessors, Water Quality, Hydrologists, Ecologist, Rangeland Management Specialist, Fisheries and Wildlife Biologists

Sponsor

Rob Roudabush, WO220 Division Chief

DATA STEWARD / CONTACT INFORMATION

Office	Role	Name	Contact Information
WO-220	Riparian National Business Data Steward	Gordon Toevs	Gordon_Toevs@blm.gov 202-912-7202
WO-210	GIS Contact	Bob Bewley	Bob_Bewley@blm.gov 202-452-5111
WO-220	Vegetation National Business Data Steward	Sherm Karl	Sherm_karl@blm.gov 303-236-0166

DATA SET CHARACTERISTICS

Overall Security

a.	**Identify Security Level**
	Public
b.	**Privacy Information**
	The name of the BLM person (s) who completed the assessment or took the photograph. This data will be kept locally, but not at the national level. If it is a contractor, the contracting company name will be identified, not the individual's name.

Data Privileges

Who has create, read, update, and/or delete privileges?
GIS Specialists, Riparian PFC Assessment Personnel will have create, read, update and delete privileges.

Data Collection & Maintenance Protocols

a.	**Location Accuracy Requirements**
	The accuracy of the location will be + or – 5 meter (16 feet).
b.	**Data Content Accuracy Requirements**
	The accuracy (correctness) of the data that is expected is at least 90%.
c.	**Collection & Input Protocols:**
	Use the most recent technical reference (1737) revisions. Currently, for Lotic use TR1737-15,and for Lentic use TR1737-16.
d.	**Update Procedures:**
	Each field office will track all changes in delineations of polygons and arcs, and input any changes into the geodatabase at a minimum of once per year. The field office data will be replicated to the national server at a minimum, on an annual basis, by the end of October for each year.

Data Quality

a.	**Transaction level data quality:**
	The Field Office Riparian Data Steward with the support of the GIS specialist in each field office will review the data for quality upon data entry.
b.	**Monitoring level data quality:**
	The national representative at National Operations Center will review data only upon receipt to the national geodatabase.

Relationship to Other Standards

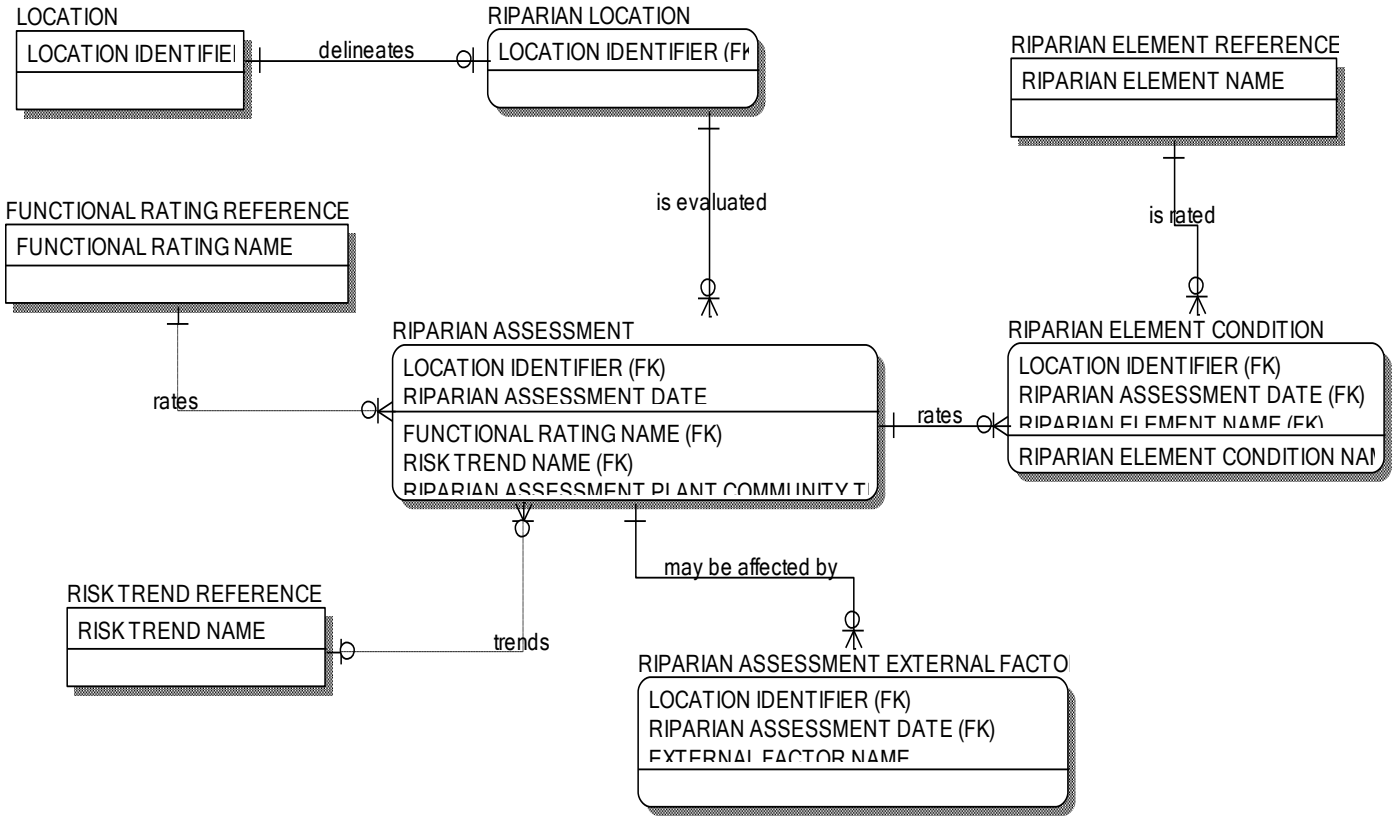
- Grazing Allotments and Pastures (BLM data standard)
- Jurisdictional/Administrative Boundaries (BLM)
- Riparian Wetland Aquatic Locations (Reach and Site)
- Land Health Reporting (BLM, data standard in progress)
- National Hydrography Dataset (NHD)
- Monitoring Related Information

DATA CHARACTERISTICS

Each data standard is to be supported by a data model which includes entities and relationships between entities. The logical data model with its associated data dictionary is included in Appendix B.

PFC Conceptual Data Model

A PFC Riparian-Wetland Assessment is completed by looking at 17/20 elements and determining the condition of each ELEMENT. Once the condition of each ELEMENT is determined, the RIPARIAN LOCATION is given a FUNCTIONAL RATING. If the reach or site is Functioning at Risk, a RISK TREND is assigned and the potential EXTERNAL FACTORS causing the risk are also assigned.



Legend: See Appendix C

PFC Data Elements

The following is a list of the data elements and associated metadata relevant to this data standard. Any design considerations for these data elements would be included in the implementation guidelines. Naming Conventions can be found in the "Data Administration and Management Handbook" BLM Manual H 1283-1.

RIPARIAN ASSESSMENT DRAFT ENTITY

An assessment completed for a specific reach or site that determines if the area is in proper functioning condition.

Data Element Name	Type	Size	Required?	Attribute Definition	Comments
RIPARIAN ASSESSMENT DATE	date		Yes	The date on which the riparian assessment was completed.	If the assessment takes more than one day, the timeframe can be noted in the overall remarks.
FUNCTIONAL RATING NAME	character	30	Yes	The name that describes the functional condition of a riparian area.	Values: Nonfunctional, Proper Functioning Condition or Functional - At Risk, or Unknown
RIPARIAN ASSESSMENT RATING RATIONALE TEXT	character	400	Yes	The text that describes the rationale for the condition rating given the reach or area.	
RIPARIAN ASSESSMENT OVERALL REMARKS TEXT	character	400	Opt	The text that provides a description of the overall riparian assessment for the reach or site.	
RIPARIAN ASSESSMENT RESTORATION CHARACTERISTIC TEXT	character	400	Opt	The text that provides information on restoration work that is possible for the riparian area.	
FUNCTIONAL RISK RATING TREND NAME	character	15	Opt	The name that describes the apparent direction of an at risk riparian area.	Required if Functioning at Risk (FAR): See domain document
FUNCTIONAL RISK RATING TREND RATIONALE TEXT	character	300	Yes	The text that provides the rationale for why an area was given a specific trend.	
RIPARIAN ASSESSMENT METHOD NAME	character	10	Yes	The name of the method used to complete the PFC assessment.	Values: ground or aerial
LOCATION IDENTIFIER	integer		Yes	The designed primary key that will uniquely identify a single occurrence of the entity.	(link to site or reach)
(COMPLEX INDICATOR)				A code that indicates if both a lotic and lentic assessment was completed for the location.	Yes – Complex, No – not complex. Default is NO

PLANT SPECIES OCCURRENCE CODE	character	5	Opt	Plant category relative to the likelihood of their occurrence in wetlands or nonwetlands, depending on the species environment mode and the ecosystem .	See Domain Document

A Riparian (PFC) Assessment will also include one or more team members and their background.

RIPARIAN ASSESSMENT MEMBER DRAFT ENTITY A member of the team (ID team) that helped to conduct the riparian assessment.					
RIPARIAN ASSESSMENT MEMBER DISCIPLINE NAME	character	20	Yes	The name of the discipline that an individual used to conduct the riparian assessment.	An individual or contractor may have up to 2 disciplines each.
PERSON or ORGANIZATION NAME				If BLM employee, use BLM employee name. If contractor, use contracting company name)	For historical can use "UNKNOWN"

The following is for determining if the characteristics for each element are present. Lotic has 17 elements for which condition is determined. Lentic has 20 elements for which condition is determined.

RIPARIAN ASSESSMENT ELEMENT CONDITION DRAFT ENTITY

Each riparian assessment element is assessed as to whether or not it is in proper functioning condition (PFC). This documents the answer for whether or not the specific riparian assessment element is in PFC and the rationale for the response.

Data Element Name	Type	Size	Required?	Attribute Definition	Comments
RIPARIAN ASSESSMENT ELEMENT CONDITION RATIONALE TEXT	character	400	Opt	The text that describes the rationale for why the element was given a specific answer (yes, no, n/a) and can also describe an indication of trend. Rationale for a no response is required, rationale for a yes response is recommended.	
RIPARIAN ASSESSMENT ELEMENT CONDITION RESPONSE CODE	character	5	Yes	The code that indicates if the element is functioning (yes), not functioning (no), or not applicable (n/a).	Required condition response; For Historical information, the response 'liner' can be used.
RIPARIAN ECOSYSTEM ELEMENT NUMBER	number	2	Yes	The number used on the riparian checklist for the riparian water flow type (lentic or lotic).	Lotic: 1 thru 17 Lentic: 1 thru 20
RIPARIAN CONDITION LEVEL NAME	character	8	Opt	The name that indicates the level of the element condition where the answer has been determined to be yes. (weak, moderate, strong).	Optional way to respond to condition.

(ASSESSMENT DATE & REACH or SITE ID)					Part of the primary key to identify which year and location for the condition of the element.

If PFC is "Functioning at Risk" or "Nonfunctional", one or more possible external factors are assigned.

RIPARIAN POSSIBLE EXTERNAL FACTOR DRAFT ENTITY

The external factors that appear to be affecting the condition of a nonfunctional or functioning-at risk riparian area.

Data Element Name	Type	Size	Required?	Attribute Definition	Comments
RIPARIAN POSSIBLE EXTERNAL FACTOR OTHER TEXT	character	40	Opt	The text that describes an external factor outside of the normal types of factors.	
RIPARIAN EXTERNAL FACTOR NAME	character	40	Yes	The name of the external factor that contributes to an unacceptable condition of a riparian area.	These are possible external factors.
(ASSESSMENT DATE & REACH or SITE ID)					Part of the primary key to link to correct year/location.

Attributes specific to a photograph taken about PFC location. One photo can be related to a location for more than one reason.

IMAGE DRAFT ENTITY

An image is created by light falling on a light-sensitive surface, using some type of imaging equipment.

Data Element Name	Type	Size	Required?	Attribute Definition	Comments
LOCATION IDENTIFIER			Yes	The designed primary key that will uniquely identify a single occurrence of the entity.	This will be a point along the segment or near a site, linked to the location or point of interest.
IMAGE IDENTIFIER	integer		Yes	The designed primary key that will uniquely identify a single occurrence of the entity.	
IMAGE TAKEN DATE	date		Yes	The date on which the image was taken.	
IMAGE TAKEN TIME	time		Opt		The time at which an image is taken.
PERSON or ORGANIZATION NAME			Yes	(The name of the BLM individual or contracting company.)	Who took the picture. May use "UNKNOWN."

RELATED LOCATION REASON NAME (Photo Purpose)			Yes	The name that indicates the reason why two locations are related.	See domain document
(PHOTO DIRECTION CODE)				(The direction from which the image was taken.	See Domain Document

BUSINESS RULES

Rules under which data is used and modified (See H 1283-1, Data Administration and Management Handbook, Chapter 8 – Documenting Business Rules.)

1. Significant (Causal) Factors

The determination of the possible causal factors is an evaluation done by an interdisciplinary team, usually during Land Health Assessments. An indication of causal factors can be documented in the RIPARIAN ASSESSMENT ELEMENT CONDITION RATIONALE TEXT attribute.	
Business Rule Source and Description	
Guidance	
Type of Business Rule	Current Implementation
Guideline	Manual Process

2. Complex Areas that Contain Lotic/Lentic Elements

In the rare cases where an area appears to have characteristics of both lotic and lentic elements, a PFC assessment will be conducted using both the lentic and lotic forms. Each of these assessments will have an attribute that indicates this is a complex area. Once the assessment is complete, only one of the 2 assessments will be included in the data set, the one with the higher percentage of elements present at the location.	
Business Rule Source and Description	
Guidance	
Type of Business Rule	Current Implementation
Guideline	Manual Process

3. Monitoring Site

For functioning at risk or non functioning riparian reaches or sites, a Designated Monitoring Area (DMA) must be selected. There are three types of DMAs for Riparian Areas: representative, critical, and reference. Regardless of the type, DMAs are permanently marked stream segments within a riparian complex identified by an interdisciplinary team. Placement depends on monitoring objectives and the site determined to be most representative within the complex. Please refer to Multiple Indicator Monitoring (MIM) of Stream Channels

and Streamside Vegetation TR 1737-23 for additional information.	
Business Rule Source and Description	
Technical Reference TR 1737-23 Stream Channels and Streamside Vegetation	
Type of Business Rule	Current Implementation
Guideline	Manual Process

OTHER MATERIAL

Other supporting material that aids in the understanding or use of the data standard
PFC Data Standard Proposal

DOMAINS SPECIFIC TO THIS DATA STANDARD

To see Domains specific to PFC, please see the file named 4_Proper_Functioning_Condition_Domains.doc

APPENDIX A: DOI DATA CATEGORIES

Data Subject Areas and Information classes are categories of information that support a DOI line of business. According to the DOI Data Standardization Handbook, one or more categories must be identified for a data standard. Any changes to these categories and their definitions would be made through the DOI Data Advisory Committee (DAC).

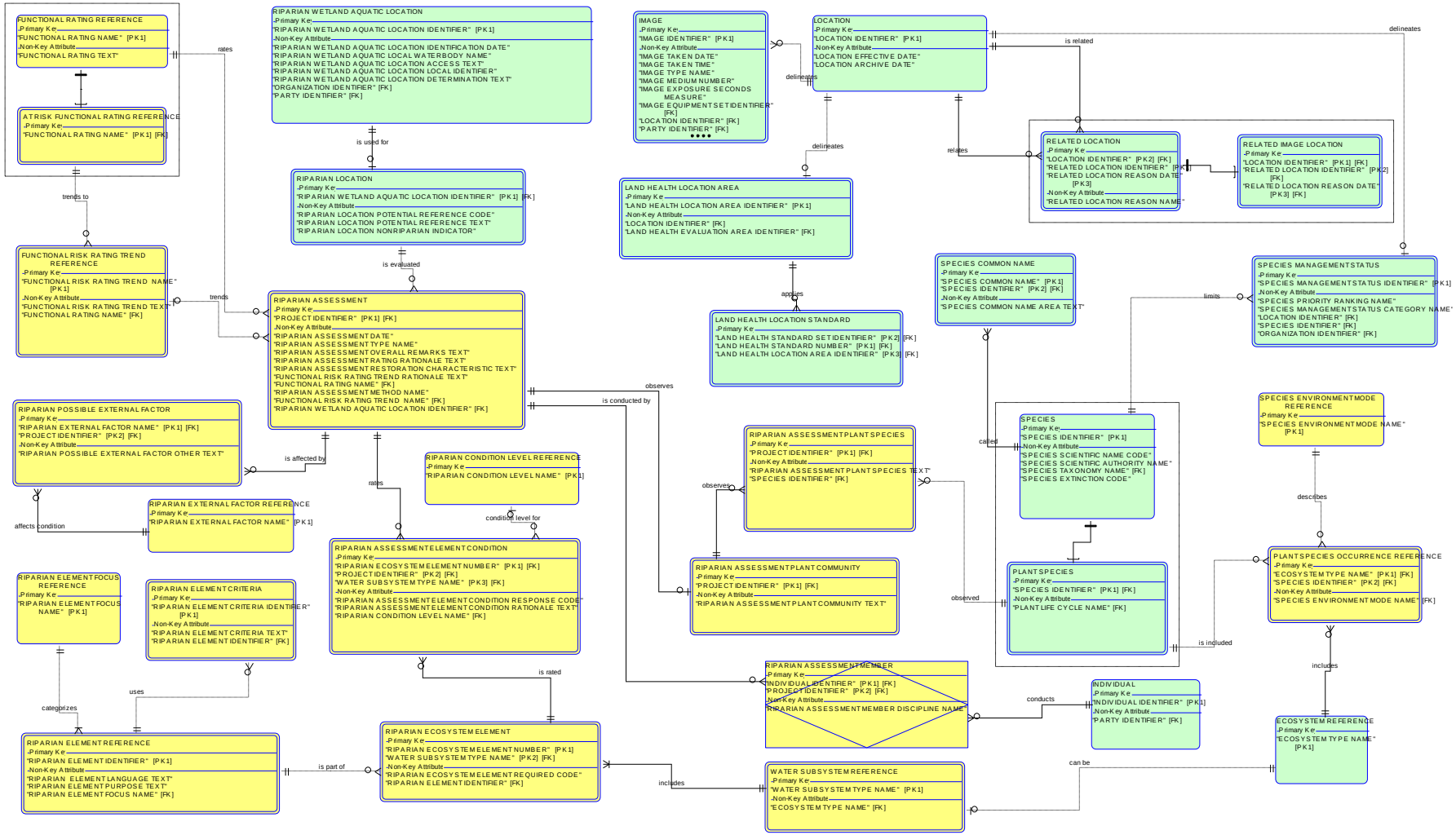
Subject Area: A collection of data classifications representing broad categories of information that support a line of business.
Information Class: A logical grouping of entities that are subcategories of the subject areas.

Only the Subject Areas and Information Classes that are appropriate to this data standard are included in this listing. For the full list of Subject Areas and their Information Classes please see http://web.blm.gov/data_mgt/guidelines/DOI_SubjectArea_InfoClass.doc.

This standard proposal covers the following DOI Subject Areas and Information Classes:	
Geospatial and Geography (Subject Area)	*Information about data that includes a terrestrial coordinate system or geographic reference. This includes geospatial data sets, mapping, imagery, coverages, elevations, and features.*
• Location (Information Class)	*Information about an identifiable place of existence. A geographic or spatial identification assigned to a region or feature based on a specific coordinate system, or by other precise information such as a street address, a postal address, a descriptive location, a legal land definition, etc. Location data types primarily consist of Vector data.*
Natural and Cultural Resource (Subject Area)	*Information about the natural and ecological resources, cultural resources, cultural resources, archaeological, and paleontology resources, and national heritage resources of the nation.*
• Water Resource (Information Class)	*Information about the Nation's water resources, and the partnerships developed to nourish a healthy environment and sustain a vibrant economy.*
• Biological Resource (Information Class)	*Information about genetic resources, organisms or parts thereof, populations, or any other biotic component of ecosystems with actual or potential use or value for humanity.*
Controls and Oversight (Subject Area)	*Information about the supervision, oversight, and administrative operations and programs of the DOI and its external partners that ensure compliance with applicable laws and regulations, and the prevention of waste, fraud and abuse. This includes the evaluation of conformance with policy, guidance, standards, and statutory requirements, as well as a means to evaluate the overall quality of products and services.*
• Assessment (Information Class)	*The process of gathering qualitative and/or quantitative information for the purpose of making a judgment or decision.*

APPENDIX B: LOGICAL DATA MODEL

The entities in green are not part of this standard and do not need to be reviewed. They are provided to show context and provide relationships to other data only. To improve viewing, zoom to 200%; to print a larger version, use the 11"x17" model on the same webpage as this document.



Legend: See Appendix C

Data Dictionary

This lists entities and attributes (in alphabetical order, not hierarchical or chronological order) in the logical data model shown above.

Entity Name	Entity Definition	Attribute Name	Type	Size	Re-quired?	Key*	Attribute Definition
AT RISK FUNCTIONAL RATING REFERENCE							DRAFT ENTITY
	Functional at risk riparian-wetland areas that are in functional condition, but have an existing soil, water, or vegetation attribute that makes them susceptible to degradation. These at risk areas either have a trend that is upward, downward or not apparent for trend.						
		FUNCTIONAL RATING NAME	character	30	Yes	PK, FK	The name that describes the functional condition of a riparian area.
FUNCTIONAL RATING REFERENCE							DRAFT ENTITY
	The domain of values for the functional condition of the riparian area.						
		FUNCTIONAL RATING TEXT	character	100	Yes		The text that describes what each of the Functional Rating choices mean.
		FUNCTIONAL RATING NAME	character	30	Yes	PK	The name that describes the functional condition of a riparian area.
FUNCTIONAL RISK RATING TREND REFERENCE							DRAFT ENTITY
	The domain of values for the apparent direction in which an at-risk riparian area is moving.						
		FUNCTIONAL RISK RATING TREND TEXT	character	100	Yes		The text that describes specific trend direction.
		FUNCTIONAL RISK RATING TREND NAME	character	15	Yes	PK	The name that describes the apparent direction of an at risk riparian area. Upward, downward, not apparent.
		FUNCTIONAL RATING NAME	character	30	Yes	FK	The name that describes the functional condition of a riparian area.
PLANT SPECIES OCCURRENCE REFERENCE							CONCEPTUAL ENTITY
	Plants are divided into categories relative to the likelihood of their occurrence in wetlands or nonwetlands, depending on the species environment mode (obligate or facultative) and the ecosystem (wetland or upland) These categories are obligate wetland (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), and obligate upland (UPL).						
		SPECIES ENVIRONMENT MODE NAME	character	15	Yes	FK	The name that designates if an organism can survive in one or more types of environments. Valid values: obligate, facultative.

Entity Name	Entity Definition	Attribute Name	Type	Size	Re-quired?	Key*	Attribute Definition
		ECOSYSTEM TYPE NAME	character	20	Yes	PK, FK	The name the ecosystem unit of interdependent organisms which share the same habitat. Valid values include: riparian, wetland, upland.
		SPECIES IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
RIPARIAN ASSESSMENT An assessment completed for a specific reach or site that determines if the area is in proper functioning condition.							DRAFT ENTITY
		RIPARIAN ASSESSMENT DATE	date		Yes		The date on which the riparian assessment was completed.
		RIPARIAN ASSESSMENT TYPE NAME	character	40	Yes		The name associated with a type of riparian assessment. For example, PFC, proper functioning condition is one.
		RIPARIAN ASSESSMENT RATING RATIONALE TEXT	character	400	Yes		The text that describes the rationale for the condition rating given the reach or area.
		RIPARIAN ASSESSMENT OVERALL REMARKS TEXT	character	400	Opt		The text that provides a description of the overall riparian assessment for the reach or site.
		RIPARIAN ASSESSMENT RESTORATION CHARACTERISTIC TEXT	character	400	Opt		The text that provides information on restoration work that is possible for the riparian area.
		PROJECT IDENTIFIER	character	12	Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		FUNCTIONAL RISK RATING TREND RATIONALE TEXT	character	400	Yes		The text that provides the rationale for why an area was given a specific trend.
		FUNCTIONAL RATING NAME	character	30	Yes	FK	The name that describes the functional condition of a riparian area.
		FUNCTIONAL RISK RATING TREND NAME	character	15	Opt	FK	The name that describes the apparent direction of an at risk riparian area. Upward, downward, not apparent.
		RIPARIAN WETLAND AQUATIC LOCATION IDENTIFIER	integer		Yes	FK	The designed primary key that will uniquely identify a single occurrence of the entity.

Entity Name	Entity Definition	Attribute Name	Type	Size	Re-quired?	Key*	Attribute Definition
		RIPARIAN ASSESSMENT METHOD NAME	character	10	Yes		The name of the method used (ground or aerial) to complete the PFC assessment.
RIPARIAN ASSESSMENT ELEMENT CONDITION							DRAFT ENTITY
		Each riparian assessment element is assessed as to whether or not it is in proper functioning condition (PFC). This documents the answer for whether or not the specific riparian assessment element is in PFC and the rationale for the response.					
		RIPARIAN ASSESSMENT ELEMENT CONDITION RATIONALE TEXT	character	400	Yes		The text that describes the rationale for why the element was given a specific answer (yes, no, n/a) and can also describe an indication of trend. Rationale for a no response is required, rationale for a yes response is recommended.
		RIPARIAN ASSESSMENT ELEMENT CONDITION RESPONSE CODE	character	5	Yes		The code that indicates if the element is functioning (yes), not functioning (no), or not applicable (n/a).
		RIPARIAN ECOSYSTEM ELEMENT NUMBER	number	2	Yes	PK, FK	The number used on the riparian checklist for the riparian water flow type (lentic or lotic).
		PROJECT IDENTIFIER	character	12	Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		WATER SUBSYSTEM TYPE NAME	character	6	Yes	PK, FK	The name that indicates whether or not the water is flowing (lotic) or still (lentic).
		RIPARIAN CONDITION LEVEL NAME	character	8	Opt	FK	The name that indicates the level of the element condition where the answer has been determined to be yes. (weak, moderate, strong).
RIPARIAN POSSIBLE EXTERNAL FACTOR							DRAFT ENTITY
		The external factors that appear to be affecting the condition of a nonfunctional or functioning-at risk riparian area.					
		RIPARIAN POSSIBLE EXTERNAL FACTOR OTHER TEXT	character	40	Opt		The text that describes an external factor outside of the normal types of factors.
		RIPARIAN EXTERNAL FACTOR NAME	character	40	Yes	PK, FK	The name of the external factor that contributes to an unacceptable condition of a riparian area.

Entity Name	Entity Definition	Attribute Name	Type	Size	Re-quired?	Key*	Attribute Definition
		PROJECT IDENTIFIER	character	12	Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
RIPARIAN ASSESSMENT MEMBER							DRAFT ENTITY
A member of the team (ID team) that helped to conduct the riparian assessment.							
		RIPARIAN ASSESSMENT MEMBER DISCIPLINE NAME	character	20	Yes		The name of the discipline that an individual used to conduct the riparian assessment.
		INDIVIDUAL IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		PROJECT IDENTIFIER	character	12	Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
RIPARIAN ASSESSMENT PLANT COMMUNITY							DRAFT ENTITY
Information pertaining to the plant community in the riparian area.							
		RIPARIAN ASSESSMENT PLANT COMMUNITY TEXT	character	200	Opt		The text that describes the riparian plant community, including information on noxious vegetation, unusual species, or decreases/increases in some species.
		PROJECT IDENTIFIER	character	12	Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
RIPARIAN ASSESSMENT PLANT SPECIES							DRAFT ENTITY
Specific plant species found at the riparian area.							
		RIPARIAN ASSESSMENT PLANT SPECIES TEXT	character	10	Yes		The text that provides information that will help to identify a plant species found in the riparian area.
		PROJECT IDENTIFIER	character	12	Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		SPECIES IDENTIFIER	integer		Yes	FK	The designed primary key that will uniquely identify a single occurrence of the entity.
RIPARIAN CONDITION LEVEL REFERENCE							DRAFT ENTITY
The domain of values for the level of the condition of the element where the answer is yes.							

Entity Name	Entity Definition	Attribute Name	Type	Size	Re-quired?	Key*	Attribute Definition
		RIPARIAN CONDITION LEVEL NAME	character	8	Yes	PK	The name that indicates the level of the element condition where the answer has been determined to be yes. (weak, moderate, strong).
RIPARIAN ECOSYSTEM ELEMENT							DRAFT ENTITY
	The riparian element that is assessed for the type of riparian ecosystem (lentic or lotic).						
		RIPARIAN ECOSYSTEM ELEMENT REQUIRED CODE	character	3	Yes		A code that designates if the standard must have a yes or no answer. Some questions can be answered with not applicable.
		RIPARIAN ECOSYSTEM ELEMENT NUMBER	number	2	Yes	PK	The number used on the riparian checklist for the riparian water flow type (lentic or lotic).
		RIPARIAN ELEMENT IDENTIFIER	integer		Yes	FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		WATER SUBSYSTEM TYPE NAME	character	6	Yes	PK, FK	The name that indicates whether or not the water is flowing (lotic) or still (lentic).
RIPARIAN ELEMENT CRITERIA							DRAFT ENTITY
	The factors that can be considered for determining if a riparian element is functioning, not functioning or functioning at risk.						
		RIPARIAN ELEMENT CRITERIA IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity.
		RIPARIAN ELEMENT CRITERIA TEXT	character	200	Yes		The text that describes factors that are used to determine if an element is functioning or not for a given reach or site.
		RIPARIAN ELEMENT IDENTIFIER	integer		Yes	FK	The designed primary key that will uniquely identify a single occurrence of the entity.
RIPARIAN ELEMENT FOCUS REFERENCE							DRAFT ENTITY
	The domain of values that categorizes an element in the riparian assessment.						
		RIPARIAN ELEMENT FOCUS NAME	character	20	Yes	PK	The name of the category to which a riparian element is designated. Domain values: HYDROLOGY, VEGETATION, EROSION/DEPOSITION
RIPARIAN ELEMENT REFERENCE							DRAFT ENTITY

Entity Name	Entity Definition	Attribute Name	Type	Size	Re-quired?	Key*	Attribute Definition
	An item that is evaluated during a riparian assessment. These elements are designed to address the common attributes and processes that have to be in working order for a riparian-wetland area to function proper.						
		RIPARIAN ELEMENT IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity.
		RIPARIAN ELEMENT PURPOSE TEXT	character	400	Yes		The text that describes the purpose for a riparian element.
		RIPARIAN ELEMENT LANGUAGE TEXT	character	200	Yes		The text that provides the specific standard language for a riparian element.
		RIPARIAN ELEMENT FOCUS NAME	character	20	Yes	FK	The name of the category to which a riparian standard is designated. Domain values: HYDROLOGY, VEGETATION, EROSION/DEPOSITION.
RIPARIAN EXTERNAL FACTOR REFERENCE							DRAFT ENTITY
	The domain of values for the external factors outside the control of management, that contributes to an unacceptable condition of a riparian area.						
		RIPARIAN EXTERNAL FACTOR NAME	character	40	Yes	PK	The name of the external factor that contributes to an unacceptable condition of a riparian area.
SPECIES ENVIRONMENT MODE REFERENCE							CONCEPTUAL ENTITY
	The identification of whether or not an organism is adaptable to one or more environments.						
		SPECIES ENVIRONMENT MODE NAME	character	15	Yes	PK	The name that designates if an organism can survive in one or more types of environments. Valid values: obligate, facultative.
WATER SUBSYSTEM REFERENCE							DRAFT ENTITY
	The domain of values for the type of riparian system classification for moving (rivers, streams) or still water (lakes, ponds).						
		WATER SUBSYSTEM TYPE NAME	character	6	Yes	PK	The name that indicates whether or not the water is flowing (lotic) or still (lentic).
		ECOSYSTEM TYPE NAME	character	20	Yes	FK	The name the ecosystem unit of interdependent organisms which share the same habitat. Valid values include: riparian, wetland, upland.
						***Key**	**(PK: Primary Key) (FK: Foreign Key which is PK of related entity) (PK, FK: Foreign Key part of PK)**

The following entities shown on the logical data model are not part of this standard but are here for informational purposes.

Entity Name	Entity Definition	Attribute Name	Type	Size	Re-quired?	Key*	Attribute Definition
RIPARIAN WETLAND AQUATIC LOCATION							DRAFT ENTITY
	The site or reach segment that was identified through analysis of the area and using other criteria. The land areas and water segments can be delineated into units (lines and polygons) that share a common set of attributes and processes.						
		AQUATIC RESOUCE LOCATION IDENTIFICATION DATE	date		Yes		The date on which an aquatic resource location was identified based on analysis of the area and other criteria.
		AQUATIC RESOUCE LOCAL WATERBODY NAME	character	40	Opt		The name of the local stream, lake, pond, river or other water body.
		AQUATIC RESOUCE LOCATION ACCESS TEXT	character	400	Opt		The text that describes how an aquatic resource location can be found and/or accessed.
		AQUATIC RESOUCE LOCATION LOCAL IDENTIFIER	character	15	Opt		The identifier that was used locally for the aquatic resource.
		AQUATIC RESOUCE LOCATION DETERMINATION TEXT	character	400	Yes		The text that describes how a reach segment or site was determined.
		ORGANIZATION IDENTIFIER	integer		Yes	FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		RIPARIAN WETLAND AQUATIC LOCATION IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity.
		PARTY IDENTIFIER	integer		Yes	FK	The designed primary key that will uniquely identify a single occurrence of the entity.
ECOSYSTEM REFERENCE							CONCEPTUAL ENTITY
	An ecosystem is a natural unit consisting of all plants, animals and micro-organisms (biotic factors) in an area functioning together with all of the physical (abiotic) factors of the environment. An ecosystem is a unit of interdependent organisms which share the same habitat.						
		ECOSYSTEM TYPE NAME	character	20	Yes	PK	The name the ecosystem unit of interdependent organisms which share the same habitat. Valid values include: riparian, wetland, upland.
IMAGE							DRAFT ENTITY

Entity Name	Entity Definition	Attribute Name	Type	Size	Re-quired?	Key*	Attribute Definition
An image is created by light falling on a light-sensitive surface, using some type of imaging equipment.							
		IMAGE TYPE NAME	character	10	Yes		The name that indicates the category of image including aerial, ground, underwater.
		IMAGE TAKEN TIME	time		Yes		The time at which an image is taken.
		IMAGE IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity.
		IMAGE TAKEN DATE	date		Yes		The date on which the image was taken.
		IMAGE MEDIUM FRAME NUMBER	number	5	Yes		The number for a frame on the image medium. Photos are numbered consecutively to the last frame.
		IMAGE EXPOSURE SECONDS MEASURE	decimal		Yes		The measure, in seconds for how long an image frame is exposed.
		INDIVIDUAL IDENTIFIER	integer		Opt	FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		IMAGE MEDIUM IDENTIFIER	integer		Yes	FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		IMAGEIC EQUIPMENT SET IDENTIFIER	integer		Yes	FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		LOCATION IDENTIFIER	integer		Yes	FK	The designed primary key that will uniquely identify a single occurrence of the entity.
INDIVIDUAL							DRAFT ENTITY
An Individual who is involved with, or has a relationship with the government or service provided by the government.							
		PARTY IDENTIFIER	integer		Yes	FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		INDIVIDUAL IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity.
LAND HEALTH LOCATION AREA							DRAFT ENTITY
The specific polygon and its acres, or specific line and its miles, that are assigned a land health reporting category.							
		LAND HEALTH LOCATION AREA IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity.

Entity Name	Entity Definition	Attribute Name	Type	Size	Re-quired?	Key*	Attribute Definition
		LOCATION IDENTIFIER	integer		Yes	FK	The unique system generated number that identifies a single occurrence of the entity.
		LAND HEALTH EVALUATION AREA IDENTIFIER	integer		Yes	FK	The designed primary key that will uniquely identify a single occurrence of the entity.
LAND HEALTH LOCATION STANDARD							DRAFT ENTITY
	The specific standard that is applied to a Land Health Location.						
		LAND HEALTH STANDARD NUMBER	character	2	Yes	PK, FK	The number assigned by the state or Resource Advisory Council Area to the land health standard.
		LAND HEALTH STANDARD SET IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		LAND HEALTH LOCATION AREA IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
LOCATION							DRAFT ENTITY
	A defined place that requires a way to locate it by some means. Note: Entities linked to Location have the potential for a geospatial aspect.						
		LOCATION ARCHIVE DATE	date		Opt		The date which is the calendar year, month, and day when the position of the Location is considered no longer valid but has historical value.
		LOCATION EFFECTIVE DATE	date		Yes		The date which is the calendar year, month, and day when the position of the Location was produced.
		LOCATION IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity.
PLANT SPECIES							DRAFT ENTITY
	An organism of the vegetable kingdom having cellulous cell walls, growing by synthesis of inorganic substances and lacking the power of locomotion. (Webster's).. A species in the plant (including algae and fungus) kingdom with specific information about a plant of interest to the BLM.						
		SPECIES IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.

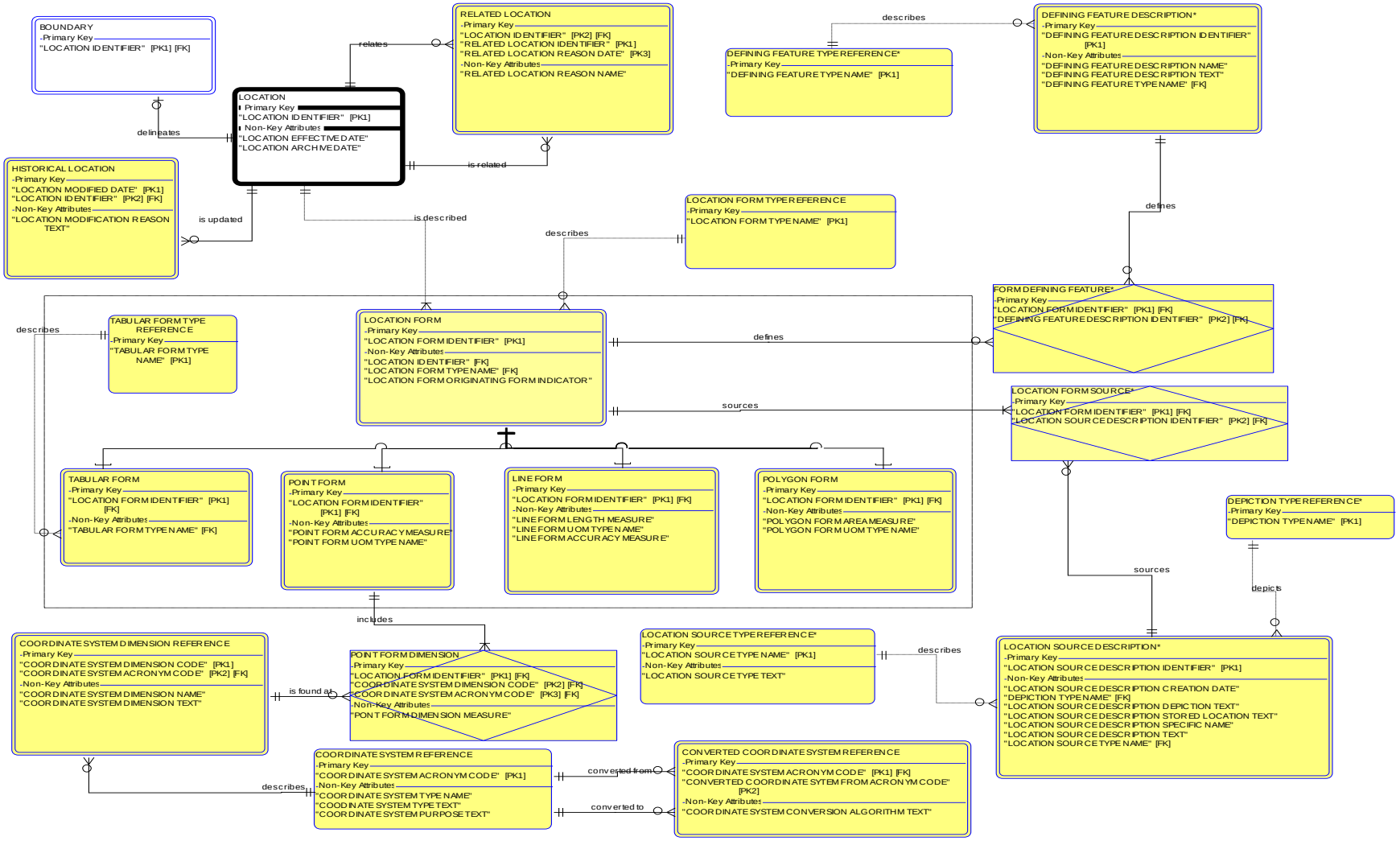
Entity Name	Entity Definition	Attribute Name	Type	Size	Re-quired?	Key*	Attribute Definition
		PLANT LIFE CYCLE NAME	character	30	Yes	FK	The time required for the plant to complete its life cycle, which consists of germination, vegetative growth, flowering, and seed production. Examples: Annual, Biennial, Perennial
RELATED IMAGE LOCATION An image or photograph location that is linked to another location.							CONCEPTUAL ENTITY
		LOCATION IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		RELATED LOCATION IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity. The first location that has a relationship with another location.
		RELATED LOCATION REASON DATE	date		Yes	PK, FK	The date when two locations became related for the reason stated.
RELATED LOCATION A valid relationship between two LOCATIONs for a specific reason.							DRAFT ENTITY
		RELATED LOCATION IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity. The first location that has a relationship with another location.
		RELATED LOCATION REASON NAME	character	40	Yes		The name that indicates the reason why two locations are related. Possible values: multi-part polygon, polygon lines, overlapping polygons.
		RELATED LOCATION REASON DATE	date		Yes	PK	The date when two locations became related for the reason stated.
		LOCATION IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
RIPARIAN LOCATION A riparian wetland aquatic location that is identified as a riparian site or reach segment.							DRAFT ENTITY
		RIPARIAN WETLAND AQUATIC LOCATION IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity.

Entity Name	Entity Definition	Attribute Name	Type	Size	Re-quired?	Key*	Attribute Definition
		RIPARIAN LOCATION NONRIPARIAN INDICATOR	character	3	Yes		An indicator that designates if this was determined not to be a riparian area.
		RIPARIAN LOCATION POTENTIAL REFERENCE CODE	character	10	Yes		A code that indicates if this site or reach can be used as a reference site.
		RIPARIAN LOCATION POTENTIAL REFERENCE TEXT	character	100	Opt		The text that provides the rationale for why this reach or site can be used as a reference site.
SPECIES							DRAFT ENTITY
	A species in one of the four kingdoms of living organisms of interest to the BLM. The species name is a concatenation of the Species Genus Name and then the Species Epithet Name.						
		SPECIES IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity.
		SPECIES SCIENTIFIC AUTHORITY NAME	character	100	Opt		The name of the individual who classified the species or agent and assigns the Scientific name (NAWMA). (Comment: the name is the last name or an accepted abbreviation from a published reference).
		SPECIES SCIENTIFIC NAME CODE	character	10	Opt		The code of 3-10 digits for the scientific names. Plant codes are a useful, short cut method for recording plant names in the field. Business rule: BLM uses the NRCS database.
		SPECIES TAXONOMY NAME	character	40	Yes	FK	The name which is the taxonomic Latin name assigned to a specific item for that level of the species taxonomy. i.e. Plant would be valid for kingdom.
		SPECIES EXTINCTION CODE	character	10	Yes		A code that designates if the species is extinct or not.
SPECIES COMMON NAME							DRAFT ENTITY
	The English or Spanish name for the species, used in conversation. The common names are easy to pronounce and remember. Unfortunately, there is no consistency in common names and there may be several regional names for the same species Conversely, the same name may refer to several different species (NAWMA).						

Entity Name	Entity Definition	Attribute Name	Type	Size	Re-quired?	Key*	Attribute Definition
		SPECIES COMMON NAME	character	40	Yes	PK	The name or familiar term used to describe the species which is used and known in a local area or region. There may be more than one common term for a species and a common term may be used for more than one species.
		SPECIES IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		SPECIES COMMON NAME AREA TEXT	character	50	Yes		The text that describes the region where this common name is typically used (region, district, local area).
SPECIES MANAGEMENT STATUS A special designation given to a species in a given location given by a jurisdiction for a management purpose.							DRAFT ENTITY
		PARTY IDENTIFIER	integer		Yes		The unique system generated number that identifies a single occurrence of the entity.
		Role Name	character	20	Yes		The name of the role that the party (person or organization) plays in relationship to another entity or function.
		SPECIES IDENTIFIER	integer		Yes	PK, FK	The unique system generated number that identifies a single occurrence of the entity.
		SPECIES MANAGEMENT STATUS CATEGORY NAME	character	50	Yes		The name of the legal or administrative designations by specific government jurisdictions that have the authority to list a species for special management purposes. Examples: Endangered Species, (Threatened and endangered, Proposed as Threatened) Special Status Species (Invasive Species, Noxious Weed, Restricted Weed, Weed, Crop, BLM Sensitive, Candidate). Ref BLM 6840.
		SPECIES PRIORITY RANKING NAME	character	20	Opt		A name that designates the ranking of noxious and/or invasive weeds by a Jurisdictional Organization. Examples: County, State, Federal, BLM listed invasive or noxious weeds.
		LOCATION IDENTIFIER	integer		Yes	FK	The designed primary key that will uniquely identify a single occurrence of the entity.

Location Logical Data Model

Data Model that provides information on standard attributes for feature level metadata. It is ***not part of this data standard*** *and does not need to be reviewed for the data standard, merely provides more information and relationships.*



Legend: See Appendix C

Entity Name	Entity Description	Logical Data Element Name	Type	Size	Req'd?	Key*	Definition
BOUNDARY	The edge of a location that demarks the change from one location to another location.						DRAFT ENTITY
		LOCATION IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity.
CONVERTED COORDINATE SYSTEM REFERENCE	The domain of values for the algorithm used to convert from one coordinate system to another.						DRAFT ENTITY
		COORDINATE SYSTEM CONVERSION ALGORITHM TEXT	character	60	Yes		The text that contains the algorithm used to convert from one coordinate system to another.
		COORDINATE SYSTEM ACRONYM CODE	character	10	Yes	PK, FK	The code that is considered the acronym for the coordinate system type.
		CONVERTED COORDINATE SYSTEM FROM ACRONYM CODE	character	10	Yes	PK	The code for the coordinate system that is being converted from (to another coordinate system).
COORDINATE SYSTEM DIMENSION REFERENCE	The dimensions that are part of given coordinate system type.						DRAFT ENTITY
		COORDINATE SYSTEM DIMENSION TEXT	character	100	Yes		The text that further describes the dimension for a given coordinate system type.
		COORDINATE SYSTEM DIMENSION CODE	character	10	Yes	PK	The code that is used to designate a dimension for a coordinate system type.
		COORDINATE SYSTEM DIMENSION NAME	character	10	Yes		The name associated with a code that is used to designate a dimension for a coordinate system type.
		COORDINATE SYSTEM ACRONYM CODE	character	10	Yes	PK, FK	The code that is considered the acronym for the coordinate system type.
COORDINATE SYSTEM REFERENCE	A reference framework consisting of a set of points, lines and/or surfaces; including a set of rules used to define the positions of points in space in either two or three dimensions.						DRAFT ENTITY
		COODINATE SYSTEM TYPE TEXT	character	100	Yes		The text that describes the particular coordinate system type.
		COORDINATE SYSTEM TYPE NAME	character	40	Yes		The name given to a particular coordinate system type.
		COORDINATE SYSTEM ACRONYM CODE	character	10	Yes	PK	The code that is considered the acronym for the coordinate system type.
		COORDINATE SYSTEM PURPOSE TEXT	character	100	Yes		The text that describes the purpose or purposes of a given coordinate system type.
DEFINING FEATURE DESCRIPTION*	The values associated with second level of detail that can be used to define / create the location, based on the Defining Feature Type Name. There is not a finite set of values for this.						APPROVED ENTITY: BLM
		DEFINING FEATURE DESCRIPTION NAME	character	40	Opt		The name that identifies a more specific description of the feature from which the arcs are derived to create polygon boundaries. This information further describes the physical or mapping feature that makes up the polygon boundary.
		DEFINING FEATURE DESCRIPTION TEXT	character	200	Yes		The text that provides further details on the Defining Feature Description.

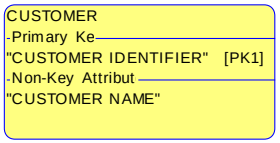
Entity Name	Entity Description	Logical Data Element Name	Type	Size	Req'd?	Key*	Definition
		DEFINING FEATURE DESCRIPTION IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity.
		DEFINING FEATURE TYPE NAME	character	30	Yes		The name that identifies the high-level category for the actual physical or mapping characteristics (features) from which the arcs are derived.
DEFINING FEATURE TYPE REFERENCE*							APPROVED ENTITY: BLM
A domain for the description of the characteristic (feature) constructed from a geographic feature that was used to create the location boundary.							
		DEFINING FEATURE TYPE NAME	character	30	Yes	PK	The name that identifies the high-level category for the actual physical or mapping characteristics (features) from which the arcs are derived.
DEPICTION TYPE REFERENCE*							APPROVED ENTITY: BLM
The domain of values for the way a location is depicted either in scale or resolution.							
		DEPICTION TYPE NAME	character	10	Yes	PK	The name that designates the detail with which the location is depicted, either in resolution or scale.
FORM DEFINING FEATURE*							APPROVED ENTITY: BLM
The defining features associated with a specific location form.							
		LOCATION FORM IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		DEFINING FEATURE DESCRIPTION IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
HISTORICAL LOCATION							DRAFT ENTITY
The date and reason why a location's information has changed. Business Rule: this is for administrative changes, not necessarily for corrections to data.							
		LOCATION MODIFICATION REASON TEXT	character	200	Yes		The text which is the explanation for why data about a location has changed for administrative reasons.
		LOCATION MODIFIED DATE	date		Yes	PK	The date which is the calendar year, month, and day when the position of the Location was last modified.
		LOCATION IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
LINE FORM							DRAFT ENTITY
A series of connected, co-ordinate points forming a simple linear feature. It is used to represent rivers, and roads, or to form the boundary of polygons. (GIS dictionary) Note: In our current physical environment this includes all types of straight and curved lines including ones that intersection.							
		LOCATION FORM IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		LINE FORM LENGTH MEASURE	decimal		Yes		The measure of the length of the line described in the Line Form UOM Type Name.
		LINE FORM UOM TYPE NAME	character	20	Yes		The domain value associated with the Unit of Measure used for the Line Form Length Measure.
		LINE FORM ACCURACY MEASURE	decimal		Yes		The measure that describes how close, in Line Form UOM Type Name the actual location is to the spatial depiction.
LOCATION							DRAFT ENTITY

Entity Name	Entity Description	Logical Data Element Name	Type	Size	Req'd?	Key*	Definition
	A defined place that requires a way to locate it by some means. Note: Entities linked to Location have the potential for a geospatial aspect.						
		LOCATION ARCHIVE DATE	date		Opt		The date which is the calendar year, month, and day when the position of the Location is considered no longer valid but has historical value.
		LOCATION EFFECTIVE DATE	date		Yes		The date which is the calendar year, month, and day when the position of the Location was produced.
		LOCATION IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity.
LOCATION FORM	The form in which the location is described such as the description, shape, or appearance of the location.						DRAFT ENTITY
		LOCATION FORM IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity.
		LOCATION IDENTIFIER	integer		Yes	FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		LOCATION FORM TYPE NAME	character	10	Yes	FK	The type of form in which the location is described or appears. point, line, polygon, tabular.
		LOCATION FORM ORIGINATING FORM INDICATOR	character	3	Yes		The value that indicates if this is the way in which the location was first drawn/described. (yes, no)
LOCATION FORM SOURCE*	The actual origin of the location sources that were used to create a specific location form.						APPROVED ENTITY: BLM
		LOCATION FORM IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		LOCATION SOURCE DESCRIPTION IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
LOCATION FORM TYPE REFERENCE	The domain for the type of form in which the location is described or appears whether in words, numbers of features (point line, polygon). This has been called feature in geospatial communities.						DRAFT ENTITY
		LOCATION FORM TYPE NAME	character	10	Yes	PK	The type of form in which the location is described or appears. point, line, polygon, tabular.
LOCATION SOURCE DESCRIPTION*	The values that provide a second level of detail about the location (coordinate) source origin. Note: there is not a finite set of these values.						APPROVED ENTITY: BLM
		LOCATION SOURCE DESCRIPTION CREATION DATE	date		Yes		The date on which the location source was originally created. This could just be a year (ccyy).
		LOCATION SOURCE DESCRIPTION STORED LOCATION TEXT	character	100	Yes		The text that provides the additional description of where the coordinate source can be found.
		LOCATION SOURCE DESCRIPTION DEPICTION TEXT	character	20	Yes		The text that describes the actual resolution or scale in which the location is depicted. Examples for Resolution: 1 meter, 10 feet. Examples for Scale: 1 in 10,000, 1 in 100. This does not have a domain or list of valid values.
		DEPICTION TYPE NAME	character	10	Yes	FK	The name that designates the detail with which the location is depicted, either in resolution or scale.

Entity Name	Entity Description	Logical Data Element Name	Type	Size	Req'd?	Key*	Definition
		LOCATION SOURCE DESCRIPTION IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity.
		LOCATION SOURCE DESCRIPTION TEXT	character	200	Yes		The text that provides further details on the Location (coordinate) Source Description.
		LOCATION SOURCE DESCRIPTION SPECIFIC NAME	character	40	Opt		The name that identifies a more specific description of the location (coordinate source).
		LOCATION SOURCE TYPE NAME	character	40	Yes	FK	The name that identifies the general category for the origin of the location coordinate, representing a compilation of the state adopted source codes. The domain contains those values that would most likely be used in the determination of source codes for the data set.
LOCATION SOURCE TYPE REFERENCE* The domain for the types of sources for the original location description / form.							APPROVED ENTITY: BLM
		LOCATION SOURCE TYPE NAME	character	40	Yes	PK	The name that identifies the general category for the origin of the location coordinate, representing a compilation of the state adopted source codes. The domain contains those values that would most likely be used in the determination of source codes for the data set.
		LOCATION SOURCE TYPE TEXT	character	100	Yes		The text that describes the Location Source Type.
POINT FORM A zero-dimensional abstraction of an object, with its location specified by a set of coordinates. (GIS dictionary)							DRAFT ENTITY
		LOCATION FORM IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		POINT FORM ACCURACY MEASURE	decimal		Yes		The measure that describes how close the spatial depiction of the point is to the actual location.
		POINT FORM UOM TYPE NAME	character	20	Yes		The name of the domain value associated with the Unit of Measure used for the Point Form Accuracy Measure.
POINT FORM DIMENSION The measure associated with each dimension of a Coordinate System.							DRAFT ENTITY
		PONT FORM DIMENSION MEASURE	decimal		Yes		The measure that is associated with a specific coordinate system dimension.
		LOCATION FORM IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		COORDINATE SYSTEM DIMENSION CODE	character	10	Yes	PK, FK	The code that is used to designate a dimension for a coordinate system type.
		COORDINATE SYSTEM ACRONYM CODE	character	10	Yes	PK, FK	The code that is considered the acronym for the coordinate system type.
POLYGON FORM An area bounded by a closed line. It is used to describe spatial elements, such as administrative and political boundaries and areas of homogeneous land use and soil types. (GIS dictionary). Note: In our physical environment, this includes all types of polygons, including ones that overlap.							DRAFT ENTITY
		LOCATION FORM IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity.

Entity Name	Entity Description	Logical Data Element Name	Type	Size	Req'd?	Key*	Definition
		POLYGON FORM UOM TYPE NAME	character	20	Yes		The name of the domain value associated with the Unit of Measure used for the Polygon Form Length Measure.
		POLYGON FORM AREA MEASURE	decimal		Yes		The area of the polygon described in the Polygon Form UOM Type Name.
RELATED LOCATION A valid relationship between two LOCATIONs for a specific reason.							DRAFT ENTITY
		RELATED LOCATION IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity. The first location that has a relationship with another location.
		RELATED LOCATION REASON NAME	character	40	Yes		The name that indicates the reason why two locations are related. Possible values: multi-part polygon, polygon lines, overlapping polygons.
		RELATED LOCATION REASON DATE	date		Yes	PK	The date when two locations became related for the reason stated.
		LOCATION IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
TABULAR FORM Descriptive information about a location, usually alphanumeric. This can be a single name or a combination of attributes that make up an address.							DRAFT ENTITY
		LOCATION FORM IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		TABULAR FORM TYPE NAME	character	20	Yes	FK	The name of the sub-category of the location form type which is true for tabular or alphanumeric descriptions of a location.
TABULAR FORM TYPE REFERENCE The domain for the type of tabular form that is being used to describe the location.							DRAFT ENTITY
		TABULAR FORM TYPE NAME	character	20	Yes	PK	The name of the sub-category of the location form type which is true for tabular or alphanumeric descriptions of a location.
						***Key**	**(PK: Primary Key) (FK: Foreign Key which is PK of related entity) (PK, FK: Foreign Key part of PK)**

APPENDIX C: READING A LOGICAL DATA MODEL

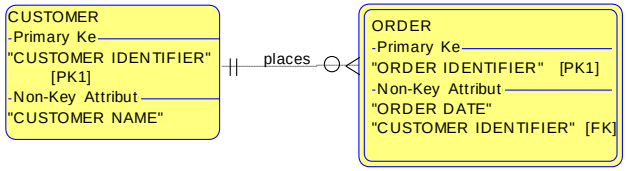


ENTITY

- *The noun or object on something of relevance to the business.*
- *Shown as a box, with the name (singular in capital letters at the top, example below: ORDER).*

ATTRIBUTES

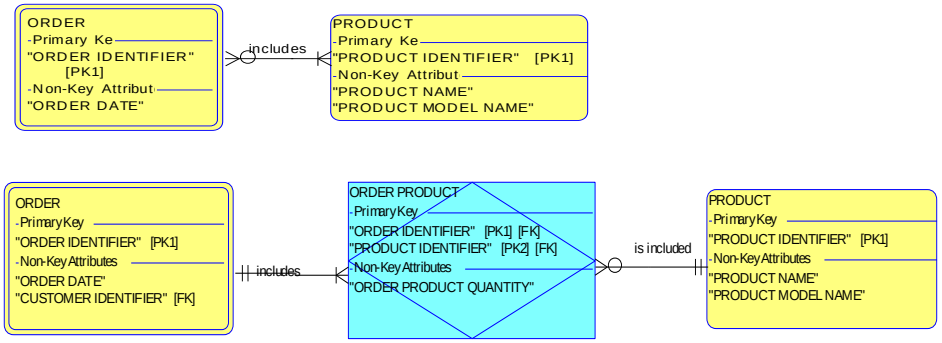
- *The adjective which is the data or information about an entity; describes an entity (ORDER NUMBER, ORDER DATE).*
- *Has **only one** valid value for an occurrence of an entity at any given time. The same value of an attribute may describe more than one entity occurrence.*
- *PK = Primary Key – uniquely identifies an occurrence of an entity (one customer may have same name as another customer, so CUSTOMER IDENTIFIER is unique for a customer).*
- *FK = Foreign Key – the primary key of the parent entity is a Foreign key in the child entity.*
- *The Word Identifier indicates that this will be a designed key, its format is not known, but the modeling tool required a format and size. The actual content and size of the identifier will be determined during design.*



The line includes optionality (minimum occurrences, inner symbol) and cardinality (maximum occurrences, symbol next to entity) | = one 0 = zero < or > = many

RELATIONSHIP

- *The verb which shows an association between entities and represents business rules.*
- *Represented by a line between two entities with active verb or verb phase (all small letters).*
- *Reading: Left to right (A CUSTOMER places zero to many ORDERs) and right to left (An ORDER is placed by one and only one CUSTOMER).*
- *Because a Customer can have many Orders, the Customer is considered the Parent Entity and the Order is considered the Child Entity). So the way you read it is normally from the Parent Entity to the Child Entity.*



Many to Many:

- *In a logical data model, many to many relationships are resolved. In the example to the left an ORDER includes one to many PRODUCTs and a PRODUCT can be in zero or many ORDERs.*

Associative Entity:

- resolves the many to many
- with the diamond symbol