

Woody Bio-Mass for the State of Colorado

Data format: Polygon Dataset - ESRI shapefile

File or table name: co_woody_biomass

Coordinate system: Albers Conical Equal Area

Theme keywords: Bio-mass, Woody Bio-mass, Fuels, Colorado

Abstract: This model is designed to be used in concert with the current cost condition (co_cur_cst_cnd) model to determine the economic availability of woody bio-mass for the State of Colorado. This model depicts total short ton of woody bio-mass by sixth level watershed (HUC12) for the State of Colorado partitioned by public or private ownership.

FGDC and ESRI Metadata:

- [Identification Information](#)
- [Data Quality Information](#)
- [Spatial Data Organization Information](#)
- [Spatial Reference Information](#)
- [Entity and Attribute Information](#)
- [Distribution Information](#)
- [Metadata Reference Information](#)

Metadata elements shown with blue text are defined in the Federal Geographic Data Committee's (FGDC) [Content Standard for Digital Geospatial Metadata \(CSDGM\)](#). Elements shown with green text are defined in the [ESRI Profile of the CSDGM](#). Elements shown with a green asterisk (*) will be automatically updated by ArcCatalog. ArcCatalog adds hints indicating which FGDC elements are mandatory; these are shown with gray text.

Identification Information:

Citation:

Citation information:

Originators: ERIA Consultants, LLC, The Greenland Reserve, and JW Associates Inc.

Title:

Woody Bio-mass for the State of Colorado

***File or table name:** co_woody_biomass

Publication date: 20090614

***Geospatial data presentation form:** Environmental Systems Research Institute (ESRI) shapefile

Series information:

Series name: Version 1.0

Issue identification: 20090614

Publication information:

Publication place: Boulder, Colorado

Publisher: Michael F. Tuffly

Description:

Abstract:

This model uses total bio-mass in United States short tons by sixth level watershed (HUC12) for the State of Colorado. These data are partitioned by private or public ownership. Public ownership is only US Forest Service (USFS) and Bureau of Land Management (BLM) lands that are not Wilderness or Roadless areas. The private ownership is all non-federal lands. The product's intended use in conjunction with the Cost model to determine the economic availability of woody bio-mass in the State of Colorado.

Purpose:

The product's intended use is to allow the user to generally evaluate the economic variability of the quantity, location, and cost of woody bio-mass products.

This woody-biomass surface is combined with the cost surface to allow the user to compare and analyze different spatial combinations of cost and volume of woody bio-mass in the State of Colorado.

Supplemental information:

Five primary data sets were used in this analysis and are as follows:

- 1) **Watersheds.** Source: United States Department of Agriculture Service Center Agencies (1999). The six level watershed (HUC12) for the entire State of Colorado (Appendix I). Converted to 30 meter by 30 meter ESRI GRID cells.
- 2) **Bio-Mass.** Source: USDA Forest Service Forest Inventory and Analysis, Remote Sensing Applications Center (2008). Bio-mass is measured in Mg/Ha and these data are in 250 meter by 250 meter ESRI GRID cells . (Appendix II)
- 3) **Ownership.** Sources: National Atlas of the United States and the United States Geological Survey (2008) (Appendix III). Converted to 30 meter by 30 meter ESRI GRID cells.
- 4) **Roadless Areas. Source:** USDA Forest Service - Geospatial Service and Technology Center (GSTC) (2003). Appendix IV These data were converted to 250 meter by 250 meter ESRI GRID cells.
- 5) **Slope. Source:** United States Geological Survey Digital Elevation Model (DEM). Slope was created in percent. Data were in 30 meter by 30 meter ESRI GRID cells.

Analysis

Public Bio-mass

Bio-mass data (Bio-Mass data) were selected based upon the occurrence on BLM or USFS lands that were not in Wilderness areas (Ownership data). Next, additional bio-mass data was also removed if it occurred in a Roadless area (Roadless Area data). Bio-mass data from this subset was also removed if it occurred on slopes greater than 60% (Slope data). Next, the Bio-mass subset data were combined with the watersheds (HUC12) (Watershed data). The bio-mass data were converted into total Short Tons by the following formula:

(1 Mg/1Ha * 6.25 Ha * 2204.6 lbs/1Mg * 1 Short Ton/2000lbs). Note 6.25 Ha = one 250 meter by 250 meter GRID cell. This formula gives us a conversion factor of 6.89. Then these data were summed by watershed using the following formula: $(\sum(\text{total number of cells} * 6.89 * \text{Bio-Mass Mg/Ha}))$. This gives rise to total Short Tons of Biomass on public lands. A value that describes the sustainable short ton that could be removed each year was calculated. This sustainable value is 3% of the total bio-mass by watershed.

Private Bio-mass

Using the ownership data, which depicts only public ownership, as a data mask all the Bio-mass cells that were coincident with public ownership data were removed. Bio-mass data from this subset was also removed if it occurred on slopes greater than 60% (Slope data). Next, the Bio-mass subset data were combined with the watersheds (HUC12) (Watershed data). Finally these data were converted to Short Tons (see Public Bio-mass) and summed. A value that describes the sustainable short ton that could be removed each year was calculated. This sustainable value is 3% of the total bio-mass by watershed.

Both Public and Private bio-mass short tons data values by watershed were joined back to the original Watershed data set via a unique primary key (grid_code). Therefore this analysis added 4 new fields on to the watershed shapefile for the State of Colorado. See attribute for data descriptions.

***Language of dataset:** en

Currentness reference:

publication date

Status:

Progress: Planned

Maintenance and update frequency: As needed

Spatial domain:

Bounding coordinates:

***West bounding coordinate:** -110.009015

***East bounding coordinate:** -101.339889

***North bounding coordinate:** 41.680664

***South bounding coordinate:** 36.274277

Local bounding coordinates:

***Left bounding coordinate:** -1164093.561557

***Right bounding coordinate:** -471310.050690

***Top bounding coordinate:** 2089338.823047

***Bottom bounding coordinate:** 1549932.003176

Keywords:

Theme:

Theme keywords: Forest Bio-mass

Place: State of Colorado

Place keywords: State of Colorado

Place keyword thesaurus: Colorado

Access constraints: None

Use constraints:

Point of contact:

Contact information:

Contact organization primary:

Contact person: Michael F. Tuffly

Contact organization: ERIA Consultants, LLC

Contact position: Research Scientist

Contact address:

Address type: mailing and physical address

Address:

165 South 32nd Street

City: Boulder

State or province: Colorado

Postal code: 80305

Country: USA

Contact voice telephone: 303-449-5146

Contact electronic mail address: mtuffly@eriaconsultants.com

Hours of service: 9:00 AM - 5:00 PM MT

Data set credit:

Michael F. Tuffly

Security information:

Security classification: Unclassified

***Native dataset format:** ESRI Shapefile

***Native data set environment:**

Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 2; ESRI ArcCatalog 9.1.0.722

Cross reference:

Citation information:

Originators: ERIA Consultants, LLC, The Greenland Reserve, and JW Associates Inc.

Title: Woody Bio-mass for the State of Colorado

Publication date: 20090614

Edition: 2.0

Attribute accuracy:

Attribute accuracy report:

250 meter by 250 meter

Process software and version: ArcGIS ver 9.3.1 With Model Builder and Spatial Analyst

Process date: 20090614

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Spatial Data Organization Information:

***Direct spatial reference method:** Vector

Point and vector object information:

SDTS terms description:

***Name:** co_woody_biomass

***SDTS point and vector object type:** G-polygon

***Point and vector object count:** 3158

ESRI terms description:

***Name:** co_woody_biomass

***ESRI feature type:** Simple

***ESRI feature geometry:** Polygon

***ESRI topology:** FALSE

***ESRI feature count:** 3158

***Spatial index:** TRUE

***Linear referencing:** FALSE

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Spatial Reference Information:

Horizontal coordinate system definition:

Coordinate system name:

***Projected coordinate system name:** USA_Contiguous_Albers_Equal_Area_Conic_USGS_version

***Geographic coordinate system name:** GCS_North_American_1983

Planar:

Map projection:

***Map projection name:** Albers Conical Equal Area

Albers conical equal area:

***Standard parallel:** 29.500000

***Standard parallel:** 45.500000

***Longitude of central meridian:** -96.000000

***Latitude of projection origin:** 23.000000

***False easting:** 0.000000

***False northing:** 0.000000

Planar coordinate information:

***Planar coordinate encoding method:** coordinate pair

Coordinate representation:

***Abscissa resolution:** 0.000000

***Ordinate resolution:** 0.000000

***Planar distance units:** meters

Geodetic model:

- ***Horizontal datum name:** North American Datum of 1983
- ***Ellipsoid name:** Geodetic Reference System 80
- ***Semi-major axis:** 6378137.000000
- ***Denominator of flattening ratio:** 298.257222

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Entity and Attribute Information:

Detailed description:

***Name:** co_woody_biomass

Entity type:

- ***Entity type label:** co_woody_biomass
- ***Entity type type:** Feature Class
- ***Entity type count:** 3158

Attribute:

- ***Attribute label:** FID
- ***Attribute alias:** FID
- ***Attribute definition:**
Internal feature number.
- ***Attribute definition source:**
ESRI

- ***Attribute type:** OID
- ***Attribute width:** 4
- ***Attribute precision:** 0
- ***Attribute scale:** 0

Attribute domain values:

- ***Unrepresentable domain:**
Sequential unique whole numbers that are automatically generated.

Attribute:

- ***Attribute label:** OBJECTID
- ***Attribute alias:** OBJECTID
- ***Attribute definition:**
Internal feature number.
- ***Attribute definition source:**
ESRI

- ***Attribute type:** Number
- ***Attribute width:** 9

Attribute domain values:

- ***Unrepresentable domain:**
Sequential unique whole numbers that are automatically generated.

Attribute:

- ***Attribute label:** Shape
- ***Attribute alias:** Shape
- ***Attribute definition:**
Feature geometry.
- ***Attribute definition source:**
ESRI

- ***Attribute type:** Geometry
- ***Attribute width:** 0
- ***Attribute precision:** 0
- ***Attribute scale:** 0

Attribute domain values:

***Unrepresentable domain:**

Coordinates defining the features.

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Attribute:

- ***Attribute label:** HUC_12
- ***Attribute alias:** HUC_12

***Attribute type:** String

***Attribute width:** 12

Unique string identifying each HUC12 Watershed

Attribute:

- ***Attribute label:** HU_12_NAME
- ***Attribute alias:** HU_12_NAME

***Attribute type:** String

***Attribute width:** 80

Name for each HUC12 watershed

Attribute:

- ***Attribute label:** grid_cod
- ***Attribute alias:** grid_cod

***Attribute type:** Number

***Attribute width:** 4

Unique number identifying each HUC12 Watershed

Attribute:

- ***Attribute label:** pvt_sus_t
- ***Attribute alias:** pvt_sus_t

***Attribute type:** Float

***Attribute width:** 13

***Attribute number of decimals:** 11

Private sustainable short tons (3% of Private total Short Tons)

Attribute:

- ***Attribute label:** pub_sus_t
- ***Attribute alias:** pub_sus_t

***Attribute type:** Float

***Attribute width:** 13

***Attribute number of decimals:** 11

Public sustainable short tons (3% of Public total Short Tons)

Attribute:

***Attribute label:** all_sus_t

***Attribute alias:** all_sus_t

***Attribute type:** Float

***Attribute width:** 13

***Attribute number of decimals:** 11

Private sustainable short tons plus Public sustainable total short tons

Attribute:

***Attribute label:** pvt_t_ton

***Attribute alias:** pvt_t_ton

***Attribute type:** Float

***Attribute width:** 19

***Attribute number of decimals:** 11

Private total short tons

Attribute:

***Attribute label:** Shape_Leng

***Attribute alias:** Shape_Leng

***Attribute type:** Float

***Attribute width:** 19

***Attribute number of decimals:** 11

Units linear meters

Attribute:

***Attribute label:** Shape_Area

***Attribute alias:** Shape_Area

***Attribute definition:**

Area of feature in internal units squared.

***Attribute definition source:**

ESRI

***Attribute type:** Float

***Attribute width:** 19

***Attribute number of decimals:** 11

Units square meters

Attribute domain values:

***Unrepresentable domain:**

Positive real numbers that are automatically generated.

Attribute:

***Attribute label:** pub_t_ton

***Attribute alias:** pub_t_ton

Total Public Short Tons

***Attribute type:** Float

***Attribute width:** 19

***Attribute number of decimals:** 11

Attribute:

***Attribute label:** all_t_ton

***Attribute alias:** all_t_ton

***Attribute type:** Float

***Attribute width:** 19

***Attribute number of decimals:** 11

Total public short tons plus total private short tons

Appendix I Metadata for Watersheds

Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1999 - Present

Status:

Progress: In Work

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -109.06025

East_Bounding_Coordinate: -102.04148

North_Bounding_Coordinate: 41.00344

South_Bounding_Coordinate: 36.99242

Keywords:

Theme:

Theme_Keyword_Thesaurus: Standard for Geospatial Dataset File Naming

Theme_Keyword: Hydrologic Units, HUC, WBD

Place:

Place_Keyword_Thesaurus: GNIS

Place_Keyword: Colorado

Place_Keyword: *

Use_Constraints:

The U.S. Department of Agriculture, Service Center Agencies should be acknowledged as the data source in products derived from these data.

This data set is not designed for use as a primary regulatory tool in permitting or citing decisions, but may be used as a reference source. This information may be interpreted by organizations, agencies, units of government, or others based on needs; however, they are responsible for the appropriate application. Federal, State, or local regulatory bodies are not to reassign to the Service Center Agencies any authority for the decisions that they make. The Service Center Agencies will not perform any evaluations of these data for purposes related solely to State or local regulatory programs.

Photographic or digital enlargement of these data to scales greater than at which they were originally mapped can cause misinterpretation of the data. Digital data files are periodically updated, and users are responsible for obtaining the latest version of the data.

Point_of_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: National Cartography and Geospatial Center

Contact_Address:

Address: 501 W. Felix St, Bldg 23

City: Fort Worth

State_or_Province: Texas

Postal_Code: 76115

Data_Quality_Information:

Lineage:

Source_Information:

Source_Citation:

Citation_Information:

Originator:

NRCS State Offices

Publication_Date: 1999

Title: Watershed Boundary Data - Hydrologic Unit

Source_Scale_Denominator: 24,000

Process_Step:

Process_Description: The dataset was modified by the USDA-NRCS National Cartography & Geospatial Center (NCGC) by creating

a seamless dataset for the entire country for all 4 levels. NCGC has included attributes for hydrologic unit codes and hydrologic unit names. NCGC has also added a square miles field to sub-basin. An acres field

already exists for each subbasin. The square miles and acres fields were calculated in Albers Equal Area, NAD83 by NCGC. At this time, not all records have attributes for all the fields, but may be filled in by the user for local projects or will be filled in at a later date. NCGC personnel have created 1 shapefile from the national WBD HU8. This polygons shapefile has attributes for 2-, 4-, 6- and 8-digit with polygons for the 8-digit HUs. For a complete description of the attributes and processes used to delineate hydrologic units to 1:24,000 scale accuracy, please refer to document Watershed Boundary Dataset (WBD) User Guide.

Process_Date: 200803

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Geographic:

Latitude_Resolution: 0.02

Longitude_Resolution: 0.02

Geographic_Coordinate_Units: Decimal degrees

Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1983 (NAD83)

Ellipsoid_Name: GRS1980

Semi-major_Axis: 6378137.0

Denominator_of_Flattening_Ratio: 298.257222101

Entity_and_Attribute_Information:

Overview_Description:

Entity_and_Attribute_Overview:

Hydrologic Unit delineation are closed polygons that encompass all area draining toward the lowest point (called outlet or pour point)

in the polygon. Because of varying sizes for the different hydrologic unit levels:

some polygons do not include all areas up to the drainage divide, but all areas

are included up to one or more other upstream hydrologic units. A unique hydrologic unit code is

used to identify each hydrologic unit. The hydrologic unit codes start with the 2-digit Region number that contains the 4-, 6-, and 8-digit hydrologic units. Each hydrologic unit has a unique hydrologic code.

Entity_and_Attribute_Detail_Citation: Detailed information about the attributes is available from the Watershed Boundary Dataset (WBD) User Guide (wbd_user_guide.doc) that is available with each gateway request.

Distribution_Information:

Distribution_Liability:

Although these data have been processed successfully on a computer system at the U.S. Department of Agriculture, no warranty expressed or implied is made by the Service Center Agencies regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. The U.S. Department of Agriculture will warrant the delivery of this product in computer readable format, and will offer appropriate adjustment of credit when the product is determined unreadable by correctly adjusted computer input peripherals, or when the physical medium is delivered in damaged condition. Request for adjustment of credit must be made within 90 days from the date of this shipment from the ordering site.

Neither the U.S. Department of Agriculture, nor any of its agencies are liable for misuse of the data, for damage, for transmission of viruses, or for computer contamination through the distribution of these data sets. The U.S. Department of Agriculture prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.)

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Format_Name: ARC/INFO Shape

Metadata_Reference_Information:

Metadata_Date: YYYY-05-DD

Metadata_Standard_Name: SCI Minimum Compliance Metadata

Metadata_Standard_Version: SCI Std 003-02

Appendix II Metadata for Bio-Mass

Contiguous U.S. Biomass Map

Metadata also available as

Metadata:

- [Identification Information](#)
- [Data Quality Information](#)
- [Spatial Data Organization Information](#)
- [Spatial Reference Information](#)
- [Entity and Attribute Information](#)
- [Distribution Information](#)
- [Metadata Reference Information](#)

Identification Information:

Citation:

Citation Information:

Originator:

USDA Forest Service Forest Inventory and Analysis, Remote Sensing Applications Center

Publication Date: 2008

Title:

Mapping U.S. forest biomass using nationwide forest inventory data and moderate resolution information

Authors: J.A. Blackard, M.V. Finco, E.H. Helmer, G.R. Holden, M.L. Hoppus, D.M. Jacobs, A.J. Lister, G.G.

Moisen, M.D. Nelson, R. Riemann, B. Ruefenacht, D. Salajanu, D.L. Weyermann, K.C. Winterberger, T.J.

Brandeis, R.L. Czaplowski, R.E. McRoberts, P.L. Patterson, R.P. Tymcio

Geospatial Data Presentation Form: remote-sensing image

Series_Information:

Series_Name: Remote Sensing of Environment

Issue_Identification: 112:1658-1677

Publication_Information:

Publisher: Elsevier

Online_Linkage: <<http://svinetfc4.fs.fed.us/rastergateway/biomass/>>

Description:

Abstract:

A spatially explicit dataset of aboveground live forest biomass was made from ground measured inventory plots for the conterminous U.S., Alaska and Puerto Rico. The plot data are from the USDA Forest Service Forest Inventory and Analysis (FIA) program. To scale these plot data to maps, we developed models relating field-measured response variables to plot attributes serving as the predictor variables. The plot attributes came from intersecting plot coordinates with geospatial datasets. Consequently, these models serve as mapping models. The geospatial predictor variables included Moderate Resolution Imaging Spectrometer (MODIS)-derived image composites and percent tree cover; land cover proportions and other data from the National Land Cover Dataset (NLCD); topographic variables; monthly and annual climate parameters; and other ancillary variables. We segmented the Mapping models for the U.S. into 65 ecologically similar mapping zones, plus Alaska and Puerto Rico. First, we developed a forest mask by modeling the forest vs. nonforest assignment of field plots as functions of the predictor layers using classification trees in See5©. Secondly, forest biomass models were built within the predicted forest areas using tree-based algorithms in Cubist©. To validate the models, we compared field-measured with model predicted forest/nonforest classification and biomass from an independent test set, randomly selected from available plot data for each mapping zone. The estimated proportion of correctly classified pixels for the forest mask ranged from 0.79 in Puerto Rico to 0.94 in Alaska. For biomass, model correlation coefficients ranged from a high of 0.73 in the Pacific Northwest, to a low of 0.31 in the Southern region. There was a tendency in all regions for these models to over-predict areas of small biomass and under-predict areas of large biomass, not capturing the full range in variability. Map-based estimates of forest area and forest biomass compared well with traditional plot-based estimates for individual states and for four scales of spatial aggregation. Variable importance analyses revealed that MODIS-derived information could contribute more predictive power than other classes of information when used in isolation. However, the true contribution of each variable is confounded by high correlations. Consequently, excluding anyone class of variables resulted in only small effects on overall map accuracy. An estimate of total C pools in live forest biomass of U.S. forests, derived from the nationwide biomass map, also compared well with previously published estimates.

Purpose:

The purpose of this dataset is to portray broad distribution patterns of biomass in the contiguous U.S. and provide input to national scale modeling projects.

Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2003

Currentness_Reference: ground condition

Status:

Progress: Complete

Maintenance_and_Update_Frequency: Irregular

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -127.977889

East_Bounding_Coordinate: -65.256686

North_Bounding_Coordinate: 51.652084

South_Bounding_Coordinate: 22.802651

Keywords:

Theme:

Theme_Keyword_Thesaurus: None

Theme_Keyword: FIA

Theme_Keyword: Biomass

Theme_Keyword: Forest Inventory and Analysis

Theme_Keyword: MODIS

Theme_Keyword: CART

Access_Constraints: None

Use_Constraints:

None. It is the responsibility of the data user to use the data appropriately and consistent within the limitations of geospatial data in general and these data in particular. Using the data for other than their intended purpose may yield inaccurate or misleading results.

Point_of_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: USDA Forest Service Forest Inventory and Analysis

Contact_Person: Gretchen G. Moisen, Ph.D.

Contact_Position: Research Scientist

Contact_Address:

Address_Type: mailing and physical address

Address: 507 25th Street

City: Ogden

State_or_Province: Utah

Postal_Code: 84401

Country: USA

Contact_Voice_Telephone: 801-625-5384

Contact_Facsimile_Telephone: 801-625-5723

Contact_Electronic_Mail_Address: gmoisen@fs.fed.us

Data_Set_Credit:

Acknowledgement of the USDA Forest Service Forest Inventory and Analysis Program and Remote Sensing Applications Center would be appreciated in products derived from these data.

Native_Data_Set_Environment:

Microsoft Windows 2000 Version 5.0 (Build 2195) Service Pack 4; ESRI ArcCatalog 9.1.0.722

Data_Quality_Information:

Lineage:

Source_Information:

Source_Citation:

Citation_Information:

Originator: USDA Forest Service Remote Sensing Applications Center

Publication_Date: 2002

Title: Dominate Aspect

Other_Citation_Details:

Created using USGS National Elevation Dataset (<<http://www.usgs.gov>>) Processing Steps 1. Imported BILmeters format into ESRI GRID format. 2. Reprojected into Albers Conical Equal Area NAD 27 with a 60m resolution 3. Mosaicked tiles into a contiguous dataset 4. Resampled to 30m resolution to maintain continuity with CONUS dataset 5. Used a 3x3 focal mean function to output a 90m DEM dataset 6. Created an Aspect Dataset from the 90m DEM 7. Reclassified the Aspect dataset into 4 categories Category 1: 0° - 90° Category 2: 90° - 180° Category 3: 180° - 270° Category 4: 270° - 360° 8. Performed a 3x3 Focal Majority output to 270m resolution 9. Reprojected/Resampled to a 250m NAD83 dataset.

Source_Scale_Denominator: 30-meter

Type_of_Source_Media: CD-ROM

Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2002

Source_Currentness_Reference: ground condition

Source_Citation_Abbreviation: Dominate Aspect

Source_Information:

Source_Citation:

Citation_Information:

Originator: USDA Forest Service Remote Sensing Applications Center

Publication_Date: 2002

Title: Mean Elevation

Other_Citation_Details:

Created using USGS National Elevation Dataset (<<http://www.usgs.gov>>) Processing Steps 1. Imported BILmeters format into ESRI GRID format. 2. Reprojected into Albers Conical Equal Area NAD 27 with a 60m resolution 3. Mosaicked tiles into a contiguous dataset 4. Resampled to 30m resolution to maintain continuity with CONUS dataset 5. Used a 3x3 focal mean function to output a 90m DEM dataset 6. Reprojected / Resampled to NAD83 with 250m cell size using Bilinear Interpolation.

Source_Scale_Denominator: 30-m

Type_of_Source_Media: CD-ROM

Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2002

Source_Currentness_Reference: ground condition

Source_Citation_Abbreviation: Mean Elevation

Source_Information:

Source_Citation:

Citation_Information:

Originator: USDA Forest Service Remote Sensing Applications Center

Publication_Date: 2002

Title: Percent Slope

Other_Citation_Details:

Created using USGS National Elevation Dataset (<<http://www.usgs.gov>>) Processing Steps 1. Imported BILmeters format into ESRI GRID format. 2. Reprojected into Albers Conical Equal Area NAD 27 with a 60m resolution 3. Mosaicked tiles into a contiguous dataset 4. Resampled to 30m resolution to maintain continuity with CONUS dataset 5. Used a 3x3 focal mean function to output a 90m DEM dataset 6. Reprojected / Resampled to NAD83 with 250m cell size using Bilinear Interpolation.

Source_Scale_Denominator: 30-meter

Type_of_Source_Media: CD-ROM

Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2002

Source_Currentness_Reference: ground condition

Source_Citation_Abbreviation: Percent Slope

Source_Information:

Source_Citation:

Citation_Information:

Originator: USDA Forest Service Remote Sensing Applications Center

Publication_Date: 2002

Title: Variety Dominate Aspect

Other_Citation_Details:

Created using USGS National Elevation Dataset (<<http://www.usgs.gov>>) Processing Steps 1. Imported BILmeters format into ESRI GRID format. 2. Reprojected into Albers Conical Equal Area NAD 27 with a 60m resolution. 3. Mosaicked tiles into a contiguous dataset. 4. Resampled to 30m resolution to maintain continuity with CONUS dataset. 5. Used a 3x3 focal mean function to output a 90m DEM dataset. 6. Created an Aspect Dataset from the 90m DEM. 7. Reclassified the Aspect dataset into 4 categories. Category 1: 0° - 90° Category 2: 90° - 180° Category 3: 180° - 270° Category 4: 270° - 360° 8. Performed 3x3 Focal Variety function output to 270m. 9. Reprojected / Resampled to NAD83 at 250m resolution.

Source_Scale_Denominator: 30-meter

Type_of_Source_Media: CD-ROM

Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2002

Source_Currentness_Reference: ground condition

Source_Citation_Abbreviation: Variety Dominate Aspect

Source_Information:

Source_Citation:

Citation_Information:

Originator: USDA Forest Service

Publication_Date: 200403

Title:

Baileys Ecoregions and Subregions of the United States, Puerto Rico, and the U.S. Virgin Islands

Other_Citation_Details:

This map layer is commonly called Baileys ecoregions and shows ecosystems of regional extent in the United States, Puerto Rico, and the U.S. Virgin Islands. Processing Steps: 1. Downloaded file from <http://www.fs.fed.us/institute/ecoregions/eco_download.html>. 2. Imported ArcInterchange file into ArcCoverage format (Albers Conical Equal Area Clark1866) 3. Imported ArcCoverage file into raster format with 250m cell resolution. 4. Reprojected / Resampled to common Albers Conical Equal Area NAD83 projection.

Online_Linkage: <<http://www.nationalatlas.gov>>

Type_of_Source_Media: online

Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 200403

Source_Currentness_Reference: ground condition

Source_Citation_Abbreviation: Bailey's Ecoregions

Source_Information:

Source_Citation:

Citation_Information:

Originator: USGS

Publication_Date: 2002

Title: MODIS Enhanced Vegetation Index

Other_Citation_Details:

Created using MODIS data from the Land Processes Distribution Active Archive Center (<<http://edcdaac.usgs.gov/main.html>>) LP DAAC Data Set - MODIS/Terra Vegetation Indices 16-Day L3 Global 250 ISIN GRID v003 MODIS Product - MOD13Q1 Processing Steps: 1. Imported MODIS EOD HDF format file into ERDAS Imagine (*.img) format. 2. Reprojected into Albers Conical Equal Area NAD27 from Integerized Sinusoidal using ERDAS Imagine 8.5 with the Nearest Neighbor and Rigerous Transformation options selected. 3. Mosaicked Tiled data into a contiguous dataset. 4. Subset area of interest from entire image 5. Resampled / reprojected to a common coordinate system & resolution (250m) in an Albers Conical Equal Area NAD83 projection.

Online_Linkage: <<http://edcdaac.usgs.gov/main.html>>

Source_Scale_Denominator: 250-meter

Type_of_Source_Media: online

Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2002

Source_Currentness_Reference: ground condition

Source_Citation_Abbreviation: MODIS EVI

Source_Information:

Source_Citation:

Citation_Information:

Originator: USGS

Publication_Date: 2002

Title: MODIS NDVI

Other_Citation_Details:

Created using MODIS data from the Land Processes Distribution Active Archive Center

(<<http://edcdaac.usgs.gov/main.html>>) LP DAAC Data Set - MODIS/Terra Vegetation Indices 16-Day L3 Global 250 ISIN GRID v003 MODIS Product - MOD13Q1 Processing Steps: 1. Imported MODIS EOD HDF format file into ERDAS Imagine (*.img) format. 2. Reprojected into Albers Conical Equal Area NAD27 from Integerized Sinusoidal using ERDAS Imagine 8.5 with the Nearest Neighbor and Rigerous Transformation options selected. 3. Mosaicked Tiled data into a contiguous dataset. 4. Subset area of interest from entire image 5. Resampled / reprojected to a common coordinate system & resolution (250m) in an Albers Conical Equal Area NAD83 projection.

Online_Linkage: <<http://edcdaac.usgs.gov/main.html>>

Source_Scale_Denominator: 250-meter

Type_of_Source_Media: online

Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2002

Source_Currentness_Reference: ground condition

Source_Citation_Abbreviation: MODIS NDVI

Source_Information:

Source_Citation:

Citation_Information:

Originator: University of Maryland

Publication_Date: 2002

Title: MODIS 8-day Composites - Global Land Cover Facility

Other_Citation_Details:

The GLCF develops and distributes remotely sensed satellite data and products concerned with land cover from the local to global scales.

Online_Linkage: <<http://glcf.umiacs.umd.edu/index.shtml>>

Source_Scale_Denominator: 250-meter

Type_of_Source_Media: online

Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2002

Source_Currentness_Reference: ground condition

Source_Citation_Abbreviation: MODIS

Source_Information:

Source_Citation:

Citation_Information:

Originator: U.S. Geological Survey (USGS)

Publication_Date: 20000815

Title: National Land Cover Data Set

Other_Citation_Details:

Created using USGS National Land Cover dataset (<http://landcover.usgs.gov/natl/landcover.html>) Processing Steps 1. Mosaicked individual state datasets into FIA Regions 2. Extracted desired class into a binary dataset 3. Ran a 9x9 focal sum function then divided by 81 to get percentage. 4. Resampled to 250m resolution using Nearest Neighbor 5. Mosaicked FIA regions into a CONUS dataset.

Online_Linkage: <http://landcover.usgs.gov>

Source_Scale_Denominator: 30-meter

Type_of_Source_Media: online

Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 20000815

Source_Currentness_Reference: ground condition

Source_Citation_Abbreviation: NLCD

Source_Information:

Source_Citation:

Citation_Information:

Originator: U.S. Geological Survey (USGS)

Publication_Date: 2002

Title: MODIS Vegetation Continuous Fields

Other_Citation_Details:

Created using MODIS data from the Land Processes Distribution Active Archive Center (<http://edcdaac.usgs.gov/main.html>) LP DAAC Data Set - MODIS/Terra Vegetation Continuous Fields Yearly L3 Global 500m ISIN v003 MODIS Product - MOD44B Processing Steps: 1. Imported MODIS EOD HDF format file into ERDAS Imagine (*.img) format. 2. Reprojected into Lambert Conformal Conic NAD27 from Integerized Sinusoidal using ERDAS Imagine 8.5 with the Nearest Neighbor and Rigerous Transformation options selected. 3. Subset area of interest from entire image 4. Resampled / reprojected to a common coordinate system & resolution (250m)

Online_Linkage: <http://edcdaac.usgs.gov/main.html>

Source_Scale_Denominator: 250-meter

Type_of_Source_Media: online

Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2002

Source_Currentness_Reference: ground condition

Source_Citation_Abbreviation: MODIS VCF

Source_Information:

Source_Citation:

Citation_Information:

Originator: University of Montana

Publication_Date: 1980-1997

Title: Daymet Precipitation and Temperature

Online_Linkage: <http://www.daymet.org/>

Source_Scale_Denominator: 1-kilometer

Type_of_Source_Media: CD-ROM

Source_Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 1980

Ending_Date: 1997

Source_Currentness_Reference: ground condition

Source_Citation_Abbreviation: Precipitation and Temperature

Process_Step:

Process_Description:

The methodology used to produce the national forest type database combined ground-truth (from FIA plot data) with multi-date imagery and variety of other spatially continuous geospatial data. The predictor data themes include,

- Elevation, slope, and aspect - Bailey's Ecoregions - MODIS Vegetation Indices such as EVI, NDVI - MODIS Vegetation Continuous Fields - MODIS fire points for developed from the MODIS Active Fire Maps - MODIS 8-day composites - climate data.

Statistical models developed in Rulequest's Cubist data mining software link the FIA plot variables with the imagery and geospatial data. Cubist creates rulesets, which have the advantage of not assuming parametric properties within the predictor data and are thus more appropriate for the multi-scale, multi-source data, which are being used.

Process_Date: 2003

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Raster

Raster_Object_Information:

Raster_Object_Type: Pixel

Row_Count: 11659

Column_Count: 18501

Vertical_Count: 1

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Map_Projection:

Map_Projection_Name: Albers Conical Equal Area

Albers_Conical_Equal_Area:

Standard_Parallel: 29.500000

Standard_Parallel: 45.500000

Longitude_of_Central_Meridian: -96.000000

Latitude_of_Projection_Origin: 23.000000

False_Easting: 0.000000

False_Northing: 0.000000

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method: row and column

Coordinate_Representation:

Abscissa_Resolution: 250.000000

Ordinate_Resolution: 250.000000

Planar_Distance_Units: meters

Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1927

Ellipsoid_Name: Clarke 1866

Semi-major_Axis: 6378206.400000

Denominator_of_Flattening_Ratio: 294.978698

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: Layer 1

Entity_Type_Definition: Biomass

Attribute:

Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0

Range_Domain_Maximum: 2205.8

Attribute_Units_of_Measure: Mg/ha

Distribution_Information:

Distributor:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: USDA Forest Service Remote Sensing Applications Center

Contact_Address:

Address_Type: mailing and physical address

Address: 2222 West 2300 South

City: West Valley City

State_or_Province: Utah

Postal_Code: 84119

Country: USA

Contact_Voice_Telephone: 801-975-3750

Contact_Facsimile_Telephone: 801-975-3478

Resource_Description: Downloadable Data

Distribution_Liability:

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Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Format_Name: ERDAS

Transfer_Size: 0.000

Metadata Reference Information:

Metadata Date: 20081104

Metadata Contact:

Contact Information:

Contact Organization Primary:

Contact Organization: USDA Forest Service Remote Sensing Applications Center

Contact Person: Bonnie Ruefenacht

Contact Position: Remote Sensing Analyst

Contact Address:

Address Type: mailing and physical address

Address: 2222 West 2300 South

City: West Valley City

State or Province: Utah

Postal Code: 84119

Country: USA

Contact Voice Telephone: 801-975-3828

Contact Facsimile Telephone: 801-975-3478

Contact Electronic Mail Address: bruefenacht@fs.fed.us

Metadata Standard Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata Standard Version: FGDC-STD-001-1998

Metadata Time Convention: local time

Metadata Extensions:

Online Linkage: <<http://www.esri.com/metadata/esriprof80.html>>

Profile Name: ESRI Metadata Profile

Generated by [mp](#) version 2.8.6 on Tue Nov 04 10:41:51 2008

Appendix III Metadata for Ownership

U.S. National Atlas Federal and Indian Land Areas

Metadata also available as

Metadata:

- [Identification Information](#)
- [Data Quality Information](#)
- [Spatial Data Organization Information](#)
- [Spatial Reference Information](#)
- [Entity and Attribute Information](#)
- [Distribution Information](#)
- [Metadata Reference Information](#)

Identification Information:

Citation:

Citation Information:

Originator:

National Atlas of the United States and the United States Geological Survey

Originator: ESRI

Publication_Date: 20080401

Title: U.S. National Atlas Federal and Indian Land Areas

Edition: 2008

Geospatial_Data_Presentation_Form: vector digital data

Series_Information:

Series_Name: ESRI® Data & Maps

Issue_Identification: 2008 World, Europe, United States, Canada, and Mexico

Publication_Information:

Publication_Place: Redlands, California, USA

Publisher: ESRI

Other_Citation_Details: Location: \usa\other

Online_Linkage:

\\Klamath\klamath_C\WorkSpace\projects\co_forestry\gis_data\geodatabase\co_forestry.gdb

Description:

Abstract:

U.S. National Atlas Federal and Indian Land Areas represents the federal- and Indian-owned land areas (for example, Bureau of Indian Affairs, Department of Defense, and Tennessee Valley Authority) of the United States.

Purpose:

U.S. National Atlas Federal and Indian Land Areas provides the federal- and Indian-owned land areas for geographic display and analysis at regional and national levels.

Supplemental_Information: Largest scale when displaying the data: 1:1,000,000.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 1972

Ending_Date: 2004

Currentness_Reference: ground condition

Status:

Progress: Complete

Maintenance_and_Update_Frequency: Annually

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -179.133392

East_Bounding_Coordinate: 179.788210

North_Bounding_Coordinate: 71.340702

South_Bounding_Coordinate: 17.674692

Keywords:

Theme:

Theme_Keyword_Thesaurus: None

Theme_Keyword: polygon

Theme_Keyword: federal lands

Theme_Keyword: Indian lands

Theme_Keyword: boundaries

Theme_Keyword: planningCadastre

Place:

Place_Keyword_Thesaurus: None

Place_Keyword: United States

Place_Keyword: Puerto Rico

Place_Keyword: U.S. Virgin Islands

Temporal:

Temporal_Keyword_Thesaurus: None

Temporal_Keyword: 1972-2004

Access_Constraints: Access granted to Licensee only.

Use_Constraints:

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Point_of_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: ESRI

Contact_Person: Data Team

Contact_Address:

Address_Type: mailing and physical address

Address: 380 New York Street

City: Redlands

State_or_Province: California

Postal_Code: 92373-8100

Country: USA

Contact_Voice_Telephone: 909-793-2853

Contact_Facsimile_Telephone: 909-793-5953

Contact_Electronic_Mail_Address: info@esri.com

Hours_of_Service: 7:00 a.m.–5:30 p.m. Pacific time, Monday–Friday

Contact_Instructions:

In the United States– Please direct all inquiries regarding software/data pricing and consulting services to your local ESRI Regional Office. For support, you may contact ESRI Support Center by telephone (voice) between 6:00 a.m. and 5:00 p.m. Pacific time, Monday through Friday, by dialing 888-377-4575; facsimile (fax) available at 909-792-0960; electronic mail (e-mail) support@esri.com; or visit <http://support.esri.com/>; ESRI holidays excluded.

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For other questions or comments, you may contact ESRI headquarters by e-mail, telephone, or fax or write to us.

Native_Data_Set_Environment:

Microsoft Windows 2000 Version 5.2 (Build 3790) Service Pack 2; ESRI ArcCatalog 9.3.1.3000

Data_Quality_Information:

Logical_Consistency_Report:

The shapefile is converted to SDC (Smart Data Compression) format using either ESRI SDC Data Development Kit Professional 2 (DDKP2) or tools in ArcGIS. The SDC data set is then loaded into ArcSDE® to verify and validate the geometry.

Completeness_Report:

After processing, the data set is checked for drawing display and number of records and file sizes compared with source materials. The minimum map resolution is 640 acres or one square mile. Generally, features under this size are not shown. There may be private inholdings within the boundaries of Federal lands in this map layer.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

The geospatial part of this data set was originally extracted from the individual 1:2,000,000-scale State boundary Digital Line Graph (DLG) files produced by the U.S. Geological Survey which have a positional accuracy of 1,720 meters. It was updated several times using various sources whose horizontal positional accuracies are unknown.

Lineage:

Source_Information:

Source_Citation:

Citation_Information:

Originator:

National Atlas of the United States and the U.S. Geological Survey

Publication_Date: 200412

Title: Federal Lands of the United States

Geospatial_Data_Presentation_Form: vector digital data

Publication_Information:

Publication_Place: Reston, Virginia, USA

Publisher: U.S. Geological Survey

Online_Linkage: <<http://www.nationalatlas.gov/atlasftp.html>>

Source_Scale_Denominator: 2000000

Type_of_Source_Media: online

Source_Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 1972

Ending_Date: 2004

Source_Currentness_Reference: ground condition

Source_Citation_Abbreviation: National Atlas

Source_Contribution: Attribute and geospatial data

Process_Step:

Process_Description:

The National Atlas file was originally compiled from 1:2,000,000-scale Digital Line Graph files produced in the early 1980's. Between 1997 and 2003, the file was updated multiple times using a variety of Federal and State sources, both to adjust boundaries and to add or delete areas as appropriate. The final version of this file was produced in October 2003. Using Wildlife refuge area updates from the U.S. Fish and Wildlife Service, Wilderness area updates from the USDA Forest Service, Rocky Mountain Research Station, Aldo Leopold Wilderness Research Institute, and Wilderness area data from the National Wilderness Preservation System, the following updates were made: boundary updates to national wildlife refuges and wilderness areas; addition of several national wildlife refuges, waterfowl production areas, and wilderness areas; adjustment of wilderness study areas which had been converted to wilderness areas; and name corrections for several areas. Adjacent Federal lands having identical attributes were merged.

Process_Date: 200412

Source_Produced_Citation_Abbreviation: National Atlas

Process_Step:

Process_Description:

The following steps were performed by ESRI: Downloaded the compressed file from the National Atlas of the United States® and extracted it. Combined attributes FEATURE1, 2, 3, AGBUR, NAME1, 2, 3, STATE, and STATE_FIPS into a single attribute, summarized and dissolved on that attribute to reduce the number of features. Joined the tables to get back the original attributes. Reduced the attribute widths of FEATURE1, 2, 3, AGBUR, NAME2, and NAME3. Added SQMI attribute and calculated its values. Added NAMEFLAG attribute and calculated its values. Created ArcGIS® layer file (.lyr), projection file (.prj), and spatial indices.

Source_Used_Citation_Abbreviation: National Atlas

Process_Date: 20050317

Process_Step:

Process_Description: Dataset copied.

Source_Used_Citation_Abbreviation:

Process_Date: 20090529

Process_Time: 11043800

Process_Step:

Process_Description: Dataset copied.

Source_Used_Citation_Abbreviation:

\\Klamath\klamath_C\WorkSpace\projects\co_forestry\gis_data\geodatabase\co_forestry.gdb

Process_Date: 20090530

Process_Time: 07314600

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: G-polygon

Point_and_Vector_Object_Count: 0

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Geographic:

Latitude_Resolution: 0.000000

Longitude_Resolution: 0.000000

Geographic_Coordinate_Units: Decimal degrees

Geodetic_Model:

Horizontal_Datum_Name: D_WGS_1984

Ellipsoid_Name: WGS_1984

Semi-major_Axis: 6378137.000000

Denominator_of_Flattening_Ratio: 298.257224

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: publiclands1

Entity_Type_Definition:

The polygons represent the federal- and Indian-owned lands of 640 acres or more within United States.

Entity_Type_Definition_Source:

National Atlas of the United States and the United States Geological Survey

Attribute:

Attribute_Label: OBJECTID_1

Attribute_Definition: Internal feature number.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: ObjectID

Attribute_Definition: Internal feature number.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: Shape

Attribute_Definition: Feature geometry.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Unrepresentable_Domain: Coordinates defining the features.

Attribute:

Attribute_Label: FEATURE1

Attribute_Definition:

The primary or only type of Federal or Indian land and the owning agency. Where a polygon represents multiple Federal or Indian land types, this attribute describes the smaller or 'contained' land.

Attribute_Definition_Source:

National Atlas of the United States and the United States Geological Survey

Attribute_Domain_Values:

Codeset_Domain:

Codeset_Name: Boundary layer attribute codes

Codeset_Source: U.S. GeoData Data Users Guide 3

Attribute:

Attribute_Label: FEATURE2

Attribute_Definition:

The secondary type of Federal or Indian land and the owning agency. Where a polygon represents multiple Federal or Indian land types, this attribute, in general, describes a land that surrounds or 'contains' the land referenced in FEATURE1. FEATURE2 may also be coded as 'Open Water' if a part of the Federal or Indian property referenced in FEATURE1 includes water.

Attribute_Definition_Source:

National Atlas of the United States and the United States Geological Survey

Attribute_Domain_Values:

Codeset_Domain:

Codeset_Name: Boundary layer attribute codes

Codeset_Source: U.S. GeoData Data Users Guide 3

Attribute:

Attribute_Label: FEATURE3

Attribute_Definition:

The tertiary type of Federal or Indian land and the owning agency. Where a polygon represents multiple Federal or Indian land types, this attribute, in general, describes a land that surrounds or 'contains' the land referenced in FEATURE2. FEATURE3 may also be coded as 'Open Water' if a part of the Federal or Indian property referenced in FEATURE2 includes water.

Attribute_Definition_Source:

National Atlas of the United States and the United States Geological Survey

Attribute_Domain_Values:

Codeset_Domain:

Codeset_Name: Boundary layer attribute codes

Codeset_Source: U.S. GeoData Data Users Guide 3

Attribute:

Attribute_Label: AGBUR

Attribute_Definition: The agency/bureau code.

Attribute_Definition_Source:

National Atlas of the United States and the United States Geological Survey

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: BIA

Enumerated_Domain_Value_Definition: Area owned or managed by the Bureau of Indian Affairs.

Enumerated_Domain_Value_Definition_Source:

National Atlas of the United States and the United States Geological Survey

Enumerated_Domain:

Enumerated_Domain_Value: BLM

Enumerated_Domain_Value_Definition: Area owned or managed by the Bureau of Land Management.

Enumerated_Domain_Value_Definition_Source:

National Atlas of the United States and the United States Geological Survey

Enumerated_Domain:

Enumerated_Domain_Value: BOR

Enumerated_Domain_Value_Definition: Area owned or managed by the Bureau of Reclamation.

Enumerated_Domain_Value_Definition_Source:

National Atlas of the United States and the United States Geological Survey

Enumerated_Domain:

Enumerated_Domain_Value: DOD

Enumerated_Domain_Value_Definition: Area owned or managed by the Department of Defense.

Enumerated_Domain_Value_Definition_Source:

National Atlas of the United States and the United States Geological Survey

Enumerated_Domain:

Enumerated_Domain_Value: FS

Enumerated_Domain_Value_Definition: Area owned or managed by the U.S. Forest Service.

Enumerated_Domain_Value_Definition_Source:

National Atlas of the United States and the United States Geological Survey

Enumerated_Domain:

Enumerated_Domain_Value: FWS

Enumerated_Domain_Value_Definition: Area owned or managed by the U.S. Fish and Wildlife Service.

Enumerated_Domain_Value_Definition_Source:

National Atlas of the United States and the United States Geological Survey

Enumerated_Domain:

Enumerated_Domain_Value: NPS

Enumerated_Domain_Value_Definition: Area owned or managed by the National Park Service.

Enumerated_Domain_Value_Definition_Source:

National Atlas of the United States and the United States Geological Survey

Enumerated_Domain:

Enumerated_Domain_Value: TVA

Enumerated_Domain_Value_Definition: Area owned or managed by the Tennessee Valley Authority.

Enumerated_Domain_Value_Definition_Source:

National Atlas of the United States and the United States Geological Survey

Enumerated_Domain:

Enumerated_Domain_Value: OTHER

Enumerated_Domain_Value_Definition: Area owned or managed by some other federal agency/bureau.

Enumerated_Domain_Value_Definition_Source:

National Atlas of the United States and the United States Geological Survey

Attribute:

Attribute_Label: NAME1

Attribute_Definition: The name associated with FEATURE1.

Attribute_Definition_Source:

National Atlas of the United States and the United States Geological Survey

Attribute_Domain_Values:

Unrepresentable_Domain: Names for the features.

Attribute:

Attribute_Label: NAME2

Attribute_Definition: The name associated with FEATURE2.

Attribute_Definition_Source:

National Atlas of the United States and the United States Geological Survey

Attribute_Domain_Values:

Unrepresentable_Domain: Names for the features.

Attribute:

Attribute_Label: NAME3

Attribute_Definition: The name associated with FEATURE3.

Attribute_Definition_Source:

National Atlas of the United States and the United States Geological Survey

Attribute_Domain_Values:

Unrepresentable_Domain: Names for the features.

Attribute:

Attribute_Label: STATE

Attribute_Definition:

The two-letter abbreviation for each state in which the federal land is located.

Attribute_Definition_Source:

Department of Commerce, National Institute of Standards and Technology

Attribute_Domain_Values:

Codeset_Domain:

Codeset_Name: Federal Information Processing Standards 5–2

Codeset_Source: National Institute of Standards and Technology

Attribute:

Attribute_Label: STATE_FIPS

Attribute_Definition:

The FIPS code (two-digit number) for each state in which the federal land is located.

Attribute_Definition_Source:

Department of Commerce, National Institute of Standards and Technology

Attribute_Domain_Values:

Codeset_Domain:

Codeset_Name: Federal Information Processing Standards

Codeset_Source: National Institute of Standards and Technology

Attribute:

Attribute_Label: SQMI

Attribute_Definition: The measure of area in square miles.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Unrepresentable_Domain: Calculated areas for the features.

Attribute:

Attribute_Label: NAMEFLAG

Attribute_Definition:

The indicator of whether NAME1, NAME2, and NAME3 contain a value.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 0

Enumerated_Domain_Value_Definition: All NAME attributes blank.

Enumerated_Domain_Value_Definition_Source: ESRI

Enumerated_Domain:

Enumerated_Domain_Value: 1

Enumerated_Domain_Value_Definition: Only NAME1 attribute populated.

Enumerated_Domain_Value_Definition_Source: ESRI

Enumerated_Domain:

Enumerated_Domain_Value: 2

Enumerated_Domain_Value_Definition: NAME1 and NAME2 attributes populated.

Enumerated_Domain_Value_Definition_Source: ESRI

Enumerated_Domain:

Enumerated_Domain_Value: 3

Enumerated_Domain_Value_Definition: NAME1, NAME2, and NAME3 attributes populated.

Enumerated_Domain_Value_Definition_Source: ESRI

Attribute:

Attribute_Label: Shape_Length

Attribute_Definition: Length of feature in internal units.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Unrepresentable_Domain: Positive real numbers that are automatically generated.

Attribute:

Attribute_Label: Shape_Area

Attribute_Definition: Area of feature in internal units squared.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Unrepresentable_Domain: Positive real numbers that are automatically generated.

Distribution_Information:

Distributor:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: ESRI; ESRI International Distributors

Contact_Address:

Address_Type: mailing and physical address

Address: 380 New York Street

City: Redlands

State_or_Province: California

Postal_Code: 92373-8100

Country: USA

Contact_Voice_Telephone: 800-447-9778

Contact_Instructions:

In the United States, contact the ESRI Telebusiness staff at 800-447-9778 for more information about our software and data.

Outside the United States, please direct all inquiries to your local ESRI International Distributor. This information can be found at <http://gis.esri.com/intldist/contact/>.

Resource_Description: Offline Data

Distribution_Liability: See use constraints.

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Format_Name: SDC

Format_Specification:

The SDC file contains the geospatial and attribute data. The SDI file contains the spatial index. The PRJ file contains the coordinate system information (optional). The XML file (*.sdc.xml) contains the metadata describing the data set (optional).

File-Decompression_Technique: ArcGIS® software

Transfer_Size: 3.201

Digital_Transfer_Option:

Offline_Option:

Offline_Media: DVD-ROM

Recording_Capacity:

Recording_Density: 7.95

Recording_Density_Units: GB (gigabytes)

Recording_Format: UDF (Universal Disc Format)

Fees: Software purchase price

Ordering_Instructions: ESRI Data & Maps is available only as part of ESRI® software.

Technical_Prerequisites: To use this data requires software that supports SDC files.

Metadata_Reference_Information:

Metadata_Date: 20090529

Metadata_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: ESRI

Contact_Person: Data Team

Contact_Address:

Address_Type: mailing and physical address

Address: 380 New York Street

City: Redlands

State_or_Province: California

Postal_Code: 92373-8100

Country: USA

Contact_Voice_Telephone: 909-793-2853

Contact_Facsimile_Telephone: 909-793-5953

Contact_Electronic_Mail_Address: info@esri.com

Hours_of_Service: 7:00 a.m.–5:30 p.m. Pacific time, Monday–Friday

Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001-1998

Metadata_Time_Convention: local time

Metadata_Extensions:

Online_Linkage: <<http://www.esri.com/metadata/esriprof80.html>>

Profile_Name: ESRI Metadata Profile

National Inventoried Roadless Areas

ira_us_dd (coverage name)

Metadata:

- Identification_Information
 - Spatial_Data_Organization_Information
 - Distribution_Information
 - Metadata_Reference_Information
-

Identification_Information:

Citation:

Citation_Information:

Originator: USDA Forest Service - Geospatial Service and Technology Center (GSTC)

Publication_Date: 20000915, Updated 20030107, Updated 20030627

Title: National Inventoried Roadless Areas (IRAs)

Edition: Final, Edited 20030107, Edited 20030627

Geospatial_Data_Presentation_Form: ArcInfo export

Publication_Information:

Publication_Place: Salt Lake City, UT

Publisher: USDA Forest Service - GSTC

Description:

Abstract:

This dataset contains all National Forest Inventoried Roadless Areas (IRAs) for the lower 48 states, including Puerto Rico. Alaska is maintained separately. The IRA data was originally submitted to GSTC by all national forests through their Regional Offices for the Forest Service's Roadless Area Conservation Initiative.

The data was consolidated at the GSTC and used in the Draft Environment Impact Statement. Between the draft and final stages of the Environmental Impact Statement, the data was updated by the forests to reflect any corrections to Inventoried Roadless Areas that were based on existing forest plans and administrative record. The data was also supplemented to include Special Designated Area information and to include Inventoried

Roadless Areas within Special Designated Areas. The data was resubmitted to the GSTC on July 21, 2000 for consolidation and the completed coverage was used in the Roadless Area Conservation Final Environmental Impact Statement. On October 15, 2002, the Gallatin National Forest submitted a technical correction to the Inventoried Roadless Area GIS database. A portion of the original GIS data was corrected to match the 1999 IRA maps that are part of the forest administrative record.

IRAs are based on completed forest plans, forest plans in revision where the agency has established an inventory (this information should be available in Appendix C of most forest plans), or other assessments that are completed and adopted by the agency. RARE II information was used in cases where a forest does not have a more current roadless inventory, which was established using RARE II information.

Purpose:

The purpose of this spatial data set is to show where the Inventoried Roadless Areas are located. The EIS analysis team used this spatial data to assess the impacts of roadless area alternatives on Forest Service policies, use of the National Forests and the surrounding environment. It was used for analysis in combination with national characterization layers, such as ambient human population, forest mortality risk to insects and diseases, current land cover types, and others. All of these datasets include the entire lower 48 states, and are coarse resolution. The public also had a need to know where IRAs were located in their area and across the nation. The data was used to create a set of detailed maps published both on the web and in hardcopy form, (Volume2, Roadless Area Conservation EIS).

Supplemental_Information:

All of the following editing processes were performed using ARC/INFO software.

The IRA data was originally submitted to GSTC on December 3, 1999 for the Draft Environmental Impact Statement. The data was submitted in ARC/INFO export format (.e00), in most cases as individual national forest coverages, but in some cases together with other national forests. The original datasets submitted were derived from a variety of original source manuscripts, most IRA data had a scale of 1:24,000. Some datasets were of smaller scale, typically 1:126,720. Each national forest was originally compiled at a different time, from different source material, using various methods. Region 5 submitted one file, which included all national forests in that region (primarily the state of California). In these instances, individual coverages were extracted by national forest administrative unit, and edited separately. All data was imported, projected to Albers and audited to check for INFO item consistency. Unnecessary features were removed and label errors removed.

Each national forest dataset was spatially edgematched to a national forest boundary dataset compiled at GSTC for this purpose, and attribute information was added or corrected. It was GSTC's intent to change the original data as little as possible, altering the geometry only as necessary to fit the National Forest Boundary coverage, and editing attributes only for consistency or where apparent errors occurred.

Edgematched data to National Forest Boundary coverage by –

- 1) intersected the IRA and the NF boundary coverages using the UNION command with a fuzzy tolerance of 1.5 map units (meters)
- 2) deleted polygons that extended beyond NF boundary as long as they appeared to be sliver polygons created by union
- 3) deleted/absorbed polygons that did not extend to NF boundary by eliminating all interior polygons less than 5 acres in size that had no IRA category value or NF ownership status using ELIMINATE command
- 4) merged remaining polygon undershoots using the MERGE command via manual editing
- 5) conducted final quality assessment to check all work - this consisted of running acreage calculations for polygons before and after the edgematching process; all differences of 100 acres or greater were checked on screen and corrected if necessary; acreage calculations were run again after corrections were made to ensure there were no major changes (in some cases, changes were necessary after verifying with forest personnel that an error in the original data existed); a query was run on all coverages which resulted in a report showing frequency of polygons that had no ownership item and no IRA category - these were checked visually using hard copy maps and phone calls to forests, if necessary, to verify what the polygons in question were; all IRA coverages were also checked visually on the screen to make sure there were no additional errors.

Regional coverages were created by first appending the completed individual national forest IRA coverages into administrative regional coverages, using the APPEND command with the polygon option. This resulted in seven regional coverages for Regions: 1 (Northern), 2 (Rocky Mountain), 3 (Southwestern), 4 (Intermountain), 5 (Pacific Southwest), 6 (Pacific Northwest), 8 (Southern), and 9 (Eastern). These seven regional coverages were then appended into the national coverage, again, using the APPEND command.

The resulting national coverage was automatically edited, using the CLEAN command, with a fuzzy tolerance of 1.5 meters. This removed geometric errors, and rebuilt topology. The coverage was then reprojected from Albers to decimal degrees for consistency with all other coverages used for analysis work.

Between the draft and final stages of the Environmental Impact Statement, the data was updated by the forests to reflect any corrections to Inventoried Roadless Areas that were based on their existing forest plan. The data was also updated to include Special Designated Area information and to include Inventoried Roadless Areas within Special Designated Areas. After these updates were made the data was resubmitted to the GSTC on July 21, 2000 for consolidation.

The final consolidation of the national IRA coverage was accomplished at the GSTC with the benefit of having one representative from each region to assist with quality control. All the completed regions were appended together into the national coverage and reprojected from Albers to decimal degrees for analysis and display in the Roadless Area Conservation Environmental Impact Statement. The IRAs only were selected from national coverage to make this dataset.

On January 7, 2003, a technical correction to the IRA GIS data was performed by GSTC on behalf of the Gallatin National Forest. The technical correction complies with direction described in the Roadless Area Conservation Rule 294.11 and Interim Directive 1920-2001-1 section 1925.05.

On June 27, 2003, a technical correction to the IRA GIS data was performed by GSTC on behalf of the Santa Fe National Forest. A portion of the original GIS data was corrected to match the IRA maps that are part of the forest administrative record. The technical correction complies with direction described in the Roadless Area Conservation Rule 294.11 and Interim Directive 1920-2001-1 section 1925.05. The correction removes roadless attributes from all polygons that comprise the Jemez NRA and East Jemez NWSR so that these two special designated areas are no longer shown as inventoried roadless areas. These areas were incorrectly shown as inventoried roadless areas.

On August 2, 2004, a technical correction to the Blue Mountain Roadless Area was performed by GSTC on behalf of the Manti-La Sal National Forest to more accurately reflect the 1983 Roadless Area Reevaluation as shown in the 1986 Planning Record. The Blue Mountain IRA boundaries were re-digitized at higher resolution with the aid of topography and classified roads to match the boundary as intended in the "Roadless Area Briefing Guide for Forest Planning for the Manti-La Sal National Forest." The technical correction complies with direction described in the Roadless Area Conservation Rule 294.11 and Interim Directive 1920-2001-1 section 1925.05.

On August 2, 2004, a technical correction along the border of the Salmon-Challis and Sawtooth National Forests was performed by GSTC. This correction fixes a data consolidation error that went undetected during the construction of the IRA GIS dataset. A 37,000 acre section of the Sawtooth National Recreation Area was mistakenly combined with the Squaw Creek IRA. The technical correction restores these two features back to their original state. The technical correction complies with direction described in the Roadless Area Conservation Rule 294.11 and Interim Directive 1920-2001-1 section 1925.05.

***** Spatial Reference Information (Beg) *****

Projection Parameters: Decimal Degrees

NAD27

Spatial Information: Vector

Scale of original/hardcopy map: 1:24,000 to 1:198,000

Feature Type: Polygon

Attributes:

ITEM NAME	WIDTH	OUTPUT	TYPE	DECIMAL
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AREA	8	18	F	5
PERIMETER	8	18	F	5
IRA_US_D03#	4	5	B	
IRA_US_D03-ID	4	5	B	
REGION	2	2	I	
FOREST	40	40	C	
STATE	2	2	C	
NAME	80	80	C	
CATEGORY	4	6	C	
ACRES	16	16	N	5

Definitions:

CATEGORY

1B = Inventoried Roadless Areas where road construction and reconstruction is prohibited.

1B-1 = Inventoried Roadless Areas that are recommended for wilderness designation in the forest plan and where road construction and reconstruction is prohibited.

1C = Inventoried Roadless Areas where road construction and reconstruction is not prohibited.

***** Spatial Reference Information (End) *****

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 19991203

Ending_Date: 20000915, Edited 20030107

Currentness_Reference: publication date

Status:

Progress: Complete

Maintenance_and_Update_Frequency: Unknown

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -124.4

East_Bounding_Coordinate: -65.7

North_Bounding_Coordinate: 49.0

South_Bounding_Coordinate: 18.2

Keywords:

Theme:

Theme_Keyword_Thesaurus: NA

Theme_Keyword: national inventoried roadless areas

Place:

Place_Keyword_Thesaurus: NA

Place_Keyword: national forests

Temporal:

Temporal_Keyword_Thesaurus: NA

Temporal_Keyword: NA

Access_Constraints:

User needs to exercise caution regarding the spatial accuracy of these data. The source scales can vary. External features cannot be expected to align. The National Forest Planning Record Documents (Appendix C), other assessments adopted by the USDA Forest Service, or RARE II documents, are ultimately the official version of inventoried roadless areas.

Use_Constraints:

Data may be viewed and used by any and all entities upon request. However, data should not be changed or modified by anyone other than GSTC. The USDA Forest Service does not guarantee the accuracy of this data.

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Distribution_Information:

Distributor:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Dan Thompson

Contact_Organization: USDA Forest Service - GSTC

Contact_Address:

Address_Type: Mailing and Physical Address

Address: 2222 West 2300 South

City: Salt Lake City

State_or_Province: UT

Postal_Code: 84119

Contact_Voice_Telephone: (801) 975-3441

Contact_Facsimile_Telephone: (801) 975-3478

Contact_Electronic_Mail_Address: dthompson01@fs.fed.us

Distribution_Liability:

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Metadata_Reference_Information:

Metadata_Date:

Metadata_Contact:

Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001-1998

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