CALIFORNIA PROTECTED AREAS DATABASE (CPAD)

DATABASE MANUAL

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Contents

CPAD is a product of

GreenInf
Network

www.greeninfo.org   openspace@greeninfo.org

116 New Montgomery Suite 738, San Francisco CA 94105   415-979-0343

Acknowledgements

SUMMARY

The California Protected Areas Database (CPAD) inventories open space lands that have been protected for primarily open space uses through fee ownerships – holdings are defined by their owning agency or organization (not by who manages the site). A separate database tracks those lands that have been protected through easements and related less-than-fee mechanisms. Lands held for conservation purposes by private owners (often under easement) are not yet included but data on these are being evaluated, and a file of Defense Department lands actively used for military purposes is available separately.

CPAD has been prepared by GreenInfo Network (www.greeninfo.org), based on prior state inventories (PCTL, etc.) and through compiling newer agency holdings databases and cross-checking with other data sources. The current release is version 0.9 (review release), January 2008. Version 1.0 will be published for widespread use in February 2008, and will be hosted by the State of California's CERES program. GreenInfo Network will continue maintenance of the database to the extent financial resources are available to do so.

CPAD is available as both an ESRI file geodatabase and as an ESRI shape file – the file geodatabase is a far more compact data set (approximately 50MB) than the shape file.

CPAD inventories lands ranging from the smallest urban parks to the largest national parks. In most cases land boundaries are aligned exactly to assessor parcel boundaries. Urban parks include only those sites that have significant percentages of open space compared to structures – recreation facilities that are primarily buildings (indoor ball courts, or swim centers) are generally not now included. Green areas that are parts of schools are also not included unless there is a defined agreement to allow those for public use. While CPAD contains a wealth of urban data, not all cities' holdings have been cross-checked and there are undoubtedly sites that we have missed or that should not be included – these will be refined in future releases.

Lands in CPAD include some special use lands – at this time, publicly-owned cemeteries and golf courses are included and have those use codes. Such uses that are privately owned are not included.

The data in CPAD v.09 are generally current to January 2008, but in some areas may be as much as a year out of date. Discussions about the best strategy for updating CPAD are in process and we invite interest from those who can help support this major data effort. As with any large data gathering program, there are likely to be lands that have been missed or wrongly included or mis-attributed. We expect these to be corrected over time.

The structure of the data in CPAD is based on holdings and units – holdings are the "atomic" level and consist of individual parcels of protected land. Units are aggregations of those parcels under common names ("molecules") – e.g., a national forest or a regional park that has many individual parcels that are known as the common name. Units are primarily for cartographic purposes (to show overall boundaries) – most significant data attributes are maintained at the holding level.

CPAD does not currently contain rankings of conservation sufficiency (Gap, IUCN or other such codes) – work is underway to develop strategies to include those rankings and database fields for them are in the database.

I. INTRODUCTION

The California Protected Areas Database (CPAD) inventories open space lands that have been protected for open space uses through fee ownerships. A separate database tracks those lands that have been protected through easements and related less-than-fee mechanisms. A separate database tracks those lands that have been protected through easements and related less-than-fee mechanisms. Lands held for conservation purposes by private owners (often under easement) are not yet included but data on these are being evaluated, and a file of Defense Department lands actively used for military purposes is available separately.

CPAD has been developed by GreenInfo Network, a non-profit technology support organization, with support from other non-profits, foundations and public agencies (particularly the California Department of Parks and Recreation and the Coastal Conservancy). There is no financial model yet in place to guarantee maintenance of CPAD – interest from individual agencies and organizations is welcome.

This manual describes the history, structure, intent and details of the California Protected Areas Database.

A BRIEF HISTORY OF THE DATABASE

There are two prior efforts that have been joined to create the current CPAD. In the San Francisco Bay Area, tabular inventories by Greenbelt Alliance in the 1980s led to GIS-based inventories in the mid-1990s by the then-newly formed GreenInfo Network. This data was created based primarily on USGS topographic maps, comparing paper maps of owning agencies and digitizing the resulting boundaries. Originally, the protected lands data included only lands 10 acres or greater – in 2005, funding was secured to begin including urban parks. Currently, the Bay Area Open Space Council provides ongoing support for maintaining protected lands data for the nine counties that touch San Francisco Bay.

In the early 2000s, the State of California developed a statewide coverage of protected lands known as the Public and Conservation Trust Lands (PCTL) database. This data included mainly state and federal lands owned in fee (with some other lands included), and was developed through a consortium of these agencies. The most recent update to this dataset was in 2002.

In 2005, GreenInfo Network received funding from the Annenberg Foundation (through the new Southern Calif. Open Space Council) to begin work on a Southern California version of the Bay Area database, and shortly thereafter funding was also secured from the Calif. Coastal Commission for inventories of the Central Coast and Southern Central Valley. These data inventories were built up from newly available GIS-based assessor's parcels to ensure accuracy and consistency. The Bay Area database was also revised to match available assessor parcels during this time period. First versions of this data were completed in late 2006.

In late 2006, GreenInfo Network also completed work on its ParkInfo web portal to support public access to this data – www.parkinfo.org provides users the chance to find parks near them, in particular cities or by zip code and then get maps, lists and driving instructions, and follow out web links to source agency sites for more details.

In mid-2007, funding was secured from the Calif. Department of Parks and Recreation to complete the state and to improve existing data accuracy and currency. During this latest revision, the entire file structure of the databases was overhauled, migrating the files to an ESRI file geodatabase format, integrating them into a single file and greatly increasing the attribute robustness of the database.

When released for general use, the CPAD will include all fee-owned lands in the state. The release data will be hosted by the state's CERES program and will be available for download there. The easement database is being reviewed as of early 2008 for next steps, as it contains more sensitive information that is not appropriate for widespread public release. The private lands database is also being reviewed as to its use – this data includes a wide but incomplete range of homeowner association holdings and other easement or fee lands likely to be held for open space purposes by private interests.

The absence of a consistent funding source means that there is not clear future for the ongoing maintenance of CPAD. GreenInfo Network and others are working to secure the support needed for annual or semi-annual updates of this important data set. We welcome the interest of any agency or organization that might be able to join in supporting this work.

Even without ongoing support, however, the CPAD is a great leap forward for California – it is the most comprehensive and accurate inventory ever done for the state and is among the most complete in the nation. With any such inventory for a state as large and complex as California, there are undoubtedly holdings that are not accurate, are missing or wrongly included, or have incorrect or incomplete attributes. GreenInfo Network welcomes corrections to this data, to the extent it has financial resources to respond to such information.

II. BASIC DATABASE DEFINITIONS

The CPAD database includes protected open space lands in California. The following are key elements in the data definitions:

1. "Protected"

Land must be protected through fee title ownership by a public agency or non-profit land conservation organization (easements are in a separate database). The purpose for the fee title ownership must be primarily for the continuation of open space values.

- Leases, contracts, term easements and regulatory controls adopted through the land use planning process are not considered "protected" in this database, though such mechanisms may be very effective and necessary.

- Lands owned by public agencies that may have open space values but that are not explicitly owned or held to protect those values, are not considered protected in CPAD. (Examples: a utility easement, unless it is also used or planned to be used as a non-motorized trail corridor intended for public use; a school; a wastewater treatment plant; military installations).

2. "Open Space"

The lands in CPAD typically serve one or more of the following purposes:

- Habitat Conservation - Wildlife or plant reserve protected specifically for habitat
- Recreation – Active recreation, picnicking (city parks, parks with developed areas)
- Open Space – Open land used serving a broad range of purposes
- Historical/Cultural - Museums, historic sites
- Forestry - Active forest harvesting, tree growth for forestry (publicly owned only)
- Agriculture - Crop lands including developed pastures
- Ranching - Grazing lands - dry and grazing pasture
- Water Supply - Watersheds, waterways
- Scenic area - If officially designated
- Flood Control – Flood plains, flood control channels

Other factors affecting inclusion in the database:

- Open space holdings may have buildings, structures, or other non-open space coverage, provided they are subordinate or ancillary to the dominant open space purposes of the holding. As a general rule, the holding is not considered open space if structures or other non-open space uses constitute greater than 10 percent of the total acreage (eg, zoos, swim centers, stadiums).

- Parking lots used principally for qualifying public recreational purposes are considered part of the protected open space holding.

- "Remnant" parcels of open land whose location or configuration significantly impair their open space purpose (e.g., highway shoulders or medians) are generally not included in the database.

- Privately-owned cemeteries are not considered protected open space, but cemeteries owned by the public are consider protected open space – and are given a special flag in the database attribute table.

- Privately-owned golf courses are not considered protected open space, but golf courses owned by the public are considered protected open space – and are given a special flag in the database attribute table.

- If a non-open space use occupies a portion of a larger open space area, and it is a separate parcel and functions separately from the larger open space area, then it is excluded from protected open space wherever possible. However, if it is not a separate parcel, and/or it is difficult to separate from the larger open space area, then the entire area is included as open space.

- Agricultural processing and retail facilities (packing sheds, hay barns, greenhouses, fruit stands, wineries) are included as protected open space if they are protected through fee ownership and are ancillary and integral to adjacent protected open space.

- RV parks, cabins and similar highly-developed camping or lodging facilities are not in and of themselves considered open space; however, if they are a subordinate part of a larger protected open space area and are themselves protected through fee ownership, they do qualify.

- Open land holdings by transportation agencies (highway medians, construction staging areas, etc.) are not considered as protected open space. (Note: such open space could be considered protected if significant enough in size and permanently protected in such use through joint-agency agreements or easements).

Open lands in CPAD are identified with their owning agency. If another agency manages the site, that agency is not shown as the owner (although that management information may be placed in the parcel attributes).

3. Other Definitions

- **Land/Water** - water areas (tidal areas, coastal areas, lakes/reservoirs) are included and identified with a "water" code – generally, water boundaries are taken from the National Hydrology dataset.

III. DATABASE STRUCTURE AND DATA PROCESS

Database Overview

The CPAD is a relational database linking information about land holdings with information about the agencies and other organizations that own and operate these lands.

The key framework of the database is the division of open space lands into:

- HOLDINGS, which are individual parcels of protected lands (which usually correspond to legal assessor or tax parcel boundaries), and

- UNITS, which are aggregations of Holdings into specific parks and preserves. Some units may have one holding others may have many, some of which may be physically separated from each other. Units have few attributes and are mainly used for better cartographic representation.

In database language, this relationship is a many-to-one structure, where a single unit can have many holdings.

A third major table is the Agency table, which has information about each governmental or non-profit organization that owns protected lands.

Unique IDs link all three of these major tables.

In addition to these major tables, numerous look-up tables exist in the database defining abbreviated values (e.g., Level "2" is for State agencies).

The CPAD is in ESRI File Geodatabase format (requires ArcGIS 9.2), which enables the relational system noted above along with other lookup tables that provide detail on particular attributes. Shape file editions of the CPAD may also be created and published, though these are much larger in file size.

How CPAD Data Has Been Gathered

CPAD makes use of a wide range of data sources, including previous databases (e.g., PCTL), parcel data from counties, ownership data files from agencies and other research. In general, the following approach has been taken:

1. For a particular county, GIS-based assessor tax parcel data is acquired to set the basic geometry of the CPAD holdings. Base data including PLSS lines, TIGER road and county boundaries, National Hydrology Dataset water features and high resolution aerial photography are also incorporated into the base GIS project.

2. Parcels are filtered for ownership by relevant public agencies and non-profits, with other parcels discarded.

3. Other existing protected lands information is then correlated with the parcel data – this includes prior data sets, along with GIS data sets for individual agencies. This information is also scanned for the listing of agencies/organizations that might show in the parcel data.

4. In case of conflicts between agencies or with assessor boundaries, the following guidelines are used: In urban areas, assessor parcels are given precedence; in rural areas, if the owning agency explains that it's data is gathered by analysis of coordinate geometry and is confident of its boundaries, that geometry can supercede the assessor parcels (which are known to have accuracy issues in rural areas in some counties). Where agencies differ about their holdings, efforts are made to review these issues with the agencies (often the issue is that one agency owns a site while the other operates it) and reach a resolution. When that is not possible, best judgment is used by GreenInfo Network staff.

5. 1-meter or better aerial photography is used to check boundaries – where there are assessor parcel conflicts with aerial imagery, operator judgment is used to decide which has precedence, but in general, the approach in (4) above is followed (urban – assessor; rural - aerial image).

6. Where a holding extends over water bodies or tidal zones, the shape is divided into sections for land and water – water parcels get flagged with the Tidal/Submerged field value. The National Hydrography Dataset is used to define water bodies; the official state coastline is mostly used for coastal high water marks. Aerial photography can be used to refine these choices for particular sites, but NHD should generally prevail.

7. Where a single holding spans a county boundary, it is separated into separate records for each county (e.g., a national forest holding that extends across two or more counties).

8. Where an open space area is protected by both fee title ownership by a public agency or non-profit land conservation organization, and by an additional conservation easement, then only the fee-title designation is used – the conservation easement is noted in the Holding note.

9. In general, CPAD is accurate to at least 1:24,000 scale, but parcels and air photos (and some agency datasets) often improve this to 1:5-10,000 or better.

V. DATABASE DICTIONARY

The basic relationships in the database are as follows:

- Holdings are parcels (or aggregation of undifferentiated parcels) that are each a part of a Unit (groups of holdings managed under and known by common names, like Briones Park) – the two are linked by the unique Unit ID being specified for each record in the Holdings table.

- Each Holding has one owner (if there are a trail of easement owners, that is handled separately); and each Unit has one "owner", or managing agency.

- If a Holding is leased out by one agency to another agency, the latter agency's Unit designation applies to the Holding, not the owning agency's.

- Core information on Agencies is maintained in the Agency table, and linked by Agency ID to Holdings and Units tables.

Unit geometry is used primary for display purposes – to show aggregated outlines of overall area designations. Due to important details in the Holdings table, Holdings should be used for all analysis.

HOLDINGS TABLE

Holding ID	Internal assigned unique database number used to link to AV
Holding Name	Holding Name, as reported by the agency
Alternate Holding Name	Alternative name (optional)
Unit ID	ID of the Unit this holding is part of (see description above)
Agency ID	ID number used to link to the agency's general information (Agency Table)
Type of Owner	Federal, State, County, City/Town, Special District, Non-Profit, Private, Other, Unknown
Ownership Type	Fee, Mixed, Unknown. "Mixed" is for combination fee/easement lands where fee ownership predominates (rare occurrence)
Ownership Note	Text string. Any special circumstances regarding the ownership status of this property
Level of Protection	Permanent, Time Limited (time limited not currently in CPAD)
Protection Established	Date temporary protection starts (not currently used)
Protection Expires	Date temporary protection expires (not currently used)
Public Access Level	OA, RA, XA – Open Access, Restricted or Limited Access (permit required, days limited, etc.), No Public Access.
Gap Code	(To be added – USGS Gap designation, 1-4)
IUCN Code	(To be added – UNEP WCMC designation, 1-9)
Designation – National	Type of unit (State Beach, etc.), from USGS comprehensive list, code with lookup table
Designation – Agency	Agency's own original unit designation, text
Official Acres	Number of acres, as defined by the owning agency through deeds or other official source, if available
Primary Land Purpose	Type of primary use of land - see code list below for choices
Managing Agency	If managed by another agency, that agency's ID (not fully implemented)
Land or Water	Indicates if the Holding is tidal or submerged
Special Use	Selected from Special Use Codes – public golf courses, cemeteries, etc.
Assessor's Parcel Number	APN number, if available (if multiple parcels in the Holding, include all or code as "Many")
Holding Notes	Notes on the holding including unique or unusual aspects of the holding, includes whether the holding is leased from another agency
County	County this holding lies in – use FIPS code with lookup table
City	Where holding is entirely inside a city – use FIPS code with lookup table
State	State name

Date Acquired	Year or mm/dd/yy that holding was acquired (if multiple, then first date) – not widely available in current CPAD
Website	Owning agency's web site – brought in from Agency table
Not for Public Release	"Yes" or "No" as to whether the spatial and attribute data for this Holding is confidential and cannot be displayed or released publicly.
Data Source	Source for this record's data
Data Source Agency	Agency ID
Data Source Record ID	Owning agency's record ID, if available
Data Source Scale	Scale of source data (100,000, 24,000, etc.)
Alignment of Data	How data was aligned in editing process (parcels, aerials, source data, etc.)
Visual Inspection	Has holding been visually inspected against air photo?
Date Holding Entered	Date the holding was first entered into the CPAD database. (this does not change when there are updates)
Date Last Revised	Date holding info last revised (this is overwritten when a change is made, and changed to the date of the most recent update)
Name of Person Revising	Name of individual responsible for last revision to the holding
Organization of Revisor	Organization name of revisor
Symbology Layer	Codes for official California agency classifications
Region	Geographic subregion of state (Bay Area, etc.)
GIS Acres	Based on GIS software calculation

OWNERSHIP TYPE TABLE

Fee:	Full fee ownership
Mixed:	Combination of fee and easement, predominantly fee
Unknown:	Unknown ownership type

UNITS TABLE

Unit ID:	Database ID of Unit (unique number, e.g.)
Agency ID:	Database ID of Agency managing the Unit
Unit Name:	Common name of the Unit that encompasses a set of Holdings (eg, the name of a park (eg "Briones Regional Park") or generally distinguished portion of a park (eg "Marin Headlands").
Unit Acres:	Acreage calculated by GIS software
Visitor Note:	Text note of up to 200 words describing the Unit's qualities as they might appear in a guidebook – these should be inviting to any potential visitor, not technical (optional)
Unit Note:	Any other comments about this Unit by the survey respondent

AGENCY TABLE (not in current release version)

Agency_ID	Agency ID code, to link to the Holdings and Units tables
Agency Name	Full primary name of agency (for state and federal, use "California Dept. of.." and "U.S. Bureau of..")
Agency SubName	Additional name of agency (Division of Wildlife, etc.)
Agency Level	Code for agency level, links to the Agency Code Table
Street	Primary street address or PO Box
Street2	Secondary information (Building, etc.)
City	City name
State	State abbreviation
Zip	Five or nine digit zip code
Jurisdiction	City of, County of, Town of
County	County name (no "County")
Phone	Area code and phone (999-999-9999 format)
Fax	Area code and fax (999-999-9999 format)
Web	Web URL (www.name.domain, no http://)
Email	Main agency email
Year_Established	Year of establishment (YYYY format)
Total Agency Acres	Total acres in agency ownership, reported by agency (optional)
Total GIS Acres	Total acres from GIS database (optional)
Note	Notes about agency
Revision Date	Date MM/DD/YY
Operator	Who revised
OpOrg	Organization of person revising

AGENCY LEVEL CODES

1	Federal
2	State
3	County
4	City
5	Special District (regional park district, etc.)
6	Non-profit (land trust, etc.)
7	Private
8	Other
9	Military
10	Joint (ownership between two or more agencies)
99	Unknown

PRIMARY USE TABLE

Recreation	Facility based recreation (zoo, swim center, etc. - usually not included in CPAD at this point)
Open Space	Non-facility based recreation, open land
Historical/Cultural	Museums, historic sites
Forestry	Active forest harvesting, tree growth for forestry
Agriculture	Crop lands including developed pastures
Ranching	Grazing lands - dry and grazing pasture
Water Supply	Watersheds, waterways
Scenic	Only if officially designated
Flood Control	Floodways, flood control channels
Habitat Conservation	Wildlife or plant reserve protected specifically for habitat
Underwater	Site is underwater
Other	
Unknown	

HOLDING DESIGNATIONS

An extensive table of holding designations (State Beach, Regional Park, etc.) is also part of the CPAD. These designations are part of a national structure and are a critical element in the development of conservation rankings for protected lands. These designations include a National designation (a specific set of national designations and a generalized set of sub-national designations) and an Agency source designation (what the agency itself calls this type of holding)

This designations table has been developed in coordination with the USGS Gap program and identifies over 150 types of protected areas. It is not currently in the CPAD v.09, but will be included when it is released.