

*COMaP v7: Colorado Ownership, Management & Protection
-- Mapping the status and trends of Colorado's protected areas --*

David M. Theobald, Grant Wilcox, Sophia Linn, Nate Peterson, and Matt Lineal

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Introduction

The goal of the Colorado Ownership, Management, and Protection (COMaP) project at the Natural Resource Ecology Lab (NREL) is to build a statewide protected areas map for Colorado. Knowing the location and pattern of various protected areas is a key piece of information to inform management of many natural resources in Colorado. Often local agencies, particularly those who have invested in building a GIS-based parcel dataset, have up-to-date maps of protected areas. However, projects often require information at scales beyond local areas and these efforts must rely on datasets that are incomplete and outdated. No agency or organization is charged with the task of compiling this information on a statewide basis. As a result, a fundamental premise of COMaP is that the landscape context (ownership and management) is important to natural resource management issues. Therefore, COMaP fills the need for a spatial database that provides comprehensive and current information about various levels of protection, such as parks, open spaces, and forests in Colorado.

It was quite challenging to synthesize data from all the various Federal, State and local agencies. Land ownership and management are very dynamic facets of natural resource management and stewardship. New datasets are continually under development and will be incorporated into COMaP as available. While we strive to have the most current, comprehensive, and accurate dataset on land protection in Colorado, COMaP can only represent a snapshot in time based on the multiple datasets used as input.

Support

Financial and technical support for COMaP Versions 1 – 4 was provided by the Colorado Division of Wildlife as part of the [Natural Diversity Information Source](#).

Financial and technical support for COMaP v5-7 was provided by [Great Outdoors Colorado](#) (GOCO). GOCO was created in 1992 and is funded by a portion of state lottery proceeds. Their goal is to assist in projects that preserve, protect, and enhance Colorado's wildlife, parks, rivers, trails, and open spaces.

Versions

v1: The first version of COMaP was released on May 28, 2004 as COMaP v1. This comprehensive dataset identified all Federal and State owned lands in Colorado. Given that COMaP is a synthesis of multiple datasets, there were numerous discrepancies in both the geometry and attributes. Feature level metadata was attributed to every feature in the dataset. In the event of a discrepancy, attributes were assigned to track the conflict.

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v2: COMaP v2 was released on August 1, 2004 as COMaP v2-SWReGAP. We coordinated with the South West Regional GAP (SWReGAP - <http://leopold.nmsu.edu/fwscoop/swregap/>) project to complete the stewardship layer for SWReGAP. The SWReGAP project study area encompasses five states: Colorado, New Mexico, Arizona, Nevada, and Utah. While the SWReGAP staff has focused on the other four states, COMaP was provided as the stewardship dataset for the Colorado portion of the project. In order for COMaP to mosaic with the other four states, attributes that tracked discrepancies were removed. This allowed for COMaP to fit with the other four states and complete the stewardship layer for SWReGAP analysis.

v3: COMaP v3 was released on January 1, 2005. By this version, the processing methods had evolved from the first two versions to produce a more consistent and “cleaner” dataset. The main difference is that we created a Python script to systematically assemble the original input datasets based on a ranking. The program identifies areas of overlap and exports them to a feature class. Manual editing was still necessary to address edge matching errors. Version 3 was developed in stages that allowed for two levels of the final output. This was done to allow for various levels of detail and to restrict access to sensitive information on private land conservation easements. COMaP_v3_public contained all federal and state data inputs as well as input from The Nature Conservancy. As county level data was reviewed and accepted, it was also incorporated into COMaP_v3_public. COMaP_v3_private went a step further to include inputs from local and regional land trusts. This final level, COMaP_v3_private, was released only to contributors that had a vested interest in private conservation easements.

v4: COMaP v4, released June 31, 2005, had additional attributes added to the database to create a clearer picture of land ownership, management and protection across the state. The new attributes include a detailed owner, a detailed manager, public access, protection mechanism, easement holder, date established, source scale, and a URL hotlink to the feature or feature manager web page. COMaP v4 also integrated all of the county data that had been acquired as well as datasets from two municipalities. COMaP v4 maintained the same public/private distinctions introduced in Version 3 as discussed above.

v5: For COMaP v5, the support from GOCO led us to create additional attributes in the database to better track GOCO’s participation in projects across the state. In this release of COMaP, attributes were added to the database to allow for better tracking of property and easement acquisition funding (FUNDING_PARTNERS, GOCO_FUNDING), additional details concerning protection processes and length (PROTECTION_TERM, PROTECTION_PROCESS), and an attribute to assist in open space analysis (GOCO_OS_TYPES). The details concerning these additional attributes are covered in the “Attributes” section of this document as well as in the geodatabase metadata. COMaP v5 also features the addition of 24 city datasets, 12 county datasets, 14 land trust datasets, and completely updated forest service boundary data.

v6: COMaP v6 in April of 2007 continued to build upon past data as well as adding more attributes to better track protections. Attributes added to v6 included, GOCO_LOG, ALT_GOCO_LOG, and RECEPTION_NO. We feel the reception number attribute will be a key component as we try to make sure all conservation easements across the state are included within the database and are accurately represented.

v7: The newest version of COMaP (COMAP_v7) was completed by adding data to v6. Additions include new easements from many land trusts (see data list), land exchanges, and better attributing of GOCO projects.

Methodology

The first step in this ambitious project was to collect all the spatial data available from federal and state agencies (see Table 7 for a complete list). Datasets from the federal agencies were often maintained in separate databases or agency departments. Once these data were collected they were merged together to make one complete feature class for the respective agency. All input datasets only contained features for that specific agency. For example, datasets from the twelve individual National Park Service (NPS) lands were gathered and merged to make one NPS feature class. This was also done for the US Forest Service (USFS), US Fish and Wildlife Service (USFWS), Bureau of Land Management (BLM) and State Land Board (SLB) datasets.

While the initial processing steps have remained constant for each version, methods used to integrate all of the datasets into one have evolved. The first two versions made use of Topology feature classes and editing tools in ArcGIS 8.3 to address the numerous overlaps and gaps among the various input datasets. Though these methods worked quite well we found that manual editing and updating the dataset with more current input datasets was too time consuming. Additionally it was difficult to manually address topological errors in a consistent manner.

For the next three versions, COMaP v3, COMaP v4 and COMaP v5, we assembled the input data in a more systematic and automated manner. We used Model Builder and Python scripting in ArcGIS 9.0 to systematically merge the various input datasets. By building a program we were able to control the order in which datasets were compiled. The datasets were ranked according to their quality, vintage, spatial extent, and our level of confidence in the data (Table 1).

Table 1: Compiled dataset rankings for COMaP v5

Rank	Dataset
1	Land Trusts
2	Non-governmental organization datasets
3	City datasets
4	County datasets
5	Colorado State Land Board
6	Colorado Division of Wildlife
7	Colorado State Parks
8	US Fish and Wildlife Service
9	National Park Service
10	US Forest Service
11	Bureau of Land Management

The Python script outputs two layers: the “overlap layer” (comap_v5_overlap) and the “unedited layer” (comap_v5_unedited). As the different input layers are intersected, those areas that overlap are written to the “overlap layer” and the overlapping

area from the higher ranked input dataset is left in the “unedited layer”. The “overlap layer” contains attributes which show the differing management codes and the source data that contained the overlaps.

After removing overlapping areas from input data sets, the remaining datasets were unioned to create the initial COMaP layer. Finally any lands in the state that had not been identified in any of the input source datasets were assigned as private lands due to the fact that there is no reliable statewide layer of private lands.

After the “unedited layer” and the “overlap layer” were created, editing processes were performed on a copy of the “unedited layer”. Initially, a length/area ratio was calculated and all features with a ratio greater than 0.8 and an area of less than 0.1 acres were eliminated into the polygon with the largest shared border. Next, county-by-county manual edits were performed consisting of minor spatial adjustments, cuts and merges. All of these edits were based on assumptions concerning the quality of the input datasets and were meant to maintain proper adjacency throughout the final dataset. For example, if there was a 20 meter gap between a NPS feature and a BLM feature, the gap was filled with the lower ranked BLM feature relying on the assumption that the spatial accuracy of the BLM input was not as high as the accuracy of the NPS feature. In addition, most edits were performed with the guidance of the BLM’s Geographic Coordinate Data Base (GCDB) (<http://www.blm.gov/gcdb/>) in an attempt to distinguish which features were properly aligned. Other features inspected during the editing process included features smaller than 10 acres having a length/area ratio of greater than 0.5 and all features that had an angle less than 1° between any 3 vertices.

After completing the edits to the entire dataset, the final COMaP layer was created, `comap_v5_final`. Unioning this “final layer” and the “unedited layer”, and then selecting areas that had differing attributes between the two, resulted in the “edit layer” (`comap_v5_edits`). This edit layer tracks all of the manual edits that were performed on the original data to create the final COMaP. It contains attributes which show the original (unedited) state and what the area was edited to represent in the final layer.

In the interest of condensing the dataset, the “unedited layer” was removed from the geodatabase. Therefore, each COMaP v5 geodatabase (public and private) contains three feature classes:

1. `comap_v5_final`
2. `comap_v5_edits`
3. `comap_v5_overlap`

The final COMaP layer (`comap_v5_final`) can be used as a stand-alone feature class for land stewardship in Colorado. The other three layers illustrate the major processing steps in the project. The “edit layer” provides a record of where we manually edited the dataset. The “overlap layer” shows where the input datasets overlapped and which datasets were involved. Of primary interest to GIS data creators is the “overlap layer” which should assist in identifying discrepancies with other agencies. Symbolized layer files for all layers are included with COMaP v5.

For COMaP v6 and v7, we started with the previous version as a base and simply added easements and open space as they became known to us. Many easements were identified by traveling to various County Clerk’s offices around the state and gathering

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legal documents of those easements. Additional changes to v6 included updates to BLM, CDOW, and State Land Board data.

V7 also has updates to BLM, State Land Board, and CDOW data as well as the inclusion of many new easements from organizations such as Colorado Open Lands, Aspen Valley Land Trust, Black Canyon Regional Land Trust, The Nature Conservancy and many others across the state. In the interest of easier downloads, we have eliminated the edit layer and overlap layers from the v6 and v7 databases. Those layers are now available by request.

Attributes

In this section we provide detailed attribute descriptions for COMaP v7. Tables 5 and 6 provide a description and examples of the Management Code attribute. This attribute is a focal value of COMaP, as it signifies the management and use of the feature.

Table 2: COMaP attributes (comap_v7_final). All of the following attributes are included in the COMaP dataset.

<i>COMaP_v7_final attributes</i>	
OBJECTID	ESRI default attribute feature ID
Shape	ESRI default attribute
NAME	Name of the feature
OWNER	General owner of the feature
MANAGER	General manager of the feature
OWNER_DETAIL	Detailed owner of the feature
MANAGER_DETAIL	Detailed manager of the feature
MGMT_CODE	Management code
MGMT_DESCRIPTION	Management code description
PUBLIC_ACCESS	Level of public access to the feature
PROTECTION_MECHANISM	Any mechanism of protection assigned to the feature
PROTECTION_TERM	The duration of the protection from the indicated mechanism
PROTECTION_PROCESS	Any specific program used to assist in the protection of the property (e.g. Wetlands Reserve Program)
EASEMENT_HOLDER	What organization holds the easement (if easement is present)
DATE_ESTABLISHED	Date the feature was established under its current management
FUNDING_PARTNERS	Any organizations that contributed towards the protection of the property
GOCO_FUNDING	Did Great Outdoors Colorado (GOCO) funding assist in the property protection
GOCO_OS_TYPE	Type of open space feature represented in the database (See below for details)
HOTLINK	A URL link to the webpage of the feature owner or easement holder
SOURCE_DATA	Data source of the feature
SOURCE_DATE	Date of the data
SOURCE_SCALE	Scale of the source data
GOCO_LOG	The log number of the project in the GOCO database
RECEPTION_NO	The reception number at the County Clerks & Recorder's office of the document bestowing protection upon the parcel.

ALT_GOCO_LOG	Any other log number assigned by GOCO to the project
GOCO_PROJECT_NAME	The name of the project in the GOCO database
NOTES	Any notes concerning transfer of CEs or sales of the parcel
ACRES	Calculated acres of feature
HECTARES	Calculated hectares of feature
Shape_Length	ESRI default attribute
Shape_Area	ESRI default attribute

MGMT_CODE

The MGMT_CODE attribute is a long list of various management prescriptions and/or guidelines. The values were based on the data inputs to COMaP. At first glance the list can be a bit overwhelming. Therefore we have provided an overview of the main codes (Table 5). A complete list of these codes is provided as an Excel spreadsheet within the COMaP folder as well as on our [website](#).

Table 5: Main Management Codes (MGMT_CODE)

Main MGMT_CODE values	General Description
10000	Federal Lands
11000	Bureau of Land Management
12000	Bureau of Reclamation
13000	Fish and Wildlife Service
14000	United States Forest Service
15000	Department of Defense
16000	National Park Service
17000	Natural Resources Conservation Service
18000	Bureau of Indian Affairs
19000	National Oceanic and Atmospheric Administration
20000	Tribal Lands
30000	State Lands
31000	State Parks
32000	State Land Board
33000	Colorado Division of Wildlife
50000	Local Government Lands
51000	City Lands
52000	County Lands

60000	Non-Governmental Organization Lands
70000	Private Lands
90000	Unknown

Each value is a five digit code which relates to the manager and what the management for the feature is. The first two digits indicate the manager, while the last three digits indicate a specific management prescription. The main codes listed above in Table 5 provide a general overview of the MGMT_CODE. Upon reviewing the complete list it will be evident that there are a wide variety of management prescriptions/guidelines identified in COMaP. A few examples should help clarify the coding system.

Example #1: Within the BLM system (11000) there are areas designated as “Areas of Critical Environmental Concern (ACEC)”. These features have MGMT_CODE value equal to 11010. The first two digits tie it to the BLM and the last three digits indicate that it is an ACEC.

Example #2: The USFS provided us with Management Area Prescription (MAP) data. These data spatially designate the main management activities for USFS lands. They also provide the most detailed management codes in the COMaP data. Areas within the USFS (14000) jurisdiction that are managed as Pristine Wilderness have a MGMT_CODE of 14111 while areas managed for Forest Products have a MGMT_CODE of 14513.

In Table 6 we have provided a sample of various queries based on the MGMT_CODE attribute. These queries were created in ArcGIS using a geodatabase feature class.

Table 6: Example MGMT_CODE queries

<p>USFS Motorized Recreation: [MGMT_CODE] IN (14331, 14421, 14423, 14445, 14446, 14448)</p> <p>USFS Non-Motorized Recreation: [MGMT_CODE] IN (14130,14131,14132,14330,14332,14447,14449)</p> <p>CDOW Areas [MGMT_CODE] in (33000, 33100, 33200, 33300, 33400, 33500, 33600)</p> <p>BLM Special Management Features [MGMT_CODE]>=11100 AND [MGMT_CODE]<=11800</p> <p>All Wilderness Areas [MGMT_CODE] IN (11400, 14100, 14111, 14112, 14113, 14115, 14117, 14120, 14125, 16110, 16115, 16210, 16215, 16310, 16315)</p>

GOCO_OS_TYPE

The GOCO_OS_TYPE attribute was added to COMaP V5 to assist in analyzing open space patterns across the state. For projects funded by GOCO, the open space type was assigned by the cooperating agencies during the time of property or easement acquisition. There are seven categories commonly used by GOCO: Agricultural, Buffer/Inholding, Community Separator, Greenway/Stream Corridor, Urban Open Space, Natural Area/Wildlife Habitat and State Parks. Features with management codes of 51000, 52000, 53000, 54000, 55000, 56000, 60000, 61000, 62000, 71000, and 71020 that did not receive GOCO funding were selected from the dataset and assigned one of the categories based on ancillary GIS data and definitions provided by GOCO.

Urban open space areas were defined as land within a municipal boundary regardless of size. Buffer/Inholding areas were defined as land lying adjacent to land owned by a local, state or federal agency. Agricultural land was defined using the National Land Cover dataset which has explicit values for agricultural land. Greenway/stream corridor areas were defined as long strips of open space within a municipal area or areas within ¼ mile of a stream. Stream data used was a commonly available 1:100k hydrology dataset. Community separator areas were defined as extending 3 miles beyond municipal boundaries where one municipality is next to another and both have greater than 1,000 people, or greater than 10,000 people if a municipality is not next to another municipality having greater than 1,000 people. State parks were areas acquired to be state parks. Natural area/wildlife habitat areas were those that fit none of the other categories.

All of these definitions were used to delineate areas of a grid with values of 1-5. Using the selection set described above, zonal statistics were run to determine the type of open space represented by each feature. Additional assignments were made based on management code values which specified the open space type. For example, management code 51500 represents a City Greenbelt so those features were assigned to the Greenway/Stream Corridor category.

List of datasets used

The following table provides the name of the each dataset used in creating COMaP. For each dataset we provide the common name, the file name in parentheses, and the source date. In addition to the listed datasets, many easements and open spaces were digitized based on legal descriptions, aerial photos and web information. These features are noted as such in the database.

Table 7: All input datasets to COMaP

United States Forest Service	Source Date (YYYYMMDD)
Arapaho & Roosevelt National Forests	
Arapaho & Roosevelt National Forests management areas (arnf_mgtareas)	19971101
Arapaho National Forest ownership boundary (ara_lis011205)	20050112
Roosevelt National Forest ownership boundary (ros_lis070804)	20040708
Pawnee National Grasslands	
Pawnee National Grasslands management areas (arnf_mgtareas)	19971101
Pawnee National Grasslands ownership boundary (paw_lis112204)	20041122
Grand Mesa, Uncompahgre and Gunnison National Forests	
Grand Mesa, Uncompahgre and Gunnison National Forests management areas (gmugma)	19910923
Grand Mesa, Uncompahgre and Gunnison National Forests ownership boundary (gmuglis110404)	20041104
Pike and San Isabel National Forests	
Pike and San Isabel National Forests management areas (mgt_area_lib)	20050000
Pike National Forest ownership boundary (pik_lis020805)	20050208
San Isabel National Forest ownership boundary (sis_lis022505)	20050225
San Juan National Forest	
San Juan National Forest management areas (sj_mgtarea)	19980909
San Juan National Forest ownership boundary (sjn_lis041405)	20050414
Rio Grande National Forest	
Rio Grande National Forest management area (rg_mgtarea)	19980808
Rio Grande National Forest ownership boundary (rgr_lis_051304)	20040513
Routt National Forest	
Routt National Forest management areas (rt_mgtareas)	19970000
Routt National Forest ownership boundary (rou_lis121604)	20041216
Cimarron & Comanche National Grasslands	
Cimarron & Comanche National Grasslands management areas (mgt_area_lib_cc)	20050000
Cimarron & Comanche National Grasslands ownership boundary (com_lis033004)	20040330
White River National Forest	
White River National Forest management areas (white_ma)	20020604
White River National Forest ownership boundary (whr_lis042204)	20040422
USFS Roadless Area Conservation	
All USFS Forest Areas – Wilderness, RNAs, NRAs (sda_us_dd)	20000915

National Park Service	
Bent's Old Fort National Historical Site Bent's Old Fort National Historic Site boundary (beol_bndry)	20001200
Rocky Mountain National Park Rocky Mountain National Park Research Natural Areas (romo_res_nat_area)	19950000
Rocky Mountain National Park boundary (romo_bndry03)	20031002
Rocky Mountain National Park Wilderness (romo_official_wilderness)	20030900
Black Canyon of the Gunnison National Park Black Canyon of the Gunnison National Park boundary (blca_bdy2002)	20030115
Black Canyon of the Gunnison National Park Wilderness (blca_wild)	Unknown
Colorado National Monument Colorado National Monument boundary (colm_bndry)	Unknown
Curecanti National Recreation Area Curecanti National Recreation Area boundary (cure_bdry)	20020000
Dinosaur National Monument Wilderness Areas of Dinosaur National Monument, Utah and Colorado (dino_official_wilderness.shp)	20030700
Florissant Fossil Beds National Monument Florissant Fossil Beds (FLFO) National Monument boundary (ffl_bdry.shp)	19990910
Great Sand Dunes National Monument and Preserve Great Sand Dunes National Park and Preserve boundary, Colorado (grsa_boundary.shp)	20020900
Great Sand Dunes National Park Wilderness (grsa_wilderness.shp)	20050323
Hovenweep National Monument Hovenweep National Monument boundary (hove.e00)	19940000
Mesa Verde National Park Mesa Verde National Park boundary (meve)	19940000
Yucca House National Monument Yucca House National Monument boundary (yuho)	19940000
Sand Creek Massacre National Historic Site Sand Creek Massacre National Historic Site boundary (sand_boundary_poly.shp)	20021015
United States Fish and Wildlife Service	
Alamosa National Wildlife Refuge Alamosa National Wildlife Refuge boundary (alm_own_2713.shp)	20050427
Arapaho National Wildlife Refuge Arapaho National Wildlife Refuge boundary (arp_own_2712.shp)	20050427
Baca National Wildlife Refuge Baca National Wildlife Refuge boundary (bac_owned_2713.shp)	20050427
Browns Park National Wildlife Refuge Browns Park National Wildlife Refuge boundary (brp_own_2713.shp)	20050427
Hotchkiss National Fish Hatchery Hotchkiss National Fish Hatchery boundary (foj_own_2713.shp)	20050427

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Leadville National Fish Hatchery Leadville National Fish Hatchery boundary (led_bnd_u13n27.shp)	20030925
Monte Vista National Wildlife Refuge Monte Vista National Wildlife Refuge boundary (mtv_own_8313.shp)	20050427
National Black-Footed Ferret Conservation Center National Black-Footed Ferret Conservation Center boundary (nbf_own_2713.shp)	20050427
Rocky Flats National Wildlife Refuge (Proposed) Approved acquisition boundary for the future Rocky Flats National Wildlife Refuge (rflleg.shp)	Unknown
Rocky Mountain Arsenal National Wildlife Refuge Rocky Mountain Arsenal National Wildlife Refuge boundary (rkm_own_2713.shp)	20030000
Two Ponds National Wildlife Refuge Two Ponds National Wildlife Refuge boundary (twp_owned_2713.shp)	20050427
Natural Resources Conservation Service	
Farm and Ranch Lands Protection Program Digitized from list provided by NRCS (FRPP_projects.mdb)	20060410
Wetlands Reserve Program Easements (wrp_all.shp)	20060320

Bureau of Land Management	
Areas of Critical and Environmental Concern Areas of Critical and Environmental Concern 24K (co_acec)	19980817 & 20050400
Wilderness Areas BLM Wilderness Areas (blm_wld24k)	20001128
Wilderness Study Areas BLM Wilderness Study Areas (blm_wsa24k)	20001128
Canyons of the Ancients National Monument Canyons of the Ancients National Monument (blm_natmon24k)	20001005
National Conservation Areas BLM National Conservation Area (blm_nca24k)	20001006
BLM Land Status 24K-100K Surface Land Ownership 24k, 100k, GCDB (lst24k_100k) (used for Federal ownership not found elsewhere)	20020528
BLM Land Ownership - General Surface Land Ownership for the BLM 24k (blm_sdeDefaultNov2004) Surface Land Ownership for BLM (lst_conflated ply.shp)	20041101 20080211
SWReGAP Two ACECs pulled from SWReGAP data set (SWReGAP.shp)	20050400
State of Colorado	
Colorado Division of Wildlife State Wildlife Areas, State Habitat Areas, State Administrative Areas, State Fish Hatcheries, State Recreation Areas, State Watchable Wildlife Areas (CDOWManagedProperties.mdb) Changes for COMaP v5 (CDOWPropertyChanges.shp) Changes for COMaP v7 (CDOW_COMaP.mdb) Changes for COMaP v7 (CDOWAdds_Deletes.mdb)	20051020 20060801 20080528 20080615
Colorado State Parks Colorado DPOR Natural Resource Inventory Project (col_bou_stpark_44_polys.shp)	20050415
State Land Board State Land Board Surface Ownership (co_slb_surface_ownership041405.shp) State Land Board Stewardship Trust Lands (co_slb_stewardship_trust_040105.shp) State Land Board Exchange (miramonte_add.mdb)	20060418 20050401 20080512
Non-Governmental Organizations	
Denver Water Board Denver Water Board parcels and easements (dwp3_dws_polygon) Denver Water Board parcels and easements (dwprop_comap.mdb)	20041200 20080529
Foothills Park & Recreation District Parks and open space (foothills_all.shp)	20050809

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Great Outdoors Colorado Digitized from maps provided by GOCO (GOCO_maps.mdb) Digitized from maps provided by GOCO (GOCO_legals.mdb) Digitized from maps provided by GOCO (GOCO_maps2.mdb)	20060516 20080603 20080720
West Arapahoe Conservation District Easements and holdings digitized based on documents provided by the Plains Conservation Center (PCC.mdb)	2006050

Counties	
Adams Use management areas (adams_uma.shp)	20040602
Arapahoe Parks and public space (arap_opensp)	20040513
Boulder Open space (openspace09_05.shp) Municipal watersheds (mun_wtrsheds.shp)	20050900 20020528
Broomfield Parks (parks.shp) Open space (open_space.shp)	20050317 20050317
Chaffee Parks (chaffee_county_parks.shp)	20050829
Clear Creek Public parcels (clcr_pub_parcels.shp) Conservation easements (clcr_cons_ease.shp) Open space (open_space.e00)	20050214 20040606 20051103
Costilla Easement (current_boundary.shp)	20060201
Crowley Parks and open space digitized from maps provided by county (crowley.mdb)	20060405
Douglas Open space (doug_opensp.shp) Parks (doug_parks.shp)	20040630 20040630
Eagle Easements derived from parcel data and legals (Eagle.mdb)	20080603
Elbert Easements derived from parcel data and legals (Elbert.mdb) Easements derived from parcel data and legals (Elbert2.mdb)	20080522 20080602
El Paso Parks digitized based on internet maps (elpaso_parks.shp)	20060528
Grand Easements derived from parcel data and legals (Grand.mdb)	20080522
Gunnison Open space and easements (All_Easements_Open_Spaces.shp) Open space and easements (Easement_Open_Space.shp)	20060316 20080303

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Jefferson Open space (opensp.shp) Easements (easements.shp) Rural land use parcels digitized from legals (jeffco_rlups.mdb)	20050920 20050920 20080609
Larimer Selection from tax exempt database (TaxExempt.mdb) Conservation easements (cons_ease.shp) Parks, open space, rural land use plans, conservation developments and most easements derived from parcel data in combination with (parown1.shp – 20030306) and (all_2004_acq.shp – 20050607) (larimer_all.mdb)	20050211 20040315 20060505
LaPlata Easements (easement_polygonCopy.shp)	20050631
Mesa Easements (BufferEasements_2006.shp) Easements derived from parcel data and legals (Mesa.mdb)	20060214 20080603
Montrose Open space (Montrose_County_Open_Space2.shp) Easements derived from parcel data and legals (Montrose_County.mdb)	20060308 20080603
Montezuma Easements (lacondist05_p.shp)	20050809
Pitkin Open space (openspace.shp) Conservation easements (os_easements.shp)	20030630 20030630
Pueblo Parks (pueblo_parks) Conservation easements (pueblo_conservation_easements)	20040623 20040517
Ouray Easements derived from parcel data (ouray_easements.shp)	20060802
Otero Easements digitized from legal descriptions (Otero.mdb)	20060428
San Miguel Easements (conease5.shp)	20050721
Rio Blanco Easements derived from parcel data and legals (RBC_parcel20.mdb)	20080527
Routt Easements derived from parcel data and legals (Routt_county.mdb)	20080603
Summit Open space (scos_Mar2005.shp) Conservation easements (ce_all_Mar2005.shp)	20050300 20050300
Weld City of Evans Parks (Weld_EvansParks.shp) City of Windsor Parks (Weld_WindsorParks.shp) Easements derived from parcel data and legals (Weld.mdb)	20040514 20020000 20080522

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Cities	
Arvada Parks and open space (arvada_parks_os.mdb)	20060131
Avon Parks and open space (GOCO_OpenSpace_TOA.shp)	20060330
Boulder Open space and easements (Boulder_OSMP_Properties.shp)	20051031
Brighton Parks (parks.shp)	20060519
Colorado Springs Parks (Parkland.mdb)	20060201
Crested Butte Open space and easements (opensp07.shp)	20050802
Delta Parks digitized based on maps provided by Delta (Delta.mdb)	20060126
Dillon Parks and open space (Shape_Parks_and_Open_Space_Dillon.shp)	20060419
Denver Mountain parks derived from Jefferson County parcel data (jeffco_dmp.shp)	20060520
Erie Derived from Boulder and Weld Counties parcel data with assistance from Erie GIS (Erie_open_space.mdb)	20060327
Fleming Parks digitized based on maps provided by Fleming (Fleming.mdb)	20060307
Fort Collins Natural Areas (nat_areas.shp) Natural Areas Update (nat_area.shp) Parks (parks.shp)	20050414 20050427 20050317
Frederick Parks and open space (Parks_and_Open_Space.shp)	20060508
Fruita Parks and open space (parks_openspace.shp)	20060321
Golden* Parks (Recreation Land.mdb)	20060123
Greeley Parks (GreeleyParksMarch2005.shp)	20050300
Keenesburg Parks digitized based on maps provided by Keenesburg (Keenesburg.mdb)	20060405
Kiowa Parks digitized based on maps provided by Kiowa (kiowa.shp)	20060421
Lafayette Parks (city parks.shp) Open space (city open space.shp)	20051226 20051026
Lakewood Parks (lakewood_parks.mdb)	20060214

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Loveland Parks and open space (Loveland Open Lands.shp)	20060505
Montrose Downloaded from Southwest Data Center (Montrose_OS.mdb)	20050710
Parker Parks and open space (OpenSpace.shp)	20051115
Springfield Parks digitized based on maps provided by Springfield (Springfield.mdb)	20060220
Vail Parks and open space (os_park_parcel.shp0)	20060303
Westminster Golf courses (GolfCourses.shp)	20060124
Open space (OpenSpace.shp)	20060124
Parks (Parks.shp)	20060124

Land Trusts	
Animas Conservancy Easements and holdings for Animas Conservancy extracted from LaPlata County Parcel data with IDs provided by Animas Conservancy (animas.shp)	20030219
Aspen Valley Land Trust Easements and holdings for Aspen Valley Land Trust (AVLT_Easements.shp) (AVLTBasicEasements.shp)	20070201 20080421
Black Canyon Regional Land Trust Easements and holdings for BCRLT compiled from several shapefiles (BCRLT.shp) (BCLTtoCOMaP2008.shp) (BCRLT.mdb)	20070201 20080325 20080828
Colorado Open Lands Easements (COL_Easement.shp) (COL_Easements_COMaP_080307.shp)	20070201 20080307
Continental Divide Land Trust Easement data provided by Summit County (ce_all_Mar2005.shp)	20050300
Crested Butte Land Trust Easement data provided by the City of Crested Butte (opensp07.shp)	20050802
Ducks Unlimited, Inc. Easements and holdings for Ducks Unlimited, Inc. (DULandProtection.shp) (du_owned_land.shp) (new_easements.shp) (DU_new_easements.shp)	20040920 20060710 20060710 20080201
Eagle Valley Land Trust Digitized from maps and legal descriptions provided by EVLT (eagle_valley.mdb) (EVLT.mdb)	20060221 20080720
Estes Valley Land Trust Easements and holdings for Estes Valley Land Trust derived from Larimer County parcel data and legal descriptions (larimer_all.mdb)	20070201
Gunnison Ranchland Conservation Legacy Easements and holdings for Gunnison Ranchland Conservation Legacy (GRCL_EASE.shp)	20050427
LaPlata Open Space Conservancy Easement data provided by LaPlata County GIS (easement_polygonCopy.shp)	20050631
Land Trust of the Upper Arkansas* Digitized based on legal descriptions provided by LTUA (LTUA.mdb)	20060227
Legacy Land Trust Easements and holdings for Legacy Land Trust derived from Larimer County parcel data and legal descriptions (larimer_all.mdb) (completed_legacy_landtrust.mdb)	20060516 20080522

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Mesa Land Trust* Easements (MLT_Easements_for_COMAP_5_2006.shp) (mlt_easements_COMAP_2_2008.shp)	20060526 20080201
Middle Park Land Trust* Easements (comap8_05.shp)	20050810
Montezuma Land Conservancy* Easements from Montezuma County GIS (lacondist05_p.shp)	20050809
Mountain Area Land Trust Easements digitized based on legal documents	20070201
Orient Land Trust Easements and holdings for Orient Land Trust digitized using maps provided by Orient Land Trust (olt_dig.shp)	20040928
Palmer Land Trust Easements and holdings for Palmer Land Trust digitized using maps provided by Palmer Land Trust (palmer.shp) Updated based on new maps (palmer_new.shp)	20050329 20060405
Rio Grande Headwaters Land Trust Easements and holdings for Rio Grande Headwaters Land Trust (RiGHTEasements.shp)	20050307
Rocky Mountain Elk Foundation Easements (co_ces04.shp)	20050905
Roaring Fork Conservancy Easements and holdings for Roaring Fork Conservancy digitized using maps provided by Roaring Fork Conservancy (rf.shp)	20050113
San Isabel Land Protection Trust Easements and holdings for San Isabel Land Protection Trust (san_isabel_merge27.shp) (2008_SILPT_COMAP_Update.mdb)	20050300 20080204
San Miguel Conservation Foundation Easement data provided by San Miguel County GIS (conease5.shp)	20050721
Southern Plains Land Trust Digitized based on legal descriptions provided by SPLT (SPLT.mdb)	20060125
Southwest Land Alliance Digitized based on legal descriptions provided by SLA (sla.mdb) (sla2.mdb)	20060518 20080227
The Conservation Fund Digitized based on maps and other information from TCF (TCF_feature.mdb)	20060512
The Nature Conservancy Nature Conservancy parcels and easements (TNCTracts_20050520.shp) Updates (TNCTracts_20060512.shp) (Tracts_TNC20080414.mdb)	20050520 20060512 20080414
Trust for Public Land* Digitized based on legal descriptions provided by TPL (TPL_maps.mdb)	20051115
Additional Data	
Computer Terrain Mapping Easements (ctm_ease-8_29_05.shp)	20050829

San Luis Valley GIS/GPS Authority Easements (ease_2005.shp)	20060425
Peter Sartucci Digitized from CE list (CE_list_for_COMaP.mdb)	20080522

How to provide feedback

We recognize that there may be errors in this large and complex dataset. Land ownership, management, and protection are a highly dynamic element of natural resource management. We would greatly appreciate your comments and feedback on the data. If you find errors, please let us know by emailing your comments to:

comap@nrel.colostate.edu

Conclusions, Future Releases and Research

This project would not be possible without the gracious cooperation of all who have contributed data. We are very grateful for your contributions. We are confident that COMaP offers the most comprehensive and current statewide GIS dataset for land management and ownership in Colorado. COMaP illustrates the rich fabric of land stewardship in Colorado. Although COMaP is a snapshot in time of the dynamic ownership and management of lands in Colorado, we are optimistic about both its utility and continued evolution. COMaP v7 builds on the strengths and experience from the first six versions. In future versions, we will continue to do this by improving upon our existing methods and seeking to acquire newly available datasets.

Please be aware that when using COMaP we ask you to:

1. Read and understand the data disclaimer.
2. Not redistribute the dataset. Please ask interested parties to contact us directly for access to the data.
3. Explicitly state on any map product that public access to private land is not allowed unless specifically stated otherwise on both the map and by the landowner.
4. Cite COMaP as:

Theobald, D.M., G. Wilcox, S.E. Linn, N. Peterson, and M. Lineal. 2008. *Colorado Ownership, Management, and Protection v7 database*. Human Dimensions of Natural Resources and Natural Resource Ecology Lab, Colorado State University, Fort Collins, CO. 15 September. www.nrel.colostate.edu/projects/comap

COMaP Data Disclaimer

Data Set Credit:

The Colorado Ownership and Management and Protection (COMaP) dataset is a compilation of many disparate spatial datasets from around Colorado. Current contributors to the project include: US Forest Service, National Park Service, Bureau of Land Management, Fish and Wildlife Service, Colorado State Parks, Colorado State Land Board, Colorado Division of Wildlife, and The Nature Conservancy. Contributions from these agencies and groups have been essential to the success of this project.

Access Constraints:

Users are expressly prohibited from redistributing this dataset. All requests for the dataset should be sent to comap@nrel.colostate.edu. This allows us to maintain a distribution list so that we can efficiently notify users of updates and changes, and we are required to limit redistribution per our agreement with some of our primary data providers. Although the majority of the COMaP dataset shows publicly-owned lands, there are also inputs regarding conservation on privately-owned lands.

There are two versions of COMaP, one which shows only publicly-owned lands, which is named with the suffix: *_public.mdb. Another version also includes some protected areas on privately-owned lands, which is named *_private.mdb. Only COMaP collaborators will have access to the dataset with privately-owned lands. COMaP collaborators are those partners who are actively providing primary data used in COMaP.

Use Constraints:

Users need to be aware that multiple datasets from multiple agencies were used to create COMaP. These input datasets have a range of publication dates, varying degrees of accuracy, various projections, and different attribute information. We have made every effort to standardize the multiple data inputs to create COMaP. We do not provide the original datasets from our primary data source providers.

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