



Digital Mining Claim Density Map for Federal Lands in Colorado: 1996

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1999

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards. Any use of trade, product, or firm names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

This digital map, identified as "Digital Mining Claim Density Map for Federal Lands in Colorado: 1996," has been approved for release and publication by the Director of the USGS. Although the digital map has been reviewed and is substantially complete, the USGS reserves the right to revise the data pursuant to further analysis and review. The databases are released on condition that neither the USGS nor the U.S. Government may be held liable for any damages resulting from their use.

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U.S. DEPARTMENT OF THE INTERIOR
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INTRODUCTION

This report describes a digital map generated by the U.S. Geological Survey (USGS) to provide digital spatial mining claim density information for federal lands in Colorado as of March 1997. Mining claim data is earth science information deemed to be relevant to the assessment of historic, current, and future ecological, economic, and social systems. There is no paper map included in this Open-File report.

In accordance with the Federal Land Policy and Management Act of 1976 (FLPMA), all unpatented mining claims, mill, and tunnel sites must be recorded at the appropriate BLM State office. BLM maintains a cumulative computer listing of mining claims in the Mining Claim Recordation System (MCRS) database with locations given by meridian, township, range, and section. A mining claim is considered closed when the claim is relinquished or a formal BLM decision declaring the mining claim null and void has been issued and the appeal period has expired. All other mining claims filed with BLM are considered to be open and actively held. The digital map (figure 1.) with the mining claim density database available in this report are suitable for geographic information system (GIS)-based regional assessments at a scale of 1:100,000 or smaller.

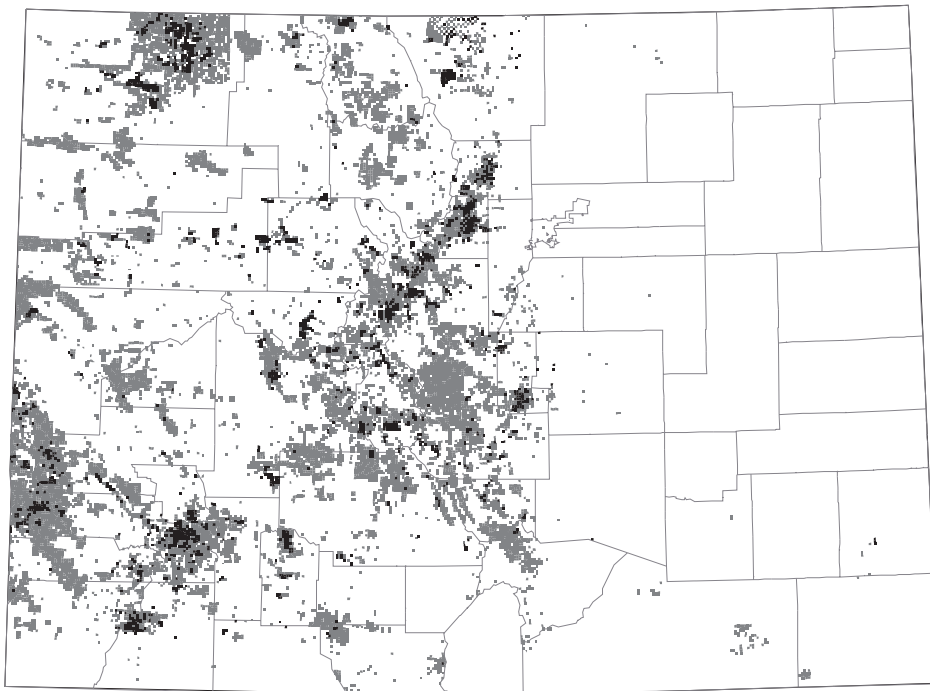


Figure 1. --- Open (black) and closed (gray) status of mining claims in Colorado for 1996.

DATA SOURCES, PROCESSING, AND ACCURACY

Data Sources

The mining claim density database of federal lands in Colorado is one of 13 statewide databases published in the U.S. Geological Survey Open-File Report 99-325. The database contains information identifying 1) the meridian, township, range, and section (MTRS) designation, a unique record identifier, 2) the number and type of claims (lode, placer, mill site, tunnel site) within each section, and 3) the status of the claims (open is held by a claimant, closed is no longer held). The original mine claim data used to create the databases in OF99-325 were acquired from the BLM in March 1997. An official quarterly release of the MCRS mine claim data for Colorado is available by specific request from the:

United States Department of the Interior
Bureau of Land Management
Mining Claim Recordation System Coordinator
NI-112, Denver Federal Center
P.O. Box 25047
Denver, CO 80225-0047

The statewide Public Land Survey (PLS) digital map of Colorado, cosecalb.e00, was used to create the digital mining claim density map. The digital map was in Arc/Info export format and was acquired as legacy data from the U.S. Bureau of Mines (USBM) which was closed by Congress in February 1996. No metadata information was available with this digital file. The PLS is assumed to be from 1:100,000 scale sources.

Processing

The digital file, cosecalb.e00, was imported using Arc/Info, version 7.1.1 (Environmental Systems Research Institute, Inc., Redlands, California), a commercially available GIS software, as an Arc/Info coverage into a workspace on a Sun Ultra 1 with Solaris 2.5.1 operating software. Each section of the new digital PLS contained a unique identifier corresponding in form to the MTRS in the mining claim density database. This digital map had been used for an older mining claim density database created by the USBM. The older data, which was directly attached to the coverage, was removed and the current database (blm_co.dbf) from OF99-325 was linked, using a relate file, with the digital PLS of Colorado. The linking process connected the data in the database to their corresponding sections in the digital map. The result was a digital mining claim density map (figure 1.) with the attributes of the current database. A subset of the digital map, that part containing mine claim density data, was created and named co_clms. This step was necessary because the PLS acquired from the USBM is not public domain data. However, subsets of the PLS, such as the one in this report, can be released provided that the PLS of the state cannot be recreated from the subset. The relate file was renamed co_clms.rel and the database of Colorado from OF99-325 was renamed co_clms.clms. The renaming allows the database and the relate file to be included in the single export file, co_clms.e00, created when packaging the digital map for others.

Figure 1 displays the sections of the PLS containing claims and their status for this digital map. The map can be queried regarding its other attributes and can be used in investigating relationships with other digital data.

Accuracy

Several factors can affect the accuracy of the mining claim density database and digital map. The original data from BLM may contain errors. Two possible sources of error in the database are 1) incorrect position of the mining claim submitted by the claimant, and 2) input errors from the data entry papers to the computer database.

The digital map of the PLS of Colorado may contain errors. Possible errors include 1) misidentified sections, 2) sections with no identifying information, and 3) sections missing from the PLS digital map. These errors would result in incorrect locations of the mining claim density data or failure of the data to be connected with the digital map.

Tables 1 and 2, summarize the number of mining claims by type and status for the digital map and the database. The total number of claims in the digital map (table 1) do not agree with the total number of claims in the mining claim density database from OF99-325 (table 2). Some contributing factors may be 1) failure of the data to find a section to combine with in the digital map, or 2) sections occurring as multiple parts due to irregular state boundaries, shorelines, or to non-PLS land surveys. The first type of error results in a decrease in the expected number of claims in the digital map. The second results in an increase. Both sources of error may be present. A ratio of the grand totals of all claims of Table 1 to Table 2 should show the degree of fit of the digital map totals to the original database totals. A value equal to 1 indicates a 100% fit. A value less than 1 indicates data was lost. A value greater than 1 indicates multi-part sections may be in the digital PLS map. The table shows that the digital map contains 248,255 mining claims but the database contains 248,210 mining claims. A ratio of the two numbers, 1.0002, indicates a very good fit.

Table 1. Mining claim totals by type and status in Colorado (database linked to digital map)

	DIGITAL MAP DATABASE CLAIM TOTALS				
Type of Claim	LODE	PLACER	MILL	TUNNEL	ALL CLAIMS
Number of Open Mining Claims	7,491	2,058	222	17	9,788
Number of Closed Mining Claims	216,206	18,638	3,502	121	238,467
Grand Totals	223,697	20,696	3,724	138	248,255

Table 2. Mining claim totals by type and status in Colorado (co_clms.clms database)

	DENSITY DATABASE CLAIM TOTALS				
Type of Claim	LODE	PLACER	MILL	TUNNEL	ALL CLAIMS
Number of Open Mining Claims	7,491	2,058	222	17	9,788
Number of Closed Mining Claims	216,161	18,638	3,502	121	238,422
Grand Totals	223,652	20,696	3,724	138	248,210

Another concern regarding accuracy involves the visual representation of the data to a viewer. The digital map does not accurately represent the aerial extent of the lands covered by a mining claim because the presence of one mining claim, about 20 acres for a lode claim, will 'color in' the entire section (640 acres) it occurs in. A section is typically 1 square mile. The visual representation of one claim is magnified by a factor of 32 times its actual size. The best digital map resolution available at this time is to the section. Any area calculations done with the digital map for mining claims will likely be unreliable. Specific information about a particular area should be acquired from the BLM State office.

Additionally, the positional accuracy of a mining claim is generalized to one section in the PLS even if it crosses into another section. Mining claims generally follow geologic features and usually do not conform to the PLS lines. The procedure used by Campbell (1996) chooses the first section listed for a mining claim in the MCRS as the section of position. This method insures that each claim is counted only once. The digital PLS map may have been derived from 1:100,000 source maps. It is considered accurate enough for geographic representations for the purposes of regional assessments at a scale of 1:100,000 or smaller.

MINING CLAIM DENSITY MAP CONTENTS

Table 3 contains the structure and descriptions of specific fields within the digital map, *co_clms*. Table 4 contains the structure and descriptions of specific fields within the mining claim density database, *co_clms.clms*. The italicized field in bold type, *mtrs*, is common to both the PLS and the database and is used by the relate file to link the database to the digital map.

Table 3. Field structure and descriptions of specific fields for the digital map

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	DEC	DESCRIPTION
1	area	8	18	Floating	5	Internal Arc/Info polygon area
9	perimeter	8	18	Floating	5	Internal Arc/Info polygon perimeter
17	co_clms#	4	5	Binary	-	Internal Arc/info polygon number
21	co_clms-id	4	5	Binary	-	User-defined polygon number
25	class	2	2	Integer	-	(undetermined) 0, 20
27	swx	4	10	Floating	6	Longitude value of southwest corner
31	swy	4	10	Floating	6	Latitude value of southwest corner
35	nex	4	10	Floating	6	Longitude value of northeast corner
39	ney	4	10	Floating	6	Latitude value of northeast corner
43	point	4	6	Binary	-	(undetermined)
47	state	2	2	Integer	-	State number - 0, 5, 50
49	county	3	3	Integer	-	County number - 0, 3, 7, 21
52	rail	4	4	Character	-	(undetermined) no values
56	survey	32	32	Character	-	(undetermined) J 110, J 11, J 15, J 21, J 21, J 221, no value
88	meridian	3	3	Integer	-	Meridian number? 0, 6, 21, 23, 41, 60, 210, 600
91	block	20	20	Character	-	Combination of township and range
111	township	6	6	Character	-	Township designation
117	range	6	6	Character	-	Range designation
123	section	3	3	Integer	-	Section number
126	giisection	16	16	Character	-	(undetermined)
142	<i>mtrs</i> ¹	18	18	Character	-	Meridian+Township+Range+Section

¹ For example, '06 30.0N 29.2W05' is Meridian 06, Township 30 North, Range 29 ½ West, Section 5. Meridians include Sixth Principal (06), New Mexico (23), and Ute (31).

Table 4. Field structure and descriptions for the mine claim density database

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	DEC	DESCRIPTION
17	<i>mtrs</i> ¹	18	18	Character	-	Meridian+Township+Range+Section
35	<i>no1c</i> ²	4	4	Integer	-	Number of Open Lode Claims ²
39	<i>nopc</i>	4	4	Integer	-	Number of Open Placer Claims
43	<i>nomc</i>	4	4	Integer	-	Number of Open Mill site Claims
47	<i>notc</i>	4	4	Integer	-	Number of Open Tunnel Claims
51	<i>toc</i>	4	4	Integer	-	Total number of Open Claims
55	<i>n1c</i>	4	4	Integer	-	Number of Closed Lode Claims
59	<i>ncpc</i>	4	4	Integer	-	Number of Closed Placer Claims
63	<i>ncmc</i>	4	4	Integer	-	Number of Closed Mill site Claims
67	<i>nctc</i>	4	4	Integer	-	Number of Closed Tunnel Claims
71	<i>tcc</i>	4	4	Integer	-	Total number of Closed Claims
75	<i>tc</i>	4	4	Integer	-	Total number of Claims of all kinds

¹ For example, '06 30.0N 29.2W05' is Meridian 06, Township 30 North, Range 29 ½ West, Section 5

Meridians include Sixth Principal (06), New Mexico (23), and Ute (31).

² in a section of the PLS

REFERENCES

Campbell, Harry W., 1996, Procedure from making a mining claim density map from BLM claim recordation digital data: U.S. Geological Survey Open-File Report 96-736, 13 p.

Hyndman, Paul C. and Harry W. Campbell, 1999, Digital databases containing mining claim density information for Arizona, California, Colorado, Idaho, Montana, Nebraska, New Mexico, Nevada, Oregon, South Dakota, Utah, Washington, and Wyoming created from the BLM Mining Claim Recordation System: 1996: U.S. Geological Survey Open-File Report 99-325, 23 p.

OBTAINING DIGITAL DATA

The digital mining claim density map of Colorado, *co_clms*, is provided with this report in Arc/Info EXPORT format as *co_clms.e00*. The mining claim density database, *cosecalb.clms*, and the relate file, *co_clms.rel*, are contained in the export file. A metadata file, *co_clms.met*, occurs separately. These files and this report are available from the USGS public access FTP site and the World Wide Web site on the Internet. Table 4 lists the files and their sizes.

Table 5. Files available with this Open-File Report

FILE NAME	FILE TYPE	SIZE IN KILOBYTES
<i>of99-410.pdf</i>	PDF file	523
<i>co_clms.e00</i>	Arc/Info export	11,653
<i>co_clms.met</i>	Metadata	35

By Anonymous FTP

Do the following steps to obtain the files for OF99-410 by anonymous ftp. Windows users may need to start FTP in the MSDOS window.

STEP (type the words between the quotes)	REASON
cd to your_local_directory	Go to a directory to receive the WinZip file – you may need to make a directory first
'ftp wrgis.wr.usgs.gov'	Make ftp connection with the USGS computer, WRGIS
Name: 'anonymous'	Use 'anonymous' as your user name
Password: <i>your email address</i>	Use your email address as a password (<u>you@email_address</u>)
'cd pub/open-file'	Go down to the pub/open-file directory
'cd of99-410'	Go down to the specific open file directory
'binary'	Type the word 'binary' to change the transfer type to binary mode
'get of99-410.exe'	Copy the self-extracting file across the Internet to the receiving directory on your computer
'bye'	Close the ftp connection

Extracting the files from the of99-410.exe self-extracting file is accomplished by typing the name of the file, 'of99-410', and pressing the 'Enter' key. The files will unload automatically.

By the World Wide Web

The files for this report can be obtained over the Internet at URL <http://wrgis.wr.usgs.gov/open-file/>. Do the following steps to obtain the files for OF99-410 by the World Wide Web:

STEP	REASON
Attach to the internet with your web browser	This connects you to the internet.
Type 'http://wrgis.wr.usgs.gov/open-file/'	Make sure the internet address looks like this to connect with the USGS computer, WRGIS
Find the report in the listing and click on of99-410	This opens a page with instructions and information for downloading the report
Follow the instructions for downloading the data and this report	You should receive the report to your computer

METADATA

Following are 1) an Arc/Info description of the digital map, co_clms, 2) a description of the relate file, and 3) the formal metadata for the digital map and associated files.

Description of SINGLE precision coverage co_clms

FEATURE CLASSES					
Feature Class	Subclass	Number of Features	Attribute data (bytes)	Spatial Index?	Topology?
ARCS		37559			
POLYGONS		14228	160		Yes
NODES		24226			

SECONDARY FEATURES

Tics	220
Arc Segments	39143
Polygon Labels	13801

TOLERANCES

Fuzzy = 60.966 V

Dangle = 0.000 N

COVERAGE BOUNDARY

Xmin = -35389.606

Xmax = 255770.45

Ymin = -1550942.494

Ymax = 2003532.556

STATUS

The coverage has not been Edited since the last BUILD or CLEAN

COORDINATE SYSTEM DESCRIPTION

Projection	ALBERS
Datum	NAD27
Units	METERS
Spheroid	CLARKE1866
Parameters:	
1 ST Standard Parallel	29 30 0.00
2 nd Standard Parallel	45 30 0.00
Longitude of central meridian	-105 0 0.00
Latitude of projection's origin	23 0 0.00
False easting (meters)	0.00000
False northing (meters)	0.00000

Description of Arc/Info co_clms.rel relate structure

Relation = CO_CLMS
Table-Id = co_clms.clms
Database = info
Item = MTRS
Column = mtrs
Type = ORDERED
Access = RO

Formal metadata for the mine claim density map and associated files

The following metadata describes the mining claim density map:

Identification_Information:

Citation:

Citation_Information:

Originator: Paul C. Hyndman
Originator: Harry W. Campbell
Publication_Date: 1999

Title:

Digital mining claim density map and database for Federal lands
in Colorado: 1996

Edition: Version 1.0

Geospatial_Data_Presentation_Form: map and database

Description:

Abstract:

The mining claim density data of federal lands in Colorado are combined with the digital Colorado Public Land Survey (PLS) to create a digital map of the density of mine claims in Open-File Report 99-410.

The mining claim density data of federal lands in Colorado was one of 13 western states released in Open-File Report 99-325. The database for Colorado was converted to an Arc/Info file and connected with the PLS by an Arc/Info relate.

As stated in OF 99-325, "These mining claim density databases were created from data obtained in March 1997, from the Mining Claim Recordation System (MCRS) of the Bureau of Land Management. These databases provide mining claim density information in a tabular form. They quantify the status of mining claim activity for 1996 and include information on mining claim activity since 1976. The databases contain information identifying 1) the general location of mining claims within the Public Land Survey System (PLS), 2) the number and type of claims (lode, placer, mill site, tunnel site), and 3) the status of the claims (open is held, closed is no longer held by a claimant)".

Combining the database with a digital PLS coverage of Colorado enables a User to spatially display the mine claim data as a digital map and compare it with other spatial themes.

Purpose:

The digital map was developed to spatially research mining claim activity on federal lands in Colorado and to investigate interrelationships of mining claim activity with physical and social science concerns.

This digital map is not to be considered as a legal representation of survey lines and corners or of mining claim boundaries.

Supplemental_Information: This data is in Arc/Info 7.1 format

Data_Set_Part:

Part_Type: Arc/Info export file

Part_Name: co_clms.e00

Part_Description: This Arc/Info export file contains the coverage co_clms, the database co_clms.clms, and the relate co_clms.rel.

This digital map contains only those parts of the Colorado PLS which contain mine claim density data. The original PLS of Colorado was

acquired from the U.S. Bureau of Mines when it was closed by Congress in 1996. The Bureau of Mines purchased the PLS of Colorado from a private company. The data is proprietary and cannot be released in its complete form.

Data_Set_Part:

Part_Type: Arc/Info database

Part_Name: co_clms.clms

Part_Description: This database contains mine claim density information for federal lands in the state, from 1976 through 1996. It is one of several state databases from OF 99-325.

Data_Set_Part:

Part_Type: Arc/Info relate

Part_Name: co_clms.rel

Part_Description: This file contains the parameters needed to relate the database, co_clms.clms to the digital map database, co_clms.pat. The structure of the relate is:

RELATION	=	CO_CLMS
TABLE-ID	=	co_clms.clms
DATABASE	=	info
ITEM	=	MTRS
COLUMN	=	mtrs
TYPE	=	ORDERED
ACCESS	=	RO

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 1976

Ending_Date: 1997

Currentness_Reference: Release date of data by the Bureau of Land Management in March, 1997

Status:

Progress: Complete

Maintenance_and_Update_Frequency: None planned

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -109 00 00

East_Bounding_Coordinate: -102 00 00

North_Bounding_Coordinate: 41 00 00

South_Bounding_Coordinate: 37 00 00

Keywords:

Theme:

Theme_Keyword_Thesaurus: None

Theme_Keyword: mining claim density

Theme_Keyword: lode

Theme_Keyword: placer

Theme_Keyword: mill site

Theme_Keyword: tunnel site

Theme_Keyword: mine claim

Place:

Place_Keyword_Thesaurus: None

Place_Keyword: Colorado

Access_Constraints: None

Use_Constraints:

Users should contact the BLM for current data. The U.S. Geological Survey makes no warranties related to the accuracy of the data and users are required to determine suitability of use for any particular purpose. This digital map is not to be construed as a legal representation of mining claim boundaries. The PLS data is assumed to be from 1:100,000 scale base maps. The map should not be used at scales larger than 1:100,000.

The user must obtain current information on mining claims from the Colorado State Office of the Bureau of Land Management for the area of interest since the mining claim density data is not current. The information in the database does not provide the legal location or status of individual mining claims.

Any hardcopies utilizing this data set shall clearly indicate their source. If the user has modified the data in any way they are obligated to describe the types of modifications they have performed on the hardcopy map. User specifically agrees not to misrepresent

this data set, nor to imply that changes they made were approved by the U.S. Geological Survey.

Point_of_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Paul Hyndman

Contact_Organization: U.S. Geological Survey

Contact_Position: Geologist

Contact_Address:

Address_Type: mailing and physical address

Address: 904 W. Riverside Ave., Rm. 202

City: Spokane

State_or_Province: Washington

Postal_Code: 99201

Country: U.S.A.

Contact_Voice_Telephone: 509-368-3100 or 509-368-3118

Contact_Facsimile_Telephone: 509-368-3199

Contact_Electronic_Mail_Address: phyndman@usgs.gov

Contact_Instructions: General office phone is 509-368-3100

Data_Set_Credit:

Cheryl Laudenbach, Denver Service Center, BLM, provided the original mining claim data from the Mining Claim Recordation Database. The data was used to create the mining claim density databases in OF 99-325.

Native_Data_Set_Environment: Solaris 2.5.1, Sun Ultra 1, Arc/Info 7.1.2

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report:

OF 99-325 reports that the attributes of the mining claim data from BLM data, claims per section, do not represent the exact number of claims in each section. Some claims overlap into adjoining sections and/or townships. In order to count each claim only once, it was necessary to choose one section for each claim to be identified with. Therefore, the first section listed in the BLM database for a particular claim was chosen as the section the claim was counted in.

The accuracy was tested by summing each category of claim in the mining claim database and comparing the sum to those from the original BLM database. The sums for each category matched.

No attempt was made to determine the accuracy of BLM's database.

Completeness_Report:

None of the data from BLM was omitted. The data is considered complete for the purpose of determining mining claim density in this State.

Logical_Consistency_Report:

The data set is a derived subset of the original BLM data. No modifications to the BLM data were made.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

A claim may be within a section or it may straddle two, three, or four sections. In order to count each claim only once, it was necessary to choose one section for each claim to be identified with. Therefore, the first section listed in the BLM database for a particular claim was chosen as the section the claim was counted in.

Lineage:

Source_Information:

Source_Citation:

Citation_Information:

Originator:

U.S. Geological Survey

Publication_Date: 1999

Title: Digital databases containing mining claim density information for Arizona, California, Colorado, Idaho, Montana, Nebraska, New Mexico, Nevada, Oregon, South Dakota, Utah, Washington, and Wyoming created from the BLM Mining Claim Recordation System: 1996

Edition: 1

Geospatial_Data_Presentation_Form: tabular database

Series_Information:

Series_Name: Open-File Report

Issue_Identification: OF 99-325

Publication_Information:
 Publication_Place: Denver, Colorado
 Publisher: U.S. Geological Survey
 Other_Citation_Details:
 Original data from the Bureau of Land Management Mine Claim
 Recordation Database (MCRD)
 Online_Linkage: URL = <http://wrgis.wr.usgs.gov/open-file/of99-325>
 Type_of_Source_Media: digital file
 Source_Time_Period_of_Content:
 Time_Period_Information:
 Range_of_Dates/Times:
 Beginning_Date: 1976
 Ending_Date: 199703
 Source_Currentness_Reference:
 The data were copied from BLM's MCRD database on March, 1997.
 The data are cumulative from 1976, when the database was created.
 Source_Citation_Abbreviation: USGS OF99-325
 Source_Contribution:
 This database contributed the mine claim density information
 needed to create a spatial mine claim density map.

Process_Step:
 Process_Description:
 The mine claim density database of Colorado was released as part of
 the U.S. Geological Open-File Report, OF 99-325. It was imported as
 an Arc/Info table, co_clms.clms, using the command, dbaseinfo. A
 relate, co_clms.rel, was made to connect the database to the PLS of
 Colorado. This report can be found at URL:
 <http://wrgis.wr.usgs.gov/open-file/>
 Process_Date: 1997-1998

Data_Quality_Information:
 Completeness_Report:
 The digital PLS of Colorado is assumed to be complete.
 Logical_Consistency_Report:
 The PLS in this report is a derived subset of the original PLS. Only
 those sections containing mine claim density data are included in this
 report.
 Positional_Accuracy:
 Horizontal_Positional_Accuracy:
 Horizontal_Positional_Accuracy_Report:
 No attempt was made to check the positional accuracy of the digital
 PLS. The PLS is assumed to have come from 1:100,000 scale sources.

Lineage:
 Source_Information:
 Source_Citation:
 Citation_Information:
 Originator:
 Uncertain. Digital PLS of Colorado was obtained from the
 U.S. Bureau of Mines at its closure in 1996. The data may have
 been purchased from Geographic Information, Inc. in 1984. The
 digital PLS is considered copyrighted and cannot be released in a
 form that would enable someone to reconstruct the PLS. Portions
 can be released in paper or digital form.
 Publication_Date:
 Title: none
 Geospatial_Data_Presentation_Form: map
 Type_of_Source_Media: digital file
 Source_Time_Period_of_Content:
 Time_Period_Information:
 Single_Date/Time:
 Calendar_Date: 1988
 Source_Currentness_Reference:
 The PLS may not be current with regard to section lines and corners.
 Source_Citation_Abbreviation: none
 Source_Contribution:
 The U.S. Bureau of Mines contributed the digital PLS of Colorado. It
 did not include metadata or other documentation.

Process_Step:
 Process_Description:
 The Colorado PLS contained a field, mtrs, to which the mine claim
 density database could be attached. The data was attached through the
 use of a relate, co_clms.rel. An example of commands for using the

```

    relate in ArcEdit for selecting all claims in the Total Claims (tc)
    field is:
    'relate restore co_clms.rel'
    'editcover co_clms'
    'sel co_clms//tc'
    Process_Date: 1997
Spatial_Data_Organization_Information:
  Indirect_Spatial_Reference:
  Direct_Spatial_Reference_Method:
  Point_and_Vector_Object_Information:
    SDTS_Terms_Description:
      SDTS_Point_and_Vector_object_Type: Point
      Point_and_Vector_Object_Count: 14228
      SDTS_Point_and_Vector_object_Type: String
      Point_and_Vector_Object_Count: 37559
      SDTS_Point_and_Vector_object_Type: GT-polygon composed of chains
      Point_and_Vector_Object_Count: 14228
Spatial_Reference_Information:
  Horizontal_Coordinate_System_Definition:
    Geodetic_Model:
      Horizontal_Datum_Name: North American Datum of 1927
      Ellipsoid_Name: Clarke 1866
    Planar:
      Map_Projection:
        Albers Equal Area:
          Standard_Parallel: 29 30 0
          Standard_Parallel: 45 30 0
          Longitude_of_Central_Meridian: -105 0 0
          Latitude_of_Projection_Origin: 23 0 0
          False_Easting: 0.0
          False_Northing: 0.0
Entity_and_Attribute_Information:
  Detailed_Description:
    Entity_Type:
      Entity_Type_Label: cosecalb.clms
      Entity_Type_Definition:
        Summary of values for number and type of mining claims in each section
        from OF99-325. The data is tied to an MTRS code which represents the
        Meridian + Township + Range + Section. This code provides a unique
        identifier for each Section of the PLS.
      Entity_Type_Definition_Source:
        The Bureau of Land Management is the official
        source for PLS designations and surveys and for
        the mining claim data.
Attribute:
  Attribute_Label: MTRS
  Attribute_Definition:
    A concatenation of Meridian, Township, Range, and
    Section of the PLS
  Attribute_Definition_Source: Bureau of Land Management
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: MMTT.TDRRR.RESS__
      Enumerated_Domain_Value_Definition:
        MTRS is an 18-character field which is a concatenation
        of meridian (M), Township (T), township direction (D),
        range (R), range direction (E), and section (S). The form
        of the field is MMTT.TDRRR.RESS__. The last two spaces
        were included in the beginning of the study but were not utilized.

        MM = the FIPS code for meridian. FIPS stands for the Federal
        Information Processing Standard. The codes for the meridians are:

        06 - Sixth Principal
        23 - New Mexico
        31 - Ute

        TTT.T = BLM Township designation as 'TTT.T' may include a fraction
        of a Township. For example, Township 1 would be '__1.0'.
        Township 27.5 would be '__27.2'. The '.2' is a 1/2 township.

```

D = BLM Township direction may be North (N) or South (S).

RRR.R = BLM Range designation as 'RRR.R' which may include a fraction of a Range See Township (T) for example.

E = BLM Range direction may be East (E) or West (W).

SS = BLM Section number. For example, section 1 is '_1' and section 35 is '35'. Generally the highest section number is 36, but there are exceptions in several States.

Enumerated_Domain_Value_Definition_Source:
Hyndman and Campbell, 1999

Attribute:

Attribute_Label: NOLC
Attribute_Definition:
Number of Open (or recorded) Lode Claims
within a section
Attribute_Definition_Source: Hyndman and Campbell, 1999
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 0
Range_Domain_Maximum: 161

Attribute:

Attribute_Label: NOPC
Attribute_Definition:
Number of Open (or recorded) Placer Claims
within a section
Attribute_Definition_Source: Hyndman and Campbell, 1999
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 0
Range_Domain_Maximum: 28

Attribute:

Attribute_Label: NOMC
Attribute_Definition:
Number of Open (or recorded) Mill site Claims
within a section
Attribute_Definition_Source: Hyndman and Campbell, 1999
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 0
Range_Domain_Maximum: 60

Attribute:

Attribute_Label: NOTC
Attribute_Definition:
Number of Open (or recorded) Tunnel site Claims
within a section
Attribute_Definition_Source: Hyndman and Campbell, 1999
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 0
Range_Domain_Maximum: 2

Attribute:

Attribute_Label: TOC
Attribute_Definition:
Total number of Open (or recorded) Claims of all types
within a section
Attribute_Definition_Source: Hyndman and Campbell, 1999
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 0
Range_Domain_Maximum: 164

Attribute:

Attribute_Label: NCLC
Attribute_Definition:
Number of Closed (or terminated and closed)
Lode Claims within a section
Attribute_Definition_Source: Hyndman and Campbell, 1999
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 0

Range_Domain_Maximum: 153
 Attribute:
 Attribute_Label: NCPC
 Attribute_Definition:
 Number of Closed (or terminated and closed)
 Placer Claims within a section
 Attribute_Definition_Source: Hyndman and Campbell, 1999
 Attribute_Domain_Values:
 Range_Domain:
 Range_Domain_Minimum: 0
 Range_Domain_Maximum: 74
 Attribute:
 Attribute_Label: NCMC
 Attribute_Definition:
 Number of Closed (or terminated and closed)
 Mill site Claims within a section
 Attribute_Definition_Source: Hyndman and Campbell, 1999
 Attribute_Domain_Values:
 Range_Domain:
 Range_Domain_Minimum: 0
 Range_Domain_Maximum: 117
 Attribute:
 Attribute_Label: NCTC
 Attribute_Definition:
 Number of Closed (or terminated and closed)
 Tunnel site Claims within a section
 Attribute_Definition_Source: Hyndman and Campbell, 1999
 Attribute_Domain_Values:
 Range_Domain:
 Range_Domain_Minimum: 0
 Range_Domain_Maximum: 5
 Attribute:
 Attribute_Label: TCC
 Attribute_Definition:
 Total number of Closed (or terminated and closed)
 Claims of all types within a section
 Attribute_Definition_Source: Hyndman and Campbell, 1999
 Attribute_Domain_Values:
 Range_Domain:
 Range_Domain_Minimum: 0
 Range_Domain_Maximum: 188
 Attribute:
 Attribute_Label: TC
 Attribute_Definition:
 Total number of all Claims of all types
 within a section
 Attribute_Definition_Source: Hyndman and Campbell, 1999
 Attribute_Domain_Values:
 Range_Domain:
 Range_Domain_Minimum: 1
 Range_Domain_Maximum: 217
 Detailed_Description:
 Entity_Type:
 Entity_Type_Label: co_clms.pat
 Entity_Type_Definition:
 Summary of values for number and type of mining claims in each section
 from OF99-325. The data is tied to an MTRS code which represents the
 Meridian + Township + Range + Section. This code provides a unique
 identifier for each Section of the PLS.
 Entity_Type_Definition_Source:
 The Bureau of Land Management is the official
 source for PLS designations and surveys and for
 the mining claim data.
 Attribute:
 Attribute_Label: area
 Attribute_Definition:
 The area of each polygon in the coverage
 Attribute_Definition_Source: Arc/Info
 Attribute_Domain_Values:
 Range_Domain:
 Range_Domain_Minimum: not determined

Range_Domain_Maximum: not determined
 Attribute:
 Attribute_Label: perimeter
 Attribute_Definition:
 Length of perimeter of each polygon in the coverage
 Attribute_Definition_Source: Arc/Info
 Attribute_Domain_Values:
 Range_Domain:
 Range_Domain_Minimum: not determined
 Range_Domain_Maximum: not determined
 Attribute:
 Attribute_Label: co_clms#
 Attribute_Definition:
 Internal polygon tracking number
 Attribute_Definition_Source: Arc/Info
 Attribute_Domain_Values:
 Range_Domain:
 Range_Domain_Minimum: not determined
 Range_Domain_Maximum: not determined
 Attribute:
 Attribute_Label: co_clms-id
 Attribute_Definition:
 Polygon tracking number which can be modified by user
 Attribute_Definition_Source: Arc/Info
 Attribute_Domain_Values:
 Range_Domain:
 Range_Domain_Minimum: not determined
 Range_Domain_Maximum: not determined
 Attribute:
 Attribute_Label: class
 Attribute_Definition: Undetermined
 Attribute_Definition_Source: unknown
 Attribute_Domain_Values:
 Enumerated_Domain:
 Enumerated_Domain_Value: 0, 20
 Attribute:
 Attribute_Label: swx
 Attribute_Definition:
 Longitude value of southwest corner of section
 Attribute_Definition_Source: unknown
 Attribute_Domain_Values:
 Range_Domain:
 Range_Domain_Minimum: not determined
 Range_Domain_Maximum: not determined
 Attribute:
 Attribute_Label: swy
 Attribute_Definition:
 Latitude value of southwest corner of section
 Attribute_Definition_Source: unknown
 Attribute_Domain_Values:
 Range_Domain:
 Range_Domain_Minimum: not determined
 Range_Domain_Maximum: not determined
 Attribute:
 Attribute_Label: nex
 Attribute_Definition:
 Longitude value of northeast corner of section
 Attribute_Definition_Source: unknown
 Attribute_Domain_Values:
 Range_Domain:
 Range_Domain_Minimum: not determined
 Range_Domain_Maximum: not determined
 Attribute:
 Attribute_Label: ney
 Attribute_Definition:
 Latitude value of northeast corner of section
 Attribute_Definition_Source: unknown
 Attribute_Domain_Values:
 Range_Domain:
 Range_Domain_Minimum: not determined
 Range_Domain_Maximum: not determined

Attribute:
Attribute_Label: point
Attribute_Definition:
Undetermined
Attribute_Definition_Source: unknown
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: not determined
Range_Domain_Maximum: not determined

Attribute:
Attribute_Label: state
Attribute_Definition:
Undetermined
Attribute_Definition_Source: unknown
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: 0, 5, 50

Attribute:
Attribute_Label: county
Attribute_Definition:
Undetermined
Attribute_Definition_Source: unknown
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: 0, 3, 7, 21

Attribute:
Attribute_Label: rail
Attribute_Definition:
Undetermined
Attribute_Definition_Source: unknown
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: none

Attribute:
Attribute_Label: survey
Attribute_Definition:
Undetermined
Attribute_Definition_Source: unknown
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: J 110, J 11, J 15, J 21, J 21, J 221

Attribute:
Attribute_Label: meridian
Attribute_Definition:
Undetermined
Attribute_Definition_Source: unknown
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: 0, 6, 21, 23, 41, 60, 210, 600

Attribute:
Attribute_Label: block
Attribute_Definition:
Concatenation of township and range
Attribute_Definition_Source: unknown
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: not determined
Range_Domain_Maximum: not determined

Attribute:
Attribute_Label: township
Attribute_Definition:
Polygon tracking number which can be modified by user
Attribute_Definition_Source: Arc/Info
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: not determined
Range_Domain_Maximum: not determined

Attribute:
Attribute_Label: range
Attribute_Definition:
Polygon tracking number which can be modified by user

Attribute_Definition_Source: Arc/Info
 Attribute_Domain_Values:
 Range_Domain:
 Range_Domain_Minimum: not determined
 Range_Domain_Maximum: not determined

Attribute:
 Attribute_Label: section
 Attribute_Definition:
 Section number
 Attribute_Definition_Source: unknown
 Attribute_Domain_Values:
 Range_Domain:
 Range_Domain_Minimum: 1
 Range_Domain_Maximum: 36

Attribute:
 Attribute_Label: giisection
 Attribute_Definition:
 Undetermined
 Attribute_Definition_Source: unknown
 Attribute_Domain_Values:
 Enumerated_Domain:
 Enumerated_Domain_Value: undetermined

Attribute:
 Attribute_Label: MTRS
 Attribute_Definition:
 A concatenation of Meridian, Township, Range, and
 Section of the PLS
 Attribute_Definition_Source: Bureau of Land Management
 Attribute_Domain_Values:
 Enumerated_Domain:
 Enumerated_Domain_Value: MMTT.TDRRR.RESS__
 Enumerated_Domain_Value_Definition:
 MTRS is an 18-character field which is a concatenation
 of meridian (M), Township (T), township direction (D),
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 section 35 is '35'. Generally the highest section number is 36,
 but there are exceptions in several States.

 Enumerated_Domain_Value_Definition_Source:
 Hyndman and Campbell, 1999

Distribution_Information:
 Distributor:
 Contact_Information:
 Contact_Person_Primary:
 Contact_Person: Paul Hyndman
 Contact_Organization: U.S. Geological Survey
 Contact_Position: Geologist
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Contact_Electronic_Mail_Address: phyndman@usgs.gov
Contact_Instructions: Main phone number is 509-368-3100
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Contact_Organization: U.S. Geological Survey Information Services

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Contact_Organization_Primary:

Contact_Organization: U.S.G.S. Earth Science Information Office

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Address_Type: mailing and physical address

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State_or_Province: WA
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Contact_Electronic_Mail_Address: esnfic@mailmcanl.wr.usgs.gov
Hours_of_Service: 8:00 a.m. - 4:30 p.m. Pacific time zone
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Metadata_Reference_Information:
Metadata_Date: 19990225
Metadata_Review_Date: 19990331
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Contact_Information:
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Contact_Organization: U.S. Geological Survey
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State_or_Province: Washington
Postal_Code: 99201
Country: USA
Contact_Voice_Telephone: 509-368-3118
Contact_Facsimile_Telephone: 509-368-3199
Contact_Electronic_Mail_Address: phyndman@usgs.gov
Hours_of_Service: 8am to 4:30pm
Contact_Instructions: Main phone is 509-368-3100
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial
Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time
Metadata_Access_Constraints: none
Metadata_Use_Constraints: none