

r205_dmg

Metadata also available as

Metadata:

- [Identification Information](#)
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 - [Spatial Reference Information](#)
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 - [Distribution Information](#)
 - [Metadata Reference Information](#)
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Identification_Information:

Citation:

Citation_Information:

Originator:

USDA Forest Service, Rocky Mountain Region, Forest Health Management

Publication_Date: January 13, 2006

Title: r205_dmg

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage: <<http://www.fs.fed.us/r2/resources/fhm/aerialsurvey/>>

Larger_Work_Citation:

Citation_Information:

Originator:

USDA Forest Service, Rocky Mountain Region, Forest Health Management

Publication_Date: 1950 to present

Title: Annual Aerial Detection Overview Survey

Edition: 2005

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage:

<<http://www.fs.fed.us/r2/resources/fhm/aerialsurvey/>>

Description:

Abstract:

2005 USDA Forest Service, Rocky Mountain Region Aerial Detection Survey Data.
This data depicts the occurrence and location of forest insect, disease, and other

biotic and abiotic causes of tree mortality and tree damage. Aerial survey data is collected by observing areas of tree damage or tree mortality from an aircraft and manually recording the information onto a map.

Due to the nature of aerial surveys, this data will only provide rough estimates of location, intensity and the resulting trend information for agents detectable from the air. Many of the most destructive diseases are not represented in the data because these agents are not detectable from aerial surveys. The data presented should only be used as a partial indicator of insect and disease activity, and should be validated on the ground for actual location and casual agent.

The accompanying "area flown/ not flown" GIS data set entitled "r205_fln" should be used in conjunction with this data set. This "area flown/ not flown" data set provides information on the spatial extent of the aerial survey for that particular year.

A companion handbook entitled "Aerial Survey Geographic Information System Handbook" should be obtained before using this data set. The handbook is available online at: <http://www.fs.fed.us/foresthealth/publications/id/gishandbook.pdf>. This handbook also serves as a data dictionary necessary for deciphering numeric field codes.

An accuracy assessment was initiated in 2005 to quantify aerial survey accuracies. An error matrix was constructed based on a site specific comparison of ground data with aerial survey data. Two additional error matrices were constructed based on aerial survey spatial tolerances of 50 and 500 meters. Results of error matrix evaluations of the aerial survey data were as follows: · 61.1% accurate ± 0 meters · 67.7% accurate ± 50 meters · 78.6% accurate ± 500 meters

Please see the USDA Forest Service Rocky Mountain Region Forest Health Aerial Survey Accuracy Assessment 2005: a pilot project report for further details. <http://www.fs.fed.us/r2/resources/fhm/aerialsurvey/>

Purpose:

Aerial survey data sets are created annually to provide trend information on forest insects, diseases, and other biotic and abiotic causes of tree mortality and tree damage; referred to herein as "damage causal agents". Aerial surveys provide information on the current status for many causal agents, and are important when examining insect activity trends by comparing historical and current survey data over large areas.

Supplemental Information:

Aerial survey data sets are created annually to provide trend information on forest insects, diseases, and other biotic and abiotic causes of tree mortality and tree damage; referred to herein as "damage causal agents". Aerial survey data is collected

by observing areas of tree damage or tree mortality from an aircraft and manually recording the information onto a map. This procedure is considered both an art form and a form of scientific data collection, and is highly subjective. An observer only has a few seconds to recognize the color difference between healthy and damaged trees of different species; diagnose causal agents correctly; estimate intensity; delineate the extent of damage; and precisely record this information on a georeferenced map. Air turbulence, cloud shadows, distance from aircraft, haze, smoke, and observer experience can all affect the quality of the survey. These data sets provide estimates of conditions on the ground and may differ from estimates derived by other methods.

Aerial surveys provide information on the current status for many causal agents, and are important when examining insect activity trends by comparing historical and current survey data over large areas.

Overview surveys are a "snap shot" in time and therefore may not be timed to accurately capture the true extent or severity of a particular disturbance activity. Aerial surveys can be thought of as the first stage in a multi-stage sampling design. Other remote sensing approaches, including aerial photography, electro-optical sensors, and specially designed aerial surveys with modified flight patterns, can be used to more accurately delineate the extent and severity of a particular disturbance agent. The preceding methods are often more costly than overview surveys, and are generally reserved to address situations of sufficient environmental, economic, or political importance.

Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2005 (summer field season)

Currentness_Reference: publication date

Status:

Progress: Complete

Maintenance_and_Update_Frequency: As needed

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -110.196610

East_Bounding_Coordinate: -95.778909

North_Bounding_Coordinate: 45.092873

South_Bounding_Coordinate: 36.711569

Keywords:

Theme:

Theme_Keyword_Thesaurus: None

Theme_Keyword: aerial survey

Theme_Keyword: aerial detection survey

Theme_Keyword: forest insect pests
Theme_Keyword: forest disease pests
Theme_Keyword: damage causal agent
Theme_Keyword: tree mortality
Theme_Keyword: tree damage
Theme_Keyword: forest health
Theme_Keyword: forest health management
Theme_Keyword: forest health protection
Theme_Keyword: forest health monitoring
Theme_Keyword: USDA Forest Service

Place:

Place_Keyword: Rocky Mountain Region
Place_Keyword: Colorado
Place_Keyword: Wyoming
Place_Keyword: South Dakota
Place_Keyword: Nebraska
Place_Keyword: Kansas
Place_Keyword: Region 2

Temporal:

Temporal_Keyword: 2005

Access_Constraints:

The insect and disease data is available digitally from the USDA Forest Service, Rocky Mountain Region, Forest Health Management group. The cooperators reserve the right to correct, update, modify or replace GIS products. Using this data for purposes other than those for which it was intended may yield inaccurate or misleading results.

The accompanying "area flown/ not flown" GIS data set entitled "r205_fln" should be used in conjunction with this data set. This "area flown/ not flown" data set provides information on the spatial extent of the aerial survey for that particular year.

Use_Constraints:

The insect and disease data is available digitally from the USDA Forest Service, Rocky Mountain Region, Forest Health Management group. The cooperators reserve the right to correct, update, modify or replace GIS products. Using this data for purposes other than those for which it was intended may yield inaccurate or misleading results.

The accompanying "area flown/ not flown" GIS data set entitled "r205_fln" should be used in conjunction with this data set. This "area flown/ not flown" data set provides information on the spatial extent of the aerial survey for that particular year.

Point_of_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization:

USDA Forest Service, Rocky Mountain Region, Forest Health

Management

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Hours_of_Service: 09:00-16:00 MST

Contact_Instructions: email is preferred

Data_Set_Credit:

USDA Forest Service, Rocky Mountain Region, Forest Health Management; Erik Johnson - Aerial Survey Program Manager.

Native_Data_Set_Environment:

Microsoft Windows 2000 Version 5.0 (Build 2195) Service Pack 4; ESRI ArcCatalog 9.0.0.535

Data_Quality_Information:

Lineage:

Process_Step:

Process_Description: Metadata imported.

Source_Used_Citation_Abbreviation:

C:\a_data\airial_survey\2005\r205_dmg.shp.xml

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: 26735

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Grid_Coordinate_System:

Grid_Coordinate_System_Name: Universal Transverse Mercator

Universal_Transverse_Mercator:

UTM_Zone_Number: 13

Transverse_Mercator:

Scale_Factor_at_Central_Meridian: 0.999600

Longitude_of_Central_Meridian: -105.000000

Latitude_of_Projection_Origin: 0.000000

False_Easting: 500000.000000

False_Northing: 0.000000

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method: coordinate pair

Coordinate_Representation:

Abscissa_Resolution: 0.002048

Ordinate_Resolution: 0.002048

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

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: r205_dmg

Entity_Type_Definition: USDA Forest Service Region 2 2005 forest damage polygons

Entity_Type_Definition_Source:

Aerial Survey Geographic Information System Handbook (available online at: <http://www.fs.fed.us/foresthealth/publications/id/gishandbook.pdf>)

*Attribute:**Attribute_Label:* FID*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:* ID*Attribute:**Attribute_Label:* CODE*Attribute_Definition:*

Region 2 pest code (see Coding Key for Forest Insect Disease Damage on Aerial Survey Maps USDA Forest Service Region 2 Aerial Survey Program). These are the pest codes that were used by Region 2 aerial surveyors while collecting data from the aircraft. THESE WERE THE ORIGINAL CODES DIGITIZED OFF OF PAPER MAPS OR RECORDED DIGITALLY FROM THE AIR. SOME CODES HAVE BEEN MODIFIED DURING SUBSEQUENT GROUND-TRUTHING ACTIVITIES. THE CHANGES ARE NOT REFLECTED IN THIS FIELD. PLEASE USE THE DCA1, DCA2, AND DCA3 FIELDS FOR QUERIES!

Attribute_Definition_Source:

Coding Key for Forest Insect Disease Damage on Aerial Survey Maps USDA Forest Service Region 2 Aerial Survey Program

*Attribute:**Attribute_Label:* WEB_CODE*Attribute_Definition:*

Region 2 pest code (see Coding Key for Forest Insect Disease Damage on Aerial Survey Maps USDA Forest Service Region 2 Aerial Survey Program). These are the codes used to attribute aerial survey maps viewed on our website. Changes based on ground-truthing activities are represented in this field, however, IT IS STILL RECOMMENDED THAT QUERIES BE MADE USING THE DCA1, DCA2, AND DCA3 FIELDS.

Attribute_Definition_Source:

Coding Key for Forest Insect Disease Damage on Aerial Survey Maps USDA Forest Service Region 2 Aerial Survey Program

Attribute:

Attribute_Label: SURVEY_ID1

Attribute_Definition: Year surveyed (0=2000, 99=1999, etc.)

Attribute_Definition_Source: Aerial Survey Geographic Information System Handbook

Attribute:

Attribute_Label: SURVEY_ID2

Attribute_Definition:

Year surveyed (used only for polygons with more than one attribute)

Attribute_Definition_Source: Aerial Survey Geographic Information System Handbook

Attribute:

Attribute_Label: SURVEY_ID3

Attribute_Definition: Year surveyed (used only for polygons with three attributes).

Attribute_Definition_Source: Aerial Survey Geographic Information System Handbook

Attribute:

Attribute_Label: DMG_TYPE1

Attribute_Definition:

Damage type (see Aerial Survey Geographic Information System Handbook, Appendix A)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

Attribute:

Attribute_Label: DMG_TYPE2

Attribute_Definition:

Damage type (used only for polygons with more than one attribute)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

Attribute:

Attribute_Label: DMG_TYPE3

Attribute_Definition: Damage type (used only for polygons with three attributes)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

Attribute:

Attribute_Label: SEVERITY1

Attribute_Definition:

Severity of damage (see Aerial Survey Geographic Information System Handbook, Appendix A)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

Attribute:

Attribute_Label: SEVERITY2

Attribute_Definition:

Severity of damage (used only for polygons with more than one attribute)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

Attribute:

Attribute_Label: SEVERITY3

Attribute_Definition:

Severity of damage (used only for polygons with three attributes)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

Attribute:

Attribute_Label: PATTERN1

Attribute_Definition: Pattern (currently not used by USFS Region 2)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

Attribute:

Attribute_Label: PATTERN2

Attribute_Definition: Pattern (currently not used by USFS Region 2)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

Attribute:

Attribute_Label: PATTERN3

Attribute_Definition: Pattern (currently not used by USFS Region 2)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

Attribute:

Attribute_Label: TPA1

Attribute_Definition:

Number of trees per acre (see Aerial Survey Geographic Information System Handbook, Appendix A)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

Attribute:

Attribute_Label: TPA2

Attribute_Definition:

Number of trees per acre (used only for polygons with more than one attribute)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

Attribute:

Attribute_Label: TPA3

Attribute_Definition:

Number of trees per acre (used only for polygons with three attributes)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

*Attribute:**Attribute_Label:* NO_TREES1*Attribute_Definition:*

Number of trees affected/ killed (see Aerial Survey Geographic Information System Handbook, Appendix A)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

*Attribute:**Attribute_Label:* NO_TREES2*Attribute_Definition:*

Number of trees affected/ killed (used only for polygons with more than one attribute)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

*Attribute:**Attribute_Label:* NO_TREES3*Attribute_Definition:*

Number of trees affected/ killed (used only for polygons with three attributes)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

*Attribute:**Attribute_Label:* DCA1*Attribute_Definition:*

Damage-causing agent code. This is the most reliable field for queries pertaining to damage-causing agents and it is recommended over the R2 pest code or web code fields (see Aerial Survey Geographic Information System Handbook, Appendix A and Appendix E)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A and Appendix E

*Attribute:**Attribute_Label:* DCA2*Attribute_Definition:*

Damage-causing agent code (used only for polygons with more than one attribute)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A and Appendix E

*Attribute:**Attribute_Label:* DCA3*Attribute_Definition:*

Damage-causing agent code (used only for polygons with three attributes)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A and Appendix E

Attribute:

Attribute_Label: HOST1

Attribute_Definition:

Host tree species code (see Aerial Survey Geographic Information System Handbook, Appendix A and Appendix F)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A and Appendix F

Attribute:

Attribute_Label: HOST2

Attribute_Definition:

Host tree species code (used only for polygons with more than one attribute)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A and Appendix F

Attribute:

Attribute_Label: HOST3

Attribute_Definition:

Host tree species code (used only for polygons with three attributes)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A and Appendix F

Attribute:

Attribute_Label: FOR_TYPE1

Attribute_Definition:

Forest type code (see Aerial Survey Geographic Information System Handbook, Appendix A and Appendix G)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A and Appendix G

Attribute:

Attribute_Label: FOR_TYPE2

Attribute_Definition:

Forest type code (used only for polygons with more than one attribute)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A and Appendix G

Attribute:

Attribute_Label: FOR_TYPE3

Attribute_Definition: Forest type code (used only for polygons with three attributes)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A and Appendix G

Attribute:

Attribute_Label: NOTES

Attribute_Definition: Notes and comments

Attribute_Definition_Source: Aerial Survey Geographic Information System Handbook

Attribute:

Attribute_Label: AREA

Attribute:

Attribute_Label: PERIMETER

Attribute:

Attribute_Label: ACRES

Attribute_Definition: Acres (calculated using XTOOLS)

*Overview_Description:**Entity_and_Attribute_Overview:*

While the companion handbook entitled "Aerial Survey Geographic Information System Handbook" (available at <http://www.fs.fed.us/foresthealth/publications/id/gishandbook.pdf>) should be obtained before using the dataset in order to decipher numeric field codes, some of the more common Region 2 DCA (damage causal agent) and host codes are listed as follows:

DCA NAME 11002 western pine beetle 11006 mountain pine beetle 11007 Douglas-fir beetle 11009 spruce beetle 11029 pine engraver 11030 Ips engraver beetles 11049 Douglas-fir engraver 11050 fir engraver 12040 western spruce budworm 12123 Douglas-fir tussock moth 12180 tent caterpillar 24022 Dutch elm disease 30000 Fire 50006 hail 50001 wind/tornado 70001 herbicides 70014 road salt 80001 aspen decline 80002 subalpine fir mortality 80003 five-needle pine mortality 80004 pinyon pine mortality

Hosts 1 = hardwoods 2 = softwoods 3 = hardwoods/softwoods 15 = white fir 19 = subalpine fir 68 = eastern redcedar 93 = Englemann spruce 101 = whitebark pine 105 = jack pine 106 = common pinyon 108 = lodgepole pine 113 = limber pine 122 = ponderosa pine 202 = Douglas-fir 313 = boxelder 462 = hackberry 740 = cottonwood, poplar 746 = quaking aspen 749 = narrowleaf cottonwood 814 = Gambel oak 823 = bur oak 970 = elm

Due to the difficulty of discerning dying whitebark pine from dying limber pine from the air, all of these polygons are originally coded as "5-needle pne mortality" by the sketchmapper. Later, the hosts for these polygons are determined using the following procedure:

1. Select potential whitebark sites: ("DCA1" = 80003 OR "DCA2" =80003 OR "DCA3" =80003) AND ("HOST1" = 101 OR "HOST2" = 101) 2. Potential whitebark sites fall within 50m of whitebark polygons from local vegetation datasets are recoded whitebark only. 3. Potential whitebark polygons that occur below 8,000 ft were recoded as limber pine only. 4. Remaining polygons (>8,000ft elevation and not within 50m of whitebark poly) were left as is (coded both 101 and 113) coded mixed- except changing TPA (and # of trees) to reflect a 50/50 split.

Entity_and_Attribute_Detail_Citation:

Aerial Survey Geographic Information System Handbook

(<<http://www.fs.fed.us/foresthealth/publications/id/gishandbook.pdf>>)

Entity_and_Attribute_Detail_Citation:

Coding Key for Forest Insect Disease Damage on Aerial Survey Maps USDA Forest Service Region 2 Aerial Survey Program (contact Erik Johnson ejohnson02@fs.fed.us or Jennifer Ross jross@fs.fed.us for this document)

Distribution_Information:

Distributor:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization:

USDA Forest Service, Rocky Mountain Region, Forest Health Management

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Contact_Position: Aerial Survey Program Manager

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Address_Type: mailing and physical address

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Address: Erik Johnson (or Forest Health staff member)

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State_or_Province: Colorado

Postal_Code: 80401

Country: USA

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Contact_TDD/TTY_Telephone: 800.659.2656

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Hours_of_Service: 0900-1600 MST

Contact_Instructions: email preferred

Resource_Description: Downloadable Data

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Transfer_Size: 14.984

Metadata_Reference_Information:

Metadata_Date: 20060303

Metadata_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization:

USDA Forest Service, Rocky Mountain Region, Forest Health
Management

Contact_Person: Erik Johnson

Contact_Position: Aerial Survey Program Manager

Contact_Address:

Address_Type: mailing and physical address

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Address: Erik Johnson (or Forest Health staff member)

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State_or_Province: Colorado

Postal_Code: REQUI80401

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Contact_Electronic_Mail_Address: jharris@fs.fed.us

Hours_of_Service: 0900-1600 MST

Contact_Instructions: email preferred

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

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