

Protected Areas Database of the United States - PAD-US

Standards and Methods Manual for Data Stewards

Prepared by the USGS Gap Analysis Program at
Boise State University

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CHECKLIST FOR STATE STEWARD DATA SUBMISSIONS TO PAD-US

- Correct Projection and Geographic Coordinate System
- Correct format and structure or checkout version of PAD-US
- All records are complete for required attributes
- All coded domains are assigned - *coded domain assignments can quickly be viewed with the “select by attributes” tool and “get Unique Values”. If additional domains are needed, contact the PAD-US Coordinator during an open review period or outline comments in the Summary Report.*
- Check for unknown or blank parcel names (for example, “unknown,” “Unk,” or “ ”)
- Verify that Primary Designation Name is properly standardized
- Ensure standards are met for other attributes without domain assignments (for instance, Manager Name, GIS Source, GAP Status Code Source, GAP Status Code Date, Aggregator Source, GIS Source Date, Source_PAID)
- Delete duplicate polygons when polygons overlap and attributes are the same or where attributes can be combined (for example, duplicate polygons provided by the land owner and manager, delete one polygon and attribute Owner Name and Manager Name accordingly)
- Summarize dataset by Owner Type and Owner Name—*Owner type should reflect Owner Name not Manager Name*
- Review “Source UID” for uniqueness. Conduct a frequency analysis on Source UID, sort “Frequency” in resulting table descending to identify UIDs assigned to more than one record.
- Review completed metadata to ensure it meets FGDC standards
- Prepare and comment any Models/Scripts used in translating data to the PAD-US schema and submit with data
- Check for records with zero geometry

Non-required Items, include if possible

- Date of establishment: The date Year (yyyy) a protected area was designated, decreed, or otherwise established is in development to support trends analyses.
- GAP Status Code or IUCN Category - *Contact PAD-US Coordinator to discuss methods prior to conservation measure review or assignment.*

For questions, contact: Lisa Duarte, PAD-US Coordinator, National Gap Analysis Program, Boise State University, 208-874-3102, lisaduarte@boisestate.edu.

1. INTRODUCTION

The purpose of this document is to describe the Protected Areas Database of the United States (PAD-US) geodatabase and define standards for Data Stewards. While originally focused on **State Data Stewards**, the standard will continue to evolve following recommendations by the **FGDC Federal Lands Working Group** and others to address all data standards required to maintain PAD-US. GAP is working closely with the Fed Lands Group to develop an aggregated federal lands geodatabase that will serve common federal agency needs, including updates to the federal theme in PAD-US. We also working closely with **National Conservation Easement Database (NCED)** Data Managers, The **NOAA National Marine Protected Areas Center**, The **Nature Conservancy (TNC)**, The **Commission for Environmental Cooperation (CEC)** and **UNEP-World Conservation Monitoring Center (WCMC)** to refine standards and data management processes that ensure PAD-US is **locally relevant and globally interoperable**. In addition, representatives from USGS, BLM, USFS, FWS, NOAA and NPS began a formal review process in October 2013 to improve the PAD-US standard and geodatabase to support analyses for the **North American Inter-Governmental Committee on Cooperation for Wilderness & Protected Areas Conservation (NAWPA Committee)**.

In April 2008, the U.S. Geological Survey Gap Analysis Program (GAP) and the Doris Duke Charitable Foundation supported a yearlong design project to develop the organizational and technical strategies needed to create a fully comprehensive and current inventory of America's protected lands. The resulting proposal is summarized in the July 2009 report, "A Map for the Future," available for download from the PAD-US Web site (gapanalysis.usgs.gov/padus). While resources do not currently exist to fully implement the PAD-US vision, GAP continues to address key recommendations. Primary objectives are to coordinate with federal land data managers to more efficiently aggregate data, build a state data steward network, implement suggested attributes (for example, DOE, Source ID) and utilize available database management technologies. Interest and participation are growing while substantial progress has been made.

As protected areas data are required to fulfill GAP's mission, we began aggregating these data in the early 1990s through state and regional projects, then committed to maintain PAD-US in 2008. See the PAD-US Web site for current data, additional information, and products. This document primarily guides development of a state-centered data steward network to improve protected area inventories (for state, local government and private lands), increase update efficiency, and facilitate local review. The design project called for the identification of three levels of state data providers (these can include state agencies or universities, non-profits working at state or multi-state levels, and federal agencies):

- **Tier 1:** a state that is in the best position, relative to other states, to continually provide the data necessary for the success of PAD-US.
- **Tier 2:** a state whose data are reliable but needs revision to fit properly into the PAD-US and the sustainability of updates are unknown. States in reliable regional datasets are Tier 2 due to the current challenge of translating extensive regional data into PAD-US.
- **Tier 3:** a state that has some or little data that are disaggregated or difficult to integrate into PAD-US. The sustainability of updates is unlikely.

Over time, GAP hopes to be able to channel a wide range of resources to states at each of these levels and invested \$650,000 into the **PAD-US State Data Steward Network** between FY11 and FY14. USGS intends to make additional awards to states, assuming resources are available. See the PAD-US Web site for more information about Stewards or contact the PAD-US Coordinator. The process started with a pilot program, focused on a limited number of states and provided grants to help them build stronger linkage between their databases and PAD-US.

The **FY11 State Data Steward Project** began in October 2010 and included ten Tier 1 states (**California, Oregon, Idaho, Missouri, New Mexico, Montana, Colorado, Florida, Massachusetts, and Virginia**) with a collective objective to “develop, translate or augment and maintain a protected areas geodatabase that contributes to the PAD-US.” Specific tasks are:

- 1) Build the inventory or update state, local government, and private conservation data in a PAD-US replicated geodatabase following national standards,
- 2) Build capacity in the state, through interagency coordination, to increase the likelihood additional updates will be available to maintain PAD-US that accurately represent lands management, and
- 3) Provide review opportunities to improve protected area descriptors (for example, name or designation) and conservation measures (for example, Gap Status Code).

The Tier 1 states are geographically diverse and have state entities with demonstrated leadership in protected areas data management. Each state improved their inventory, data sharing capacity, and delivered a geodatabase update with a summary report that significantly improved PAD-US and the standard.

The **FY12 State Data Steward Project** (October 2011 – September 2012) included Tier 2 and 3 states in need of update (**Washington, Wyoming, Utah, Kentucky, North Carolina, Georgia, and Mississippi**) as did the **FY13 State Data Steward Project** in **Kansas, Alaska, Alabama, Indiana, New Jersey, Oklahoma, Arizona, Texas, and Nevada**. In **FY14**, GAP funded **Nebraska, North Carolina**. The Trust for Public Lands (non-governmental organization data coordinator) will provide state data updates in **North Dakota, South Dakota and South Carolina** this year as state data management capacity is low, updates are needed and additional resources are available to leverage.

The first step in each State Data Steward Project is to define a *common standard that facilitates the sharing of authoritative protected areas data between agencies, organizations, and GAP that ultimately results in a complete and accurate inventory of protected areas for the United States to meet a variety of needs*. As each Steward reviews the existing Standard and provides suggestions, continual improvements are made. This memo outlines the details of the current PAD-US data standard that should be closely considered by the states throughout the project.

2. PAD-US STANDARDS SUMMARY

IMPORTANT: for inclusion into PAD-US, data submissions must meet the following requirements:

- Areas (polygons only) meet the definition of a protected area or are in public ownership
- Required attributes for each protected area are included
- Metadata is provided

Definition of “Protected Area”

PAD-US is an inventory of marine and terrestrial protected areas that are defined as being:

“Dedicated to the preservation of biological diversity and to other natural, recreation, and cultural uses, managed for these purposes through legal or other effective means.”

Public lands that are primarily managed for military or other non-open space uses may also be included; however, their assigned conservation measures reflect differences in management intent and they are not data aggregation priorities. PAD-US had primarily been an inventory of open lands owned outright (fee ownership) by public agencies or non-profits. Conservation easements were available to a limited and variable extent; however, the National Conservation Easement Database (NCED) was incorporated into PAD-US version 1.3 and annual updates are scheduled.

While PAD-US was strongly focused on how open lands are protected for habitat and species conservation purposes, GAP recognizes that the dataset must be useful for a wide range of other purposes (recreational analyses, regional and state land use planning, and so forth) and has emphasized inclusion of rec lands data in recent years.

Attributes represent essential pieces of information about the spatial data that aid in the description, analysis, reporting, and tracking of trends in the coverage of the Nation’s protected areas. In the PAD-US, core attribute data are divided into “required” and “desirable.” **A data submission will be incorporated only if required attributes are provided.**

A key element in the PAD-US data structure is GAP’s **Master Stewardship List (MSL)**. This data framework defines naming conventions, as well as explicit land use designations for federal agencies and generic land use designations for states, local, and non-profit owners as geodatabase coded domains.

USGS GAP recognizes the importance of recording accurate metadata to ensure that ownership of the data is maintained and documentable. **When submitting data for the PAD-US, accompanying metadata that includes data developer contact information is required. If the primary Steward contact is no longer able to fill their coordination role, please inform the PAD-US Coordinator.**

If you have any further questions about data submission, standards, or applications of PAD-US, please do not hesitate to contact the PAD-US Coordinator at: lisaduarte@boisestate.edu or 208-874-3102.

PAD-US Standards

1. Data Projection requirements

- Projected Coordinate System:
USA_Contiguous_Albers_Equal_Area_Conic_USGS_version
- Projection: Albers

2. Horizontal datum requirements

- Geographic Coordinate System: GCS_North_American_1983

3. Format requirements

- ESRI Arc9.3, 10 or 10.1 file geodatabase
- Polygon features only (that is, no lines or points)

4. Data structure requirements

- One feature class

NOTE: Terrestrial protected areas in fee ownership are currently managed in one feature class in PAD-US, with multiple attributes that describe each parcel. Marine Protected Areas (MPAs) and easements are in separate feature classes in PAD-US version 1.3 with both common and unique attributes. **Contact the PAD-US Coordinator if your data contain MPAs or easements** as alternative workflow processes are required. The PAD-US design goal calls for eventual transition to a more robust geodatabase with multiple feature classes (for example, Fee Ownership, Designations, Easements, and Marine Protected Areas); however, additional testing is required prior to full implementation.

5. Data Aggregation

- Authoritative data
- State, regional, city, and county lands
- Easements

NOTE: Whenever possible, seek authoritative data sources for aggregation. **Authoritative data are published directly by the land manager or steward they recognize.** There is no minimum mapping unit or standard scale; however, parcel data are encouraged when available (with relevant Source UIDs and Source PAIDs to facilitate accurate attribute transfer and to dissolve parcels into protected areas). It is important to note that the intent of GAP is to identify boundaries, representative of and used by management, accurate to USGS 1:100,000 spatial accuracy standards. Best available data may be included when authoritative sources cannot be efficiently aggregated, with associated reference information (for example, Aggregator Source, GIS Source, GIS Source Date).

While some exceptions may apply, **State Data Stewards are the primary data source for state, regional, county, and city protected areas in their state.** Data Stewards are also

encouraged to aggregate publically available **private conservation** fee (for example, land trust preserve or greenway) or easement data; however, delayed workflow should be expected for easements.

To the extent possible, **Stewards are encouraged to submit easement data to GAP with their state updates. Ensure “Easement Holder Type” and “Easement Holder Name” is attributed and retains the ‘Source UID’ for previously existing easements in your checkouts. GAP will transfer all easements WITHOUT Source UID assigned, assuming they are new easements, to NCED for aggregation and UID assignment. If attribute or line work edits are made to existing easements please note the change type and Source UID in your final report. NCED is scheduled for update in spring and that national file will update PAD-US in expected summer releases.** The exception is The Nature Conservancy is the authoritative source of all TNC Lands data and provides PAD-US and NCED with national updates. Feel free to **contact the PAD-US Coordinator to discuss state specific data sharing opportunities and workflow strategies.**

Designated areas (for example, Areas of Critical Environmental Concern, Wild and Scenic River, Research Natural Area, Historic Site, National Trail) on federal land not currently available in PAD-US are also welcome from States. Federal land management agencies are the authoritative source of their ownership boundaries (for example, National Forest, BLM Public Land, DoD Installations, National Wildlife Refuges, National Parks); however, GAP welcomes assistance with the compilation of internal designations that may not be available nationally, or suggested corrections. Please note any federal land additions or suggested edits by Source UID and Owner Name in your final report. GAP will coordinate with the appropriate federal data steward to incorporate edits and, hopefully, prevent errors from reoccurring in future updates. **Please do not edit source data line work (that is, boundaries) unless edits are conducted in coordination with the original data source making it unlikely errors will reoccur.**

6. REQUIRED attributes

Field properties are provided with the definitions below (for example, field name, field abbreviation, domain or standard, field type and field length). Field properties are summarized in (**Error! Reference source not found.**).

- Category

Field properties: Category, Domain, Text, 10

General category of protection mechanism associated with the protected area or public land parcel. “**Fee**” is the most common way real estate is owned. Conservation “**Easement**” creates a legally enforceable land preservation agreement between a landowner and government agency or qualified land protection organization (that is, land trust). “**Other**” types of protection include mixed protection, leases, agreements, or those over marine waters. See Category Domain descriptions in **Table 4** for available options.

- Owner Type

Field properties: Own_Type, Domain, Text, 50

General land owner description (for example, Federal, Tribal, State, Private) standardized for the United States. See MSL Owner Type Domain descriptions in **Table 5** for available options. **Owner Type reflects Owner Name**, see crosswalk in **Table 6**.

- Owner Name

Field properties: Own_Name, Domain, Text, 70

Land owner, or effective land owner in the case of public land, of the unit standardized for the Nation - See MSL Owner Name Domain descriptions in **Table 7** for details.

- Local Owner

Field properties: Loc_Own, Source data, Text, 100

The actual name of the land owner as provided by the data source, to complement the standardized “Owner Name” field (for example, State Fish and Wildlife is the standardized “Owner Name” but Washington Department of Fish and Wildlife is the “Local Owner”). Not standardized by MSL.

- Manager Name

Field properties: Mang_Name, Source data, Text, 100

This field is attributed when the agency or entity responsible for managing a parcel differs from the “Owner Name” / “Local Owner.” Not standardized by MSL.

- Primary Designation Type

Field properties: P_Des_Tp, Domain, Text, 75

The primary land management description or designation, standardized for Nation (for example, Area of Critical Environmental Concern, National Wildlife Refuge, State Park). See MSL Primary Designation Type domain descriptions in **Table 8** for details and **APPENDIX 1** for a crosswalk and definitions.

- Primary Local Designation Type

Field properties: P_Loc_Ds, Source data, Text, 100

The primary land management description or designation as provided by data source.
Not standardized by MSL.

- Primary Designation Name

Field properties: P_Des_Nm, Standardized, Text, 200

The name of protected area standardized to Proper Case with acronyms spelled out (for example, Big Bear National Park or Nature Preserve not Big Bear NP), without spelling errors, extraneous spaces, or parcel/unit identifiers. This field identifies the protected area name in the PAD-US Viewer (gapanalysis.usgs.gov/padusviewer) and in UNEP-WCMC's World Database for Protected Areas (WDPA, ProtectedPlanet.net) to identify the name of protected areas. The Primary Local Name field, from the data source, can be calculated into this field and standardized. The goal is for wide acceptance of standard naming conventions by data stewards, eventually with direct links to the **Geographic Names Information System (GNIS)** that manages official edits. This standard is implemented in PADUS updates; however, the field is currently in a state of transition to the standard.

- Primary Local Name

Field properties: P_Loc_Nm, Source data, Text, 200

The name of the protected area as provided by the data source not standardized for the United States. As a result, this field may include designation descriptions or not, different formats (for instance, UPPER CASE), spelling errors, area identifiers unique to parcels within a protected area; however, it matches source data files to assist joins when Source_ID is not available to transfer existing attributes to updates.

- Status

Field properties: Status, Domain, Text, 70

Current legal or "official" standing of the site defined as: **Designated** - Site has been legally or administratively decreed; **Proposed** - Site has approval but is awaiting legal declaration/decreed; **Other** – Site is recognized in a manner not otherwise classified or **Unknown** - Current status of this site is not known. Domain codes and descriptions are in **Table 9**.

- State Name

Field properties: State_Nm, Domain, Text, 50

Name of state or territory spelled out in Proper Case (see domain codes and descriptions in **Table 10**). Protected area polygons that cross state boundaries shall be cut at the state line and "State Name" attributed accordingly with a different "Source ID" for each polygon, but the same "Source PAID" for the overall protected area. The current **state line reference** is the Census 2000: State and State Equivalent Areas file (st99_d00_shp.zip) file with modifications (projection defined and projected to Albers) available from GAP's FTP:

ftp://ftp.gap.uidaho.edu/outgoing/Lisa/States/st99_d00_Albers.zip

- Aggregator Source

Field properties: Agg_Src, Standardized, Text, 150

Organization name, aggregated database name, year (if not already included in name) and file type referenced for data aggregation. Attributed in the format "organization

name_filenameYearPublished.filetype”(for example, TNC_SecuredAreas2008.shp, NHHM_PADUS_NM2011Apr.gdb/PADUS_NM). Use acronym if organization name is widely recognized (for example, BLM) or write out and include acronym (for example, Washington State Parks and Recreation Commission (SPRC). If only one feature class resides in the aggregator’s geodatabase, reference the geodatabase name; otherwise, reference the actual file utilized. **A data aggregator submits data in the PAD-US schema** (for example, State Data Stewards) **according to standards and/or aggregates state, regional or national datasets with required fields for PAD-US translation** (for example, federal land management agencies, TNC, NCED).

- GIS Source

Field properties: GIS_Src, Standardized, Text, 200

The **original source of GIS spatial and attribute information** the aggregator obtained (for example, WYG&F_whmas08.shp, BLM_SMA_20090914.gdb/SurfaceManagementAgency/BLM_MON) for each record. Format geodatabase references as “Name of organization_name of geodatabase/name of feature dataset if present/name of feature class.” Preferably, this should reference the authoritative data provided by the land manager with a date stamp. File names should match original source data to assist future updates. If original GIS source reference is not available, cite the aggregated data source or aggregator.

- GIS Source Date

Field properties: Src_Date, Standardized, Text, 15

The date (yyyy/mm/dd) GIS data was obtained or confirmed unchanged from the GIS source by the aggregator. If month or day is unknown, use 00. This is not the date of publication but the date accessed. The date represents the best available data the GIS source has to support management and decisionmaking at the time of aggregation. **If GIS Source date is unknown, the publication date of the aggregated dataset, if present, may be attributed.**

- GIS Acres

Field properties: GIS_Acres, Calculated, Long

Acres calculated from the “calculate geometry” tool

- Source Unique ID

Field properties: Source_UID, Source data, Text, 100:

A unique identifier managed by the aggregator that differentiates each parcel or protected area (when parcel data are unavailable) within the state. GAP uses this field, rather than point in polygon associations with the first word in Primary Local Name, to join and transfer existing PAD-US attributes not maintained or included by some Stewards (for example, GAP Status Code, IUCN Category, Date of Establishment, Access) to updates.

Stewards are encouraged to check Source UID for uniqueness prior to delivery. Conduct a frequency analysis on Source UID, sort “Frequency” in resulting table descending to determine UIDs assigned to more than one record.

- Source Protected Area ID

Field properties: Source_PAID, Source data, Text, 100

A unique identifier available in the aggregator's data that identifies and groups multiple parcels within a protected area together. **Source_UID and Source_PAID are the same when parcel data are not available. PLEASE DO NOT SUBMIT PARCEL DATA UNLESS SOURCE_PAID IS ATTRIBUTED and maintained.** The "Primary Designation Name" (that is, site or protected area name) is the same for all parcels/records with the same "Source_PAID." Protected areas that cross state boundaries should be cut at the state boundary and have the same "Source_PAID" and same "Primary Designation Name" but different "State_Name" and "Source_UIDs." This will necessitate coordination with the adjacent state Steward or the PAD-US Coordinator. Fortunately, this should be a rare occurrence. GAP uses "Source_PAID" and "State Name," "Owner Name," and "GAP Status Code" to summarize PAD-US for the PAD-US Viewer and to assign the WDPA Code that links PAD-US to the North American and World Database for Protected Areas (see WDPA Site Code definition below). **This ID identifies distinct protected areas and ensures your data are locally, nationally, and globally interoperable.**

- Unique ID guidance:

Data steward IDs are crucial for PAD-US Data Management. They will be used to transfer attributes not managed by Stewards from previous PAD-US datasets and to dissolve any parcel data so the overall protected area boundary is presented in the PAD-US Viewer, which highlights your work, and provides for continental and global datasets as well as other user applications. As this standard is being implemented in 2012 we expect its functionality to improve over time. **Please DO NOT attribute either ID field unless it meets the standard as GAP assumes the intended utility for all available codes.**

Steward created IDs may not be as elegant as tax parcel IDs, but are likely more reliable over time. Please create and maintain them as needed, within the field property standard. Consider their utility for PAD-US data management in maintenance decisions. For example:

a) If you have a single level database (that is, no parcels/units), number all polygons with a unique ID that auto-increments as you add holdings to your inventory

b) If you have a two or more level database (that is, overall area/holdings -> units), create numbers for each of these (Source UID and Source PAID) in any order desired.

7. DESIRED attributes

Wherever possible, these attributes should be transferred from PADUS or identified and completed in the state data file structure. Field properties are defined in (**Error! Reference source not found.**)

- WDPA Site Code

Field properties: WDPA_Cd, Standardized, Long Integer

A site identifier **assigned by UNEP-World Conservation Monitoring Center (WCMC) and core attribute in the World Database for Protected Areas (WDPA) maintained by GAP.** GAP provides WCMC with U.S. protected areas that meet the definition of protection by IUCN (that is, GAP Status Code 1 and 2 areas) every other year. The WDPA Site Code is also a core attribute in the Commission for Environmental Cooperation's North American Environmental Atlas Protected Areas Database. GAP submitted IUCN Categorized protected areas from PAD-US version 1.1 to WCMC for ProtectedPlanet.net

and the CEC.org in May 2010. **The next update is scheduled for March 2013 from PAD-US v1.3.**

- *It has been determined that **the attribution of Secondary Designation information is not an efficient use of Steward or GAP resources.** This field will remain in PAD-US as is and it may be attributed if helpful to Stewards; however, it is **not a required or desired attribute.***
- Access
Field properties: Access, Domain, Text, 20
Level of public access permitted. **Open** – no special requirements for public access to the property (may include regular hours available); **Restricted** – requires a special permit from the owner for access, a registration permit on public land or has highly variable times when open to use; **Closed** – no public access allowed (land bank property, special ecological study areas, military bases, etc. **Unknown** – no available information. See domain descriptions in **Table 11.** **If “Access” = “Unknown” in state update, GAP will categorically assign “Access” following the crosswalk by Primary Designation Type in Table 12. Locally assigned “Access” domains will NOT be overwritten by categorical assignment (see “Access Source” below).**
- Access Source
Field properties: Access Src, Text, 150
Documents the Source of Access domain assignments (for example, State Data Steward or “GAP Default” categorical assignment). When locally assigned by the data steward, “Access Source” references that organization, generally the “Aggregator Source,” and follows the Aggregator Source standard. If Access is “Unknown,” categorical assignments are made by Primary Designation Type (See Access Above) and Access Source = “GAP Default.”
- GAP Status Code
Field properties: GAP_Sts, Domain, Text, 95
The GAP Status Code is a measure of management intent to conserve biodiversity as defined fully below (short domain descriptions in **Table 13**). This is not a required attribute; however, the measure is valuable for conducting biodiversity or multiple use management assessments across the landscape. **GAP is seeking partners to apply** and review conservation measures, contact the PAD-US Coordinator for more information. **Standard methods for applying GAP Status Codes** are provided in **APPENDIX 2.**

A **categorical assignment of GAP code** based upon “Primary Designation Type” is assigned (**Error! Reference source not found.**) if no other information is available. **Default GAP Codes reflect the lowest conservation value** relevant for categorical assignment by designation type at the national scale. State, agency, or other filters are in development and are encouraged. **Default values should only be assigned when codes are not available to transfer from PAD-US or resources are unavailable to assign GAP Status following standard methods** (see below). See GAP Status Code Source for guidance for tracking GAP Status assignment methods.

GAP Status Code Definitions

Status 1: An area having permanent protection from conversion of natural land cover and a mandated management plan in operation to maintain a natural state within which disturbance events (of natural type, frequency, intensity, and legacy) are allowed to proceed without interference or are mimicked through management.

Status 2: An area having permanent protection from conversion of natural land cover and a mandated management plan in operation to maintain a primarily natural state, but which may receive uses or management practices that degrade the quality of existing natural communities, including suppression of natural disturbance.

Status 3: An area having permanent protection from conversion of natural land cover for the majority of the area, but subject to extractive uses of either a broad, low-intensity type (for example, logging, OHV recreation) or localized intense type (for example, mining). It also confers protection to federally listed endangered and threatened species throughout the area.

Status 4: There are no known public or private institutional mandates or legally recognized easements or deed restrictions held by the managing entity to prevent conversion of natural habitat types to anthropogenic habitat types. The area generally allows conversion to unnatural land cover throughout or management intent is unknown.

Table 1. Default GAP Status Code assigned by designation type

Domain Code	Domain Description	Default GAP Status Code
<i>National Designations</i>		
100	National Park	2
101	National Forest-National Grassland	3
102	National Trail	4
103	National Wildlife Refuge	2
104	National Natural Landmark	2
105	National Landscape Conservation System - Non Wilderness	3
106	National Landscape Conservation System - Wilderness	2
107	Native American Land	4
<i>Other Designations</i>		
109	Protective Management Area - Feature	3
110	Protective Management Area - Land, Lake or River	3
111	Habitat or Species Management Area	2
112	Recreation Management Area	3
113	Resource Management Area	3
114	Wild and Scenic River	2
115	Research and Educational Land	3
116	Marine Protected Area	3
117	Wilderness Area	1
118	Area of Critical Environmental Concern	3
119	Research Natural Area	2
120	Historic / Cultural Area	3
121	Mitigation Land / Bank	3
122	Military Land	4
123	Watershed Protection Area	3
124	Access Area	4
125	Special Designation Area	3
126	Other Designation	4
127	Not Designated	4
<i>State Designations</i>		
300	State Park	3
301	State Forest	3
302	State Trust Lands	3
303	State Other	4
<i>Local Government Designations</i>		
500	Local Conservation Area	2
501	Local Recreation Area	4
502	Local Forest	3
503	Local Other	4
<i>Private Designations</i>		
700	Private Conservation Land	2
701	Agricultural Protection Land	4
702	Conservation Program Land	3
703	Forest Stewardship Land	3

- GAP Status Code Source

Field properties: GAPCdSrc, Standardized, Text, 150

Describes the organization(s) that applied the Gap Status Code to the polygon. This field also documents the general methods used for assigning GAP Status as follows: “**GAP Default**” is assigned when GAP's categorical assignment of status has been applied, without more detailed review or inquiry. “**GAP**” is assigned when standard methods (management plan reviewed and/or land manager interviewed with dichotomous key to assign GAP Status to a protected area) apply as provided above. “**GAP - other organization**” (for example, GAP – NPS, GAP – TNC, GAP – WDFW, GAP - NHNM) applies when the measure is assigned or reviewed in partnership with GAP. When another organization applied GAP Status according to their methods then the *other organization* shall include their name or abbreviation with GAP in this field.

- GAP Status Code Date

Field properties: GAPCdDt, Standardized, Text, 4

The most current Year (yyyy) the GAP Status Code was assigned to the polygon.

- IUCN Category

Field properties: IUCN_Cat, Domain, Text, 70

International Union for the Conservation of Nature (IUCN) management categories assigned to protected areas for inclusion in the UNEP- World Conservation Monitoring Center's (WCMC) World Database for Protected Areas (WDPA) and the Commission for Environmental Cooperation's (CEC) North American Terrestrial Protected Areas Database. **IUCN defines a protected area as**, "A clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values". **Only GAP Status Code 1 and 2 lands meet this definition** of protection and are assigned an IUCN Category.

Categorization follows as:

Category Ia: Strict Nature Reserves are strictly protected areas set aside to protect biodiversity and also possibly geological/geomorphological features, where human visitation, use, and impacts are strictly controlled and limited to ensure preservation of the conservation values. Such protected areas can serve as indispensable reference areas for scientific research and monitoring.

Category Ib: Wilderness Areas are protected areas are usually large unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.

Category II: National Park protected areas are large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities.

Category III: Natural Monument or Feature protected areas are set aside to protect a specific natural monument, which can be a land form, sea mount, submarine caverns, geological feature such as caves, or even a living feature such as an ancient grove. They are generally quite small protected areas and often have high visitor value.

Category IV: Habitat/species management protected areas aim to protect particular species or habitats and management reflects this priority. Many category IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats, but this is not a requirement of this category.

Category V: Protected landscape/seascape protected areas occur where the interaction of people and nature over time has produced an area of distinct character with significant ecological, biological, cultural, and scenic value.

Category VI: Protected area with sustainable use of natural resources are generally large, with much of the area in a more-or-less natural condition and where a proportion is under sustainable natural resource management, and where such exploitation is seen as one of the main aims of the area.

This information is provided for reference purposes only. **Local assignment and review of IUCN Categories is preferred.** When unavailable, GAP applies scripts that assign IUCN Categories to data submitted by stewards prior to each PAD-US publication. Scripts are developed from a categorical assignment of IUCN Category that combines GAP Status Code, Owner Name, Primary Designation Type and GIS Acres. GAP collaborated with UNEP-World Conservation Monitoring Center (WCMC), the International Union for the Conservation of Nature (IUCN) and the George Wright Society to develop the initial IUCN classification for US protected areas in June 2008. The classification is periodically reviewed and refined to meet current needs, including the classification presented in **Table 2**. As categorical classifications can be inaccurate, GAP, IUCN, and WCMC **are eager to work directly with protected area or unit managers to assign conservation measures.** Contact the PAD-US Coordinator for more information.

Table 2. IUCN Category classified by designation type and area

PAD-US Primary Designation Types and Domain Codes		IUCN Category Classification (if GAP 1 or 2)
<i>National Designations</i>		
100	National Park	II
101	National Forest-National Grassland	VI
102	National Trail	V
103	National Wildlife Refuge	IV
104	National Natural Landmark	< 5,000 acres V > 5,000 acres III
105	National Landscape Conservation System – Non Wilderness	< 5,000 acres V > 5,000 acres III
106	National Landscape Conservation System – Wilderness	Ib
107	Native American Land	V
<i>Other Designations</i>		
109	Protective Management Area - Feature	< 5,000 acres V > 5,000 acres III
110	Protective Management Area - Land, Lake or River	V
111	Habitat or Species Management Area	IV
112	Recreation Management Area	V
113	Resource Management Area	VI
114	Wild and Scenic River	V
115	Research and Educational Land	< 5,000 acres V > 5,000 acres III
116	Marine Protected Area	V
117	Wilderness Area	Ib
118	Area of Critical Environmental Concern	V
119	Research Natural Area	Ia
120	Historic/Cultural Area	< 5,000 acres V > 5,000 acres III
121	Mitigation Land	IV
122	Military Land	V
123	Watershed Protection Area	V
124	Access Area	V
125	Special Designation Area	< 5,000 acres V > 5,000 acres III
126	Other Designation	V
127	Not Designated	Unassigned
<i>State Designations</i>		
300	State Park	> 5,000 acres II < 5,000 acres V
301	State Forest	V
302	State Trust Lands	V
303	State Other	V
<i>Local Government Designations</i>		
500	Local Conservation Area	V
501	Local Recreation Area	V
502	Local Forest	VI
503	Local Other	V

PAD-US Primary Designation Types and Domain Codes		IUCN Category Classification (if GAP 1 or 2)
<i>Private Designations</i>		
700	Private Conservation Land	V
701	Agricultural Protection Land	VI
702	Conservation Program Land	V
703	Forest Stewardship Land	VI

- Date of Establishment

Field properties: Date_Est, Standardized, Text, 4

The Year (yyyy) the protected area was designated, decreed, or otherwise established. Date is assigned by name, regardless of overlaps in topology (for example, Yellowstone National Park: 1872, Frank Church-River of No Return Wilderness Area: 1980)

- Comments

Field properties: Comments, Source data, Text, 255

Comments from either the original data source or aggregator.

- Easement Holder

Field properties: EsmtHldr, Standardized, Text, 100

The name of the organization managing or holding the easement standardized to Proper Case with all acronyms spelled out (for example, The Nature Conservancy (TNC)). This is a required attribute for easement data (defined as “Category” = “Easement”) delivered in state updates to be submitted to the **National Conservation Easement Database (NCED)** by GAP. Note the delayed workflow for updating easements: NCED incorporates easements from PAD-US Stewards following data deliveries in winter, publishes NCED in spring to be incorporated nationally for a summer PAD-US update. The **“Source UID” in your checkout database has been assigned by NCED. DO NOT MODIFY OR DELETE “Source UID.”** GAP will submit new easements only (where “Source UID” is null) to NCED. If you make line work or attribute updates to existing easements please note their “Source UID” and change type in your final report.

- Easement Holder Type

Field properties: EHoldTyp, Owner Type Domain, Text, 50

Whether the holder of the easement is federal, state, local, tribal, and so forth. Follows “Owner Type” domain codes and descriptions. This is a required attribute for the National Conservation Easement Database (NCED). “Easement Holder Type” follows “Easement Holder” similar to “Owner Name” and “Owner Type” (see Table 6. Owner Name and Owner Type crosswalk.

).

Table 3: Field properties for required and desirable attributes

REQUIRED Attributes				
Field Name	Field Abbreviation	Domain or Standard	Field Type	Field Length
Category	Category	Category Domain	Text	10
Owner Type	Own_Type	Owner Type Domain and Crosswalk	Text	50
Owner Name	Own_Name	Owner Name Domain	Text	70
Local Owner	Loc_Own		Text	100
Manager Name	Mang_Name		Text	100
Primary Designation Type	P_Des_Tp	Primary Designation Type Domain and Crosswalk	Text	75
Primary Local Designation	P_Loc_Ds		Text	100
Primary Designation Name	P_Des_Nm	Standardized Field	Text	200
Primary Local Name	P_Loc_Nm		Text	200
Status	Status	Status Domain	Text	70
State Name	State_Nm	State Name Domain	Text	50
Aggregator Source	Agg_Src	Standardized Field	Text	150
GIS Source	GIS_Src	Standardized Field	Text	200
GIS Source Date	Src_Date	Standardized Field (yyyy/mm/dd)	Text	15
GIS Acres	GIS_Acres	Calculate geometry	Long	n/a
Source Unique ID	Source_UID		Text	100
Source Protected Area ID	Source_PAID		Text	100
DESIRED Attributes				
Field Name	Field Abbreviation	Domain	Field Type	Field Length
WDPA Site Code	WDPA_Cd	Standardized Field	Long Integer	n/a
Public Access	Access	Access Domain and Crosswalk	Text	20
Public Access Source	Access_Src	Standardized Field	Text	150
GAP Status Code	GAP_Sts	GAP Status Code Domain and Crosswalk	Text	95
GAP Status Code Source	GAPCdSrc	Standardized Field	Text	150
GAP Status Code Date	GAPCdDt	Standardized Field (yyyy)	Text	4
IUCN Category	IUCN_Cat	IUCN Category Domain and Crosswalk	Text	70
Date of Establishment	Date_Est	Standardized Field (yyyy)	Text	4
Comments	Comments		Text	255
Easement Holder	EsmtHldr	Standardized Field	Text	100
Easement Holder Type	EHoldTyp	Owner Type Domain and Crosswalk	Text	50

8. Coded Domains and Descriptions

Coded domains are available in the blank or checked out PAD-US geodatabase and as separate tables for addition into Arc. If your data do not fit into one of these standard domains, contact the PAD-US Coordinator for assistance. The attributes below contain coded domains (with field abbreviation) for standardized attribution, descriptions are provided in associated tables:

- Category Domain, Category:

Table 4. Category domain code and descriptions.

Domain Code	Domain Description
Fee	Fee
Easement	Easement
Other	Other
Unknown	Unknown

- Owner Type Domain, Own_Type:

Table 5. MSL Owner Type domain code and descriptions.

Domain Code	Domain Description
01	Federal
02	Native American
03	State
04	Special District
05	Local Government
06	Non-Governmental Organization
07	Private
08	Jointly Owned
09	Unknown Land Owner
10	Territorial

Table 6. Owner Name and Owner Type crosswalk.

Owner Name		Owner Type	
Domain Code	Domain Description	Domain Code	Domain Description
0100	Tennessee Valley Authority (TVA)	01	Federal
0110	Bureau of Land Management (BLM)	01	Federal
0115	Bureau of Ocean Energy Management (BOEM)	01	Federal
0120	Bureau of Reclamation (BOR)	01	Federal
0125	Fish and Wildlife Service (FWS)	01	Federal
0130	Forest Service (USFS)	01	Federal
0135	Department of Defense (DOD)	01	Federal

Owner Name		Owner Type	
Domain Code	Domain Description	Domain Code	Domain Description
0140	Department of Energy (DOE)	01	Federal
0145	National Park Service (NPS)	01	Federal
0150	Natural Resources Conservation Service (NRCS)	01	Federal
0155	Agricultural Research Service (ARS)	01	Federal
0160	Bureau of Indian Affairs (BIA)	01	Federal
0165	National Oceanic and Atmospheric Administration (NOAA)	01	Federal
0170	Other Federal Land	01	Federal
0220	Native American Land	02	Native American
0310	State Park & Recreation	03	State
0315	State Department of Conservation	03	State
0320	State Land Board	03	State
0325	State Department of Environment	03	State
0330	State Fish and Wildlife	03	State
0335	State University	03	State
0340	State Department of Natural Resources	03	State
0350	State Department of Land	03	State
0360	State Coastal Reserve	03	State
0365	State Natural Heritage Program	03	State
0370	State Cultural Affairs	03	State
0375	State Historical Society	03	State
0380	State Department of Transportation	03	State
0385	State Department of Mental Health	03	State
0390	State Department of Agriculture	03	State
0395	Other State Land	03	State
0410	Regional Agency Land	04	Regional Agency
0420	Regional Water Districts	04	Regional Agency
0510	City Land	05	Local Government
0520	County Land	05	Local Government
0610	Audubon Society	06	Non-Governmental Organization
0620	Land Trust	06	Non-Governmental Organization
0630	The Nature Conservancy (TNC)	06	Non-Governmental Organization
0640	Ducks Unlimited	06	Non-Governmental Organization
0650	Private University	07	Private
0655	Private Corporation	07	Private
0660	Private Non-Profit	07	Non-Governmental Organization
0670	Rocky Mountain Elk Foundation	06	Non-Governmental Organization
0710	Private Landowner	07	Private
0720	Private Institution	07	Private
0800	Joint Ownership	08	Jointly Owned (attribute admin agency/ land <u>manager</u> if possible, for example, Federal or State)
0810	Other Ownership	09	Unknown Land Owner
0910	Unknown (attribute if type known)	09	Unknown Land Owner

Owner Name		Owner Type	
Domain Code	Domain Description	Domain Code	Domain Description
1001	U.S. Virgin Islands Government	10	Territorial
1002	American Samoa Government	10	Territorial
1003	Guam Government	10	Territorial
1004	Mariana Islands Government	10	Territorial
1005	Puerto Rico Government	10	Territorial
1006	Federated States of Micronesia Government	10	Territorial
1007	Marshall Islands Government	10	Territorial
1008	Palau Government	10	Territorial
1009	U.S. Minor Outlying Islands Government	10	Territorial

- Owner Name Domain, Own Name:

Table 7. MSL Owner Name domain code and descriptions.

Domain Code	Domain Description	Domain Code	Domain Description (cont.)
0100	Tennessee Valley Authority (TVA)	0380	State Department of Transportation
0110	Bureau of Land Management (BLM)	0385	State Department of Mental Health
0115	Bureau of Ocean Energy Management (BOEM)	0390	State Department of Agriculture
0120	Bureau of Reclamation (BOR)	0395	Other State Land
0125	Fish and Wildlife Service (FWS)	0410	Regional Agency Land
0130	Forest Service (USFS)	0420	Regional Water Districts
0135	Department of Defense (DOD)	0510	City Land
0140	Department of Energy (DOE)	0520	County Land
0145	National Park Service (NPS)	0610	Audubon Society
0150	Natural Resources Conservation Service (NRCS)	0620	Land Trust
0155	Agricultural Research Service (ARS)	0630	The Nature Conservancy (TNC)
0160	Bureau of Indian Affairs (BIA)	0640	Ducks Unlimited
0165	National Oceanic and Atmospheric Administration (NOAA)	0650	Private University
0170	Other Federal Land	0655	Private Corporation
0220	Native American Land	0660	Private Non-Profit
0310	State Park & Recreation		
0315	State Department of Conservation	0670	Rocky Mountain Elk Foundation
0320	State Land Board	0710	Private Landowner
0325	State Department of Environment	0720	Private Institution
0330	State Fish and Wildlife		
0335	State University	0800	Joint Ownership
0340	State Department of Natural Resources	0810	Other Ownership
0350	State Department of Land	0910	Unknown
0360	State Coastal Reserve	1001	U.S. Virgin Islands Government
0365	State Natural Heritage Program	1002	American Samoa Government
0370	State Cultural Affairs	1003	Guam Government
0375	State Historical Society	1004	Mariana Islands Government
		1005	Puerto Rico Government
		1006	Federated States of Micronesia Government
		1007	Marshall Islands Government
		1008	Palau Government
	<i>(continues next column >)</i>	1009	U.S. Minor Outlying Islands Government

- **Primary Designation Type, P_Des_Tp:**

Table 8. MSL Primary Designation Type domain code and descriptions.

Domain Code	Domain Description
National Designations	
100	National Park
101	National Forest-National Grassland
102	National Trail
103	National Wildlife Refuge
104	National Natural Landmark
105	National Landscape Conservation System – Non Wilderness
106	National Landscape Conservation System – Wilderness
107	Native American Land
Other Designations	
109	Protective Management Area – Feature
110	Protective Management Area – Land, Lake or River
111	Habitat or Species Management Area
112	Recreation Management Area
113	Resource Management Area
114	Wild and Scenic River
115	Research and Educational Land
116	Marine Protected Area
117	Wilderness Area
118	Area of Critical Environmental Concern
119	Research Natural Area
120	Historic / Cultural Area
121	Mitigation Land
122	Military Land
123	Watershed Protection Area
124	Access Area
125	Special Designation Area
126	Other Designation
127	Not Designated
State Designations	
300	State Park
301	State Forest
302	State Trust Lands
303	State Other
Local Government Designations	
500	Local Conservation Area
501	Local Recreation Area
502	Local Forest
503	Local Other
Private Designations	
700	Private Conservation Land
701	Agricultural Protection Land
702	Conservation Program Land
703	Forest Stewardship Land

- Status Domain, Status:

Table 9. Status domain code and descriptions.

Domain Code	Domain Description
Designated	Designated – Legally or administratively decreed
Proposed	Proposed – Local government level approval
Other	Other – Site is recognized in a manner not otherwise classified
Not Known	Not Known – Current site status unknown

- State Name Domain, State Nm:

Table 10. State Name domain FIPS code and descriptions.

Domain Code	Domain Description	Domain Code	Domain Description
01	Alabama	32	Nevada
02	Alaska	33	New Hampshire
04	Arizona	34	New Jersey
05	Arkansas	35	New Mexico
06	California	36	New York
08	Colorado	37	North Carolina
09	Connecticut	38	North Dakota
10	Delaware	39	Ohio
11	District of Columbia	40	Oklahoma
12	Florida	41	Oregon
13	Georgia	42	Pennsylvania
15	Hawaii	44	Rhode Island
16	Idaho	45	South Carolina
17	Illinois	46	South Dakota
18	Indiana	47	Tennessee
19	Iowa	48	Texas
20	Kansas	49	Utah
21	Kentucky	50	Vermont
22	Louisiana	51	Virginia
23	Maine	53	Washington
24	Maryland	54	West Virginia
25	Massachusetts	55	Wisconsin
26	Michigan	56	Wyoming
27	Minnesota	72	Puerto Rico
28	Mississippi	78	United States Virgin Islands
29	Missouri	60	American Samoa
30	Montana	66	Guam
31	Nebraska	69	Northern Mariana Islands
70	Palau	74	United States Minor Outlying Islands
64	Federated States of Micronesia	68	Marshall Islands
65	Mariana Islands		

- Access Domain, Access:

Table 11. Access code domains and descriptions (assigned by data steward).

Domain Code	Domain Description
OA	Open Access
RA	Restricted Access
XA	Closed
UK	Unknown

Table 12. Categorical Access domain assignment by Primary Designation Type when “Access” is Unknown (assigned by GAP).

Domain Code	Domain Description	Default Access Domain IF “Category” = “Easement”, THEN “XA”
<i>National Designations</i>		
100	National Park	OA
101	National Forest-National Grassland	OA
102	National Trail	OA
103	National Wildlife Refuge	RA
104	National Natural Landmark	RA
105	National Landscape Conservation System - Non Wilderness	OA
106	National Landscape Conservation System - Wilderness	RA
107	Native American Land	XA
<i>Other Designations</i>		
109	Protective Management Area - Feature	RA
110	Protective Management Area - Land, Lake or River	RA
111	Habitat or Species Management Area	RA
112	Recreation Management Area	OA
113	Resource Management Area	OA
114	Wild and Scenic River	OA
115	Research and Educational Land	RA
116	Marine Protected Area	OA
117	Wilderness Area	RA
118	Area of Critical Environmental Concern	OA
119	Research Natural Area	RA
120	Historic/Cultural Area	RA
121	Mitigation Land/Bank	XA
122	Military Land	XA
123	Watershed Protection Area	RA
124	Access Area	OA
125	Special Designation Area	RA
126	Other Designation	UK
127	Not Designated	UK
<i>State Designations</i>		
300	State Park	OA

Domain Code	Domain Description	Default Access Domain IF "Category" = "Easement", THEN "XA"
301	State Forest	OA
302	State Trust Lands	OA
303	State Other	UK
Local Government Designations		
500	Local Conservation Area	RA
501	Local Recreation Area	OA
502	Local Forest	OA
503	Local Other	UK
Private Designations		
700	Private Conservation Land	RA
701	Agricultural Protection Land	RA
702	Conservation Program Land	RA
703	Forest Stewardship Land	RA

- GAP Status Code Domain, GAP Sts:

Table 13. GAP Status Code domain and descriptions.

Domain Code	Domain Description
1	1 - managed for biodiversity – disturbance events proceed or are mimicked
2	2 - managed for biodiversity – disturbance events suppressed
3	3 - managed for multiple uses – subject to extractive (e.g. mining or logging) or OHV use
4	4 - no known mandate for protection

- Secondary Designation Type Domain, S Des Tp: See "Primary Designation Type"

9. Topology review

SUMMARY:

- Protected areas or public lands only
- If possible, combine attributes for duplicate polygons and retain land owner boundary
- Edit known errors only in cooperation with original data source

Data submission for PAD-US includes protected areas or public lands only. Polygons that identify "other" or "private" land (that is, without an associated protection mechanism) to create a seamless coverage for the state may be added by GAP prior to publication but should not be submitted by the Steward.

Review for duplicate polygons (two records with the same geometry). Sort by "GIS Acres" or "Shape Area" and look for repetitive areas. Overlaps with slightly different linework may be located by calculating and concatenating centroid of X and centroid of y, followed by a frequency summary that identifies duplicate records that can be related back to PAD-US for

edits. For some, a review using topology tools and rules (that is, must not overlap) is preferred; feel free to contact the PAD-US Coordinator for assistance if needed. **Delete duplicate records or combine attributes for records with the same geometry if possible.** For example, if a property has dual interest by a land owner and a land manager both may deliver the same polygon that is now duplicated in the Stewards aggregation. The land manager's record may be deleted if all information is retained by attributing the land owners polygon with the land manager name in the "Manager Name" field. Sliver errors (overlaps <5 acres) are present in PAD-US as a result of differences in authoritative data; however, these errors are generally minor. When major overlaps occur, these can usually be addressed by identifying the land owner and manager. **If major overlaps persist, summarize these records by "Source ID," "Owner Name," and "Primary Designation Name" in the final report. Boundary line work should not be edited unless the product remains as a reasonable representation of authoritative source data (that is, provided or used by the land manager) and it is unlikely errors will reoccur in future updates.** Ideally, stewards will identify topology errors and only edit boundaries in collaboration with lands data managers to improve the authoritative source data and reduce the likelihood errors will persist in future aggregations. States that manage data tied to parcels or with sliver error corrections may submit these data when it is likely the organization will remain as the source of their states' clearinghouse data.

While topology edits to nest overlapping designation boundaries into underlying areas were previously required, these are NO LONGER REQUESTED. Steward resources are better directed to **ensure Source_UID, Source_PAID, Owner Name, Primary Designation Name and GAP Status Code fields are well attributed and reviewed** as these are the primary fields used to manage PAD-US data, conduct analyses or create products.

10. Metadata requirements

Metadata must be submitted according to FGDC standards with data submissions.

11. Future additions to PAD-US

Following recommendations during the PAD-US Design Project, GAP is testing a multiple feature class structure with separate "fee ownership," "designation," "easement," and "water" feature classes and subtypes to manage topology, assign conservation measures, and support data queries. The Marine Protected Areas feature class was implemented in PAD-US 1.2 and the Easement feature class in PAD-US 1.3.

Work is also underway to incorporate the "Date of Establishment" field for all land ownership types to facilitate trends analyses. The field was introduced in PAD-US 1.3 with most protected federal and state lands attributed. GAP will continue working to fully attribute the field and appreciates assistance from Stewards or reviewers. Please contact the PAD-US Coordinator if you are not a Steward and have DOE information to share.

12. Data Submission

State Data Stewards may submit data for PAD-US in one of two ways. Data sources may obtain a check-out version or copy of the PAD-US geodatabase to update directly (state, local government, and/or private lands only) or obtain a blank geodatabase loaded with domains and attributes to translate data into. These options are explained in greater detail below; however, additional methods may be developed while working with stewards.

- Check-out Development Database

GAP will provide a check-out version or copy of the PAD-US “production” database, after Data Stewards have reviewed current standards, available domain descriptions and the current PAD-US version. Features and attributes may be added, deleted, and altered; while maintaining PAD-US Schema and coded domain assignments. **This is the preferred option of GAP Data Managers.** Previous experience has proven security concerns limit implementation of one or two-way replication and synchronization by Stewards; however, additional pilots are encouraged. Check-outs will ensure the most accurate and timely update of source data. Check-out versions are helpful in maintaining all needed attributes (ID fields and conservation measures), and provide a record of changes made between versions of PAD-US. These will be checked into the “development” version of the PAD-US database and will be incorporated into the “production” database and published periodically.

- Blank Geodatabase

GAP will provide a blank geodatabase that includes the proper projection and coded domains. It will also include a blank feature class with all fields in their proper schema. This can be used to load the source data into PAD-US schema through proper field mapping, attribute, and domain assignment. Submission in this format requires extensive documentation related to field mapping, and also needs to include any models/scripts that were created to automate this process and to facilitate incorporation of future data. This option is best for data providers that already have well established and maintained databases, new data sources currently not in the PAD-US database, or for new data being created by a data provider. After receipt of the geodatabase, GAP staff will import the data into the “development” version of the PAD-US dataset. Data will be incorporated and published in the “production” database after GAP completes its QA/QC process.

13. PAD-US Publication

GAP staff will load each state database into the PAD-US geodatabase and complete a final QA/QC prior to publication. PAD-US is published annually as an ESRI file geodatabase as its size prevents national shapefiles; however, smaller shapefile exports are available upon request.

View or download the current PAD-US from the recently redesigned PAD-US viewer on USGS Gap Analysis Program Web site: <http://gapanalysis.usgs.gov/padusviewer>.

14. Comments or questions

The PAD-US Team is available to assist you with comments or questions:

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APPENDIX 1. Designation type (P_Des_Tp) crosswalk and definitions.

Domain Code	Primary Designation Type (Standardized Designation)	Primary Local Designation Type (Designation Provided in Source Data)	Definition
100	National Park	National Park (NPS)	Protected areas are large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities.
101	National Forest- National Grassland	National Grassland (USFS) Bankhead-Jones Land Use Land (BLM) Federal Forest Reserve (USGS) National Forest (USFS)	Forests or grasslands managed by the federal government for multiple resource values such as: timber, livestock grazing, water, wildlife, and recreation.
102	National Trail	National Trail (NPS) National Scenic Trail (NPS) Recreation Trail (USFS) Recreation Trail National Historic Trail (USFS)	The network of scenic, historic, and recreation trails created by the National Trails System Act of 1968. These trails provide for outdoor recreation needs, promote the enjoyment, appreciation, and preservation of open-air, outdoor areas and historic resources, and encourage public access and citizen involvement
103	National Wildlife Refuge	National Wildlife Refuge (FWS)	Areas managed by the United States Fish and Wildlife Service to protect wildlife and wildlife habitat
104	National Natural Landmark	National Natural Landmark (NPS) National Natural or Historic Landmark (BLM) National Natural or Historic Landmark (USFS)	Outstanding examples of US natural history including the best examples of biological and geological features in both public and private ownership

Domain Code	Primary Designation Type (Standardized Designation)	Primary Local Designation Type (Designation Provided in Source Data)	Definition
105	National Landscape Conservation System – Non Wilderness	National Monument (BLM)	The NLCS is composed of 27 million acres of land representing National Monuments, National Conservation Areas, Wilderness Areas, Wilderness Study Areas, Wild and Scenic Rivers, National Scenic and Historic Trails, and Conservation Lands of the California Desert managed by the BLM. A Secretarial Order released November 15, 2010, promoted the NLCS to the level of directorate within the organization and directs that the NLCS fulfill the priority objectives of maintaining land connectivity and biodiversity in the changing climate. Many National Scenic and Historic Trails are also part of NLCS; however, they are managed as line files in BLM’s data and were not updated in PAD-US. Previously aggregated polygon trail data are categorized as "National Trail." Valid existing rights are honored, and the designating legislation or proclamation may specify allowable uses such as grazing, oil and gas development, and recreation or uses that are not allowed. Beyond that, the BLM may consider other uses within the NLCS to the extent they are in harmony with the conservation and protection of NLCS objects and values.
		National Conservation Area (BLM)	
		Wilderness Study Area (BLM)	
		Wild, Scenic & Recreation River (BLM)	
		Forest Reserve (BLM)	
106	National Landscape Conservation System - Wilderness	Wilderness Area (BLM)	See NLCS – Non Wilderness definition above. Off-highway vehicles and the location of mining claims are prohibited in wilderness. Grazing is permitted.
107	Native American Land	Tribal Land	General category for lands owned or managed by tribal governments and not otherwise classified.
		Alaska Native Regional Corporations	
		American Indian Reservations- Federally Recognized Tribal	
		Entities (BIA)	
		Ceded Lands (BIA)	
		Native Allotment	
109	Protective Management Area - Feature	Arboretum or Botanical Area or Site	Protected areas are set aside to protect a specific natural monument or scenic feature, which can be a land form, sea mount, submarine caverns, geological feature such as caves or even a living feature such as an ancient grove. They are
		Botanical Area (FWS)	

Domain Code	Primary Designation Type (Standardized Designation)	Primary Local Designation Type (Designation Provided in Source Data)	Definition
		Botanical Reserve (BLM) Botanical Reserve (USFS) Cave Protection Area (NPS) (Only one 04/06/06) National Monument (USFS) National Monument and Historic Shrine (NPS) National Monument (NPS) National Monument (BLM) Scenic Area Scenic Area (BLM) Scenic Area (USFS) Scenic Byway (USFS) Scenic Viewshed (USFS) Pond Site Significant Cave & Cave System (BLM) Small Wild Area (TVA) Stream Bank	generally small protected areas with high visitor value.
110	Protective Management Area - Land, Lake or River	Backcountry Prescription (USFS) Cooperative Management and Protection Area (BLM) National Conservation Area (BLM)	General category for public lands managed primarily for environmental protection or conservation, and not elsewhere classified

Domain Code	Primary Designation Type (Standardized Designation)	Primary Local Designation Type (Designation Provided in Source Data)	Definition
		Inventoried Roadless Area (USFS)	
		Ecological Reserve (DOD)	
		Exxon Valdez Oil Spill Fee (USFS)	
		Late Successional Reserve (BLM)	
		National Lakeshore (NPS)	
		National Preserve (NPS)	
		Ecological and Historic Preserve (NPS)	
		National Reserve (NPS)	
		National Preserve (USFS)	
		Natural Area	
		Nature Preserve	
		Open Space	
		Other NPS Protected Areas (NPS)	
		River Corridor	
		Special Management Area (BLM)	
		State Conservation Area or Park	
		State Conservation Land	
		State Ecological Reserve	
		State Natural Area	

Domain Code	Primary Designation Type (Standardized Designation)	Primary Local Designation Type (Designation Provided in Source Data)	Definition
		State Natural Reserve State Nature Preserve Withdrawn Land (BLM) ANILCA: Alaska National Interest Lands Conservation Act (USFS)	
111	Habitat or Species Management Area	Zoological Area (USFS) Brown Bear Core Area (USFS) Coordination Area (FWS) Fish and Wildlife Conservation Area (USFS) Fish, Wildlife and Recreation Prescription Globally Important Bird Area (BLM) Habitat Protection Area (TVA) Habitat Protection Area (USFS) Managed Hunting Area (FWS) National Game Refuge (USFS) National Wildlife Refuge Overlay (FWS/DOD) Critical Habitat (FWS)??? Old Growth Habitat (USFS) Special Biological Areas (USFS) State Bird Sanctuary	Protected areas aim to protect particular species or habitats and management reflects this priority.

Domain Code	Primary Designation Type (Standardized Designation)	Primary Local Designation Type (Designation Provided in Source Data)	Definition
		State Seabird Sanctuary State Critical Habitat Area State Game Land State Game or Wildlife Sanctuary State Habitat Area State Refuges State Waterfowl Production Area State Wetland Conservation Area State Wildlife Management Area Wildlife Habitat Area (BLM) Wildlife Habitat Restoration Area Wildlife Management Area (FWS) Wildlife Observation Area (TVA) Wildlife Preserve (USFS) Wildlife Protection Area (ACE/DOD) Wildlife Reserve (BIA) Wildlife/Recreation Management Area (BOR)	
112	Recreation Management Area	National Recreation Area (NPS) National Recreation Area (BLM)	General category for public lands managed primarily for recreation and not elsewhere classified.

Domain Code	Primary Designation Type (Standardized Designation)	Primary Local Designation Type (Designation Provided in Source Data)	Definition
		National Recreation Area (BOR)	
		National Recreation Area (USFS)	
		State Wildlife Recreation Area	
		County Recreation Area	
		Military Recreation Area (DOD)	
		National Parkway (NPS)	
		National Recreation Area (DOD)	
		Public Fishing Area	
		Recreation Area	
		Remote or Semi-Remote Recreation (USFS)	
		Special or Extensive Recreation Management Area (BLM)	
		Special Recreation Management Area (BLM)	
		State Beach	
		State Fishing or Hunting Unit	
		State Lake or Reservoir	
		State Public Use Area	
		State Recreation River	
		State Recreation Area	
		State Scenic Corridor	
		University Recreation Area	

Domain Code	Primary Designation Type (Standardized Designation)	Primary Local Designation Type (Designation Provided in Source Data)	Definition
113	Resource Management Area	Lease (BLM)	General category for public lands in natural condition managed for multiple uses, including resource extraction, that are not elsewhere classified.
		Holding (BLM)	
		Natural Area with Extractive Uses (DOD)	
		Natural Resource Management Area	
		Public Land (BLM)	
		State Reforestation Area	
		Waterfowl Production Area (FWS)	
114	Wild and Scenic River	Wild, Scenic & Recreation River (USFS)	River corridors protected to preserve their free-flowing condition and immediate environments (on public land) that possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, or cultural values
		Wild, Scenic & Recreation River (BIA)	
		Wild, Scenic & Recreation River (BLM)	
		Wild and Scenic Study River	
		National River & Wild & Scenic & Recreation Riverway (NPS)	
		State Wild and Scenic River	
115	Research and Educational Land	Experimental Forest (USFS)	General category for lands designated for research, study, or educational purposes, and not elsewhere classified.
		Environmental Study Area (USFS)	
		Experimental Range (ARS)	
		National Scenic Research Area (BLM)	

Domain Code	Primary Designation Type (Standardized Designation)	Primary Local Designation Type (Designation Provided in Source Data)	Definition
		National Scenic Research Area (USFS) Research or Demonstration Area (USFS) State Educational Forest State Forest Research or Demonstration Area State Nature or Environmental Education Center State Research Forest University Research & Demonstration Land	
116	Marine Protected Area	State Marine Conservation Area National Estuarine Research Reserve (NOAA) National Seashore (NPS) State Underwater Preserve State Coastal Reserve or Aquatic Preserve State Bottomland Preserve Marine Garden State Buffer Preserve State Aquatic Preserve State Tidal Land State Estuary Reserve State Marine Park	A protected area whose boundaries include some area of ocean or Great Lake. <i>Official (Eligible and Member) MPAs of the National System of MPAs and recorded in the NOAA MPA Inventory are included in the PAD-US MPA feature class.</i>

Domain Code	Primary Designation Type (Standardized Designation)	Primary Local Designation Type (Designation Provided in Source Data)	Definition
		Special Management Fishery Area National Marine Sanctuary (NOAA) Underwater Preserve (NOAA) Marine National Monument (NOAA-FWS) Fish, Shellfish or Special Closure, Restricted Area, Management Area or Protection Zone Gear Restricted Area Marine Life Conservation District State Water Quality Protection Area Marine Protected Area Underwater Park	
117	Wilderness Area	 National Primitive Area (USFS) Proposed Wilderness Area (USFS) Proposed Wilderness Proposed Wilderness Area (FWS) State Wilderness Area Tribal Primitive Area Tribal Wilderness Buffer Zone (BIA)	Protected areas with large unmodified areas that retain their natural character, without permanent or significant human habitation and are managed to preserve their natural condition.

Domain Code	Primary Designation Type (Standardized Designation)	Primary Local Designation Type (Designation Provided in Source Data)	Definition
		Wilderness Area (FWS) Wilderness Area (NPS) Wilderness Area (USFS) Wilderness Areas (BIA) Wilderness Study Area (USFS) Proposed Wilderness Area (BLM) Wilderness Area (BLM) Wilderness Study Area (BLM)	
118	Area of Critical Environmental Concern	Area of Critical Environmental Concern (BLM) Proposed ACEC (BLM) State Area of Critical Environmental Concern	Implemented by the BLM and some states to protect important riparian corridors, threatened and endangered species habitat, cultural and archeological resources, and unique scenic landscapes that need special management attention. Extractive uses are permitted in some of these areas, with restrictions.
119	Research Natural Area	Ecological Study Area (TVA) Ecological Preserve or Natural Area National Outstanding Natural Area (BLM) Natural Area (TVA) Proposed Natural Area Proposed Research Natural Area (USFS) Proposed RNA (BLM)	Protected areas with unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.

Domain Code	Primary Designation Type (Standardized Designation)	Primary Local Designation Type (Designation Provided in Source Data)	Definition
		Research Natural Area (BLM) Research Natural Area (FWS) Research Natural Area (NPS) Research Natural Area (USFS) Scientific & Natural Area (NPS) Special Resources Area / Research Natural Area (DOD) State Forest Natural Area State Research Area Tribal Scientific or Natural Area	
120	Historic/Cultural Area	Archaeological Area (USFS) Historical Area (BLM) Historical Area (USFS) International Historic Site (NPS) National Battlefield (NPS) National Battlefield Park (NPS) National Battlefield Site (NPS) National Cemetery (DOD) National Cemetery (NPS) National Heritage Corridor (NPS) National Historic Site (NPS)	Public lands designated for protection of historical or cultural resources

Domain Code	Primary Designation Type (Standardized Designation)	Primary Local Designation Type (Designation Provided in Source Data)	Definition
		National Historical Park (NPS) National Memorial (NPS) National Military Park (NPS) Memorial Parkway (NPS) National Historic Park and Preserve (NPS) National Historic Landmark District (NPS) International Historic Site National Historic Reserve (NPS) National Capital Parks State Archaeological Site State Heritage Preserve State Historic Site State Historic Site State Historical Park	
121	Mitigation Land	Mitigation Lands (DOD) Mitigation Habitat Area State Mitigation Site Mitigation Park	Lands set aside for conservation to offset known impacts to an existing resource
122	Military Land	State Military Reservation Military Reservation (DOD)	Lands designated for military use with no specific conservation intent

Domain Code	Primary Designation Type (Standardized Designation)	Primary Local Designation Type (Designation Provided in Source Data)	Definition
123	Watershed Protection Area	Municipal Watershed (USFS) Other Water District Lands Water District Parks Watershed Open Space Watershed Conservancy Land Watershed Municipal	General category for lands and waters designated for the purpose of watershed protection.
124	Access Area	 County Access Area State Access Area State Access Parcel	Public access areas
125	Special Designation	State Right of Way Archaeological Area (BLM) Forest Restoration (USFS) Fossil Area (BLM) Geological Area (USFS) LUD: Land Use Designation II (USFS) Non-Wilderness Monument (USFS) Other Congressionally Designated Area (USFS) Proclamation Boundary (FWS) Special Interest Area (USFS)	General category for public lands having special conservation designations and not elsewhere classified.

Domain Code	Primary Designation Type (Standardized Designation)	Primary Local Designation Type (Designation Provided in Source Data)	Definition
		Special Management Area (USFS) Special State Management Area State Range Area	
126	Other Designation	State Restricted Area Agricultural Research Center (ARS) National Petroleum Reserve Department of Energy (DOE) Unknown Federal Easement Farm Service Agency Transfer Parcel (FWS) Non-Conservation Land (NPS) Federal Fish Hatchery (FWS) Fisheries Research Station (FWS) Holding (FWS) NPS Affiliated Areas (NPS) Other Bureau of Reclamation Land (BOR) Other Federal Land (USFS) Other Land (DOD/DOE) Other Land (FWS) Other Public Lands	Lands without specific conservation designations
127	Not Designated	Reservoir Retained Land	Areas with no known designation for protection

Domain Code	Primary Designation Type (Standardized Designation)	Primary Local Designation Type (Designation Provided in Source Data)	Definition
		Unknown	
		Water	
		Private Land - No Known Restriction	
		Inholding (BLM)	
300	State Park		Land owned and managed by a state government for open space and recreation values, protected from most human development, but may contain management activities that degrade or convert natural communities.
		State Park	
		Unknown State Park	
		Interstate Park	
		State Greenway	
		State Resort Park	
		State Rustic Park	
301	State Forest	State Forest	A forest owned by a state government
302	State Trust Land		U.S. lands granted to newly organized states that entered the Union to support essential public institutions. Most are held in trust for designated beneficiaries, principally public schools.
		State Trust Land	
		State Stewardship Trust Land	
303	State Other		State lands without specific conservation designations
		Mental Health Facility	
		Other Fish and Game Land	
		Other State Land	
		Other State Parks and Rec Land	

Domain Code	Primary Designation Type (Standardized Designation)	Primary Local Designation Type (Designation Provided in Source Data)	Definition
		State Fish Hatchery State Forest Education Center State Forest Nursery State Offshore & Other Submerged Land State Sovereign Land State Wayside (a rest area)	
500	Local Conservation Area	City Lake City Open Space County Wildlife Refuge or Management Area City Preserve or Natural Area County Preserve County Open Space County Restoration Area Regional Preserve Regional Open Space Regional Wilderness Area	Public lands owned or managed by local governments for conservation or open space purposes. It is often difficult to determine conservation intent between conservation and recreation purposes on local designations.
501	Local Recreation Area	Regional Shoreline City Beach City Park	Public lands owned or managed by local governments for recreation purposes. It is often difficult to determine conservation intent between conservation and recreation purposes on local designations.

Domain Code	Primary Designation Type (Standardized Designation)	Primary Local Designation Type (Designation Provided in Source Data)	Definition
		City Recreation Area City Zoo County Park County Playground Regional Park Regional Recreation Area	
502	Local Forest	Regional Forest City or Town Forest County Forest	Public lands owned or managed by a local government for the protection of ecosystem services associated with a forest.
503	Local Other	City Cemetery City Facility Regional Facility County Facility Other local government land	Public lands owned or managed by local government without a specified conservation designation.
700	Private Conservation Land	Conservation Easement (USFS) Audubon Society Preserve or Sanctuary City Conservation Easement Conservancy Easement (The Nature Conservancy) Conservation Easement (BLM)	Privately owned lands set aside for natural area conservation, including lands held or managed by non-profit or non-government entities.

Domain Code	Primary Designation Type (Standardized Designation)	Primary Local Designation Type (Designation Provided in Source Data)	Definition
		Conservation Easement (DOD/DOE)	
		Conservation Easement (Ducks Unlimited)	
		Conservation Easement (FWS)	
		Conservation Easement (NPS)	
		Conservation Easement (NRCS)	
		Conservation Easement (Rocky Mountain Elk Foundation)	
		Conservation / Natural Area	
		County Conservation Easement	
		Ducks Unlimited Conservation Preserve	
		Local Land Trust Easement	
		Local Land Trust Preserve	
		Nature Conservancy Cooperative Managed Property	
		Nature Conservancy Deed Restriction	
		Nature Conservancy Fee Land (for example, Preserve)	
		Private Conservation Easement/Conservation Deed Restriction	
		Private Institution - Managed for Biodiversity	
		Home Owners Association Protected Lands	

Domain Code	Primary Designation Type (Standardized Designation)	Primary Local Designation Type (Designation Provided in Source Data)	Definition
		State Managed Conservation Easements	
		State Scenic Easement/Reserve	
701	Agricultural Protection Land	Farmland Preservation	Conservation easement or other legal mechanism protecting private agricultural land from development
		Farm Land Trust Land	
702	Conservation Program Land	Wetland Reserve Program Land (NRCS)	Contractual, limited term, program for private land conservation and restoration
		Conservation Reserve Program Land (NRCS)	
		Wildlife Habitat Incentive Program Land (NRCS)	
703	Forest Stewardship Land	Forest Legacy Easement (USFS)	Conservation easement protecting "working forests," those that protect water quality, provide habitat, forest products, recreational opportunities and other public benefits on private land.

APPENDIX 2. Gap Status Code assignment methods.

The following information is provided to support GAP Code assignment following standard GAP methods (Crist, P.J., and others. 2007. Mapping and Categorizing Land Stewardship. Version 2.1.1. A Handbook for Conducting Gap Analysis, USGS Gap Analysis Program) with management plan review, land manager interview, or local knowledge:

GAP Status Code Definitions

Status 1: An area having permanent protection from conversion of natural land cover and a mandated management plan in operation to maintain a natural state within which disturbance events (of natural type, frequency, intensity, and legacy) are allowed to proceed without interference or are mimicked through management.

Status 2: An area having permanent protection from conversion of natural land cover and a mandated management plan in operation to maintain a primarily natural state, but which may receive uses or management practices that degrade the quality of existing natural communities, including suppression of natural disturbance.

Status 3: An area having permanent protection from conversion of natural land cover for the majority of the area, but subject to extractive uses of either a broad, low-intensity type (for example, logging, OHV recreation) or localized intense type (for example, mining). It also confers protection to federally listed endangered and threatened species throughout the area.

Status 4: There are no known public or private institutional mandates or legally recognized easements or deed restrictions held by the managing entity to prevent conversion of natural habitat types to anthropogenic habitat types. The area generally allows conversion to unnatural land cover throughout or management intent is unknown.

Assumptions and Criteria

The following are some criteria and assumptions used by GAP to determine biodiversity management status for individual land units:

Permanence of protection from conversion of natural land cover to unnatural (human-induced barren, cultivated exotic-dominated, or arrested early succession). The assumption is that retention of natural land cover is of prime importance to maintaining biodiversity. We define "natural land cover" simplistically as areas not maintained in an unnatural state (defined above) by human activities, as visible from remote sensing or revealed through management documents, land

manager or local conservation practitioner interview. That is, past alterations may be evident, but ongoing alteration is not evident or intended. Management to support biodiversity is permitted (see Type of management below).

Relative amount of the land unit managed for natural cover. The assumption is that the majority of a land unit must be maintained in a natural state for the reasons stated in the above criterion. We arbitrarily set 5 percent as the maximum amount of a land unit that can be managed in an unnatural state (as defined in the above criterion) for it to be considered "natural" for a Status 1 rank. All other status ranks allow human disturbance to varying degrees. We do not currently attempt to measure actual conversion of land cover in a land unit and rely instead on the management documents. Anthropogenic land cover <5 percent within a land unit otherwise managed for biodiversity can be considered an "inclusion" that has an effect but does not dictate the management status.

Inclusiveness of the management, that is, single feature or species versus all biota. The assumption is that a land unit managed to retain all of its elements will maintain biodiversity better than a land unit managed only for a single species (oftentimes at the expense of other species). If management is for a "keystone" species for which the majority of the land unit must be maintained in a natural state, we consider that to be inclusive of all elements.

Type of management (for example, suppresses or allows natural disturbance) and degree that it is mandated through legal and institutional arrangements. The assumptions are that management that allows or mimics natural disturbance regimes, such as fire, will maintain biodiversity better than land units that suppress disturbance.

GAP Status Code Categorization

A dichotomous key to consistently rank the biodiversity management intent for each protected area is provided below (**Error! Reference source not found.**). The key should not be used in the same strict terms as a scientific key in that you will rarely know enough about a land unit to categorize it absolutely. It is intended to make a subjective process less so. In using the terms "permanent" and "legally enforceable" we recognize that all conditions are subject to change, even in wilderness and national parks, but the intent is for the condition to be of very long term.

Table 14. Dichotomous key for Gap Status Code assignment

- A-1: If the management intent can be determined through agency or institutional documentation GO TO A-2, if not, GO TO A-5
- A-2: If the land unit is subject to statutory or legally enforceable protection from conversion to anthropogenic use of all or selected biological features by state or federal legislation, regulation, private deed restriction, or conservation easement intended for permanent status, GO TO B-1; if not, GO TO A-3
- A-3: If ecological protection is not legally enforceable, temporary, or lacking but managed by a plan intended for permanent status, GO TO A-4; if not, GO TO A-5
- A-4: Management to benefit biological diversity is provided by a written plan in place or in process under an institutional policy requiring such management - **Status 3**
- A-5: Not subject to an adopted management plan or regulation that promotes biological diversity, or management intent is unknown - **Status 4**
- B-1: If the total system in the land unit is conserved for natural ecological function with no more than 5 percent of the land unit in anthropogenic use, GO TO B-4; if conservation provisions apply only to selected features or species, GO TO B-2
- B-2: If management emphasizes natural processes including allowing or mimicking natural ecological disturbance events, but also allows low anthropogenic disturbance, renewable resource use, or high levels of human visitation on more than 5 percent of the land unit - **Status 2**; if not, GO TO B-3
- B-3: Management allows intensive, anthropogenic disturbance such as resource extraction, military exercises, or developed or motorized recreation on more than 5 percent of the land unit, but includes ecological management for select features - **Status 3**
- B-4: If management strives for natural processes including allowing or mimicking natural ecological disturbance events - **Status 1**; if not, GO TO B-5
- B-5: Managed for natural processes, but some or all disturbance events are suppressed or modified - **Status 2**

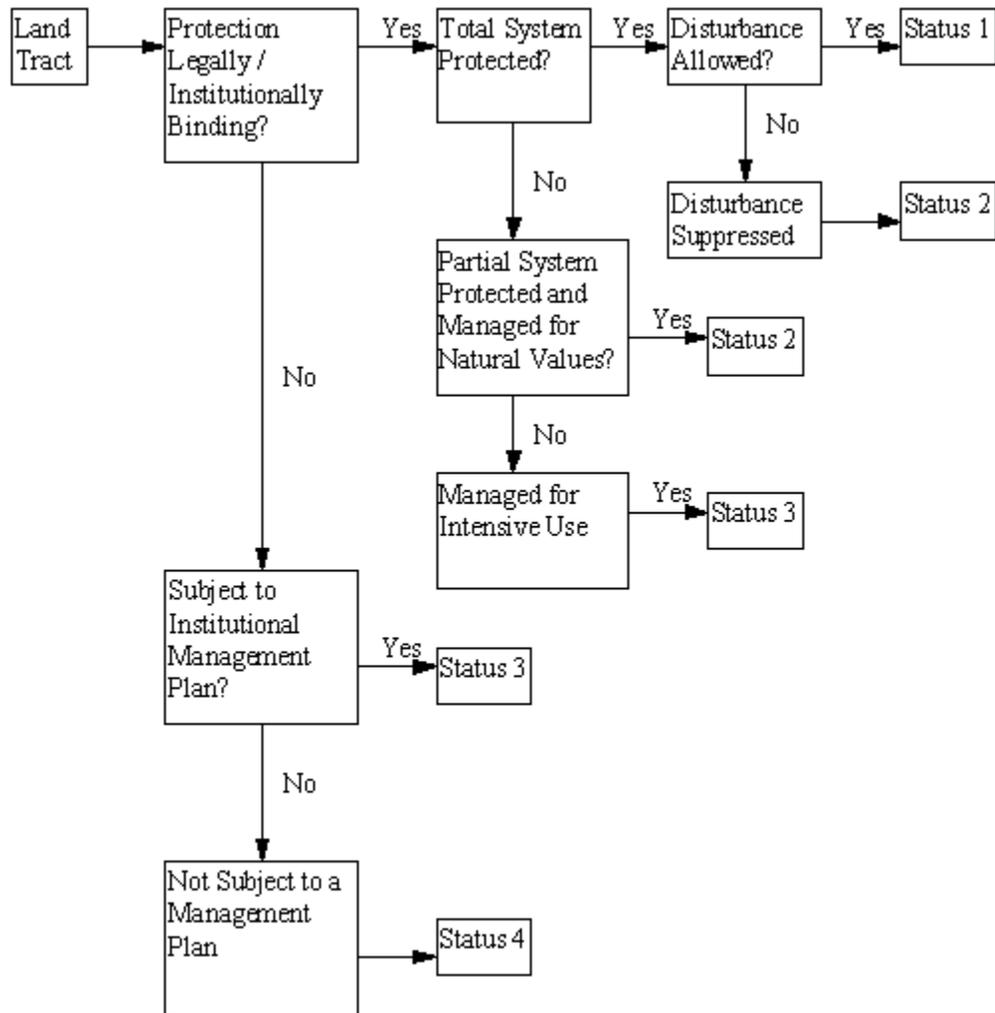


Figure 1. The dichotomous key in graphic flow-chart format.