



Grazing Allotments and Pastures

Spatial Data Standard




Cattle grazing east of Steens Mountain. Photo by Greg Shine, BLM, taken on March 28, 2017.



Document Revisions

Revision	Date	Author	Description	Affected Pages
1.0	10/19/1999	Janet Pacioretty	First version.	All
1.0	06/08/2001	Stan Frazier	Updated look and addition of attributes for transactional updates.	All
1.0	6/2/2004	Stan Frazier	Added boundary type LAKE, boundary code CFF. Extended pasture name to 50 characters.	Section A2, 7.11.
1.5	11/21/2011	Pam Keller	Replaced ADMINRA with domain dom_BLM_ORG_CODE. Dropped ADMINST can be derived from ADMINRA. ALLOTNUM and PASTNUM dropped can be derived from the attribute ALTPAST. Renamed dom_MGTCAT to dom_MGMTCAT. Incorporated standalone edit guide into standard.	All
2.0	12/19/2013	Pam Keller	Changes to the data standard with this revision is the addition of attribute GIS_ACRES, two additional Grazing System choices and correction of minor text errors.	Section 7.9
2.3	03/10/2017	Kyler Diershaw	Updated contact information for State Data Steward, Lead GIS Specialist, State Data Administrator, State Records Administrator. Added Document Revision Table.	Section 1.1, 2.5, 4.0, Appendix A This page
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3.2	8/19/19	Al Thompson	Update format and reorganize content to conform to the revised template.	All
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3.5	1/3/2022	Dana Baker-Allum	Corrected errors in the dom_GRAZSYS and dom_MGMTCAT domains.	32-33
4.0	5/2/2024	Dana Baker-Allum, Shelley Moore	Reformatted document to meet Section 508 standards and match the latest data standard template. Updated FOIA category, records retention schedule text, and keywords. Updated architecture diagrams. Added field aliases, edit tracking fields, default values for required fields, and constraint rules. Changed attribute name ADMINRA to standard name: BLM_ORG_CD. Reorganized editing procedures section. Added attribute rules to editing procedures. Changed document cover photo. Added TU to the GRAZSYS domain. Change to data rule: Allotment Name (ALLOTNAME) and Management Category (MGMTCAT). Updated PIA signature date.	All

Navigation

This document is easier to view if the Microsoft Word Navigation pane is displayed (View -> Navigation Pane). If viewing in PDF format, open the document in Acrobat and click the Contents button. 

This document uses hyperlinks to display additional information on topics. External links are displayed with an [underline](#).

Internal links are [blue](#) text, not underlined. After clicking on an internal link, press the Alt  + Left Arrow  keys to return to the original location from the target location.

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1 General Information

This dataset contains livestock grazing allotment and pasture boundaries with associated attributes describing some basic characteristics of the allotments and pastures. Allotments are made up of pastures. The dataset contains pasture boundary polygons, GRA_POLY, and its coincident line pair, GRA_ARC, which contains boundary definition information. The BLM allotments are tied to the 1934 Taylor Grazing Act that set up grazing districts. All BLM lands should have grazing management identified. However, some districts have considerably more rangeland and larger blocks of BLM parcels and some districts have only scattered parcels and a small or nonexistent grazing program. The ALTPAST attribute, the main attribute for GRA_POLY, accommodates these differences. This theme is associated with the Rangeland Administration System (RAS), a national database application for allotment billing.

The relationship of grazing allotments and pastures to fence lines can be confusing. The themes are not identical, but there will be a great deal of coincidence. Pastures (GRA_POLY) are areas (polygons) that keep animals in. Usually, fences (lines) are the physical spatial features that comprise these pasture boundaries, but there may be others like steep terrain or water features. These are defined by attribute DEF_FEATURE of GRA_ARC (line pair to GRA_POLY). Fence lines exist as a separate spatial feature class not described in this standard. While not necessarily identical to the lines in GRA_ARC, there will be a great deal of coincidence and the themes should be maintained together.

This dataset also contains proposed pasture polygons, GRA_P_POLY. During planning activities such as Allotment Management Plan (AMP) or Resource Management Plan (RMP) development, it may be necessary to create and analyze different proposals for allotment and pasture changes. The theme will be highly variable and should be archived with other project/plan specific data at the appropriate decision date. Approved pasture changes are incorporated into GRA_POLY and GRA_ARC.

- Dataset (Theme) Name: Grazing Allotments and Pastures (GRA)
- Dataset (Feature Class): GRA_POLY, GRA_ARC, GRA_P_POLY

1.1 Roles and Responsibilities

Table 1 Roles and Responsibilities

Roles	Responsibilities
State Data Steward	The State Data Steward responsibilities include approving data standards and business rules, developing Quality Assurance/Quality Control procedures, identifying potential Privacy issues, and managing that data as a corporate resource. The State Data Steward coordinates with field office data stewards, the State Data Administrator, Geographic Information System (GIS) coordinators, and national data stewards. The State Data Steward reviews geospatial metadata for completeness and quality.
GIS Technical Lead	The GIS Technical Lead works with data stewards to convert business needs into GIS applications and derive data requirements and participates in the development of data standards. The GIS technical lead coordinates with system administrators and GIS coordinators to manage the GIS databases. The GIS technical lead works with data editors to ensure the consistency and accordance with the established data standards of data input into the enterprise Spatial Database Engine (SDE) geodatabase. The GIS technical lead provides technical assistance and advice on GIS analysis, query, and display of the dataset.
State Data Administrator	The State Data Administrator provides information management leadership, data modeling expertise, and custodianship of the state data models. The State Data

	Administrator ensures compliance with defined processes for development of data standards and metadata, and process consistency and completeness. The State Data Administrator is responsible for making data standards and metadata accessible to all users. The State Data Administrator coordinates with data stewards and GIS coordinators to respond to national spatial data requests.
State FOIA/Privacy Act Team Lead	The State FOIA/Privacy Act team lead assists the state data steward to identify any privacy issues related to spatial data. The State FOIA/Privacy Act team lead also provides direction and guidance on data release, fees, and classification under the appropriate Freedom of Information Act exemption.
State Records Administrator	The state records administrator classifies data under the proper records retention schedule.

1.2 FOIA Category

These data fall under the standard Records Access Category 1B - BLM Records that may contain protected information that must be considered for segregation prior to release. See section 8 for more information on which data are available to the public.

1.3 Records Retention Schedule

The DRS/GRS/BLM Combined Records Schedule, under Schedule **20/52a2** (Electronic Records/Geographic Information Systems), lists this theme, **Grazing Allotments and Pastures**, as one of the system-centric themes that are significant for BLM's mission that must be permanently retained.

"PERMANENT. Cutoff at the end of each Fiscal Year (FY) or when significant changes and additions have been made, before and after the change. Use BLM 20/52a. Transfer to the National Archives every three years after cutoff. Under the instruction in 36 CFR 1235.44-50 or whichever guidance is in place at the time of the transfer. Submissions are full datasets and are in addition to, not replacements of, earlier submissions."

Oregon/Washington (OR/WA) Bureau of Land Management (BLM) Guidebook for Management of Geospatial Data (v1) Section 15.2 - Corporate Data Online Archives prescribes:

Vector annual archives are retained online for 12 years. Each year, data that has reached 12 years old is copied off-line to be retained until no longer needed (determined by data stewards and program leads) with format and readability maintained in a five (5) year "tech refresh" update cycle."

1.4 Security/Access/Sensitivity

The GRA theme does not require any additional security other than that provided by the General Support System (the hardware/software infrastructure of the OR/WA BLM).

This dataset is not sensitive and there are no restrictions on access to this data, either from within the BLM or external to the BLM.

There are no privacy issues or concerns associated with these data themes. A privacy impact assessment was signed for this dataset on 4/29/2024.

1.5 Keywords

Keywords that can be used to locate this dataset include:

- BLM Thesaurus: Range
- Additional keywords: Grazing, Allotments, Pastures, GRA
- ISO Thesaurus: boundaries, farming

1.6 Subject Function Codes

BLM Subject Function codes used to describe this dataset include:

- 1283 - Data Administration
- 4120 - Grazing Management
- 9167 - Geographic Information System (GIS)

2 Dataset Overview

2.1 Usage

This dataset is used for depicting grazing allotments and pastures on maps. Pasture boundaries are dissolved to form allotment boundaries (see Layer Files section). The grazing allotment and pasture dataset is one of the most important datasets to BLM business, and it is also used in most National Environmental Policy Act planning, and other resource analysis. Resource specialists involved in administration of livestock grazing programs use this dataset. Use the GRAZSYS attribute to select areas available or not available for livestock grazing.

2.2 Sponsor/Affected Parties

The sponsor for this dataset is the Deputy State Director, Division of Resources, Lands, and Minerals.

Other Government agencies, private corporations, and individuals are affected by changes in grazing allotment boundaries. Matching allotment boundaries across BLM districts and states is important. The United States Forest Service also administers grazing allotments, and it is important to match across agency jurisdictions.

2.3 Relationship to Other Datasets, Databases, or Files

The national Rangeland Administration System Reports (RAS) database is closely associated with this dataset. A download from RAS is acquired on a nightly basis and made available for use with the spatial data. The RAS tables provide attribute information related to grazing preference (amount of grazing authorized in the allotment), permit expiration date, preference code (section 3 or section 15), and a few other, related data items.

The ALTPAST concatenated with ADMINST is unique in RAS. There may be more than one polygon in GRA with the same ALTPAST. Not all allotments and pastures are included in RAS.

Two RAS tables are updated into the enterprise geodatabase nightly. All OR/WA allotments are included in the extract. The specific RAS fields include:

- Table 1 – OSODBA.RAS_PASTURE:
 - ALLOT_NO (Allotment Number)
 - ALLOT_NAME (Allotment Name)
 - MANAGEMENT (Management Category)
 - PAST_NO (Pasture Number)
 - PAST_NAME (Pasture Name)
 - ALTPAST (Allotment/Pasture Identifier)
 - OFFICE_CODE (Office Code)
 - FBMS_ORG_CODES (FBMS Organization Code)
- Table 2 – OSODBA.RAS_AUTH:
 - ALLOT_NO (Allotment Number)
 - AMP_IMPLM (Allotment Management Plan Implementation Date)
 - AUTH_NUM (Authorization Number)
 - PREFERENCE (Preference Code) - Section 3 – permit, Section 15 - lease)
 - PERMIT_EXP (Permit Expiration Date)
 - ACTIVE_AUMS (Active Animal Unit Month)

- TOTAL_ALLOT_AUM (Total Animal Unit Month)
- FBMS_ORG_CODES (FBMS Organization Code)

The ALTPAST link field is added to the RAS Pasture table by concatenating the allotment number (ALLOT_NO) and the pasture number (PAST_NO). The RAS pasture table (RAS_PASTURE) can then be joined to GRA, and used for checking the corresponding attributes (ALLOTNAME, PASTNAME, MGMTCAT and BLM_ORG_CD) and making the necessary corrections to either GRA or RAS.

The RAS Authorization table has additional attributes, not found in GRA that have meaning at the allotment level. There may be one or many authorizations (permit/permittees) per allotment, each with a different permit expiration date, and Grazing Animal Unit Month (AUMs). An integer field, TOTAL_ALLOT_AUMS, is added to the table, and filled with the sum of the individual permit AUMs per allotment. When GRA is dissolved to form Allotments (see below), the RAS Authorization table can be related to Allotments and/or the single field TOTAL_ALLOT_AUMS can be joined.

2.4 Data Category/Architecture Link

This data theme is a portion of the Oregon Data Framework (ODF) shown in Figure 1, Oregon Data Framework (ODF) Overview on page 9. The illustration is a simplified schematic of the entire ODF showing the overall organization and entity inheritance. The ODF utilizes the concept of inheritance to define specific instances of data. The ODF divides all OR/WA resource-related data into three general categories:

- Activities
- Resources
- Boundaries

These general categories are broken into sub-categories that inherit spatial characteristics and attributes from their parent category. These sub-categories may be further broken into more specific groups until the basic data set cannot be further sub-divided. Those basic data sets inherit all characteristics of all groups/categories above them. The basic data sets are where physical data gets populated. Those groups/categories above them do not contain actual data but set parameters which all data of that type must follow.

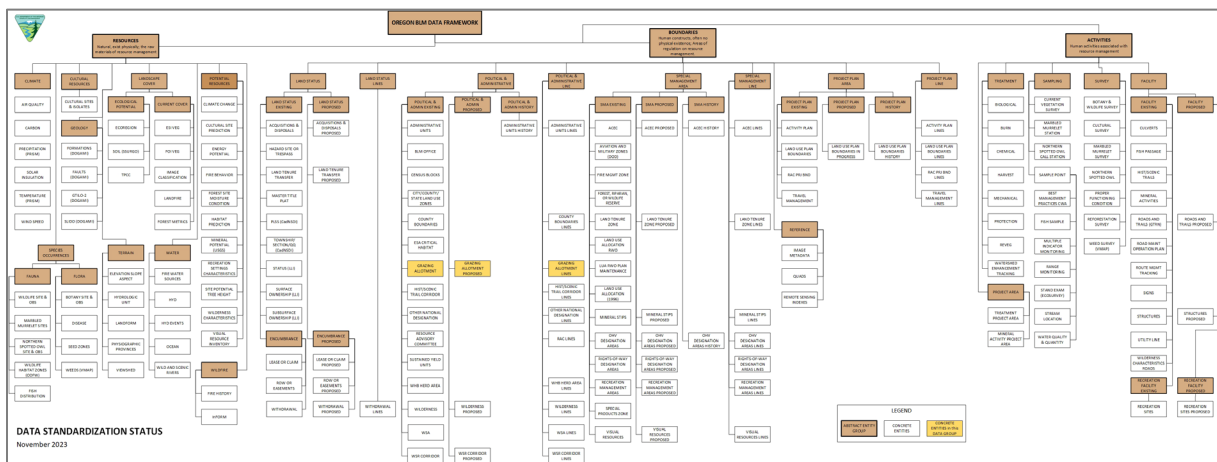


Figure 1 Oregon Data Framework Overview

For an easier to view version of the Oregon Data Framework diagram, go to: https://gis.blm.gov/ORDownload/DataFramework/BLM_ODF_Model_Mini_Status.pdf.

Physical data is populated in the basic data sets. Those groups/categories above them do not contain actual data but set parameters that all data of that type must follow. See Figure 2, Data Organization Structure for a simplified schematic of the entire ODF showing the overall organization and entity inheritance. The GRA entities are highlighted. For additional information about the ODF, contact the [State Data Administrator](#). The State Data Administrator's contact information can be found at the following link: <https://www.blm.gov/about/data/oregon-data-management>.

In the ODF, GRA is considered a Boundary and categorized as follows:

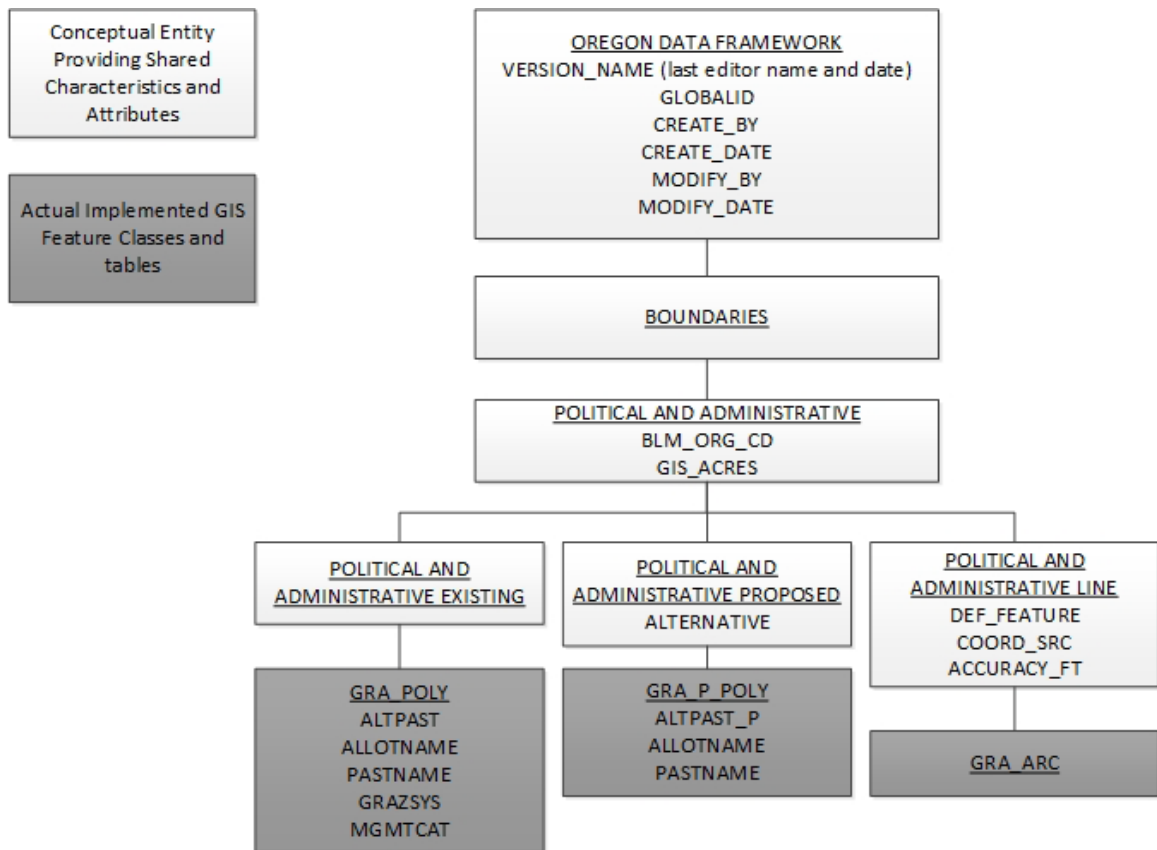


Figure 2 Data Organization Structure

2.5 Relationship to DOI Enterprise Architecture Data Resource Mode

The Department of the Interior (DOI) Enterprise Architecture contains a component called the Data Resource Model. This model addresses the concepts of data sharing, data description, and data context. This data standard provides information needed to address each of those areas. Data sharing is addressed through complete documentation and simple data structures which make sharing easier. Data description is addressed through the section on Attribute Descriptions. Data context is addressed through the data organization and structure portions of this document. In addition, the DOI Data Resource Model categorizes data by use of standardized Data Subject Areas and Information Classes. For this data set, the Data Subject Area and Information Class are:

- Data Subject Area: Geospatial
- Information Class: Location

3 Data Management Protocols

3.1 Accuracy Requirements

Positional accuracy is important for the GRA theme. The COORD_SRC and ACCURACY_FT fields contain feature level accuracy information stratified by input method and absolute accuracy (how close, in +/- feet), the GIS mapped feature is to the actual ground feature. This flags the less accurate lines for replacement when possible. Use Global Positioning System (GPS) to locate fence lines accurately.

3.2 Collection, Input, and Maintenance Protocols

The District Data Steward will develop standard field data collection methods, and work with the GIS Coordinator to develop corresponding standard GIS input methods. The most common methods of allotment and pasture line capture are:

- Manuscript the lines onto United States Geological Survey quad maps and digitize.
- Collect the pasture boundaries (fences) in the field with a GPS device and input the GPS coordinates into GIS.
- Use orthophotos as a backdrop for on-screen digitizing.
- Import Digital Line Graph (DLG) fence lines, roads, and other existing data.

There are many sources for GRA lines because of the nature of pastures. A pasture is an area that keeps animals in. The boundaries of the pasture might include fences, roads, rivers, or steep terrain. It is important to know what type of boundary each GIS line segment represents so that appropriate existing data can be brought in rather than digitizing new data. The DEF_FEATURE field within the line attribute table contains this information and is the main attribute for GRA_ARC. A pervasive problem with GRA lines is the large degree of coincidence with subdivision lines. Constructed fences that were intended to follow ownership are often slightly off. To avoid creating a huge number of sliver areas when the GRA theme is combined with the ownership theme, it is recommended that the district data steward and GIS coordinator decide on a minimum distance under which coincidence will be forced for mapped fences. For example, if the mapped fence line is within 100 feet of the subdivision line it is intended to follow, use the subdivision line not the mapped line. If the fence line is collected by GPS, then the GPS line is used. In all three cases, DEF_FEATURE is "FENCE," but the fence line collected by GPS has COORD_SRC of "GPS," the mapped fence will be "DOQ," or "DRG," or "MAP," and the online fence will be "SUBDIVISION."

The main attribute for GRA_POLY is ALTPAST, and a good understanding of the possible values is critical. The GRA theme is a wall-to-wall polygon theme. This means that every acre of ground within a district needs to have a GRA label. There are many potentially confusing terms used to describe areas not under BLM grazing management (not allocated, unallotted, excluded, custodial, etc.), and it is important to understand the choices and differences. The ALTPAST field and dependent field GRAZSYS field contain this information.

It is highly recommended that source maps be maintained for each 7.5-minute (1:24000) quad on the district. The reference maps are used to show changes to the allotment, pasture boundaries, and names over time.

Allotment boundaries are specified by Range Line Agreements (RLA) and should not be changed without amending the RLA. Interior pasture boundaries are more flexible and can be modified to reflect changes in fences or better data without formal documentation beyond theme metadata. Significant changes to pastures that are not reflected in the current Land Use Plan (LUP) should be documented with a LUP Maintenance Sheet. The GIS editors and Data Stewards need to coordinate with neighboring districts where allotments cross district lines.

Possible maintenance includes:

- Replace lines with better digital versions of the pasture definitions (e.g., a fence replacing a parcel line, or a fence line collected by GPS replacing a manuscripted fence).
- Pastures split or merged.

- New or changed pasture or allotment boundaries.
- Review of DEF_FEATURE to determine if improvement can be made (e.g., Can an "UNKNOWN" be replaced by "FENCE").

It is also the responsibility of the data stewards to work with the GIS editors to ensure that any database external to the GIS (especially the RAS) be kept current and consistent with GRA.

3.3 Update Frequency and Archival Protocols

Once the GRA theme has been created for a district, it is the responsibility of the district data steward to ensure that the theme remains current. Bringing the theme up to a current level should take place at least once per year and probably more frequently.

In addition to annual archival, GRA should be archived at RMP, AMP, and other major plan Record of Decision dates.

3.4 Statewide Monitoring

The state data stewards are responsible for checking consistency across districts for the theme(s) that are relevant to their programs. The state data stewards are responsible for coordinating the response to national BLM and interagency data calls for GRA data.

A key item to be reviewed is consistency between districts in attributing and using the same GRAZSYS values to mean the same thing. Additional guidance for labeling may need to be developed. Consistency in minimum pasture size is another suggested check. Enclosures can be very small. The minimum size at which they are omitted from the GRA theme and shown as a small polygon or simple point on some other theme (e.g., Treatments or Structures) is currently left up to the individual field offices. Progress toward similar levels of accuracy is another review item. Correct linkage to RAS should be tested at least annually.

Each year, geospatial staff of the BLM Division of Resources, Lands, and Minerals meet with each state data steward for every corporate geospatial theme to conduct an annual review of the data. During the annual review, geospatial staff present the state data stewards with a report detailing Quality Assurance/Quality Control (QAQC) results performed on the data. The QAQC does the following:

- Checks that all attribute values conform to the range or coded-value domains to which they are applied.
- Checks that all attributes marked as required in the data standard have values.
- Checks for duplicate features which have the same geometry and attributes.
- Checks for overlapping features if forbidden by the data standard.
- Checks for invalid geometry.
- Other checks as necessary (can be customized according to the data standard).

In addition to this report, geospatial staff conduct a qualitative needs assessment with the steward to identify any unmet needs or problems with the status of the data. At the conclusion of the review, the team records the steward's approvals of the datasets reviewed. These approvals are then added to the corporate metadata.

4 Grazing Allotments and Pastures Schema (simplified)

General Information: Attributes are listed in the order they appear in the geodatabase feature class. The order is an indication of the importance of the attribute for theme definition and use. There are no aliases unless specifically noted. The domains used in this data standard can be found in Appendix A. These are the domains at the time the data standard was approved. Domains can be changed without a re-issue of the data standard. Current domains are found on the internal OR/WA SharePoint data management page. Some of the domains used in this data standard are also available at the following web site: <https://www.blm.gov/about/data/oregon-data-management>.

For domains not listed at that site contact: [State Data Administrator](#).

4.1 Grazing Allotments Feature Dataset

4.1.1 GRA_POLY Feature Class (Grazing Allotment Polygons)

For domain and default values, see [Section 7 Attribute Characteristics and Definition \(In alphabetical order\)](#) in this document.

Attribute Name	Data Type	Length	Default Value	Required	Domain
ALTPAST	String	8		Yes	
ALLOTNAME	String	50		Conditional	
PASTNAME	String	50		No	
GRAZSYS	String	2	UN	Yes	dom_GRAZSYS
MGMTCAT	String	1	M	No	dom_MGMTCAT
BLM_ORG_CD	String	5	OR000	Yes *	dom_BLM_ORG_CD
GIS_ACRES	Double			Yes *	
VERSION_NAME	String	50	InitialLoad	Yes ***	
GLOBALID	GUID			Yes *	
CREATE_BY	String	50		No *	
CREATE_DATE	Date			No *	
MODIFY_BY	String	50		No *	
MODIFY_DATE	Date			No *	

* Values automatically generated

** Enforced during quality control, may appear in data as not required

*** Maintained through versioning tools, may appear not required in database

4.1.2 GRA_ARC Feature Class (Grazing Allotment Lines)

For domain and default values, see [Section 7 Attribute Characteristics and Definition \(In alphabetical order\)](#) in this document.

Attribute Name	Data Type	Length	Default Value	Required	Domain
DEF_FEATURE	String	25	UNKNOWN	Yes	dom_DEF_FEATURE
COORD_SRC	String	7	UNK	Yes	dom_COORD_SRC
ACCURACY_FT	Short Integer			No	

Attribute Name	Data Type	Length	Default Value	Required	Domain
VERSION_NAME	String	50	InitialLoad	Yes ***	
GLOBALID	GUID			Yes *	
CREATE_BY	String	50		No *	
CREATE_DATE	Date			No *	
MODIFY_BY	String	50		No *	
MODIFY_DATE	Date			No *	

* Values automatically generated

** Enforced during quality control, may appear in data as not required

*** Maintained through versioning tools, may appear not required in database

4.2 GRA_P_POLY Feature Class (Grazing Allotment Proposed Polygons)

For domain and default values, see [Section 7 Attribute Characteristics and Definition \(In alphabetical order\)](#) in this document.

Attribute Name	Data Type	Length	Default Value	Required	Domain
ALTPAST_P	String	8		No	
ALTERNATIVE	String	10		No	
ALLOTNAME	String	50		Conditional	
PASTNAME	String	50		No	
BLM_ORG_CD	String	5	OR000	Yes *	dom_BLM_ORG_CD
GIS_ACRES	Double			Yes *	
VERSION_NAME	String	50	InitialLoad	Yes ***	
GLOBALID	GUID			Yes *	
CREATE_BY	String	50		No *	
CREATE_DATE	Date			No *	
MODIFY_BY	String	50		No *	
MODIFY_DATE	Date			No *	

* Values automatically generated

** Enforced during quality control, may appear in data as not required

*** Maintained through versioning tools, may appear not required in database

5 Projection and Spatial Extent

All feature classes and feature datasets are in Geographic, North American Datum 83. Units are in decimal degrees. Spatial extent (area of coverage) includes all lands in the states of OR/WA. See the metadata for this dataset for more precise description of the extent.

6 Spatial Entity Characteristics

- Grazing Allotment Polygons (GRA_POLY)
 - Description: Instance of Political and Administrative Existing group.
 - Geometry: Non-overlapping polygons that cover the landscape.
 - Topology: Yes. The GRA_POLY lines are coincident with GRA_ARC lines and together make the feature dataset GRA.
 - Integration Requirements: None.
- Grazing Allotment Polygons (GRA_ARC)
 - Description: Instance of Political and Administrative Line group.
 - Geometry: Simple, non-overlapping lines that are split between endpoints as needed.
 - Topology: Yes. The GRA_ARC lines are coincident with GRA_POLY lines and together make the feature dataset GRA.
 - Integration Requirements: The GRA_ARC lines must remain coincident with the source data indicated by attributes DEF_FEATURE and COORD_SRC either through duplication or through snapping.
- Grazing Allotment Polygons (GRA_POLY)
 - Description: Instance of Political and Administrative Proposed group.
 - Geometry: Polygons do not cover the landscape, nor do they cover all BLM lands continuously.
 - Topology: None
 - Integration Requirements: Polygons may overlap each other and/or polygons from GRA_POLY.

7 Attribute Characteristics and Definition (In alphabetical order)

7.1 ACCURACY_FT

Geodatabase Name	ACCURACY_FT
BLM Structured Name	Accuracy_Feet_Measure
Inheritance	Inherited from entity Political and Administrative Boundary Line
Alias Name	Accuracy (ft)
Feature Class Use/Entity Table	GRA_ARC
Definition	How close, in feet, the spatial GIS depiction is to the actual location on the ground. There are several factors to consider in GIS error: scale and accuracy of map-based sources, accuracy of Global Positioning System (GPS) equipment, and the skill level of the data manipulators. A value of "0" indicates no entry was made. This is the correct value when the COORD_SRC is another GIS theme (Digital Line Graph, Cadastral National Spatial Data Infrastructure and Digital Elevation Model (DEM)) because the accuracy is determined by that theme. However, if COORD_SRC is MAP (digitized from a paper map) or GPS, a value of "0" indicates a missing value that should be filled in either with a non-zero number or "-1." A value of "-1" indicates that the accuracy is unknown, and no reliable estimate can be made.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples: 3 (for high accuracy GPS), 40 (best possible for United States Geological Survey (USGS) 24K topo map), 200
Data Type	Short Integer

7.2 ALLOTNAME

Geodatabase Name	ALLOTNAME
BLM Structured Name	Grazing_Allotment_Name
Inheritance	Not Inherited
Alias Name	Allotment Name
Feature Class Use/Entity Table	GRA_POLY, GRA_P_POLY
Definition	The official name assigned to a specific allotment. The allotment name should resemble RAS as much as possible. The GIS allotment name may vary slightly from RAS as the GIS allotment name allows mixed case, generally does not allow for special characters, and may improve consistency in abbreviations. If the allotment is a Fenced Federal Range (FFR), include FFR in the name (e.g., "Pickled Butte FFR"). See Section 9.5.2 for constraint data rules that apply to this field.
Required/Optional	Conditional. This field is required unless the ALTPAST value equals "UNALT."
Domain (Valid Values)	No domain. Examples: Coal Mine Creek, Moffet Table
Data Type	String (50)

7.3 ALTERNATIVE

Geodatabase Name	ALTERNATIVE
BLM Structured Name	Alternative_Text
Inheritance	Inherited from Political and Administrative Boundary Proposed
Alias Name	Alternative
Feature Class Use/Entity Table	GRA_P_POLY
Definition	Identifier for the alternative during the planning process (e.g., A, B, C, D, E). Free choice values for different plans, can be concatenated when same polygon applies to multiple alternatives (BCD, ACD, etc.).
Required/Optional	Optional
Domain (Valid Values)	No domain
Data Type	String (10)

7.4 ALTPAST

Geodatabase Name	ALTPAST
BLM Structured Name	Grazing_Allotment_Identification_Number
Inheritance	Not Inherited
Alias Name	ALTPAST
Feature Class Use/Entity Table	GRA_POLY
Definition	<p>The polygon identifier for the allotment and pastures. It normally consists of the five-character allotment number, an underscore (_), and the two-character pasture number. All preceding blank characters must be populated with zeros. For example, allotment number 302, pasture number 2, would be input as "00302_02". This field may be used as a link to other related databases, including RAS. The ALTPAST concatenated with Administrative state (derived from BLM_ORG_CD) is unique in RAS, but, in GRA, it is possible to have more than one polygon with the same ALTPAST. In this case, RAS acres are the sum of the polygon acres. Also, not all allotments and pastures are included in RAS. There is dependence between this attribute and the GRAZSYS (Grazing Allotment System CD) attribute. Certain codes in GRAZSYS dictate the form that this (ALTPAST) attribute takes. Certain questions must be asked to determine the correct choice for ALTPAST. The most important is the question: is this area within an allotment or not? This may take some research into old files to determine. Many areas assumed outside of allotments are, in fact, still officially included in an allotment. Because pastures are defined by fences, not exact ownership lines, there are many instances where slivers and small parcels of BLM are fenced in with areas outside of allotments. There are also scattered, isolated BLM parcels that are not included in allotments. The various choices for ALTPAST are described below.</p> <p>Areas within Allotments:</p> <ol style="list-style-type: none"> 1. General Pastures usually contain a large percentage of public land but can have a large percentage of private land if the pasture is part of a grazing system in an AMP. This is the type of pasture present in most allotments and is always listed in RAS. All records in RAS should have corresponding polygons in GRA, but not vice versa.

	<p>Because RAS is for billing, GRA will have areas not covered by RAS. Valid value: "05231_11"</p> <ol style="list-style-type: none"> 2. The FFR (Fenced Federal Range) is an allotment that is mostly private but contains some public land fenced within. This area is always listed in RAS. The ALTPAST should have the standard format as for General Pastures. The MGMTCAT is Custodial (C). 3. Mostly Private Pastures that contain a very small percentage of public land, usually slivers of public land where fences do not follow ownership lines, are another type of areas within allotments. These pastures are included within an allotment and should (but may not) be listed in RAS. The GRAZSYS is "99". Valid value: "06010_99" 4. Exclosures are areas designed and constructed with the idea of keeping livestock and sometimes wildlife out of a particular area. If they are large enough, they should have pasture numbers within allotments and be included in RAS. The GRAZSYS is "EX", "RX", "MX", or "XX". Valid value: "05231_11" <p>Areas NOT within Allotments:</p> <ol style="list-style-type: none"> 1. Not Allocated areas are closed to livestock grazing through a LUP decision or legislation. These lands generally have an allotment and/or pasture number, but often do not. The GRAZSYS has NX. Valid value: "NOALC" or the standard format for General Pastures. 2. Completely private, state, U.S. Fish and Wildlife Service, or other lands which are not part of any allotment controlled by a BLM district and do not fall under BLM grazing management. These areas would not be within any allotment or pasture and would not be in RAS. The GRAZSYS is "00" (zeroes). Valid value: "OUT." 3. Areas of mostly private, state, or other federal jurisdiction, but with slivers of BLM land fenced in. Lands may be grazed but are not in a BLM allotment or under BLM grazing management. Format includes 2-character code ("ST" for state, "FS" for Forest Service, "FW" for Fish and Wildlife Service, "BR" for Bureau of Reclamation) followed by underscore followed by the other jurisdiction's allotment number. The GRAZSYS is "00". Example values: "FS_A056", "FS_00177". 4. Unallotted areas are BLM lands not officially assigned to a particular livestock permit. These lands are not closed to livestock grazing and could be assigned to a permit in the future. These areas may have an allotment and/or pasture number and may be included in RAS. The GRAZSYS is Unallotted (UA) or Temporary Use (TU). Districts with large, non-BLM areas surrounding scattered BLM parcels may have large polygons labeled "UNALT" if there is no grazing management on these scattered BLM parcels and no identified fences to block off the large non-BLM blocks. Valid value: "UNALT" or the standard format for General Pastures.
Required/Optional	Required
Domain (Valid Values)	No domain. Examples: 05506_01, 05515_01
Data Type	String (8)

7.5 ALTPAST_P

Geodatabase Name	ALTPAST_P
BLM Structured Name	Proposed_Grazing_Allotment_Identification_Number
Inheritance	Not Inherited
Alias Name	ALTPAST_P
Feature Class Use/Entity Table	GRA_P_POLY
Definition	The proposed allotment and pasture number. It normally consists of the five-character allotment number, an underscore (_), and the two-character pasture number. All preceding blank characters must be populated with zeroes. For example, allotment no. 302, pasture no. 2, would be input as 00302_02. This field may be used as a link to other related databases, including RAS. The proposed pasture might be a "special case" such as unallotted, not allocated, fenced Federal range, or a "99" pasture. Certain questions must be asked to determine the correct choice for ALTPAST. Most important is the question: Is the area proposed to be within an allotment or not? This may take some research into old files to determine. Many areas assumed outside of allotments are, in fact, still officially included in an allotment. Because pastures are defined by fences, not exact ownership lines, there are many instances where slivers and small parcels of BLM lands are fenced in with areas outside of allotments. There are also scattered, isolated BLM parcels that are not included in allotments. See the ALTPAST attribute for a more complete description of the choices.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples: 05570_01, 05511_04
Data Type	String (8)

7.6 BLM_ORG_CD

Geodatabase Name	BLM_ORG_CD
BLM Structured Name	Administrative_Unit_Organization_Code
Inheritance	Inherited from entity Political and Administrative Boundary
Alias Name	BLM Org Code
Feature Class Use/Entity Table	GRA_POLY, GRA_P_POLY
Definition	A combination of the BLM administrative state and field office which has administrative responsibility for the spatial entity. This includes which office covers the entity for planning purposes and which office is the lead for GIS edits. Another agency or individual may have the physical management responsibility for the on-the-ground entity. This field applies particularly when a spatial entity crosses resource area or district boundaries, and the administrative responsibility is assigned to one or the other rather than splitting the spatial unit. Similarly, OR/WA BLM may have administrative responsibility over some area that is physically located in Nevada, Idaho, and California and vice versa. When appropriate, the office can be identified only to the district or state level rather than to the resource area level. This field is auto calculated on record creation. However, it can be changed to correct the value.

Required/Optional	Required
Domain (Valid Values)	dom_BLM_ORG_CD
Data Type	String (5)

7.7 COORD_SRC

Geodatabase Name	COORD_SRC
BLM Structured Name	Coordinate_Source_Code
Inheritance	Inherited from entity Political and Administrative Boundary Line
Alias Name	Coord Src
Feature Class Use/Entity Table	GRA_ARC
Definition	The actual source of the GIS coordinates for the polylines. If the line is copied from another theme, and already has COORD_SRC, it should be reviewed and may need to be changed for use in this dataset.
Required/Optional	Required
Domain (Valid Values)	dom_COORD_SRC
Data Type	String (7)

7.8 CREATE_BY

Geodatabase Name	CREATE_BY
BLM Structured Name	Record_Created_By_Text
Inheritance	Inherited from entity ODF
Alias Name	Created By
Feature Class Use/Entity Table	All feature classes and tables
Definition	The BLM login ID of the person who entered the data. The default value for this field is UNK. This field is auto populated during editing.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples: jdoe, msmith
Data Type	String (50)

7.9 CREATE_DATE

Geodatabase Name	CREATE_DATE
BLM Structured Name	Record_Created_Date
Inheritance	Inherited from entity ODF
Alias Name	Created Date
Feature Class Use/Entity Table	All feature classes and tables
Definition	The date the record was entered. The default value for this field is 1/1/8888. This field is auto populated during editing.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples: 1/5/1999, 10/15/2021
Data Type	Date

7.10 DEF_FEATURE

Geodatabase Name	DEF_FEATURE
BLM Structured Name	Defining_Feature_Code
Inheritance	Inherited from entity Political and Administrative Boundary Line
Alias Name	Defining Feature
Feature Class Use/Entity Table	GRA_ARC
Definition	<p>The physical or legal feature that defines the boundary according to the legal boundary description. In general, the lowest level defining feature, but it depends on how the boundary segment is defined. For example, SUBDIVISION rather than COUNTY unless the boundary segment is specifically defined as following the county boundary. If the line is copied from another theme and already has DEF_FEATURE, it should be reviewed and may need to be changed for use in this dataset.</p> <p>Allotments and pastures may be legally described by township, range and sections. It is important to know the legal description. However, it is not sufficient just to know the legal description because the physical features that keep livestock in or out define pastures. Legal land lines are used only if there is no physically confining feature, and the pasture needs to be closed.</p> <p>If fences are not yet digitally captured, it may be necessary to use ownership and section lines, or roads, or streams as legally described, but these should be replaced when the fence is captured. If it is known that a particular pasture boundary segment is a fence, then the GRA_ARC attribute DEF_FEATURE should be set to "FENCE" even if the line temporarily used to depict it is a parcel line.</p> <p>The GRA lines depicting pasture boundaries usually represent or are related to fences, rims, water, roads, and subdivisions (sections or ownership) which may be found on other themes. It is important to know as precisely as possible what defines a pasture boundary. If the boundary is described as a stream, then the question, "Which side of the stream?" determines which pasture includes the water. Often a pasture boundary will follow the middle of a stream or road, in which case the appropriate segment from the GIS transportation or hydrography theme is copied. If the boundary is defined as one side or the other, then the transportation or hydrography segment can be</p>

	buffered, and the appropriate buffer line used or an offset line can be digitized. In summary, the following hierarchy is used for creating GRA lines and attributing DEF_FEATURE: 1. FENCE, always use fence lines first, if possible 2. RIM, LAKE, STREAM_LBANK, STREAM_RBANK, STREAM 3. ROAD, ROAD_OFFSET 4. SUBDIVISION 5. POINT-TO-POINT 6. UNKNOWN
Required/Optional	Required
Domain (Valid Values)	dom_DEF_FEATURE
Data Type	String (25)

7.11 GIS_ACRES

Geodatabase Name	GIS_ACRES
BLM Structured Name	GIS_Acres_Measure
Inheritance	Inherited from entity Political and Administrative Boundary
Alias Name	GIS Acres
Feature Class Use/Entity Table	GRA_POLY, GRA_P_POLY
Definition	GIS_ACRES is calculated when the submitted polygon is approved for incorporation into the dataset. The standard spatial reference of Geographic (NAD 1983) cannot be used for calculating acres, so the features are projected as determined by the BLM_ORG_CD of the record. These projections all utilize linear units of meters, so the ESRI Geodatabase-controlled field SHAPE.AREA can be used to convert to acres with the factor based on the U.S. Survey Foot: $GIS_ACRES = SHAPE.AREA * 0.0002471044$. GIS_ACRES is calculated using the NAD 1983 Albers Equal Area project except for the following OR/WA Districts: Prineville: NAD 1983 USFS R6 Albers Coos Bay, Eugene, Lakeview, Medford, Roseburg, Salem: NAD 1983 UTM Zone 10N Burns, Spokane, Vale: NAD 1983 UTM Zone 11N
Required/Optional	Required
Domain (Valid Values)	No domain. Examples: 2.4, 46.1, 350.5
Data Type	Double

7.12 GLOBALID

Geodatabase Name	GLOBALID
BLM Structured Name	Global_Unique_Identifier
Inheritance	Inherited from entity ODF
Alias Name	None
Feature Class Use/Entity Table	All feature classes and tables
Definition	An alpha-numeric code that serves as the universal and unique identifier for each feature within the feature class or table of a geodatabase. Software generated value. A field of type UUID (Universal Unique Identifier) in which values are automatically assigned by the geodatabase when a row is created. This field is not editable and is automatically populated when it is added for existing data.
Required/Optional	Required
Domain (Valid Values)	No domain. Example: {4747B796-44B4-4628-B069-2D496422E59F}
Data Type	GUID

7.13 GRAZSYS

Geodatabase Name	GRAZSYS
BLM Structured Name	Grazing_Allotment_System_Code
Inheritance	Not Inherited
Alias Name	Grazing System
Feature Class Use/Entity Table	GRA_POLY
Definition	Primary grazing management system within the pasture. Code containing an X (XX, EX, RX, MX, NX) plus UA indicates BLM lands with no livestock grazing currently. NX indicates a longer-term removal from livestock grazing, through either a Land Use Plan (RMP) or legislation or court order. Not a RAS field, but related.
Required/Optional	Required
Domain (Valid Values)	dom_GRAZSYS
Data Type	String (2)

7.14 MGMTCAT

Geodatabase Name	MGMTCAT
BLM Structured Name	Grazing_Allotment_Management_Category_Code
Inheritance	Not Inherited
Alias Name	Management Category
Feature Class Use/Entity Table	GRA_POLY
Definition	Range condition assessment categories as defined in the Rangeland Program Summary (RPS). RAS contains an equivalent field and the two should match.
Required/Optional	Optional
Domain (Valid Values)	dom_MGMTCAT
Data Type	String (1)

7.15 MODIFY_BY

Geodatabase Name	MODIFY_BY
BLM Structured Name	Record_Last_Modified_By_Text
Inheritance	Inherited from entity ODF
Alias Name	Modified By
Feature Class Use/Entity Table	All feature classes and tables
Definition	The BLM login ID of the person who last edited the data. The default value for this field is UNK. This field is auto populated during editing.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples: jdoe, msmith
Data Type	String (50)

7.16 MODIFY_DATE

Geodatabase Name	MODIFY_DATE
BLM Structured Name	Record_Last_Modified_Date
Inheritance	Inherited from entity ODF
Alias Name	Modified Date
Feature Class Use/Entity Table	All feature classes and tables
Definition	The date the record was last edited. The default value for this field is 1/1/8888. This field is auto populated during editing.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples: 1/5/1999, 10/15/2021
Data Type	Date

7.17 PASTNAME

Geodatabase Name	PASTNAME
BLM Structured Name	Grazing_Allotment_Pasture_Name
Inheritance	Not Inherited
Alias Name	Pasture Name
Feature Class Use/Entity Table	GRA_POLY, GRA_P_POLY
Definition	The name of a specific pasture in an allotment. The GIS pasture name should resemble RAS as much as possible. The GIS pasture name may vary slightly from RAS as the GIS pasture name allows mixed case, generally does not allow for special characters, and may improve consistency in abbreviations.
Required/Optional	Optional
Domain (Valid Values)	No Domain. Examples: Otis Mtn, Upper Muddy
Data Type	String (50)

7.18 VERSION_NAME

Geodatabase Name	VERSION_NAME
BLM Structured Name	Geodatabase_Version_Text
Inheritance	Inherited from entity ODF
Alias Name	Version Name
Feature Class Use/Entity Table	All feature classes and tables
Definition	Only appears in the transactional (edit) version. Public version (which is also the version used internally for mapping or analysis) does not contain this attribute. Name of the corporate geodatabase version previously used to edit the record. InitialLoad = feature has not been edited in ArcSDE. Format: username.XXX-mmddy-hhmmss = version name of last edit (hours might be a single digit; leading zeros are trimmed for hours only). XXX=theme abbreviation.
Required/Optional	Optional
Domain (Valid Values)	No domain
Data Type	String (50)

8 Publication Views

8.1 General

Master corporate feature classes/datasets maintained in the edit database are "published" to the user database in several ways:

- Copied completely with no changes (replicated).
- Copied with no changes except to omit one or more feature classes from a feature dataset.
- Minor changes made (e.g., clip, dissolve, union with ownership) to make the data easier to use. Feature classes that have been changed are indicated by "PUB" in their name. They are created through scripts that can be automatically executed and are easily rebuilt from the master data whenever necessary.

8.2 Specific to This Dataset

A publication dataset is provided that is designed to meet the requirements below.

Publication feature classes will be created for internal use where:

- The attribute VERSION_NAME is removed (for privacy reasons).
- The edit tracking attributes CREATE_BY, CREATE_DATE, MODIFY_BY, MODIFY_DATE are removed.
- Includes all the feature classes described in this standard: GRA_POLY, GRA_ARC, GRA_P_POLY.
- Also includes a derived publication feature class called GRA_ALLOTMENT_POLY that is built with the following requirements:
 - GRA_POLY ALTPAST not equal to: "OUT", "NOALC", "UNALT", Null, or blank space. ALTPAST not like "FS%" or "ST_%."
 - Create ALLOTNUM attribute from first five characters of ALTPAST, and PASTNUM from the last two characters of ALTPAST (to be retained on GRA_POLY).
 - Dissolve the features on ALLOTNUM to create GRA_ALLOTMENT_POLY.
 - Join back the attributes of GRA_POLY using ALLOTNUM. Drop the attributes that are not relevant to allotments: ALTPAST, PASTNAME, PASTNUM, and GRAZSYS.
- Also includes tables: RAS_AUTH and RAS_PASTURE.

Publication feature classes will be created for publishing to the web, release to the public, where:

- All the requirements mentioned above except for the GRA_P_POLY, this feature class is not available for public data download.

8.3 Layer Files

Layer files are not new data requiring storage and maintenance but point to existing data. They have appropriate selection and symbolization for correct use and display of the data. They provide the guidance for data published on the web. Layer files are created by simple, documented processes, and can be deleted and recreated at any time.

- Pastures Layer File - GRA_POLY symbolized with thin dashed line and containing all attributes. It has a definition query: ALTPAST not equal to: "OUT", "NOALC", "UNALT", "_99", Null, or blank space. ALTPAST not like "FS%" or "ST_%."

- Allotments Layer File - GRA_ALLOTMENT_POLY symbolized with a thicker, solid line for display on top of Pastures.lyr. Related to the RAS Authorization table.

9 Editing Procedures

9.1 Managing Overlap (General Guidance)

"Overlap" means there are potentially more than one feature in the same feature class that occupies the same space ("stacked" polygons). Depending on the query, acres will be double counted.

In this discussion, an area entity may consist of more than one polygon, and a line entity may consist of more than one arc. They would have multiple records in the spatial table (with identical attributes). Multi-part features are not allowed. Multi-part features are easily created inadvertently and not always easy to identify. If they are not consciously and consistently avoided, feature classes will end up with a mixture of single and multi-part features. Multi-part features can be more difficult to edit, query, and select, along with impacting overall performance.

Overlap is only allowed in the ODF in limited and controlled scenarios. In each case, the "cause" of the overlap (the attribute changes that "kick off" a new feature which may overlap an existing feature) is carefully defined and controlled. In other words, in feature classes that permit overlap for a change in spatial extent, there is always a new feature created which may overlap an existing feature, but in addition there are certain attribute(s) that will result in a new feature even if there is no spatial change. The feature classes (and the one feature dataset) that allow overlap, and the attributes that lead to a new, possibly overlapping feature, are described below.

9.1.1 Overlapping Polygons where polygons are part of a POLY/ARC feature dataset.

Topology rules apply only to the POLY/ARC relationship (Polylines in the POLY feature class covered by arcs in the ARC feature class and vice versa; Arcs must not have dangles, intersect, self-overlap or overlap adjacent arcs). The AVY_PLAN dataset allows any number of plans or projects to overlap; a new PLANID creates a new polygon. For all other POLY/ARC feature datasets, overlap is only allowed if there is a dataset for proposed entities, for example proposed ACEC (ACEC_P POLY/ARC dataset) or wilderness (WLD_P POLY/ARC dataset).

9.2 POLY/ARC TOPOLOGY (BOUNDARY GROUP DATASETS)

A poly/arc feature dataset means there is a polygon feature class plus an arc feature class that represents the perimeter of the polygon, and which must be kept coincident with the polyline. This requires advanced topological editing skills and in the ODF these poly/arc pair datasets are limited to the "Boundary" group of themes.

Recommended order of capture and maintenance for poly/arc datasets:

- Acquire annotated boundary maps or other sources defining the perimeters of the polygons.
- Create a line feature class with lines copied in from other sources. Fill in COORD_SRC, DEF_FEATURE and ACCURACY_FT as each set of lines is brought in. For planning designation boundary datasets start with the arcs for the planning area boundary.
- Clean up the lines:
 - Split and snap the line endpoints as needed.
 - Where there are duplicate lines, retain the line from the most accurate source.
 - Snap vertices between endpoints to the correct source.
 - Delete extra vertices or vertices too close together, especially at ends of lines.
 - Ensure that the lines are complete, with no overlap and no gaps.

- Construct polygons from the full set of lines. Check for gaps or extra polygons (small slivers) and go back to step 3 if there is additional cleanup needed.

9.3 Editing Quality Control

Duplicate features. Checking for undesired duplicates is critical. Polygons or arcs that are 100% duplicate are easily found by searching for identical attributes along with identical Shape_Area and/or Shape_Length. Searching for partially overlapping arcs or polygons is harder, and each case must be inspected to determine if the overlap is desired or not.

To avoid overlapping polygons on the same area, polygons from different input themes are incorporated with the Union spatial overlay tool, not copied.

Union rather than Intersect is used to prevent unintended data loss.

Gap and overlap slivers. These can be hard to find if there are no topology rules. A temporary map topology can be created to find overlap slivers. Gap slivers can be found by constructing polygons from all arcs and checking polygons with very small area.

Buffer and dissolve considerations. Where polygons are created with the buffer tool, the correct option must be selected. The default option is "None," which means overlap will be retained. Sometimes the overlap should be dissolved, and the option changed to "All." Lines resulting from buffer have vertices too close together, especially around the end curves. They should be generalized to thin the vertices. If the dissolve tool is used on polygons or arcs, the "Create multipart features" should be unchecked.

GPS considerations. GPS linework is often messy and should always be checked and cleaned up as necessary. Often vertices need to be thinned (generalize) especially at line ends. Multi-part polygons are sometimes inadvertently created when GPS files with vertices too close together or crossing lines or spikes are brought into ArcGIS. Tiny, unwanted polygons are created but are "hidden" because they are in a multi-part.

Be careful when merging lines. Multi-part lines will be created if there are tiny unintentional (unknown) gaps, and it can be difficult to find these unless the multi-parts are exploded.

Null geometry. Check any features that have 0 or very small Shape_Area or Shape_Length. If a feature has 0 geometry and you can't zoom to it, it is probably an inadvertently created "Null" feature and should be deleted. Very small features may also be unintended, resulting from messy line work.

Snapping considerations. Where line segments with different COORD_SRC meet, the most accurate or important (in terms of legal boundary representation) are kept unaltered, and other lines snapped to them. In general, the hierarchy of importance is PLSS (CadNSDI points/lines) first, with DLG or SOURCE next, then DEM, and MAP last. When snapping to the data indicated in COORD_SRC (as opposed to duplicating with copy/paste), be sure there are the same number of vertices in the target, and source theme arcs. When the DEF_FEATURE is "SUBDIVISION," snap the line segment to PLSS points, and make sure there are the same number of vertices in the line as PLSS points.

Check that all date fields contain valid dates in MM/DD/YYYY format. If an attribute has a domain, check for invalid values. The values must be exact.

Check for capitalization and spacing differences in attribute values that should be the same. Check for leading or trailing blanks what will make a different value even if it looks identical.

9.4 Vertical Integration

In the ODF, the need for vertical integration is confined to, and characteristic of, the "Boundaries" group of themes. Boundaries polygons have perimeters that are defined by other features and are *required* to stay that way. Activities and Resources polygon perimeters are "self-defining." For example, a road, ownership, or watershed line might be used to build a prescribed burn unit, but the unit perimeter is *defined* by the actual burned area.

Boundaries polylines (arcs) have attributes DEF_FEATURE and COORD_SRC which provide the information needed for vertical integration. When the GIS feature class indicated by COORD_SRC changes, the arc might need to be re-snapped.

Many boundaries are defined largely by legal land lines and therefore should be snapped to Cadastral NSDI PLSS Points. Theoretically, whenever PLSS Points are updated, all polylines with COORD_SRC = "CADNSDI" (or "GCD") should be re-snapped, but not all themes have the same need or priority. Sub-groups of ODF Boundaries provide a prioritization with the "Land Status" group being the highest priority, followed by the "Political and Administrative" group then the "Special Management Area" group.

Vertical Integration to updated legal land lines is accomplished simply by re-snapping vertices to PLSS Points and is not difficult if the polylines have vertices that coincide with PLSS points. Datasets can be updated independently of each other and partially, as time permits.

When arcs are copied from one boundary dataset to another, DEF_FEATURE may need to be changed. For example, a Resource Area Boundary (RAB) polyline might be defined as "SUBDIVISION", but when it is copied to Plan Area Boundary (PLANBDY) the plan boundary is defined by Resource Area and DEF_FEATURE should be changed to "BLM_ADMIN". It is important that boundary lines copied from other themes NOT be merged, even though the attributes are all the same. The splits in the original source theme should be retained to retain exact coincidence and facilitate future updates.

9.5 Theme Specific Guidance

There is much in the data standard that addresses editing and provides guidance especially in the Data Management Protocols (Section 3).

Use the RAS_PASTURE table for the comparison and reconciliation of GRA and RAS. The editor should make two joins, one from RAS_PASTURE to GRA_POLY and one from GRA_POLY to RAS_PASTURE. Join on ALTPAST and "Keep all records."

The first join indicates all the pasture records in RAS that are not in GRA_POLY (select "GRA_POLY.ALTPAST IS NULL"). Anything in RAS should be in GRA.

The second join indicates all the pastures in GRA_POLY that are not in RAS (for example, select RAS_PASTURE_20100504.ALTPAST IS NULL). Not all GRA polys are appropriate for inclusion in RAS, but they should be checked.

To correct GRA and/or RAS errors, the entire allotment and the range files (including the official RLA) must be reviewed with the range specialist. A "missing" pasture may, in fact, be there just with a different name. Pasture names and numbers might have been swapped or reused.

9.5.1 Rules and Procedures for Spatial Feature Editing

- The GRA dataset has rules, described below, to be followed during spatial feature editing. The Grazing_Allotments feature dataset consists of two feature classes, GRA_POLY and GRA_ARC that must be edited together. The arcs and polylines (poly perimeters) must be coincident.
- Create arcs in GRA_ARC first. This can only occur if the boundaries have been defined.
- Multi-part arcs are not allowed. Arcs that have tiny gaps or overlaps (not visible unless zoomed in), create multi-part lines if merged. Finding and eliminating multi-part lines is difficult, avoid creating them to begin with. One tip is to delete very short arcs and extend the adjacent one (snapping) rather than merge.
- Do not "unsplit" or merge arcs unless you are sure the attributes are identical. Attributes may change from segment to segment even if there is no intersection with another arc.
- Check arcs for vertices that are too close together. This is a common problem with GPS sources. Simplify arcs (one meter is generally acceptable).

- Snap to vertex or end, not edge. Common themes to snap to are fences and CadNSDI points.
- To prevent unintentional gaps between polygons, cluster tolerance must be as small as possible (0.000007 degrees). Check for tiny, sliver gaps between adjacent polygons.
- Here are three acceptable methods for updating pasture arcs to new fence locations:
- If the change is small, simply use the Topology Edit Tool cursor to move vertices for both polygons at once. Use Ctrl+N to select a shared node and move. Set snapping to vertex and end of the fence shapefile or feature class.
- If the change is large, or the new fence creates a new pasture and the pastures are relatively small, edit GRA_ARC to bring in the new fence and modify the existing fence so that they are cleanly split and snapped to each other (no gaps or overlaps). Delete all the polys that are touched by the modified arcs. Select all the arcs needed to re-create the pasture polys and use Construct Features on the topology toolbar.
- If the pastures are large, selecting all the relevant arcs and constructing new polys can be difficult, so consider other methods like Cut Polygon or Zipper Task.
- Multi-part polygons are not allowed.
- Pasture changes must be input into RAS at the same time as GRA_POLY. Interior pasture boundaries can be changed with the approval of the range specialist. If, however, the pasture boundary also forms the allotment boundary, changes must have a signed RLA modification.
- Significant changes to pastures that are not reflected in the current LUP should be documented with a LUP Maintenance Sheet.

9.5.2 Rules and Procedures for Attribute Editing

Follow these rules during attribute editing:

- The most important GRA_ARC attribute is DEF_FEATURE. Please review DEF_FEATURE in the Attribute Characteristics and Definitions section.
- The most important GRA_POLY attribute is ALTPAST. Please review ALTPAST in the Attribute Characteristics and Definitions section.
- Allotment and Pasture names and numbers:
 - Allotment name and pasture name should resemble RAS as much as possible. Deviations between the two can occur because of case, improved consistency in abbreviations, and special characters.
 - For Fenced Federal Range. RAS has no naming conventions but if the allotment is a fenced federal range include 'FFR' as a suffix in the name (e.g., "PICKLED BUTTE FFR").
 - Check spelling and make corrections in RAS and/or GRA.
 - Check for leading or trailing blanks. An easy way to check this is to "Select by Attributes" and "Get Unique Values;" there will be multiple entries for the same pasture/allotment name. For example, "WEST FORK #1" and "WEST FORK #1" (trailing blank).
 - Avoid special characters in names (e.g., parentheses, periods, commas, question marks, slashes, quotes, and asterisks). Dashes are allowed but no space before or after, e.g., "Dugout-Bridge Gulch." The pound sign is allowed with a space before but not after, e.g., "WEST FORK #1." This is preferred to "Number" or "No".
 - No "00" Pastures. If an allotment is not subdivided into pastures, the entire allotment is pasture "01". Exceptions are small exclosures or enclosures (GRAZSYS contains "X" or "E").
 - Do not swap or reuse pasture names and numbers it is preferable to leave a gap in the numbering sequence than to use an old number on a new pasture.
 - Check for the letter "O" when it should be zero.

Non allocated, unallocated, out, private, and other agency pastures will be removed from data prior to uploading to the national database since they will not be in RAS. Non-General Pastures will be included in the Pastures layer file.

9.5.3 Other Quality Controls

The following are other data quality checks to perform:

- Check for duplicate ALTPAST. Multi-part polys are not allowed; therefore, it is potentially possible to have the same ALTPAST on more than one polygon. Duplicates should be checked. A different PASTNAME should have a different PASTNUM.
- Check for duplicate ALLOTNAME with different ALLOTNUM and fix in GRA (and RAS, if needed).
- Check for duplicate PASTNAME. While it is potentially possible to have the same PASTNAME on more than one polygon, it should be checked. Avoid using the same PASTNAME/PASTNUM in different allotments.
- All General Pastures should have a corresponding record in RAS.
- All RAS records should have a corresponding polygon in GRA.
- The management category in GRA should be the same as the management category in RAS.
- Allotment/Pasture Identifier (ALTPAST) - Inconsistent numbers and names with RAS. If the ALTPAST value does not have a match in the RAS pasture table, or if there is a match, the allotment and pasture names on the polygon do not match the name fields in RAS exactly. It could be a matter of the polygon names not being in upper case, containing extra spaces, or a different name entirely. This is considered a warning and will not prevent submitting your work because RAS may be in error, or the RAS table may not be up to date, or some types of allotments are not in RAS.
- If the allotment/pasture identifier (ALTPAST) ends with "_00", then the grazing system (GRAZSYS) must equal "EX", "ME", "MX", "NX", "RE", "RX", or "XX".

9.5.1 Calculation Data Rules

The following are a list of calculation rules that occur during editing. Calculation rules are used to automatically populate attributes in a field. These are in addition to the default values defined in Sections 4 and 7.

- The ALLOTNUM and PASNUM are derived and auto calculated from ALTPAST.

9.5.2 Constraint Data Rules

The following are a list of data constraint rules that are enforced during editing. Constraint rules specify allowable combinations of values between two or more fields in a record. They are used to ensure that specific conditions are met.

GRA_POLY

Allotment Name (ALLOTNAME) and Number (ALTPAST)

- Allotment/pasture identifier (ALTPAST) must be all uppercase.
- If the allotment/pasture identifier (ALTPAST) does not equal "UNALT", then allotment name (ALLOTNAME) is required.
- If the allotment/pasture identifier (ALTPAST) equals "NOALC", then the allotment name (ALLOTNAME) must equal "NOT ALLOCATED" or "Not Allocated".
- If the allotment/pasture identifier (ALTPAST) equals "OUT", then the allotment name (ALLOTNAME) must equal "OUT" or "Out".

- If the allotment/pasture identifier (ALTPAST) equals “UNALT”, then the allotment name (ALLOTNAME) must equal “UNALLOTTED” or “Unallotted”.

Allotment Name (ALLOTNAME) and Management Category (MGMTCAT)

- If the grazing allotment name (ALLOTNAME) contains “FFR” as a suffix indicating that it is a fenced federal range then the management category (MGMTCAT) must be custodial “C”.

Allotment Number (ALTPAST) and System (GRAZSYS)

- The allotment/pasture identifier (ALTPAST) must be either a five-digit allotment number and the two-digit pasture number separated by an underscore (ex. 01023_04), a two character agency code preceded by a number, e.g., FS_A088, or the values NOALC, OUT or UNALT. Valid agency codes are FS = U. S. Forest Service, ST = State, FW = U.S. Fish & Wildlife, and BR = U.S. Bureau of Reclamation.
- If the allotment/pasture identifier (ALTPAST) ends in “_99”, then the grazing system (GRAZSYS) must equal “99”, a mostly private area with small slivers of BLM land that is not currently being managed, and vice versa.
- If the allotment/pasture identifier (ALTPAST) equals “NOALC”, then the grazing system (GRAZSYS) must equal “NX”. If the grazing system (GRAZSYS) equals “NX”, then the allotment number (ALTPAST) can be a standard general pasture number or equal to “NOALC”
- If the allotment/pasture identifier (ALTPAST) equals “OUT”, then the grazing system (GRAZSYS) must equal “00”.
- If the allotment system (GRAZSYS) equals “00”, then the allotment/pasture identifier (ALTPAST) must equal “OUT” or start with a “FS”, “FW”, “BR”, or “ST” (e.g., FS_A088)
- If the allotment/pasture identifier (ALTPAST) equals “UNALT”, then the grazing system (GRAZSYS) must equal “UA” or “TU”. If the grazing system (GRAZSYS) equals “UA” or “TU”, then the allotment number (ALTPAST) can be a standard general pasture number or equal to “UNALT”.

GRA_P_POLY

- There are no constraint data rules for this feature class.

GRA_ARC:

- There are no constraint data rules for this feature class.

10 Abbreviations and Acronyms

Does not include abbreviations/acronyms used as codes for data attributes or domain values.

Table 2 Abbreviations/Acronyms Used

Abbreviations	Descriptions
AMP	Allotment Management Plan
BLM	Bureau of Land Management
DEM	Digital Elevation Model
DLG	Digital Line Graphs
FOIA	Freedom of Information Act
GCD	Geographic Coordinate Database
GIS	Geographic Information System
GNIS	Geographic Names Information System
GPS	Global Positioning System
IDP	Interdisciplinary
LUP	Land Use Plan
NAD	North American Datum
NARA	National Archives and Records Administration
NEPA	National Environmental Policy Act
ODF	Oregon Data Framework
OR/WA	Oregon/Washington
RA	Resource Area
RAS	Rangeland Administration System
RLA	Range Line Agreement
RMP	Resource Management Plan
RPS	Range Program Summary
SDE	Spatial Data Engine
SMA	Special Management Areas
USFS	United States Forest Service

A Domains (Valid Values)

These are the domains at the time the data standard was approved. Domains can be changed without a re-issue of the data standard. Current domains are found on the internal OR/WA SharePoint data management page. Some of the domains used in this data standard are also available at the following web site:

<http://www.blm.gov/or/datamanagement/index.php>

For domains not listed at that site contact: contact the [State Data Administrator](#).

A.1 dom_BLM_ORG_CD

Administrative Unit Organization Code. Standard BLM organization codes generated from the national list. This is a subset of OR/WA administrative offices and those in other states that border.

This is a lengthy domain used by multiple datasets. For the full list of values go to:

https://gis.blm.gov/ORDownload/Domains/dom_BLM_ORG_CODE.xls

A.2 dom_COORD_SRC

Coordinate Source Code. The source of the geographic coordinates (lines, points, polygons).

Code	Description
CADNSDI	CADNSDI - Lines from or snapped to the CADNSDI dataset
CFF	CFF - Lines duplicated or buffered from Cartographic Feature Files (USFS)
DEM	DEM - Digital Elevation Model (30m or better accuracy) used for creation of contours
DGPS	DGPS - Feature obtained from a Global Positioning System device with Real Time Correction (SBAS)
DIS	DIS - Lines generated to connect discontinuous features
DLG	DLG - Lines duplicated or buffered from (24K scale accuracy) USGS Digital Line Graphs
DOQ	DOQ - Screen digitized linework over digital orthophotography backdrop (DOQ, NAIP, OSIP, or others)
DRG	DRG - Screen digitized linework over Digital Raster Graphic backdrop
GCD	GCD - Lines snapped to Geographic Coordinate Database Points
GPS	GPS - Lines obtained from a Global Positioning System device
IMG	IMG - Linework derived from interpretation of satellite or other non-photographic imagery
LiDAR	LiDAR - LiDAR points, lines, or polygons generated through interpretation or analysis.
MAP	MAP - Digitized coordinates from hardcopy map or onto a map backdrop
MTP	MTP - Lines duplicated from Digital Master Title Plat
SOURCEL	SOURCEL - Coordinates duplicated from a BLM GIS source layer.
SOURCEX	SOURCEX - Source Layer from non-BLM GIS
SRV	SRV - Survey methods were used to create the linework (e.g., COGO)
TIGER	TIGER - Tiger Data
TRS	TRS - Coordinates only given as a legal description (township, range, section)
UNK	UNK - Unknown coordinate source

Code	Description
WOD	WOD - WODDB Photogrammetric

A.3 dom_DEF_FEATURE

Defining Feature Code. Physical features or administrative lines that define an official boundary.

Code	Description
BLM_ADMIN	BLM_ADMIN - Bureau of Land Management administrative boundary
COUNTY	COUNTY - County boundary
ELEVATION	ELEVATION - Line of common elevation
FENCE	FENCE - Fence line
FOREST_SERVICE_ADMIN	FOREST_SERVICE_ADMIN - Forest Service administrative boundaries
GRAZING_BOUNDARY	GRAZING_BOUNDARY - Pasture or other administrative grazing boundary
HU	HU - Hydrologic Unit
NLCS_BOUNDARY	NLCS_BOUNDARY - Wilderness, Wild and Scenic River, Historic District or other NLCS designation boundary
POINT-TO-POINT	POINT-TO-POINT - Boundary defined by a straight line segment between two points
POWERLINE	POWERLINE - Power transmission line
RIDGE	RIDGE - Ridge
RIGHT-OF-WAY	RIGHT-OF-WAY - A legal right of way forms boundary
RIM	RIM - Line generally follows a natural topographic barrier
ROAD	ROAD - Routes managed for use by low or high-clearance (4WD) vehicles, but not ATV's
ROAD_OFFSET	ROAD_OFFSET - Boundary is offset from a road (not a consistent buffer)
SHORELINE	SHORELINE - Lake, pond, reservoir, bay or ocean shoreline or meander line
SUBDIVISION	SUBDIVISION - Public Land Survey System derived aliquot (1/2's, 1/4's) parts and lots
TRAIL	TRAIL - Routes managed for human-powered, stock or off-highway vehicle forms of travel
UNKNOWN	UNKNOWN - Defining feature is unknown
VEGETATION	VEGETATION - Seeding boundary or other relatively permanent vegetation change
WATERCOURSE	WATERCOURSE - Stream, river, ditch, canal, or drainage centerline
WATERCOURSE_OFFSET	WATERCOURSE_OFFSET - Boundary is offset from a watercourse (not a consistent buffer)

A.4 dom_GRAZSYS

Grazing System Code. Primary grazing management system within the pasture.

Code	Description
00	00 - Out. Area with no BLM land or otherwise not part of the allotment system. Includes areas with fenced-in slivers of BLM land that may be grazed but area not under BLM grazing management control.
99	99 - Mostly private area with small slivers of BLM land (not currently managed).
CU	CU - Custodial. Areas where the grazing system is not defined and resource values are protected, such as fenced federal range (FFR).
DF	DF - Deferred. Delay of livestock grazing on an area for an adequate period of time to provide for plant reproduction, establishment of new plants, or restoration of vigor of existing plants.
DR	DR - Deferred Rotation. Any grazing system which provides for a systematic rotation of the deferment among pastures.
EX	EX - Experimental Exclosure. Study or experimental plot excluded from livestock grazing.
FA	FA - Grazing use occurs in the fall months after most plants have reached seed ripe and have stored carbohydrate reserves.
FW	FW - Grazing use occurs in the fall and winter months when plants are dormant.
ME	ME - Management Enclosure. Fenced areas such as corrals and holding pens.
MX	MX - Management Exclosure. Area excluded from livestock grazing to protect other resource values such as recreation sites, wildlife guzzlers, wells, disposal sites, or otherwise not suitable for grazing.
NX	NX - Not Allocated. Area is closed to livestock grazing either through a land use plan or by legislation.
RE	RE - Reservoir Enclosure. Grazed reservoir enclosure, fenced to allow livestock access from more than one pasture.
RR	RR - Rest/Rotation. At least one year of rest from livestock grazing is scheduled within the rotation.
RX	RX - Riparian Exclosure. Areas adjacent to water that are fenced to exclude livestock grazing.
SD	SD - Early Spring/Deferred. Early spring and after seed-ripe use annually.
SL	SL - Season Long. Use throughout the growing season (spring, summer, fall).
SP	SP - Early Spring use annually with no use extending into other seasons.
SS	SS - Use throughout the critical growing season (Spring/Summer) annually.
TR	TR - Trailing Use Only
TU	TU - Temporary Use. Grazed only on a temporary basis to meet vegetation, fuel, habitat, or other management objectives by agreement or temporary non-renewable (TNR) permit.
UA	UA - Unallotted. Area is not officially assigned to a particular grazing permit but may be grazed if someone applies for the use.
UN	UN - Grazing system is unknown.
WO	WO - Winter Only use annually with no use extending into other seasons.
XX	XX - Exclosure. An area fenced to exclude livestock grazing for non-specified reasons.

Code	Description
YL	YL - Year Long. Use through the entire year (spring, summer, fall, winter).

A.5 dom_MGMTCAT

Range Management Category Code. Range condition assessment categories as defined in the rangeland program summary (RPS).

Code	Description
I	I - Improve current unsatisfactory resource(s) condition.
M	M - Maintain current satisfactory resource(s) condition.
N	N - Not Applicable
C	C - Custodial Allotment: manage "custodially", while protecting existing resource values.