How to Use Protected Areas Data in Base Maps

Guidelines for Incorporating Public Park and Related Protected Areas Data for the U.S. into Online Base Maps

Updated May 14, 2019

Revisions are made to these guidelines periodically.
Check for most current version at Federal Lands Work Group website.

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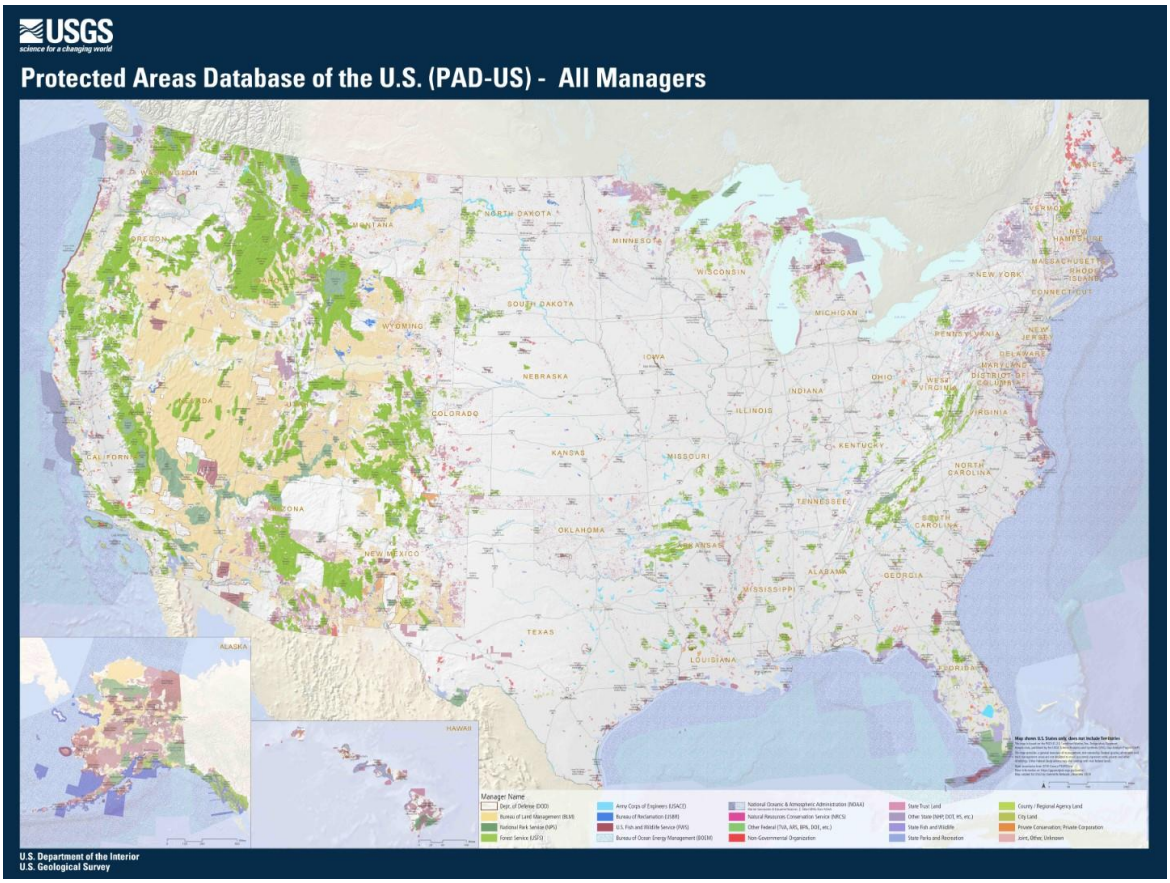
FGDC.GOV
FEDERAL GEOGRAPHIC DATA COMMITTEE

Prepared by the Federal Lands Work Group of the FGDC
Supported by USGS SAS Biodiversity Science

Most recent changes

- 5/14/2019 – updated NPS data access URL

The **Protected Areas Database of the U.S**. (PAD-US), classified by managing agency (digital image and print files of this map are available on the USGS PAD-US website)



INTRODUCTION

This memo is a collaboration among members of the Federal Geographic Data Committee's Federal Lands Work Group (FLWG), with support from the U.S. Geological Survey (USGS), which is also a member of the group. The memo was prepared with contributions from USGS and the other federal agencies noted below, coordinated by the USGS PAD-US cooperators at GreenInfo Network and at the USGS Gap Analysis Project at Boise State University.

The FLWG is a body that includes representatives from 11 federal land and water managing agencies and stakeholders, co-chaired by the National Park Service and USGS. The FLWG is working to integrate federal land ownership and management designations in the Protected Areas Database of the United States (PAD-US) to meet common agency needs. PAD-US is a National Geospatial Data Asset in the Cadastral Theme, managed and published by USGS. Learn more about the FLWG at: https://communities.geoplatform.gov/ngda-govunits/federal-lands-workgroup/.

The purpose of the memo is to support those developing interactive base map applications – whether for general purpose and navigation mapping, or for focused recreation applications, or other uses. Protected areas data can be complex and the FLWG hopes that this document will clarify choices for business and other users publishing base maps for a wide range of uses.

The FLWG encourages base map publishers to consider the single aggregated inventory of all U.S. public park and other protected areas, PAD-US, as a source for efficient base map development or updates. Significant sections of this memo explain what PAD-US is, and how to make use of its data. This is particularly true for the federal lands within PAD-US, which also includes state, regional, and local park and open space data. Working with USGS, the FLWG has developed protocols for the way that federal agency's lands data are incorporated into the overall inventory, providing a single source for all such lands in America.

For those base map publishers who wish to access individual agency data, this memo also provides agency-by-agency information on those data sets. PAD-US is updated periodically, and some individual federal agencies can provide more up-to-date information on their particular holdings, if that is of value to the base map publisher.

The intent of the FLWG is that base map publishers use the most relevant and accurate data in their applications, and hopes this memo will help achieve the objective.

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How to Use Protected Areas Data in Base Maps

Quick Summary

Parks and other publicly owned open spaces are key features in many base map products used in interactive web applications. Base map providers can use **a single national geospatial data set** of these lands and waters, the U.S. Geological Survey **Protected Areas Database of the U.S.** (PAD-US, the official national inventory of these areas), and can also use **data for individual federal agencies** and others.

1. **PAD-US:** To get access to the **PAD-US** aggregated U.S. data set (current version is 1.4, May 2016; a major update, version 2.0, will be published in 2019) and learn more about it, visit the USGS PAD-US web site.

2. **INDIVIDUAL FEDERAL AGENCIES**: To get the most current data for **individual federal agencies**: a) review the agency descriptions and links below, and b) for federal and state agencies, visit the Data Stewards page on the companion PAD-US web site, ProtectedLands.net, where you can access details on each data steward.

Information in this memo includes separate sections for **land** and **marine** area data, reflecting how PAD-US is set up. Learn more about how **PAD-US** is **structured**:

- Review the PAD-US data manual, and
- Use the PAD-US help system (available for PAD-US 2 and later).

PAD-US is developed by USGS in **collaboration** with states, nonprofits, and the Federal Lands Work Group (FLWG, made up of the primary geospatial professionals from most federal land or water management agencies). USGS and FLWG encourage base map providers to apply the guidelines presented in this document to any web sites, applications, or other interactive products they may be publishing.

The USGS PAD-US team is also available to help with specific questions or needs, including connecting to individual land managing agencies. **Contact** us at: pad-us@usgs.gov.

Contacts for individual federal agencies are listed in each agency's data description sections.

8 Things to Know About Using Protected Areas Data

The following are eight very important recommendations and caveats about working with PAD-US (or with specific agency) data when developing a public-facing interactive map project:

1. **Fee** land boundaries (those lands owned outright by agencies) should be the primary source for showing protected areas on base maps. Use of **proclamation** (administrative) boundaries is **not** recommended, as these often contain significant areas of private property and can easily mislead viewers about the location of public lands.

2. PAD-US also contains boundaries for **designated** areas (Wilderness, National Monuments, etc.) - these can be very useful for base map publishers but they are **overlays** on fee lands and may not align exactly with fee land boundaries. Designated areas are not the same as ownerships, as they are defined in policies not property deeds. In the forthcoming PAD-US 2.0, use the Designation feature class to explore these areas. Learn more in Appendix 2.

3. Designations can **overlap each other** (e.g., Wilderness can overlay National Monuments), as well as overlapping owned areas like national parks, forests, or wildlife refuges).

4. **Easements** (lands with enforceable agreements to limit development) in PAD-US are generally not appropriate for display on base maps, as they most often overlay private land and do not allow for public access. Some easements do allow access, but this status is not always reliable – it is better to not use easements at all.

5. PAD-US is generally considered to be reliable down to a **scale** of 1:24,000; however, exceptions exist as boundary quality varies by data source. In some states, accuracy is even better (below 1:10,000).

6. **Public access** is estimated for most lands in PAD-US, although some remain unknown. Lands classified as *Open* have no major restrictions on access; those classified as *Restricted* typically require a permit or have very seasonal hours; those shown as *Closed* should either not be shown or so indicated on any base map. PAD-US includes military and Department of Energy lands – these are almost always *Closed* sites.

7. **Federal** data in PAD-US comes exclusively from federal agencies. Even if state inventories that go into PAD-US have federal data, that data is removed in the PAD-US publication process and replaced with agency official data integrated by the PAD-US team. This highlights an occasional challenge – some states seek to improve the geographic accuracy of federal lands data or have parcel data systems that track federal data; but PAD-US is based on federal source agencies being the authoritative sources of their own data, whether it is more or less accurate than what a state has.

8. For all agencies in PAD-US (federal, state, local), **more current data** may be available from those source agencies than what is in PAD-US, which is published every year or two. Base map publishers will need to weigh timeliness in relation to having a single data set.

See next page for a summary of PAD-US and source agency data completeness and update status.

USGS
science for a changing world

STATE OF PAD-US DATA

Completeness, Scale, and Update Frequency for Source Data in the Protected Areas Database of the U.S. as of January 2019

FEE COMPLETENESS

- ● > 95%
- ◓ 80-95%
- ○ < 80%

SCALE OF DATA

1 : 24,000

Over 24,000 (mostly 100,000 or greater)

UPDATES:	2+ YEARS	ANNUAL		FREQUENT
PAD-US	○ PAD-US FEDERAL ◓ PAD-US STATE ◓ PAD-US LOCAL ○ PAD-US NGO			
FEDERAL AGENCIES	◓ USACE[1] ○ USBR[1] ○ TVA, ARS, DOE[6]	● DOD[2] ● NOAA ● BOEM	● USFWS ● NPS[3] ● BLM[4]	● USFS[5]
STATES				
● > 95%	KY, FL, DE, ME, CO, PA	CA, VA, UT, AZ, MA, NJ		
◓ 80-95%	TN, WV, NM, NE KS, OK, TX, MN MO, WI, IL, MI IN, OH, GA, SC	WA, MT, WY, OR, AL, CT, MD		IA
○ < 80%	AL, MI, SD, ID, NV ND, SD, LA, MS AR, DE, AK, HI			

[1] USBR and USACE data development in progress, suitable for display at 1:24,000

[2] DOD boundary outline suitable for display at 1:24,000. Internal ownership implied.

[3] Select NPS Units represented by Proclamation boundaries, suitable at 1:100,000

[4] BLM fee ownership is implied as the original federal land holding agency

[5] USFS fee lands in AK suitable 1:63,360

[6] National data steward unknown

Updated May 2019

U.S. Department of the Interior
U.S. Geological Survey

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I. Introduction to U.S. Protected Areas Data

In the United States, lands used for recreation and other open space uses (forestry, habitat, etc.) are owned and managed by government agencies and non-governmental organizations, along with a few other types of organizations. In total, about 9 billion acres are included in the full PAD-US inventory, including overlapping marine areas (nearly 5 billion acres), overlapping management designations (about 1 billion acres), and proclamation type boundaries with limited utility (1.5 billion acres). Of this sum, approximately 745 million acres are known to be available for land-based public recreation and related uses across all U.S. States and Territories (nearly 492 million acres in the contiguous U.S.) – some open for public access, others have permits or other restrictions on such use.

Over 18,000 agencies and organizations own and/or manage these lands. At the federal level, 10 agencies, noted below, are owners or managers of lands generally related to base map production. Most states have park, wildlife and/or natural resource agencies, and there also exist many thousands of regional, county, and city agencies and districts that hold and manage local lands for recreation and other open space uses.

In addition, there are over 1,000 non-governmental organizations, primarily local land trusts but also national groups like The Nature Conservancy, and Ducks Unlimited, that own a mix of lands – some directly and some only where they hold a conservation easement. Lands under easement remain in private ownership but with uses limited to open space purposes and often to not allow public access – easements are generally not recommended for inclusion in any base map.

Geospatial Inventories of Protected Areas

Each federal, state, local, or nonprofit owner of protected areas may maintain its own geospatial (GIS) inventory of such lands – and some states have aggregations of agency data in statewide inventories.

For the nation as a whole, there is one official inventory, the USGS Protected Areas Database of the U.S. (PAD-US), made up of an aggregation of federal agency data combined with state by state collections and supplemented with nonprofit-maintained databases, including land trust areas owned outright or protected by conservation easements, both governmental and non-governmental.

As a base map publisher, you have the option to use data from any of these sources (more details in a later section of this memo):

1. **PAD-US**: a single national GIS inventory(and only as complete as its component agencies' contributions) – the new PAD-US 2.0 brings much greater accuracy and completion, and the next release will likely fill in most urban parks, which currently are not present for many states.
2. **Individual federal agencies**: inventories for each agency, some updated daily, others only infrequently (there are a few of the smaller federal land management agencies that do not yet have complete inventories of their lands) - most federal agencies have data downloads, some have web map services, and only a few have APIs.

3. **State aggregations**: state agencies, nonprofits, or universities in approximately a dozen states have relatively complete aggregated GIS inventories, with the other states have a range of completion and availability – like federal agencies, there is a mix of downloadable data and served data for states.
4. **Individual state/local agencies**: the over 18,000 state, regional and local (city/county) agencies have a range of available GIS data, but gathering it from each agency below the state level and integrating it can be challenging.

Individual federal agencies' data often has another data structure than PAD-US, and any use of these data sets should carefully follow the relevant agency guidelines. For example, one large federal agency uses an "interests" field to define the manner in which it holds land – some of these interests, like leases or agreements, will usually not be appropriate for recreational uses.

You can learn more about all these federal, state, and nonprofit agencies and options on the PAD-US companion web site, www.protectedlands.net/data-stewards.

Concepts in Protected Areas Inventories

"Protected Areas" is an umbrella term for a wide range of land and water areas. It stems originally from the long-standing use of such data to define areas by the management intent for biodiversity protection. However, PAD-US consists of a much wider array of data from thousands of agencies, and uses a broad definition intended to include all parks and other public open space areas that serve many uses beyond just biodiversity.

As a result of this approach, PAD-US includes:

- Federal/national parks, refuges, preserves, forests, and other lands and waters
- State parks and preserves
- Regional and local (city/county) parks, preserves, and other open spaces
- Marine protected areas (mostly federal)
- Lands conserved by conservation easements (nonprofit land trusts, government agencies)
- PAD-US also includes military lands, which are not appropriate for defining recreational uses – these and other lands are flagged as "closed" in the PAD-US Public Access attribute.

In addition to these ownership-based holdings, PAD-US also includes layers for **Designations** and **Proclamations**. Designations are policy overlays such as Wilderness Areas or National Monuments, while Proclamations are administrative boundaries (they do not define ownerships and shouldn't be used for base maps). Learn more about Designations in the **Appendix**.

Understanding PAD-US Data – Sources, Structure, Attributes

To work effectively with PAD-US, it is important to **understand** how it works. The points below are just a quick tour – base map providers should use the resources bulleted below for a more complete understanding of the data.

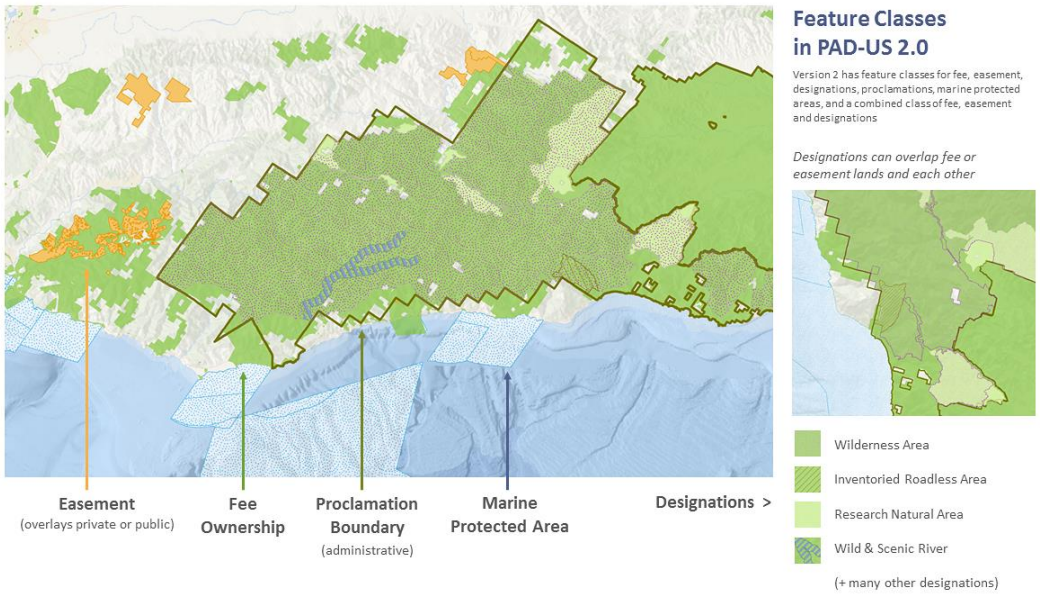
PAD-US GIS data is structured to fit a **defined data protocol**, which mostly consists of how attributes of protected areas are defined, classified, and given values. Learning what these attributes mean and how they are coded is **crucial** for base map providers – see these links for **more information**:

- USGS PAD-US data manual
- PAD-US online help system (available with version 2.0 release)

Because PAD-US data comes from many **sources**, the PAD-US team has to translate these data sources into its common framework:

- 11 **federal** agencies, through the Federal Lands Work Group, have all agreed to a sharing protocol in which their source data is translated into PAD-US structure. At least one federal agency publishes data sets from their core data that are directly compatible with the PAD-US protocol, even if their original source data is in a somewhat different structure. USGS is working with federal agencies to extend this approach to as many as possible.
- **State data inventories** come in a variety of approaches. Approximately a dozen states have inventories that can be contributed as needed into PAD-US editions – these states may have more current data for their states than PAD-US, which has a longer release cycle. Other states may not have complete inventories of their own. See www.protectedlands.net/data-stewards for more details about state completeness.
- Several national **nonprofits** share data which is aligned with the PAD-US standard.

This graphic illustrates the **data layers** in PAD-US – see the Appendix for a list of the core data attributes.



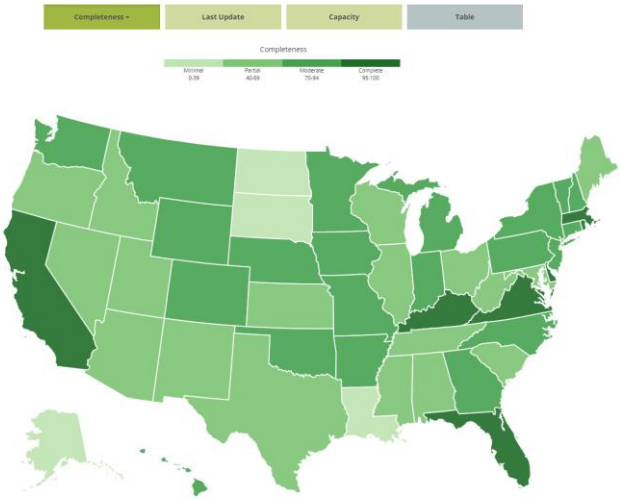
Current Status of Federal and State-by-State Inventories

PAD-US includes data from all federal agencies and from state inventories (as well as easements, which are not further discussed in this memo as they are generally not appropriate for public base map use). Here is the **current state** of completion/accuracy of this data for federal agencies – these figures are generalized estimates that balance acres inventoried and boundary/attribute quality and cover data for fee, designations, and easements:

FEDERAL AGENCY	% DONE	NOTES
National Park Service (NPS)	95%	Fee data is provided for 90% of NPS units, and proclamation boundaries for all units
Forest Service (USFS)	99%	National Forests managed for multiple uses, plus Wilderness and other areas
Bureau of Land Management (BLM)	85%	Includes public lands managed for multiple uses (including energy, grazing), plus conservation and other areas
Fish and Wildlife Service (FWS)	89%	National Wildlife Refuges and other areas
Bureau of Reclamation (USBR)	50%	Mostly reservoir or surrounding sites
Army Corps of Engineers (ACE)	80%	Mostly reservoir or surrounding sites
Bureau of Ocean Energy Management (BOEM)	95%	Outer continental shelf areas for energy leasing, not generally suitable for recreation
National Oceanic and Atmospheric Administration (NOAA)	95%	Marine sanctuaries and reserves
Department of Defense (DoD)	79%	Military bases, not generally suitable for recreation
Bureau of the Census	100%	State boundaries used in PAD-US
Tennessee Valley Authority (TVA)	60%	Mostly reservoir sites or surrounding sites

(In PAD-US, but not included in table: Dept. of Energy (DOE), Natural Resources Conservation Service (mostly easements), and Agricultural Research Service (ARS) – these areas are rarely open for public use)

Access the status of **state inventories** at http://www.protectedlands.net/data-stewards/.



Outlook for Protected Areas Data

As noted above, PAD-US will become increasingly complete over the next two to three years. Due to the effort to collect and integrate very large data sets and the limitations of many states, PAD-US will not be fully complete (that is, "caught up", particularly for local parks) for some time, but the goal is to seek completion by 2020. PAD-US remains the official nationwide inventory and it will continue to be an essential tool for base map providers, along with many other institutions.

See page iii of this document for an illustration of overall PAD-US and source agency data status.

Federal agencies* group into those who are now functionally complete (NPS, FWS, USFS, DOD, NRCS, BOEM, NOAA) or will be within a year or so (BLM, USACE), and those who have a larger task to complete and share their lands data (USBR, DOE, TVA) – particularly if they are not provided resources for this important work.

The **outlook** for states varies greatly and challenges continue for many states to act as regular sources of information. The states with the largest holdings tend to be relatively able to continue updating; those with fewer lands are sometimes less able to do so. A new PAD-US State Lands Working Group will begin in 2019 to increase awareness of and build support for state stewards.

An important and encouraging element in all of this is the work by the **Trust for Public Land** (TPL) to collect a complete GIS inventory of parks in all U.S. urban areas, required for their initiative to increase park access. Known as ParkServe, TPL's effort will contribute its park data into PAD-US most likely in 2019, filling in a large gap in the national inventory. This will also help many states by providing them PAD-US structured data for their own state inventories where that does not now exist.

Finally, to learn more about the nature of and future goals for PAD-US, an attractive and thorough summary and detailed **PAD-US Action Plan** is available for download at www.protectedlands.net/vision

***Federal Agency Acronyms:**

USFS - U.S. Forest Service

BLM - Bureau of Land Management

NPS - National Park Service

FWS - U.S. Fish & Wildlife Service

USBR - U.S. Bureau of Reclamation

USACE – U.S. Army Corps of Engineers

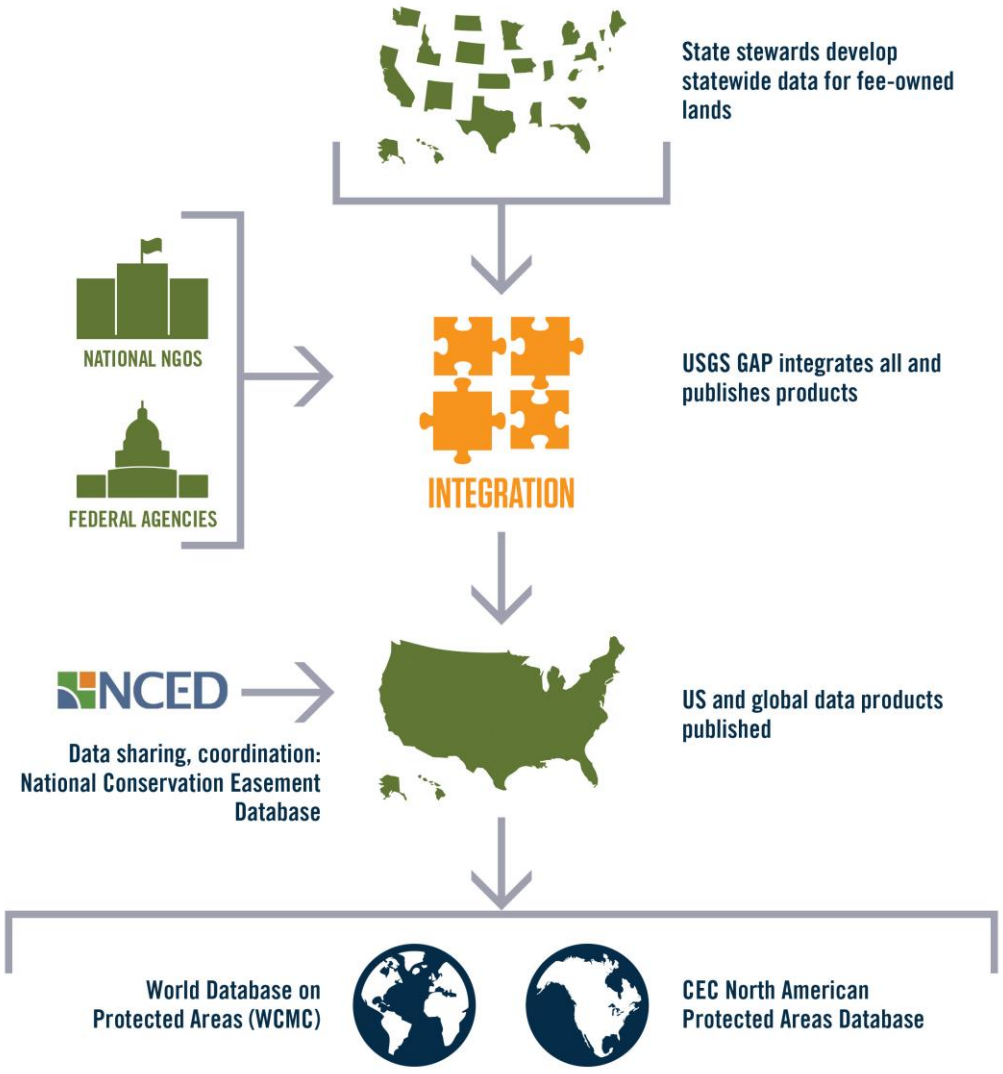
NOAA - National Oceanic and Atmospheric Administration

BOEM - Bureau of Ocean and Energy Management

DoD - Department of Defense

USGS – U.S. Geological Survey

How PAD-US is Built



II. Federal Geospatial Data Overview

The following are key elements in the overall management of federal geospatial data:

FGDC: Broadly, federal geographic data is coordinated through the Federal Geographic Data Committee (FGDC):

The Federal Geographic Data Committee (FGDC) is an organized structure of Federal geospatial professionals and constituents that provide executive, managerial, and advisory direction and oversight for geospatial decisions and initiatives across the Federal government. In accordance with Office of Management and Budget (OMB) Circular A-16, the FGDC is chaired by the Secretary of the Interior with the Deputy Director for Management, OMB as Vice-Chair.

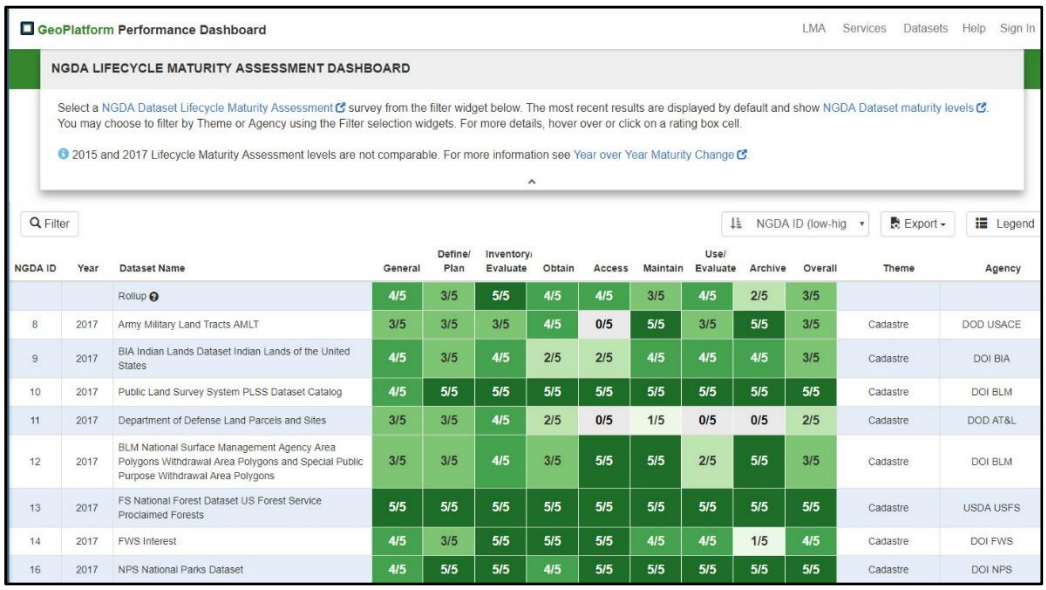
NGDA Themes and Cadastre Data: A key role of the Committee is to steward the National Geospatial Data Asset (NGDA) system, which includes a wide range of geospatial data. Within this data are approximately a dozen "framework" data themes, one of which is "Cadastre", or boundary data. Protected Areas data in PAD-US and for individual agencies are within this Cadastre theme which is accessed through the FGDC GeoPlatform.

GeoPlatform: Data sets within NGDA Themes can be accessed through an index site, with data sets linking to the GeoPlatform.gov metadata. Details on just the data within the **Cadastre** theme can be found on this web page:

Data.gov: Integrated access to specific datasets within the federal government is available at www.Data.gov – this includes PAD-US related data and much more. However, finding specific GIS data sets can be challenging on Data.gov, which is working to improve – this memo provides direct access to agencies with relevant protected areas GIS data.

Lifecycle Maturity Assessments: Reporting on status of National Geospatial Data Assets (NGDA) is required under the OMB Circular A-16, which is done using the Lifecycle Maturity Assessment (LMA) system. The LMA system tracks the evaluation of each NGDA based on the seven stages of the geospatial data lifecycle through a bi-annual surveys. Review a PDF of this assessment here.

The assessments from these surveys are presented in the GeoPlatform LMA Dashboard, shown below:



GeoPlatform Performance Dashboard

LMA Services Datasets Help Sign In

NGDA LIFECYCLE MATURITY ASSESSMENT DASHBOARD

Select a NGDA Dataset Lifecycle Maturity Assessment survey from the filter widget below. The most recent results are displayed by default and show NGDA Dataset maturity levels. You may choose to filter by Theme or Agency using the Filter selection widgets. For more details, hover over or click on a rating box cell.

2015 and 2017 Lifecycle Maturity Assessment levels are not comparable. For more information see Year over Year Maturity Change.

Filter | NGDA ID (low-hig | Export | Legend

NGDA ID	Year	Dataset Name	General	Define/ Plan	Inventory/ Evaluate	Obtain	Access	Maintain	Use/ Evaluate	Archive	Overall	Theme	Agency
		Rollup	4/5	3/5	5/5	4/5	4/5	3/5	4/5	2/5	3/5		
8	2017	Army Military Land Tracts AMLT	3/5	3/5	3/5	4/5	0/5	5/5	3/5	5/5	3/5	Cadastre	DOD USACE
9	2017	BIA Indian Lands Dataset Indian Lands of the United States	4/5	3/5	4/5	2/5	2/5	4/5	4/5	4/5	3/5	Cadastre	DOI BIA
10	2017	Public Land Survey System PLSS Dataset Catalog	4/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	Cadastre	DOI BLM
11	2017	Department of Defense Land Parcels and Sites	3/5	3/5	4/5	2/5	0/5	1/5	0/5	0/5	2/5	Cadastre	DOD AT&L
12	2017	BLM National Surface Management Agency Area Polygons Withdrawal Area Polygons and Special Public Purpose Withdrawal Area Polygons	3/5	3/5	4/5	3/5	5/5	5/5	2/5	5/5	3/5	Cadastre	DOI BLM
13	2017	FS National Forest Dataset US Forest Service Proclaimed Forests	5/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	Cadastre	USDA USFS
14	2017	FWS Interest	4/5	3/5	5/5	5/5	5/5	4/5	4/5	1/5	4/5	Cadastre	DOI FWS
16	2017	NPS National Parks Dataset	4/5	5/5	5/5	4/5	5/5	5/5	5/5	5/5	5/5	Cadastre	DOI NPS

The rankings for each Cadastre data set, based on the LMA geospatial data lifecycle, are shown on the LMA dashboard. This allows anyone to understand the general status of any presented agency data set, which can be very useful in further understanding the nature of this data.

Remember, however, that not all federal protected areas datasets are in the NGDA Cadastre Theme (e.g., Army Corps, Bureau of Reclamation, NOAA Marine Protected Areas are not in the Theme).

III. Guidelines for Using PAD-US and Federal Agency LAND Data

This section applies to **land** areas – the next section describes **marine** areas.

The following pages have **data guidance statements** for: a) USGS PAD-US, for use of the **overall** inventory, and b) each of these eight federal agencies, for accessing their **individual** data sets:

- U.S. Forest Service
- Bureau of Land Management
- National Park Service
- U.S. Fish & Wildlife Service
- U.S. Bureau of Reclamation
- Army Corps of Engineers
- Tennessee Valley Authority (information not yet available)
- Department of Defense (note - most areas closed to public use)
- Bureau of the Census (for state lines used in PAD-US)

Each data guidance section includes these **elements**:

1) Agency overview: a summary of the purposes and roles of each agency in relation to protected areas data.

2) Description of areas included: For each type of land/water, discussion of what it represents and how it should generally be depicted in public-facing applications.

3) Current state of data: For each type of data, the current state of completion, coverage and quality of the data.

4) Best practices for use: Agency summary recommendations for appropriate use of the data in base maps (and guidance as to what not to do)

5) Source(s) for agency data: Listing of the data set(s) held by the agency and information on downloading or API functions

6) Contact(s): People/organizations and contact points, annotated by roles as needed

You can also find online information for **each of federal land managing agencies** on the ProtectedLands.net web site. On that page, links in the table, "Estimated Federal Lands Completeness", lead to agency details including the links for data access and contacts for that federal agency – these links are also provided in the agency sections below, but for most current information, see the website links.

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PAD-US – the USGS Protected Areas Database of the U.S.

https://usgs.gov/gapanalysis/PAD-US

1. Overview: PAD-US is the official national inventory of parks and other protected areas, managed by USGS and developed by aggregating data from 13 federal agencies, all 50 states, U.S. territories, and conservation easements from the National Conservation Easement Database (NCED). While PAD-US is the national aggregated inventory, individual agencies are the authoritative source of their lands data and may have more current information.

2. Areas included: Fee owned lands for the above agencies, Designation boundaries (Wilderness, National Monuments, etc.), mostly for federal agencies, Marine Protected Areas, Easements (as is from NCED, mostly private lands), and Proclamation boundaries which define administrative areas and are not ownerships.

3. State of data: Available as an Esri geodatabase as well as shape file options and web services. Current release is 1.4 from May 2016; announcement of Version 2.0 is expected in 2019, bringing major upgrades to content, database structure, help and other aspects. See http://www.protectedlands.net/data-stewards/ for estimates of data completeness for the current release – a summary of PAD-US data status is on page iii of this document.

4. Best practices for use:

- Individual agencies in PAD-US remain the authoritative sources for their own data which may be available in a more current form than what is in PAD-US
- For recreation related base maps, use the PAD-US Fee ownership layer, plus the Designations layer
- Use “Manager Name” for best depiction of managing agency or “Manager Type” for generalization (Federal, State, Local government, etc.).
- Note “Owner Name” includes data gaps for some agencies (BLM, USACE, USBR, DOD, Tribal)
- Use “Unit Name” for labels, beware field is in transition to achieve standard: Name in Proper Case with no acronyms or unit identifiers (overall protected area name) and designation type included (for example, Yellowstone National Park).
- See “Category” for general protection mechanism (Fee, easement, designation, other – leases or agreements).
- Pay attention to the Access field which defines whether lands are Open, Restricted (permits needed), or Closed, or Unknown – recreation access should focus on the first two categories.
- Federally managed Outer Continental Shelf Areas (BOEM) are generally open for public access while access in most Marine Protected Areas (NOAA) is unknown, with the exception of select closed areas.
- Easements are not recommended for base map providers as the status of public access on such lands is not fully defined and most easements will not allow public access. Currently, easements are categorically assigned “Closed” and resources are needed to address this data gap.

- Proclamation boundaries are included in PAD-US but are not recommended for use in base maps, unless ownership (fee) information is not available for a particular site (for example, select National Parks in Fee layer, USFS managed National Grasslands, DOD Military Lands). They are mainly used to define areas within which a particular unit may secure more land or make overall plans, and frequently include significant private land.
- Issues: PAD-US data contains some slivering and gaps, related to state lines and state data sets, and to coordination between federal agencies; several National Parks are temporarily represented by their Proclamation boundaries while their parcel level data are completed. Also, data on regional and local parks is missing for many states (but expected to be added in a coming PAD-US data update).

For more information, see the current version PAD-US documentation and the online help system.

5. Sources for data:

- General information
- Data downloads
- Web services

6. Contacts:

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Science Analytics and Synthesis
National Gap Analysis Project
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FEDERAL AGENCY: U.S. Forest Service

www.fs.fed.us

1. Overview: Established in 1905, the Forest Service is an agency of the U.S. Department of Agriculture and manages national forests and grasslands which encompass 193 million acres of land in almost 300 separate units. The Service's Automated Lands Program (ALP) provides data on these lands to PAD-US.

2. Areas included: Fee parcel ownership and easement interest (National Forest, National Grassland, executive or congressional designations [Wilderness, Wilderness Study Areas, Wild and Scenic Rivers, National Monuments], special designations (Inventoried Roadless Areas, Outstanding Natural Areas, Research Natural Areas, Geological Areas, Recreation Areas, Experimental Forests/Areas, National Trails, Botanical Areas, Scenic Areas, Historic Areas, Water Reserve Withdrawals) and proclamation boundaries.

3. State of data: Virtually all USFS land holdings are now inventoried (99%) and updates are published weekly. Fee parcel ownership, easement interests, and designations for all USFS lands are available in PAD-US. Updated administrative designations (RNAs, national grazing/mining allotments, etc.) are needed to better represent biodiversity protection and/or recreation opportunities on multiple use lands.

4. Best practices for use:

- Surface ownership is updated weekly with Land Unit (actual National Forest or National Forest names) applied in the PAD-US format
- Original surface ownership data do not include Unit Names
- Note that PAD-US 2.0 includes Administrative Forest Names intersected with surface ownership parcels - this is not recommended for base map applications and will be changed in future PAD-US updates

5. Source(s) for agency data sets:

Data downloads: https://data.fs.usda.gov/geodata/edw/datasets.php?xmlKeyword=PADUS
(this is USFS data translated into PAD-US format and updated regularly)

Web services: https://gis.fws.gov/ArcGIS/rest/services/FWSCadastral_Internet/MapServer

Portal: https://www.fs.fed.us/land/staff/index.shtml

6. USFS Contacts:

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ALP Program Manager
Forest Service
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Holly Martin
Data Analyst
Forest Service
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FEDERAL AGENCY: Bureau of Land Management

www.blm.gov

1. Overview: The Bureau of Land Management (BLM) is an agency within the U.S. Department of the Interior that manages more than 240 million acres of public land for multiple uses, located primarily in 12 Western States. BLM sustains the health, diversity, and productivity of these public lands for the use and enjoyment of present and future generations. The BLM Cadastral Survey and Lands Branch provides data to PAD-US on these lands from its Surface Management Agency (SMA) database.

The BLM Surface Management Agency dataset is a national database of **all federal agencies with administrative jurisdiction** over the **surface** of Federal lands. To ensure appropriate use of this dataset, the user must understand that base title to Federal land is held by the United States of America; whereas jurisdiction over the land is defined when the land is **withdrawn** by an administrative or legislative process or acquired or exchanged by a Federal agency for a particular purpose.

The SMA data contained in this dataset are extracted from Federal **land status** records. The official Federal land status records of the appropriate surface land managing agency should be consulted concerning ownership details including interest in the federal subsurface mineral estate.
Other agency data may be changed to align the boundaries between different agencies and reduce overlaps, slivers, and gaps.

Foundational to the SMA data is the expectation that it is topologically aligned where possible and appropriate with the official published version of Bureau of Land Management (BLM) **Public Land Survey System (PLSS) Cadastral National Spatial Data Infrastructure (CAD NSDI) GIS Data.**

The category "Bureau of Land Management" is derived from Federal land status records. However, these data are neither legal documents nor land surveys, and must not be used as such. The official Federal land status records of the appropriate surface land managing agency should be consulted concerning ownership details including interest in the federal subsurface mineral estate. Refer to the feature class metadata in the National SMA data set for further information on the source datasets.

2. Areas included: National public lands, executive or congressional designations (Wilderness, Wilderness Study Areas, National Monuments, Wild and Scenic Rivers), special designations (National Conservation Areas, Areas of Critical Environmental Concern, Outstanding Natural Areas, Historic/cultural areas) and natural resource management areas (grazing allotments, wild horse and burro Herd Management Areas).

3. State of data: Approximately 85% of BLM lands are inventoried and actively updated. The BLM Surface Management Agency (SMA) data set depicts BLM managed public lands in PAD-US, but actual land ownership parcels and easements are currently unavailable. Efforts to fill these data gaps are in progress. The National BLM SMA is updated quarterly by the BLM National Operations Center (NOC). Each of the BLM states is the authoritative source for their own data which may be updated more frequently than the National BLM SMA.

4. Best practices for use:

- BLM Surface Management Area (SMA) layers should be used as representative features for areas on the surface that are managed by BLM, **not** used as actual areas of ownership. SMA data also includes lands that are **not** Federal (i.e. State, Local, and Private or Unknown).
- The acreages contained in this dataset are not derived from legal documents associated with title documents or survey records. Rather, they are computed by mathematical programs.
- The purpose of "SMA_ID" is to identify the Administrator of the surface. "SMA_ID" is a coded value that uses the combination of ADMIN_DEPT_CODE and ADMIN_AGENCY_CODE.
- Use "ADMIN_DEPT_CODE" to identify the acronym for the department responsible for administering the land designation.
- Use "ADMIN_AGENCY_CODE" to identify the acronym for the agency responsible for administering the land designation.
- Use "ADMIN_UNIT_NAME" to identify the name of the land designation.
- Use "ADMIN_UNIT_TYPE" to identify the category of the function the land designation fulfills (i.e. National Historic Site, Wilderness, Wildlife Management Unit, and etc.).
- The purpose of "HOLD_ID" is to identify the Manager of the surface. "HOLD_ID" is a coded value that uses the combination of HOLD_DEPT_CODE and HOLD_AGENCY_CODE. Generally, an agency who is the administrator manages the land designation, but there are land designations where one agency is the administrator and another agency is the manager.
- Use "HOLD_DEPT_CODE" to identify the acronym for the department responsible for managing the land designation.
- Use "HOLD_AGENCY_CODE" to identify the acronym for the agency responsible for managing the land designation.
- "DE_UNIT_CODE" is the Jurisdiction Acreage Agency Code in LR2000, the BLM Reporting Application.
- Issues in SMA: a) SMA data contains some slivering, gaps, and overlaps, related to state lines and state data sets, and to coordination between federal agencies; several National Parks are temporarily represented by their Proclamation boundaries while their parcel level data are completed; b) Differences in names for the same land designation includes differences in capitalization, misspelling, and parenthetical formatting.

5. Source(s) for agency data sets:

Portal page: https://navigator.blm.gov/home - this is the BLM search page that allows for a wide range of data and information discovery.

Data page: https://landscape.blm.gov/geoportal/catalog/BLMNational/BLMNational.page - general access to national data downloads, services, print maps and more.

Downloads: This is the link off of the BLM National Data page above, SMA data is on page 2 of results: https://landscape.blm.gov/geoportal/rest/find/document;jsessionid=544E899C672C5CBE9D8B5CE03163EE84?searchText=isPartOf%3ANATL&contentType=downloadableData&start=1&max=10&orderby=title&f=searchpage

Web services: These are web services of national data: https://landscape.blm.gov/geoportal/rest/find/document;jsessionid=544E899C672C5CBE9D8B5CE03163EE84?searchText=isPartOf%3ANATL&contentType=liveData&start=1&max=10&orderby=title&f=searchpage

6. Contacts:

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FEDERAL AGENCY: U.S. Fish & Wildlife Service

www.fws.gov/refuges

1. Overview: The Fish and Wildlife Service's mission is to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people. The service administers the National Wildlife Refuge System, a 150 million acre national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans. The Realty Division provides refuge data to PAD-US.

2. Areas included: Fee owned and easement parcels (National Wildlife Refuge, National Fish Hatchery, Wildlife Management Areas, Waterfowl Production Areas, Farm Service Agency Interest, Administrative Sites / Training Centers, Coordination Areas), special designations (Wilderness, Proposed Wilderness, Wilderness Study Area, Wild & Scenic River, Research Natural Area, National Monument, National Natural Landmark, Marine National Monument,) and approved acquisition boundaries.

3. State of data: Approximately 100% of lands and waters managed by the US Fish & Wildlife Service are inventoried and the dataset is actively updated three times a year. See 2017 NGDA Dataset report for more information:
https://stewards.protectedlands.net/documents/20170901_NGDAID_14_Dataset_Report.pdf).

4. Best practices for use:

- Be sure to read the metadata and review the graphics at https://www.fws.gov/gis/data/CadastralDB/index_cadastral.html to understand the difference between an approved acquisition boundary and FWSInterest/FWSInterest_Simplified. The approved acquisition boundary is the area where the Service has the authority to acquire parcels from willing sellers, but it does not represent ownership. FWSInterest and FWSInterest_Simplified represent the lands and waters owned and/or managed by the Service.

- The field DocAcres contains the parcel acres from the title documents and used for acreage calculations. “GISAcres” is not the official acreage.

- The FWSInterest geospatial data is used for graphic depiction and does not represent the legal boundaries of a parcel.

5. Source(s) for agency data sets:

Data download: https://www.fws.gov/gis/data/CadastralDB/index_cadastral.html

Data services: http://gis.fws.gov/ArcGIS/rest/services/FWSCadastral_Internet/MapServer

Files to consider in downloads: FWSCadastral.gdb - this geodatabase contains the individual GIS layers (feature classes) of USFWS boundary data. It includes FWSInterest (lands and waters managed by the USFWS), FWSInterest_Simplified (similar to FWSInterest, but with geometry dissolved based on interest type and helpful for general interest mapping), and Approved Acquisition Boundaries and Special Designations.

6. Contacts:

Ron Salz
Chief Cartographer
U.S. Fish & Wildlife Service Headquarters
National Wildlife Refuge System-Division of Realty
ron_salz@fws.gov 703-358-2404

FEDERAL AGENCY: National Park Service

www.nps.gov

1. Overview: The National Park Service (NPS) preserves unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations. The Park Service cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world. The NPS Land Resources Program provides data on approximately 84 million acres of this land to PAD-US.

2. Areas included:

- 400+ National Park Units
- (National Trail system available separately)

3. State of data: NPS holdings are inventoried and updates are published quarterly. Proclamation boundaries are available for all units and are included in the "Fee" feature class for units where interest parcels are not available (see Des_Tp = 'PROC'). Approximately 90% of NPS land interests are actively updated with quarterly publications. Parcel data has been created for interests in the remaining units and work is currently underway to include these units in national data publications. Most designations are available: National Parks, National Monuments, National Preserves, National Reserves, National Lakeshores, National Seashores, National Rivers, Wild and Scenic Riverways, National Trails, National Historic Sites, National Battlefields, National Recreation Areas, National Parkways and other protected areas.

Since NPS provided data to PAD-US quarterly updates have continued. As a result new data and updated data have been published for several units. NPS provides the most current data several ways including a PAD-US 2.0 compatible format.

4. Best practices for use:

- NPS Director's Order #25 states: "Land status maps will be prepared to identify the ownership of the lands within the authorized boundaries of the park unit. These maps, showing ownership and acreage, are the 'official record' of the acreage of Federal and non-federal lands within the park boundaries. While these maps are the official record of the lands and acreage within the unit's authorized boundaries, they are not of survey quality and not intended to be used for survey purposes." As such, this data is intended for use as a tool for GIS analysis. It is in no way intended for engineering or legal purposes. The data accuracy is checked against best available sources, which may be dated and vary by location. NPS assumes no liability for use of this data.

- **Proclamation** boundaries represent the current **legislated** boundary of a given NPS unit. NPS does not necessarily have ownership or hold another interest (easement, right of way, etc.) in all parcels contained within this boundary. Equivalently, NPS may own or have an interest in parcels outside the legislated boundary of a given unit. In order to obtain complete information about current NPS interests both inside and outside a unit's boundary, **interest data** should be used in conjunction with proclamation boundary data.

5. Source(s) for agency data sets:

Data downloads: https://www.data.gov (contains links to NPS IRMA Data Portal)

Web services: https://nps.maps.arcgis.com/home/item.html?id=a2848257cf5541338bab9b656440bd0c

Data portal: https://irma.nps.gov/Portal (national and unit specific downloads)

Files to also consider: NPS_Boundaries.zip (https://irma.nps.gov/DataStore/Reference/Profile/2225713) – This file contains proclamation boundary data/metadata for all NPS units nationwide. The metadata record also provides direct links to downloads for individual NPS units. Individual unit downloads contain proclamation boundary, interest parcels and unit specific metadata.

6. Contacts:

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FEDERAL AGENCY: Army Corps of Engineers

www.usace.army.mil

1. Overview: The U.S. Army Corps of Engineers (USACE) serves the Armed Forces and the Nation by providing vital engineering services and capabilities across a full spectrum of operations from peace to war in support of national interests. As one of the leading federal providers of water-based outdoor recreation in the nation, USACE with the support of its partners manages more than 400 lake and river projects in 43 states. It's estimated that USACE hosts more than 250 million visits annually to its nearly 12 million acres of public lands and waters. In managing these resources, USACE staff contribute to supporting the Protected Areas Database (PAD-US).

2. Areas included: USACE primarily manages reservoirs or lakes at water resources development projects. While USACE data in PAD-US is not complete, the boundaries typically encompass lakes that serve a range of authorized purposes, one of those being recreation. Within the recreation areas there are sites that accommodate camping, boating, picnicking, swimming, hiking and other activities. Some areas around a particular reservoir may or may not be open for recreation. Approximately half of the recreation areas are leased to others to manage, such as state and local governments and private commercial vendors.

3. State of data: Approximately 80 percent of USACE holdings are assessable through PAD-US. USACE currently does not have aggregated parcel ownership or easements, but does have general management boundaries (Recreation Reservoir, Recreation Area) with basic attributes available. Parcel data (especially recreation related) are in development.

4. Best practices for use:

- It is important to note that USACE has data on their reservoirs (coverage of entire water area) and recreation areas (includes reservoirs and the fee lands surrounding them). The recreation area data is from 2009, so data users should consult with the appropriate USACE District Office for corrections. USACE is working on an updated recreational layer with an estimated completion date of 2022.
- The PAD-US 2.0 Fee feature class includes USACE Recreation Area boundaries, as reservoirs completely overlap (and are available in the Designation feature class).
- USACE recommends the use of small-scale mapping to obtain reservoir data (below) in order to show the general size of USACE facilities. When doing large scale (zoomed in) mapping, recreation data may be useful.
- The reservoir layer is not finished at all the recreation projects and some USACE projects would not be suitable for the map (like the Everglades water conservation area).

5. Source(s) for agency data sets:

Reservoir layer: https://geospatial-usace.opendata.arcgis.com/datasets/03e322d7e89b48a9b48e9c3f4bcaf29e_0

Recreation area layer: https://geospatial-usace.opendata.arcgis.com/datasets/e314790ee1bb4eec982f0b669accb6fc_0

6. Contacts:

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FEDERAL AGENCY: Bureau of Reclamation

www.usbr.gov

1. Overview: The mission of the Bureau of Reclamation (USBR) is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public. Reclamation is best known for dams, power plants, and canals for water projects in 17 Western states, and its approximately 6.5 million acres of land and water are often available for public outdoor recreation.

2. Lands included: Reclamation's lands interests contained in PAD-US include withdrawn and fee lands which Reclamation has acquired for projects that fulfill Reclamation's mission. The majority of these will be around reservoirs and may be managed by other Federal or Non-Federal public entities for a variety of uses.

3. State of data: Only approximately 30% of Reclamation's withdrawn and fee land acreage is present in PAD-US. These features were submitted to PAD-US by another agency, as Reclamation currently is not able to provide data directly to PAD-US (it is not feasible at this time for Reclamation to inventory or quality-check these lands). However, Reclamation plans to start participating in PAD-US for priority recreation areas within the next two years. Reclamation regional and bureau-level data development projects are in progress to map Reclamation land interests into GIS and to share land transaction information to BLM for inclusion into the BLM land status databases for representation in the Surface Management Agency dataset.

4. Best practices for use:

- Contact a Reclamation Realty Specialist staff directly for questions about Reclamation lands.
- Reclamation is not responsible for the portrayal of Reclamation lands currently in PAD-US.

5. Sources for data: Contact Reclamation Realty staff directly, see below.

6. Contacts:

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FEDERAL AGENCY: Tennessee Valley Authority

www.tva.gov

1. Overview: TVA improves the quality of life in the Tennessee Valley through its threefold mission of providing affordable and reliable power, promoting sustainable economic development, and acting as a steward of the Valley's natural resources. As part of its mission of service, TVA manages 230,000 acres of public lands and large lake and reservoir waters.

2. Areas included: TVA holdings in PAD-US are limited as data sharing procedures are not fully in place. Most TVA lands in PAD-US are reservoirs that have recreational opportunities.

3. State of data: Approximately 60% of TVA lands are represented in PAD-US, but this data is from older information about TVA. PAD-US is seeking to secure more current and complete data from TVA.

4. Best practices for use:

- Not available

5. Source(s) for agency data sets: None at this point

6. Contacts: None at this point

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FEDERAL AGENCY: Department of Defense

www.defense.gov

1. Overview: The Department of Defense (DoD) manages all federal military installations in the U.S. and its territories. The Defense Installations Spatial Data Infrastructure (DISDI) Program, in the Office of the Secretary of Defense, is the policy and oversight office responsible for coordinating, standardizing, and leveraging geospatial information pertaining to DoD installations across all the Military Departments. Each of the Military Departments has a program to manage their installation geospatial information and services (IGI&S), using geospatial data and technology to execute a wide range of installation management and operations functions. The Military Installations, Ranges and Training Areas (MIRTA) dataset depicts the locations of major installations, ranges and training areas in PAD-US.

2. Areas included: This dataset contains the authoritative locations of the most commonly known DoD installations, ranges, training areas, and other sites located in the United States and its territories. Boundaries in the dataset encompass federally owned or otherwise managed lands.

3. State of data: The source data for this dataset was provided by the four Military Department's headquarters, compiled by the DISDI Program within the Office of the Assistant Secretary of Defense for Energy, Installations, and Environment. This dataset does not necessarily represent a comprehensive collection of all DoD facilities, and only sites reported in the Base Structure Report were considered for inclusion. The dataset is approximately 80% complete with most military installations available as polygons – small sites, including many National Guard and Reserve sites, are not included due to security concerns or other criteria.

4. Best practices for use:

- Military lands should be regarded as closed to public access.
- Boundaries are intended for planning purposes only and do not represent legal or surveyed land parcel boundaries.
- This dataset is intended for use at mapping scales 1:50,000 or smaller.

5. Source(s) for agency data sets:

Data portal: https://www.acq.osd.mil/eie/BSI/BEI_DISDI.html

Data download: http://www.acq.osd.mil/eie/Downloads/DISDI/installations_ranges.zip

6. Contacts:

Geospatial Information Officer
Defense Installations Spatial Data Infrastructure Program
Email: osd.pentagon.ousd-atl.mbx.disdi-help-desk@mail.mil

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FEDERAL AGENCY: Census Bureau

www.census.gov

1. Overview: The Census Bureau is the national steward for legally defined geographic area boundaries for State and Equivalent areas established under federal, tribal, state, county, or local law. The Census Bureau has A-16 responsibility for Governmental Unit boundaries and serves as a national steward and authoritative source for state jurisdictional boundaries and state names used in governance, general provision of services, administration, and dissemination of statistical data for all legal entities in the United States. These geographic areas provide the framework for the tabulation and dissemination of data collected during the decennial and economic censuses, and annual estimates and surveys such as the Population Estimates Program and the American Community Survey (ACS). State and Equivalent dataset is used in PAD-US to improve boundary quality through integration with other agency boundaries and standardization of "State-Name" attributes.

2. Areas included: Census data files are used in PAD-US as authoritative data for **state boundaries**.

3. State of data: Census Bureau's State and Equivalent data provides an authoritative source for legal state boundaries in PAD-US, used to standardize the "State-Name" attribute and integrate other agency boundaries and national datasets with state boundaries. Some work remains to improve the alignment between other agency boundaries, and state jurisdictional boundaries.

4. Best practices for use:

- Data is available at 1:500,000, 1: 5 million, 1:20 million scales

5. Source(s) for agency data sets:

Download from: https://www2.census.gov/geo/tiger/TIGER2018/STATE/

6. Contacts:

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IV. Guidelines for Using PAD-US and Federal Agency MARINE Data

This section applies to **marine** areas data in PAD-US (state and federal), and from the two primary federal agencies involved in marine area data:

- National Oceanic and Atmospheric Administration (NOAA)
- Bureau of Ocean and Energy Management (BOEM)

General Overview of Marine Data in PAD-US

PAD-US **marine** areas are a separate feature class (layer) in PAD-US and fall broadly into two categories:

1. Marine protected areas and related sites, including federal and state areas – these are mainly ocean areas, but also include some lakes and even some terrestrial areas

2. Outer continental shelf lands, which are mainly managed by the U.S. government for energy and mineral use

For base map publishers**, marine protected areas** (MPAs) may be appropriate subjects for inclusion and generally are of two types: those that allow public use and fishing (though with some restrictions on commercial use), and "reserves" that have more restrictions (also called "no take" zones). A very small number of MPAs are closed for public use and devoted to research and/or endangered species protection.

- The overall federal portal for MPAs is at: https://marineprotectedareas.noaa.gov/
- Learn more about marine protected area data at: https://oceanservice.noaa.gov/facts/mpa.html
- Details on types of MPAs are described here: https://nmsmarineprotectedareas.blob.core.windows.net/marineprotectedareas-prod/media/archive/pdf/helpful-resources/factsheets/mpa_classification_may2011.pdf

In PAD-US, federal MPAs are managed by NOAA, and by the U.S. Fish & Wildlife Service, with some managed by the National Park Service plus other agencies.

State and local MPAs and related designations are managed by a range of agencies – fish & wildlife, natural resources departments, water quality agencies, municipalities, and others, including some nonprofits and universities.

PAD-US does not yet have completed Access information for these areas, and many are flagged as "Unknown Access" (a few sites have 'Open' or 'Closed' status noted). The best approach for base map development is to identify these MPAs as "possibly having use restrictions, check with managing agencies".

Outer continental shelf (OCS) lands may only be appropriate to show for particular base map applications emphasizing ocean floor information or other relevant approaches. As ocean floor areas, these do not have direct recreational purposes and energy/mineral use may prevent or limit recreation on those lands so used.

In PAD-US, OCS lands can be filtered by querying for Designation Type equals 'Outer Continental Shelf Area', or Manager Name equals 'BOEM' (Bureau of Ocean and Energy Management).

FEDERAL AGENCY: National Oceanic and Atmospheric Administration

www.noaa.gov

1. Overview: Marine protected area managing agencies provide authoritative spatial data for inclusion in the NOAA Marine Protected Area (MPA) Inventory based on the NOAA Marine Protected Areas definition published in Executive Order 13158. NOAA's MPA Center updates and maintains boundary and attribute data based on collaboration and coordination with managing agencies. NOAA does not manage all the protected areas in the MPA Inventory.

2. Areas included: MPA data include all marine protected areas in U.S. waters that meet the NOAA MPA definition. Aggregated MPAs are delivered by NOAA to USGS with PAD-US attributes. NOAA data in PAD-US also includes some areas coded as NERRs (National Estuarine Research Reserves) which are co-managed by states and NOAA (these may not be appropriate for base map publishers, see NERRs note below).

3. State of data: MPA data include all marine protected areas in U.S. waters that meet the NOAA MPA definition. Generally, this includes federal, state, and partnership marine protected areas managed to protect natural heritage, cultural heritage and sustainable production of coastal marine resources. Federal marine protected areas include National Marine Sanctuaries (managed by NOAA); National Parks and Seashores (managed by the National Park Service); National Wildlife Refuges (managed by the U.S. Fish and Wildlife Service); National Marine Monuments (co-managed by federal agencies), and a range of fishery management areas managed by NOAA's National Marine Fisheries Service. Partnership sites include National Estuarine Research Reserves are that are co-managed between NOAA and coastal state programs. State and local marine protected areas include a variety of designations for sites established by coastal state and city programs to protect local marine resources in state waters. Additional designations include protected shipwrecks, water quality protections, and areas managed by non-governmental organizations.

Nearly all marine protected areas in the U.S. are classified as multiple use areas and are open to public use with some restrictions on extractive activities. A few (~65) marine protected areas limit or prohibit public access for human safety and/or priority conservation purposes.

Aggregated MPA data are delivered to USGS with PAD-US attributes from a national steward.

4. Best practices for use:

- **Duplicates**: Some MPAs intersect the shoreline and may include coastal and upland areas. Boundaries provided in PAD-US do not clip the marine area from the total managed area extent. As such, some MPAs may be duplications of areas listed in other features classes of PAD-US for their terrestrial protection status (e.g. coastal parks and refuges).
- **Authoritative Sources:** While NOAA curates the MPA Inventory database (source of PAD-US MPA data), the protected areas' managing agencies are the original source of the boundary data. For details on particular sites, please visit their managing agency website.

- **Issues**: MPA data are collected from a range of authoritative sources with boundaries drawn using different projections and datums at varying scales. The boundaries included in the MPA Inventory and PAD-US are not modified (only reprojected) from their original source, resulting in occasional offsets between sites that may share the same geospatial boundary or feature (e.g. shoreline or depth contour).

5. Source(s) for agency data sets:
Boundary data for marine protected areas are collected from a range of MPA programs and are maintained *as provided* from the source. The managing agency for an MPA should be considered the authoritative source for the boundary data, with NOAA as the curator of the nationwide MPA Inventory and associated attribute data.

The NOAA MPA Inventory is available for download as an Esri geodatabase and a shapefile, with accompanying metadata. Links to data, web services, and background materials are at this web site:

https://marineprotectedareas.noaa.gov/dataanalysis/mpainventory/

6. Contacts:

Mimi D'Iorio
Data Manager
National Marine Protected Areas Center
mimi.diorio@noaa.gov 831-647-6462

FEDERAL AGENCY: Bureau of Ocean Energy Management

www.boem.gov

NOTE: BOEM holdings are primarily **outer continental shelf areas** that are mainly for energy production and mineral extraction – *this data may not be appropriate to show on many public-facing base maps*.

1. Overview: The mission of the Bureau of Ocean Energy Management is to manage development of U.S. Outer Continental Shelf (OCS) energy and mineral resources in an environmentally and economically responsible way. OCS oil and gas production accounts for about 18 percent of domestic crude oil and four percent of domestic natural gas supply. BOEM's OCS renewable energy program issues leases for wind, ocean wave and ocean current energy. In addition to its offshore energy responsibilities, BOEM manages appropriate access to OCS marine minerals such as sand and gravel for coastal restoration projects.

The offshore cadastre extends from the official baseline of the nation's coastline to the full extent of the Outer Continental Shelf, which in most areas is coincident with the boundary of the Exclusive Economic Zone, lying 200 nautical miles seaward from the baseline. The offshore cadastre is a comprehensive spatial data mapping infrastructure whereby rights, restrictions and responsibilities in the marine environment can be assessed, administered and managed. The offshore cadastre includes the block grids and official boundaries, which provide the base for nearly all of the Bureau of Ocean Energy Management offshore maps and leasing processes. It also gives the Bureau of Ocean Energy Management the means to define, describe, analyze, and account for every acre/hectare of federal offshore submerged lands.

2. Areas covered: Outer Continental Shelf regions of the United States. The data depicts those areas of the Outer Continental Shelf that are (or could potentially be) under the purview of BOEM. These polygonal areas (Gulf of Mexico; Atlantic Ocean; Pacific Ocean; Hawaii; Alaska) are bounded on the terrestrial side by the Submerged Lands Act boundary, which divides state and federal ownership of submerged lands and waters. The polygons are bounded on the seaward side by the limit of the Exclusive Economic Zone, which lies 200 nautical miles from the coastal baseline of the U.S., or by international treaty boundaries. Areas of the Outer Continental Shelf within the Gulf of Mexico Region that are located seaward of 200 nautical miles are subject to treaties between the U.S., Mexico, and Cuba, and were included in the polygons. Federal Marine Protected Areas which are located within the BOEM polygons are currently unavailable for leasing of energy resources.

Also outside of the polygons are areas of the Outer Continental Shelf shown on BOEM Official Protraction Diagrams that are located seaward of 200 nautical miles. These submerged lands and waters fall within the boundaries of BOEM Planning Areas and are part of the U.S. Extended Continental Shelf. As the U.S. has not yet asserted jurisdiction of the Extended Continental Shelf, these areas are for planning purposes only, with all activities subject to approval by the U.S. State Department.

3. State of data: Approximately 95% of BOEM fee ownership lands (outer continental shelf areas) are available with basic attributes. These areas are described as management regions:

1) Gulf of Mexico Region (100% complete)
2) Atlantic Region (100% complete)
3) Pacific Region (OCS areas offshore of CA, OR, WA – 100% complete)
4) Alaska Region (100% complete)
5) Principal Islands of Hawaii (5% complete)

Rights-of-Way exists in the Gulf of Mexico Region for pipelines. These are not shown on the BOEM data but can be obtained through the Bureau of Safety and Environmental Enforcement at https://www.data.bsee.gov/

4. Best practices for use:

- OCS blocks on the older Lease Maps in the Gulf of Mexico Region contain 5000 acres. OCS blocks shown on the Official Protraction Diagrams in all other BOEM Regions contain 5760 acres.

- The Submerged Lands Act boundary defines the seaward limit of state waters and submerged lands, and the landward limit of federal waters and submerged lands. The Submerged Lands Act was passed by Congress in 1953, granting title to the natural resources located within three nautical miles (nine nautical miles for Texas and the Gulf Coast of Florida) of a coastal state.

- The Section 8(g) Revenue Zone boundary defines a three-nautical-mile-wide zone seaward of the Submerged Lands Act boundary where revenues obtained from oil and gas leases located inside the 8(g) Zone are shared between the Federal Government and the government of the adjacent coastal state.

- The North American Datum of 1927 is still used by BOEM in the Gulf of Mexico Region. The North American Datum of 1983 is used for the Atlantic, Pacific, and Alaska Regions. The World Geodetic System of 1984 is used for the Principal Islands of Hawaii.

5. Source(s) for agency data sets:

Gulf of Mexico Region: https://www.boem.gov/GOMR-GIS-Data-and-Maps/
Atlantic Region: https://www.boem.gov/Oil-and-Gas-Energy-Program/Mapping-and-Data/Atlantic.aspx
Pacific Region: https://www.boem.gov/Oil-and-Gas-Energy-Program/Mapping-and-Data/Pacific.aspx
Principal Islands of Hawaii: https://www.boem.gov/Oil-and-Gas-Energy-Program/Mapping-and-Data/Pacific.aspx
Alaska Region: https://www.boem.gov/Alaska-Cadastral-Data/

6. BOEM Contacts:

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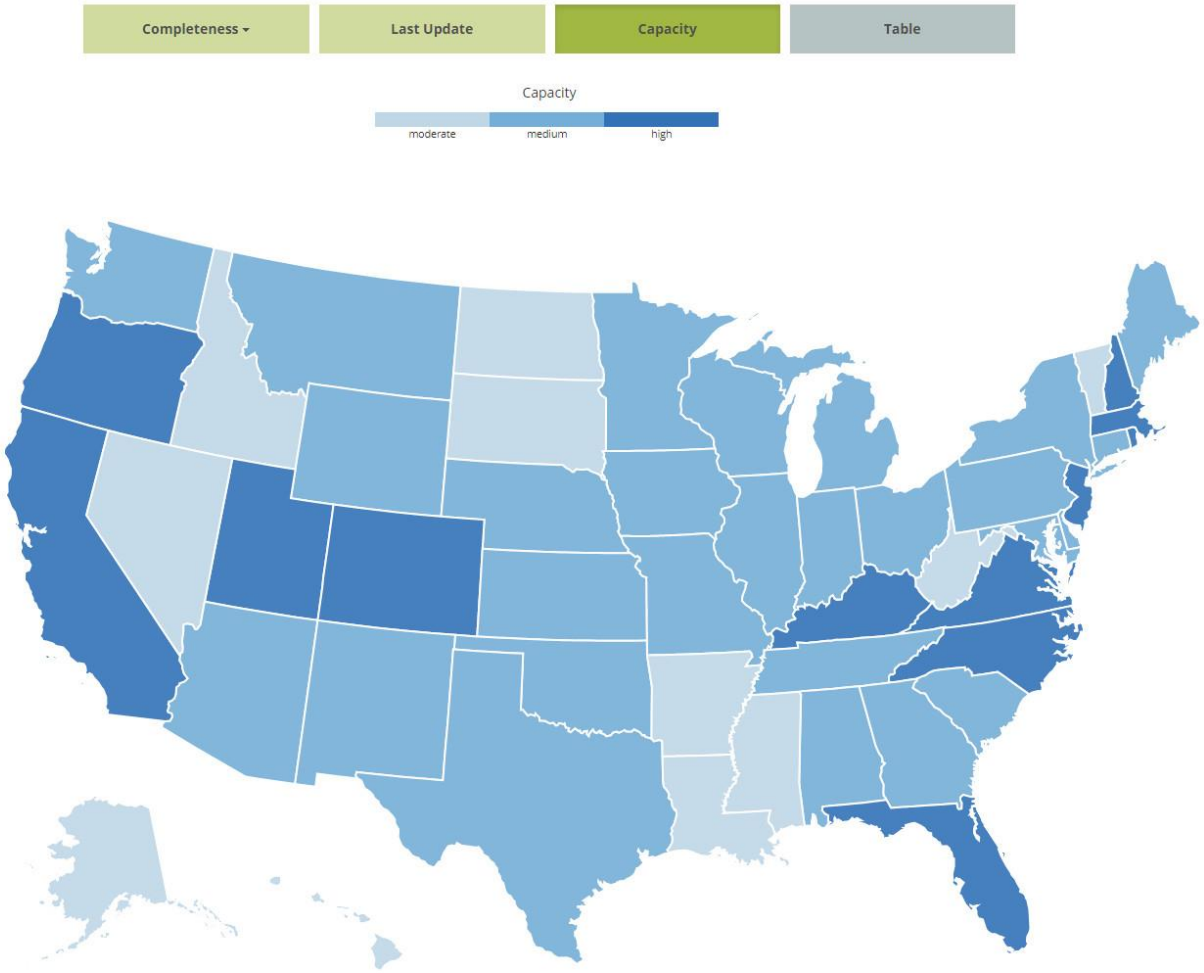
V. State-by-State Data Sets

Online information for each **state** agencies' data sets can be found in [the State Stewards Status section](#) of ProtectedLands.net. Links in the map lead to details about the links for data access and contacts for that agency:



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APPENDICIES

1. **PAD-US - Core Data Attributes**

2. **Information on Designations Included in PAD-US**

1. PAD-US CORE DATA ATTRIBUTES

Current PAD-US core data attributes can be found on the USGS PAD-US web site – an illustration of the attributes is provided below.

Table 1. PAD-US attributes and field properties

Field Name	Field Abbreviation	Domain or Standard	Field Type	Field Length
Aggregator Source	Agg_Src	Standardized Field	Text	150
Category	Category	Category Domain	Text	12
Comments	Comments		Text	255
Date of Establishment	Date_Est	Standardized Field (yyyy)	Text	4
Designation Type	Des_Tp	Designation Type Domain and Crosswalk (Local Designation standardized)	Text	75
Easement Holder	EsmtHldr	Agency Name Domain (for NCED)	Text	250
Easement Holder Type	EHoldTyp	Owner Type Domain and Crosswalk (for NCED)	Text	50
Feature Class	FeatClass	Category Domain	Text	12
GAP Status Code	GAP_Sts	GAP Status Code Domain and Crosswalk	Text	95
GAP Status Code Date	GAPCdDt	Standardized Field (yyyy)	Text	4
GAP Status Code Source	GAPCdSrc	Standardized Field	Text	150
GIS Acres	GIS_Acres	Calculate geometry	Long Integer	n/a
GIS Source	GIS_Src	Standardized Field	Text	200
GIS Source Date	Src_Date	Standardized Field (yyyy/mm/dd)	Text	15
IUCN Category	IUCN_Cat	IUCN Category Domain and Crosswalk	Text	70
IUCN Category Date	IUCNCtDt	Standardized Field (yyyy)	Text	4
IUCN Category Source	IUCNCtSrc	Standardized Field	Text	150
Local Designation	Loc_Ds	Source Data	Text	250
Local Manager	Loc_Mang	Source Data	Text	250
Local Name	Loc_Nm	Source Data	Text	250
Local Owner	Loc_Own	Source Data	Text	250
Manager Name	Mang_Name	Agency Name Domain (Local Manager standardized)	Text	70
Manager Type	Mang_Type	Agency Type and Crosswalk	Text	50
Owner Name	Own_Name	Agency Name Domain (Local Owner standardized)	Text	70
Owner Type	Own_Type	Agency Type and Crosswalk	Text	50
Public Access	Access	Access Domain and Crosswalk	Text	20
Public Access Date	Access_Dt	Standardized Field (yyyy)	Text	4
Public Access Source	Access_Src	Standardized Field	Text	150
Source Protected Area ID	Source_PAID	Source Data, if available	Text	100
State Name	State_Nm	State Name Domain	Text	50
Unit Name	Unit_Nm	Local Name standardized	Text	250
WDPA Site Code	WDPA_Cd	Standardized Field (Assigned by UNEP-WCMC, managed by USGS)	Long Integer	n/a

2. DISCUSSION OF DESIGNATIONS INCLUDED IN PAD-US

The information that follows is primarily relevant to uses of PAD-US (vs. agency data). However, the federal designations noted also apply to using the data sets for individual federal agencies, where you may see some of the same designations noted in those agency databases.

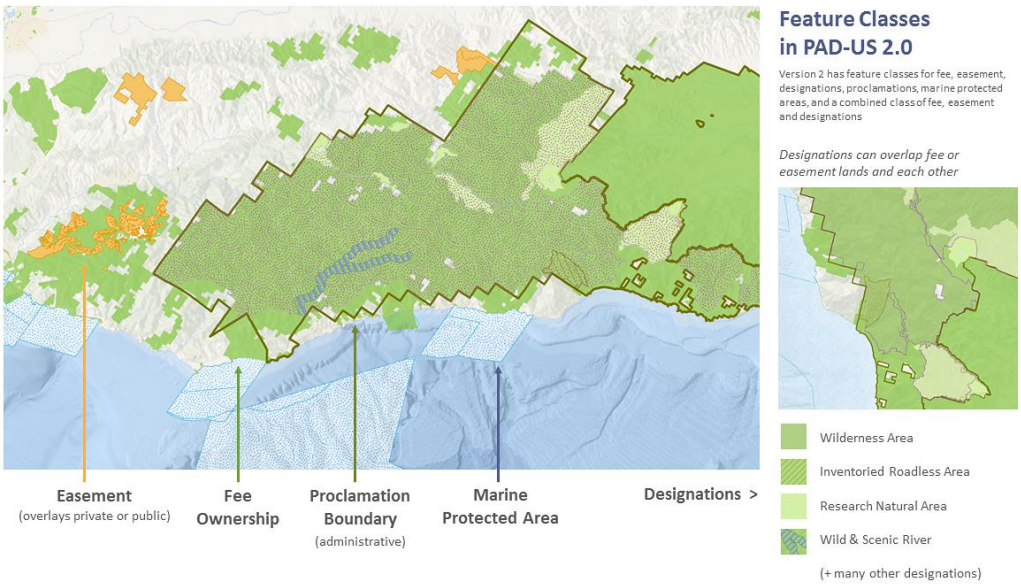
Designations are boundaries that are based on policies which apply to specific areas of ownership – for example, Wilderness Areas are very precise, Congressionally-drawn boundaries that may cover all or a part of a National Park, BLM Public Lands, or other areas; within Wilderness Areas, very strict conservation practices are followed (e.g., no motorized access). Designations are **not** ownerships.

Most Designations cover publicly-owned lands, but some also extend over **private** lands. For example, Wild and Scenic River Corridors often include large areas of private land adjacent to public lands that are given this designation. Usually, such designations do not apply any regulation or requirement to those public lands.

Note that **Designations** and **Proclamation** boundaries in PAD-US are not the same thing, and indeed are in separate feature classes (layers). Proclamation boundaries generally describe where Congress approved (federal) agency land acquisition (with limitations). They may cover wide areas of private lands (e.g., around some National Forests) and have no regulatory effect on these areas.
Other boundaries in the PAD-US Proclamation feature class define the external extent of areas managed by agencies (e.g. DOD Military lands) used mainly for planning purposes. Internal land ownership is not defined but is assumed for Military Lands.

For base map developers, Designations can be used in at least **two general ways**. 1) As boundaries to show directly on a map – for example, National Monuments, or Wilderness Areas; and, 2) As inputs to geoprocessing or queries that extract ownership areas within one or more designations – this might be done, for instance, to determine fee ownership (based on available data) within a specific designation.

Illustration of Designations in relation to other feature classes in PAD-US



Listed on the next pages are all of the **Designations** used in PAD-US, including:

- **Federal** designations: these are mostly exact names used by federal land and water managing agencies

- **State and Local** designations: these are generalized from a great many actual designations and placed into a limited few categories developed by the USGS PAD-US team.

- **Private** designations and easements: these are mostly designations that apply to conservation or open space easements over private property, but can also be used for mitigation banks, which are private lands held under conservation restrictions through an agreement with and/or regulatory framework of a public agency. In general, most areas with private designations will be noted as No Public Access in PAD-US.

The **Notes** in the following table provide summaries of public access or other general information – for specifics, see the Access field in PAD-US and/or check with the managing agency for more information.

Domain Code	Domain Description	NOTES
Federal Designations		
NP	National Park	Generally co-terminus with ownership, parcel data gaps exist (see Proclamation boundary)
NM	National Monument	Overlays ownership, provides additional protections
NCA	Conservation Area	Area with priority for natural resource conservation
NF	National Forest	Multiple use area, generally co-terminus with ownership
NG	National Grassland	Mainly USFS lands, usually open access
PUB	National Public Lands	BLM lands, mostly open access
NT	National Scenic or Historic Trail	Managed by NPS can be just corridors – see NPS for more information
NWR	National Wildlife Refuge	Generally co-terminus with ownership
WA	Wilderness Area	Permits required, boundaries do not always align with ownership
WSR	Wild and Scenic River	General corridors, not exact boundaries
WSA	Wilderness Study Area	Managed similarly to Wilderness Areas, but may be open to various types of recreation
MPA	Marine Protected Area	Generally co-terminus with ownership
NRA	National Recreation Area	Open access. Usually managed by NPS or USFS
NSBV	National Scenic, Botanical or Volcanic Area	Special area, usually open access
NLS	National Lakeshore or Seashore	Open access, usually NPS manages
IRA	Inventoried Roadless Area	Open access. Managed by USFS
ACEC	Area of Critical Environmental Concern	Mostly BLM, can include private lands, administrative not regulatory
RNA	Research Natural Area	Usually closed public access
REC	Recreation Management Area	Usually open access
RMA	Resource Management Area	Varies, can be forest or watershed
WPA	Watershed Protection Area	May have limited public access
REA	Research or Educational Area	May have limited public access
HCA	Historic or Cultural Area	Usually open access, but sometimes restricted or closed – see agency

Domain Code	Domain Description	NOTES
MIT	Mitigation Land or Bank	Usually closed public access
MIL	Military Land	Usually closed public access
ACC	Access Area	Usually boating/water access points
SDA	Special Designation Area	Purpose can vary, check with managing agency
PROC	Approved or Proclamation Boundary	Administrative boundary, often extends beyond ownership lands to private property
FOTH	Federal Other or Unknown Designation	Not enough information available
ND	Not Designated	No designation on these areas
TRIBL	Native American Land Area	Usually closed public access
OCS	Outer Continental Shelf Area	These are mainly energy and mineral extraction areas
State Designations		
SP	State Park	Mostly open public access
SW	State Wilderness	Limited to a few states, permits usually required.
SCA	State Conservation Area	Can be multiple use
SREC	State Recreation Area	Mostly open public access
SHCA	State Historic or Cultural Area	Mostly open public access
SRMA	State Resource Management Area	Varies, forests and other lands
SOTH	State Other or Unknown	Other or unknown designation
Local Government Designations		
LP	Local Park	Open access
LCA	Local Conservation Area	Often open access but can be restricted
LREC	Local Recreation Area	Usually open access
LHCA	Local Historic or Cultural Area	Usually open access
LRMA	Local Resource Management Area	Varies, can be watershed, forest or other area
LOTH	Local Other or Unknown	Other or unknown designation

Domain Code	Domain Description	NOTES
Private Designations and Easements		
PCON	Private Conservation	Items in this table are usually closed for public access, or have very limited access
PPRK	Private Park	
PREC	Private Recreation or Education	
PHCA	Private Historic or Cultural	
PAGR	Private Agricultural	
PRAN	Private Ranch	
PFOR	Private Forest Stewardship	
POTH	Private Other or Unknown	
CONE	Conservation Easement	
RECE	Recreation or Education Easement	
HCAE	Historic or Cultural Easement	
AGRE	Agricultural Easement	
RANE	Ranch Easement	
FORE	Forest Stewardship Easement	
OTHE	Other Easement	
UNKE	Unknown Easement	
UNK	Unknown	