

***Sirex noctilio* National Survey Sample Areas for the Conterminous US.**

Data format: ESRI Shapefile

File or table name: sirex_sample_polys

Coordinate system: Albers Conical Equal Area

Theme keywords: Forest Pathogen, Exotic, Sirex Woodwasp, *Sirex noctilio*, sample

Abstract: The sample area theissen were created by intersecting the susceptibility risk potential, by category, with a systematic sampling point grid. To attain higher levels of certainty in the higher risk categories, sample areas are intensified where risk of susceptibility is highest.

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: Forest Health Technology Team (FHTET) USDA Forest Service

Title:

***Sirex noctilio* National Survey Sample Area for the Conterminous US.**

***File or table name:** sirex_sample_polys

Tool name: Sirex_newyork

Publication date: 7-2-2007

***Geospatial data presentation form:** raster digital data

Series information:

Series name: Version 2.0

Issue identification: 7-2-2007

Publication information:

Publication place: Fort Collins, Colorado

Publisher: Marla C. Downing

Online linkage: http://www.fs.fed.us/foresthealth/technology/invasives_sirexnoctilio_riskmaps.shtml

Larger work citation:

Citation information:

Originators: Forest Health Technology Enterprise Team (FHTET) USDA Forest Service

Publication date: 7-2-2007

Edition: 2.0

Geospatial data presentation form: map

Online linkage: <http://www.fs.fed.us/foresthealth/technology/products.shtml>

Description:

Abstract:

The sample area theissen polygons shown here are created by intersecting the susceptibility risk surface, by category, with a systematic sampling point grid. To attain higher levels of certainty in the higher risk categories, sample areas are intensified where risk of susceptibility is highest.

Purpose:

The product's intended use is to develop a detection strategy for *Sirex noctilio*.

Supplemental information:

This project incorporates methods developed by Coulston, et. al. (2006) to develop national scale sampling areas based on the Forest Health Technology Enterprise Team (FHTET) *Sirex noctillio* Susceptibility Surface. The process involved:

- 1) reclassification of the risk surface into four classes (0 - Little/No, 1 – Low, 2 – Medium, 3 – High);
- 2) estimating the intensification factor based on the required number of samples and the relative certainty for each risk category;
- 3) intensifying EMAP’s North American hexagon to develop a systematic point grid for each risk stratum;
- 4) spatially intersecting the intensified point grids with the corresponding risk stratum;
- 5) merging each set of selected points from the stratum intersection;
- 6) creating the sample areas that are semi-regular tessellations of theissen polygons created from the merged grid intensification points.

For this project, the FHTET *Sirex noctillio* risk surface was used and reclassified into the required four classes. A total of 1,200 sample areas were used for the intensification model. Relative certainties were assigned in order to create increasing plot intensifications for increasing risk stratum. A custom EXCEL application calculates the intensification factor and sequence number based on the number of points and desired relative certainty. The sequence for the point intensification is determined from a table supplied by the authors. Table 1 shows the risk class, area by class, and number of sample areas used for this project. The point grid intensification is based on the Environmental Monitoring and Assessment (EMAP) hexagon for the conterminous United States and is iteratively intensified using a custom ArcView 3.3 application. A new point file is created for each iterative intensification. The final intensification iterations for each class is intersected with a vector version of the susceptibility surface and merged to create a single point shape file. A sample area tessellation is then performed from the merged intensification points using a custom function in the ArcView 3.3 application that creates theissen polygons. These polygons become the sample areas, where the sample areas are based on the risk class. It is intended that each sample area is given the same number of sample plots.

Citation

Coulston, John W., Koch, F.H., Smith, W.D., Sapio, F.J. 2006. *Developing Survey Grids to Substantiate Freedom from Exotic Pests*. FIA Symposium Proceedings. In Press.

Table 1. Summary Statistics

Risk Class	Relative Certainty	Area (km)	Sample Areas
Little/No (0)	0.25	7,199,762	95
Low (1)	0.4	173,784	170
Mod (2)	0.7	291,350	400
High (3)	0.8	119,769	535

Susceptibility Risk Potential Surface

The Susceptibility Risk Potential Surface for *Sirex noctilio* was produced for the conterminous United States in 1 square kilometer (km²) units by the U.S. Forest Service, Forest Health Technology Enterprise Team’s (FHTET) Invasive Species Steering Committee. The product’s intended use is to develop a detection strategy for *Sirex noctilio*. The Susceptibility Potential Surface was produced by combining the *Sirex noctilio* Introduction and Establishment Potential Surfaces in a final equal weighted overlay. The datasets used in the Introduction and Establishment can be seen below.

Susceptibility potential to *Sirex noctilio* is calculated by the following arithmetic overlay:

Variables	Arithmetic Weights
Risk of Establishment	50%
Risk of Introduction	50%

The data were then reclassified into 5 classes using Jenk's Natural Breaks. These classes and range values are as follows:

Category	Range Values
Little or No	0
Low	GT 0 and LT or EQ 3
Medium	GT 3 and LT 6
High	GT 6 and LT 8
Very High	GT or EQ 8

Introduction Potential

The Introduction Potential Surface for *Sirex noctilio* was produced for the Conterminous United States (CUS) in 1 square kilometer (km²) units by the U.S. Forest Service, Forest Health Technology Enterprise Team's (FHTET) Invasive Species Steering Committee. The product's intended use is to develop a detection strategy for *Sirex noctilio*. Three primary datasets with standardized values from 0 to 10 were used as variables in the analysis. Each data set (Table 1) was used in a weighted overlay process where Principal Ports = 33% and Markets = 33% and Distribution centers = 34%. The final Introduction Potential Surface output values also range from 0 to 10, with 10 having the highest potential of introduction.

Each of the variables was used to depict potential locations where *Sirex noctilio* could be released into the CUS. To delineate *Sirex noctilio* potential flight range, a curvilinear distance decay value was assigned with a risk rating of 10 at the source location and decreasing to 0 at 50 miles away (Table 2).

Principal Ports. Source: Army Corps of Engineer, Waterborne Commerce, Foreign Cargo Statistics (1996 to 2003). A summary of imported tonnage of commodities that use Solid Wood Packing Material (SWPM), the packing material associated with Siricidae species interceptions, recorded in the APHIS Pest Interception Network (PIN) 309 database. Only commodities exported from countries where *Sirex noctilio* is present were included, countries of origin were not ranked. This point data was converted to 1 km² grid cells.

United States Ports that received Commodities from Countries (listed below) were used:

The Ports shapefiles are the result of querying a data set summarizing 8 years (1996-2003) of foreign marine cargo import information. These data have been compiled from Army Corps of Engineers waterborne commerce statistics, and then sorted by commodity type, foreign country of shipment origin, and U.S. port where the shipment arrived.

"COMM_NAME" = 'All Manufactured Equipment, Machinery and Products' OR

"COMM_NAME" = 'Building Cement & Concrete; Lime; Glass' OR

"COMM_NAME" = 'Forest Products, Lumber, Logs, Woodchips' OR
"COMM_NAME" = 'Primary Iron and Steel Products (Ingots,Bars,Rods,etc.)' OR
"COMM_NAME" = 'Primary Non-Ferrous Metal Products;Fabricated Metal Prods.' OR
"COMM_NAME" = 'Sand, Gravel, Stone, Rock, Limestone, Soil, Dredged Material' OR
"COMM_NAME" = 'Paper & Allied Products' OR
"COMM_NAME" = 'Primary Wood Products; Veneer; Plywood'

AND

"CTRY_NAME" = 'ARGENTINA' OR
"CTRY_NAME" = 'AUSTRALIA' OR
"CTRY_NAME" = 'BELGIUM' OR
"CTRY_NAME" = 'BRAZIL' OR
"CTRY_NAME" = 'CHILE' OR
"CTRY_NAME" = 'FINLAND' OR
"CTRY_NAME" = 'FRANCE' OR
"CTRY_NAME" = 'GERMANY' OR
"CTRY_NAME" = 'GREECE' OR
"CTRY_NAME" = 'ITALY' OR
"CTRY_NAME" = 'NETHERLANDS' OR
"CTRY_NAME" = 'NEW ZEALAND' OR
"CTRY_NAME" = 'POLAND' OR
"CTRY_NAME" = 'PORTUGAL' OR
"CTRY_NAME" = 'RUSSIA' OR
"CTRY_NAME" = 'SOUTH AFRICA' OR
"CTRY_NAME" = 'SPAIN' OR
"CTRY_NAME" = 'SWEDEN' OR
"CTRY_NAME" = 'TURKEY' OR
"CTRY_NAME" = 'URUGUAY' OR
"CTRY_NAME" = 'DENMARK' OR
"CTRY_NAME" = 'UNITED KINGDOM' OR
"CTRY_NAME" = 'IRELAND' OR
"CTRY_NAME" = 'NORWAY' OR
"CTRY_NAME" = 'ESTONIA' OR
"CTRY_NAME" = 'LATVIA' OR
"CTRY_NAME" = 'LITHUANIA' OR
"CTRY_NAME" = 'ALBANIA' OR
"CTRY_NAME" = 'BULGARIA' OR
"CTRY_NAME" = 'CROATIA' OR
"CTRY_NAME" = 'ROMANIA' OR
"CTRY_NAME" = 'SERBIA' OR
"CTRY_NAME" = 'SLOVENIA' OR
"CTRY_NAME" = 'UKRAINE'

Markets. Source: Federal Highway Administration, Freight Management and Operations, Freight Analysis Framework, Highway Truck Volume (HTV) and Capacity Data and Environmental Systems Research Institute's (ESRI) City polygon Data. Flow/capacity data was used to determine the number of truck trips occurring within the city polygons, which were then used to define potential markets.

Using a polygon data set from Environmental Systems Research Institute (ESRI) that depicts Cities in the United States an intersection was conducted. These City polygons were included as standard spatial data with the shipment of ArcGIS ver 9.1 in the year 2005. Next, the ESRI City Polygons were intersected with HTV. City polygons were selected that had any truck trips. Next a distance decay function illustrated in table 2 was applied to these data.

Distribution Centers. Sources: National Transportation Atlas Database (2003). Only distribution centers that handle commodities that likely use SWPM during transport were considered. Table 3 illustrates commodities that use SWPM; therefore Distribution Centers that handle these commodities contained in Table 3 were used in this analysis. Table 4 illustrates commodities that probably do not represent a significant risk for *S. noctilio* (i.e. not wood or packed/shipped with wood crates, pallets, etc); hence, the Distribution Centers that handle only commodities contained in Table 4 were removed from the analysis. The remaining records were summarized so that the table contains a single record for each unique facility, along with a count of how many relevant commodity types that facility distributes. This table has 1516 records, but 20 of these records have no corresponding facility; hence, these records were removed (1496 total number of distribution centers that received commodities that uses SWPM). The remaining 1496 distribution center records coupled with 1510 distribution center that had no particular commodity specification were used (totally to 3006 distribution centers). Next, a point shapefile was created using the 3006 distribution centers from the latitude and longitude coordinates for each distribution center. Then each distribution center point was converted to a 1 by 1 kilometer GRID cell. Finally, a distance decay function illustrated in table 2 was applied to each GRID cell. Appendix A contains original metadata.

Table 1

Introduction Variables	Value Ranges
Principal Ports	0 - 10
Markets	0 - 10
Distribution Centers	0 - 10

Table 2

Distance Decay for Probable Flight Range of *Sirex noctilio*
 GRID Value = Potential Value (in Percent) * 10; then rounded to nearest integer.

Distance (miles)	Potential Value in Percent	GRID Value
0 (Source)	100	10
GT 0 and LT or EQ to 5	90.3	9
GT 5 and LT or EQ to 10	71.4	8
GT 10 and LT or EQ to 15	52.9	5
GT15 and LT or EQ to 20	36.9	4
GT 20 and LT or EQ to 25	24.5	2
GT 25 and LT or EQ to 30	15.4	2
GT 30 and LT or EQ to 35	9.2	1

GT 35 and LT or EQ to 40	5.2	1
GT 40 and LT or EQ to 45	2.7	1
GT 45 and LT or EQ to 50	1	1
GT 50	0	0

Table 3 (Commodities Retained)

Alcoholic Beverages
 Animal Feed, Pet Food, And Products Of Animal
 Articles Of Stone, Ceramic, Or Glass
 Breakbulk cargo
 Cargo needing specialized equipment
 Computers, Components, Peripherals, And Software
 Converted Paper And Converted Paper Products
 Electrical Machinery And Equipment
 Engines, Parts, And Accessories For Motor Vehicles
 Food and kindred products
 Forest Products
 Furniture And Furnishings
 General cargo "anything other than bulk"
 Iron And Steel In Primary Forms And Basic Shapes
 Lumber and logs in the rough
 Machinery
 Manufactured
 Mechanical Machinery
 Metal products -- primary and finished
 Milled Grain Products And Preparations And Bakery
 Miscellaneous Manufactured Products
 Mixed "neo" bulk
 Mixed freight
 Monumental Or Building Stone
 Motor Vehicles
 Motorized and other vehicles, including parts
 Other Metal, And Articles Of Metal
 Other Prepared Food Stuffs
 Package goods
 Pharmaceutical Products
 Plastics And Rubber
 Precision Instruments And Apparatus

Printed Products
Pulp, Newsprint, Paper, And Paperboard
Semi-manufactured
Specialized cargo -- outsized, heavy, large cargo
Textiles, Leather, And Articles
Tobacco And Manufactured Tobacco Substitutes
Transportation Equipment N.E.C.
Wood Products
Wood chips and products

Table 4 (Commodities Removed)

Basic chemicals
Cereal grains
Chemical preparations N.E.C.
Coal
Crude petroleum
Fertilizers
Fuel Oils including aviation turbine
Gasoline
Gravel and crushed stone
Live animals and fish
Liquids and Dry Bulk
Liquids Edible
Meat, fish, and preparations
Metallic ores
Natural sands except metal-bearing
Non-metallic mineral products N.E.C.
Other crops
Other and Unknown
Other Dry Bulk
Refined petroleum products N.E.C.
Waste and Scrap

Establishment Potential

The Establishment Potential Surface for *Sirex noctilio* was produced for the conterminous United States in 1 square kilometer (km²) units by the U.S. Forest Service, Forest Health Technology Enterprise Team's (FHTET) Invasive Species Steering Committee. The product's intended use in conjunction with the Introduction Potential Surface is to develop a Susceptibility Potential Surface for *Sirex noctilio*. Four primary datasets with standardized values from 0 to 10 were used as variables in the analysis. Each dataset was multiplied by its arithmetic weight (Table 7) and the resultant values were combined in a weighted overlay (Eastman 1999). The final Establishment Potential Surface output values also range from 0 to 10; with 10 being the highest potential of establishment.

Four Primary Data sets were used in the construction of the Establishment Potential Surface. These primary data sets were: Total Pine Basal Area, Soil Wetness Dryness Index, Host Species, and Urban Forest.

Reference

Eastman, J.R. 1999. IDRISI 32: Guide to GIS and Image Processing Volume 2. Software Manual. Worcester, MA: Clark Labs, Clark University.

- 1) **Total Pine Basal Area.** Source: Basal Area (BA) measurements from the US Forest Service, Forest Inventory and Analysis (FIA) data. Units are in square feet of tree basal area per acre. All North American pine species data from FIA were used to create this data set (measurement years and cycles by location can be found in Appendix A). The "Total Pine Basal Area" data set is host species total basal area. In countries where *Sirex noctilio* is present, it has been seen that dense areas within a stand have been attacked and thinned areas within the same stand have not been attacked. Therefore, total basal area was used to assign a potential of attack value to each 1 kilometer pixel as shown in Table 5.
- 2) **Soil Wetness Dryness Index (SOIL_WDI).** Source: USDA Forest Service Forest Health Technology Enterprise Team (FHTET) Fort Collins, Colorado. The Dryness Index (DI) is a measure of the wetness of a soil. The DI is designed to parallel the amount of water that a soil contains and makes available to plants under normal climatic conditions. Maps were generated by assigning a DI value to the dominate soil series in each of the polygons comprising the State Soil Geographic (STATSGO) database. The DI values for each soil series were determined from the taxonomic subgroup, textural family, drainage class, and slope class of every soil series (USDA Forest Service FHTET "Mapping Risk from Forest Insects and Diseases" (in press)). These data have values that range from 0 - 100. Where 0 is very dry, 100 is open water, values close to 50 are considered optimal with respect to soil wetness dryness. These data were reclassified into 10 classes using Table 6.
- 3) **Host Species.** Source: USDA Forest Service, Forest Inventory and Analysis (FIA) data. See Appendix B for a list of the host species and their potential to establishment.
- 4) **Urban Forest.** Source: Two primary data sets were used in the construction of the Urban forest: **A)** A polygon data set from Environmental Systems Research Institute (ESRI) that depicts Cities in the United States. These City polygons were included as standard spatial data with the shipment of ArcGIS ver 9.1 in the year 2005 and **B)** National Land Cover Data (NLCD) from the USDA Natural Resources Conservation Service (NRCS). Through inspection of the USDA Plant Hardiness map coupled with minimum temperatures where host species can exist from the USDA Plants data base it was concluded that all cities in the Lower 48 States of the US could grow host species in the very high susceptible category (Appendix B). First the City polygons were converted to 1000 meter cells (CITY GRID). Next a subset forest type of the NLCD data (at 30 meter resolution) was extracted. This NLCD forest type was labeled Evergreen Forest (GRID Value 42). The NLCD Evergreen Forest type was resampled to 1000 meter cell resolution; however, the percent of cells of 30 meter NLCD Evergreen Forest that made up the entire 1000 meter cell was maintained as an attribute (NLCD Evergreen Forest GRID). Finally, the City GRID was overlain with the NLCD Evergreen Forest GRID (where the NLCD Evergreen Forest GRID has 30 percent or more Evergreen forest). An additional data set depicting only Monterey Pine Forest for California (South of San Francisco county and North of Monterey County approximately 100 miles inland from the coast) were included in this Urban Forest Data set. These Monterey Pine Forest are from the USDA Forest Service Remote Sensing lab in Sacramento, California. These data were combined with the Host Species data using a maximum overlay process. The Urban Forest was considered to be comprised of highly susceptible host species.

All 4 data sets were combined into a weighted overlay with weight values found in Table 7.

Table 5

Basal Area (Square Feet of Basal Area per Acre)	Rating
GT or EQ to 1 and LT 5	1
GT or EQ to 5 and LT 16	2
GT or EQ to 16 and LT 29	3
GT or EQ to 29 and LT 44	4
GT or EQ to 44 and LT 62	5
GT or EQ to 62 and LT 82	6
GT or EQ to 82 and LT 106	7
GT or EQ to 106 and LT 136	8
GT or EQ to 136 and LT 181	9
GT 181	10

Table 6

Soil Wetness Dryness Value	Value
0 - 5	10
6 - 10	9
11 - 15	8
16 - 20	7
21 - 25	6
26 - 30	5
31 - 35	4
36 - 40	3
41 - 45	2
46 - 50	1
51 - 55	2
56 - 60	3
61 - 65	4
66 - 70	5
71 - 75	6
76 - 80	7
81 - 85	8
86 - 90	9
91 - 95	10
96 - 100	0

Table 7

Data Set	Weight
Basal Area	40%
*Host Species	40%
SOIL_WDI	20%

*Urban Forest was combined into the Host Species data set. The combination process was a maximum overlay. Urban Forest is considered to contain the highest susceptible host species for *Sirex noctilio*. Therefore, the maximum

overlay process accounts for the highest susceptible species in the event of a spatial coincidence with the FIA host species data and urban forest data.

With four primary data sets the pixel values were standardized using a scale from 0 - 10 and combined into the final "Establishment Potential Surface." This is accomplished by multiplying the pixel value of each dataset by an arithmetic weight assigned to the dataset then summing the results (Eastman 1999). The arithmetic weights assigned to each dataset are as follows: Basal Area = 40%, Host Species = 40% and Soil Wetness Dryness Index = 20%. Note that the sum of the weights equals 100 percent. Therefore, the final output for the Establishment Potential Surface ranges from 0 - 10 where 0 has low establishment potential and 10 has the highest establishment potential.

Susceptibility potential to *Sirex noctilio* is calculated by the following arithmetic overlay:

Variables	Arithmetic Weights
Potential of Establishment	50%
Potential of Introduction	50%

The data were then reclassified into 5 classes using Jenk's Natural Breaks. These classes are as follows:

Little or No
Low
Medium
High
Very High

Process software and version: ArcGIS ver 9.1, Spatial Analyst, and Model Builder

Process date: 5-9-2006

Tool name: Sirex_newyork

Model Name: Sirex_fin

***Language of dataset:** en

Time period of content:

Time period information:

Single date/time:

Calendar date: 7-2-2007

Currentness reference:

Publication date

Status:

Progress: Planned

Maintenance and update frequency: As needed

Spatial domain:

Bounding coordinates:

***West bounding coordinate:** -131.718010

***East bounding coordinate:** -50.048796

***North bounding coordinate:** 54.232833

***South bounding coordinate:** 17.231111

Local bounding coordinates:

***Left bounding coordinate:** -2554594.365555

***Right bounding coordinate:** 3399405.639199

***Top bounding coordinate:** 3455151.332115

***Bottom bounding coordinate:** -56848.670690

Keywords:

Theme:

Theme keywords: Forest Pathogen, Exotic, Sirex Woodwasp, *Sirex noctilio*, Susceptibility, sampling

Place:

Place keywords: Conterminous United States

Place keyword thesaurus: Lower 48 States

Access constraints: None

Use constraints:

None

Point of contact:

Contact information:

Contact organization primary:

Contact person: Marla C. Downing

Contact organization: Forest Health Technology Enterprise Team (FHTET) Forest Health Protection

Contact position: FHTET Lead, Biological Scientist

Contact address:

Address type: mailing and physical address

Address:

2150 Centre Avenue, Bldg A, Suite 331

City: Fort Collins

State or province: Colorado

Postal code: 80526-1891

Country: USA

Contact voice telephone: 970-295-5843

Contact electronic mail address: mdowning@fs.fed.us

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

Browse graphic:

Browse graphic file name: http://www.fs.fed.us/foresthealth/technology/invasives_sirexnoctilio_riskmaps.shtml

Browse graphic file type: JPEG

Data set credit:

Michael F. Tuffly

Steering Committee:

Marla C. Downing, FHTET Lead
Daniel M. Borchert, APHIS PPQ
Donald A. Duerr, USFS R8
Dennis A. Haugen, USFS NA
Frank H. Koch, USFS SRS
Frank J. Krist Jr., USFS FHTET
Frank J. Sapio, USFS FHTET
Bill D. Smith, USFS SRS
Borys M. Tkacz, USFS FHP

Security information:

Security classification: Unclassified

***Native dataset format:** Raster Dataset

***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: Forest Health Technology Enterprise Team (FHTET) USDA Forest Service

Online linkage: <http://www.fs.fed.us/foresthealth/technology/products.shtml>

Process contact:

Contact information:

Contact organization primary:

Contact person: Marla C. Downing

Contact organization: Forest Health Technology Enterprise Team (FHTET) USDA Forest Service

Contact position: FHTET Lead, Biological Scientist

Contact address:

Address type: mailing and physical address

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Country: USA

Contact voice telephone: 970-295-5843

Contact electronic mail address: mdowning@fs.fed.us

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

Spatial Reference Information:

Horizontal coordinate system definition:

Coordinate system name:

***Projected coordinate system name:** NAD_1983_Albers

***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

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

Distribution Information:

Resource description: Downloadable Data

Standard order process:

Digital form:

Digital transfer information:

***Transfer size:** 1.738

***Dataset size:** 1.738

Metadata Reference Information:

***Metadata date:** 20051123

Metadata review date: 20051101

***Language of metadata:** en

Metadata contact:

Contact information:

Contact organization primary:

Contact person: Marla C. Downing

Contact organization: Forest Health Technology Enterprise Team (FHTET) USDA Forest Service

Contact position: FHTET, Lead and Biological Scientist

Contact address:

Address type: mailing and physical address

Address:

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Country: USA

Contact voice telephone: 970-295-5843

Contact electronic mail address: mdowning@fs.fed.us

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

***Metadata standard name:** FGDC Content Standards for Digital Geospatial Metadata

***Metadata standard version:** FGDC-STD-001-1998

***Metadata time convention:** local time

Metadata security information:

Metadata security classification: Unclassified

Metadata extensions:

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

***Profile name:** ESRI Metadata Profile

Appendix A

Used for the construction of the Distribution Centers data set.

Intermodal Terminal Facilities

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: USDOT/BTS

Publication_Date: 2003

Title: Intermodal Terminal Facilities

Geospatial_Data_Presentation_Form: vector digital data

Publication_Information:

Publication_Place: Washington DC

Publisher: Bureau of Transportation Statistics (BTS)

Online_Linkage: <<http://www.bts.gov/ntda>>

Larger_Work_Citation:

Citation_Information:

Originator: Bureau of Transportation Statistics (BTS)

Publication_Date: 2003

Title: Intermodal Terminal Facilities

Geospatial_Data_Presentation_Form: vector digital data

Publication_Information:

Publication_Place: Washington DC

Publisher: Bureau of Transportation Statistics (BTS)

Online_Linkage: <<http://www.bts.gov/gis/>>

Description:

Abstract:

This is a public dataset for the Department of Transportation, Bureau of Transportation Statistics. The public database consists of four tables. One of the tables is a spatial table: INTERMODAL_FACILITY. The three other tables consist of attribute data for the database: INTERMODAL_CARGO, INTERMODAL_COMMODITY and INTERMODAL_DIRECTIONALITY. This database was based on the requirements from the Commodity Flow Survey and with the different modes of DOT, supervised by BTS. The database will extend its design to support all of the modes within the DOT and in reference to modes involved with Intermodal transfer.

Purpose:

This is a public dataset for the Department of Transportation, Bureau of Transportation Statistics for internal use in GIS efforts. The data can be utilized alone or in conjunction with various networks developed for the data.

Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2002

Currentness_Reference: August 2002

Status:

Progress: In work

Maintenance_and_Update_Frequency: As needed

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -165.436110

East_Bounding_Coordinate: -66.002000

North_Bounding_Coordinate: 64.807090

South_Bounding_Coordinate: 18.439000

Keywords:

Theme:

Theme_Keyword_Thesaurus: Transport Amenities

Theme_Keyword: Intermodal Facility

Theme:

Theme_Keyword_Thesaurus: Transport

Theme_Keyword: Intermodal

Theme:

Theme_Keyword_Thesaurus: Transference

Theme_Keyword: Transportation

Theme:

Theme_Keyword_Thesaurus: Geographical Reference

Theme_Keyword: Point

Theme:

Theme_Keyword_Thesaurus: Transference Presence

Theme_Keyword: Transfer Locations

Place:

Place_Keyword: USA

Place_Keyword: United States

Place_Keyword: United States of America

Temporal:

Temporal_Keyword: 2003

Access_Constraints: The access of this data is not restricted.

Use_Constraints:

None. Acknowledgment of the Bureau of Transportation Statistics (BTS) National Transportation Atlas Databases (NTAD) 2003 would be appreciated in products derived from these data.

Point_of_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: USDOT/BTS

Contact_Person: Mark Bradford

Contact_Position: Project Manager

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Address_Type: mailing and physical address

Address: 400 7th Street, SW - Room 3140

City: Washington

State_or_Province: DC

Postal_Code: 20590

Country: USA

Contact_Voice_Telephone: (202) 366-6810

Native_Data_Set_Environment:

Microsoft Windows NT Version 4.0 (Build 1381) Service Pack 6; ESRI ArcCatalog 8.3.0.800

Cross_Reference:

Citation_Information:

Originator: Bureau of Transportation Statistics (BTS)

Publication_Date: 2003

Title: Intermodal Terminal Facilities

Geospatial_Data_Presentation_Form: vector digital data

Publication_Information:

Publication_Place: Washington DC

Publisher: Bureau of Transportation Statistics (BTS)

Online_Linkage: <<http://www.bts.gov/gis/>>

Larger_Work_Citation:

Citation_Information:

Originator: Bureau of Transportation Statistics (BTS)

Publication_Date: 2003

Geospatial_Data_Presentation_Form: vector digital data

Publication_Information:

Publication_Place: Washington DC

Publisher: Bureau of Transportation Statistics (BTS)

Online_Linkage: <<http://www.bts.gov/gis/>>

Data_Quality_Information:

Logical_Consistency_Report:

A single coordinate pair for GIS reference represents all points. A unique id number relates the records to other tables. A parent id is required, which may be used to aggregate to its facility, which is the granularity of the publicly released data.

Completeness_Report:

All records require geocoding, mode type, facility type, unique name combination, and unique id to be included in the final dataset.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

Geocode source holds the source of the spatial coordinates, particular sources have varying spatial accuracy and is noted below.

Quantitative_Horizontal_Positional_Accuracy_Assessment:

Horizontal_Positional_Accuracy_Value: GDT98Streets

Horizontal_Positional_Accuracy_Explanation:

- The original digital source of line segment, such as a Census Bureau 1980 GBF/DIME File or a USGS 1:100,000 scale DLG-3. - Scale 1: 24,000

- For line segments that originated with the USGS DLG-3 files, the FCC is based on the USGS classification code in the DLG-3 file. For line segments that originated with the 1980 GBF / DIME Files, the FCC is based on the NS code and other feature identification content of the GBF/DIME -File.

- Latitude/longitude Data: except for DIME format (ASCII) boundary files, all latitude and longitude coordinates are signed and have six decimal places. Northern latitude is positive (0 degrees to 90 degrees), southern latitude is negative (0 degrees to -90 degrees). West longitude are negative (0 degrees to -180 degrees), and longitude are positive (0 degrees to 180 degrees)

- DIME format boundary file coordinates are expressed as all positive values with six implied decimal places. Any longitude west of 180 degrees is expressed in increasing, rather than decreasing values.

·Projection using latitude/longitude coordinate values with an implied 6 decimal places

·All coordinates are based on the 1983 North American Datum (NAD83).

- As new streets are reported, they are added daily by digital map technicians (DMTs) working in teams assigned to specific geographic areas covering the entire nation. As DMTs work through their particular regions, they concentrate on areas that contain the largest numbers of missing addresses, usually newly developed areas. They apply address ranges to unaddressed street segments, digitized new streets, correct inaccurate segment shapes, and add exits and turn or one-way restrictions. Each addition is verified with current maps and other data.

- ARC/INFO format products are available in double precision. Precision refers to the number of bits (single - 32bits, double - 64 bits) used to store coordinate data. Coverages in double precision are slightly more accurate, but larger than those in single precision.

·For more detailed information please see Geographic Data Technology Inc. 1(800) 331.7881 or email to info@gdt1.com

Quantitative_Horizontal_Positional_Accuracy_Assessment:

Horizontal_Positional_Accuracy_Value: Army Corp of Engineers

Quantitative_Horizontal_Positional_Accuracy_Assessment:

Horizontal_Positional_Accuracy_Value: NTAD_Airports

Horizontal_Positional_Accuracy_Explanation:

Airport attributes were obtained from the Federal Aviation Administration's (FAA) National Airspace System Resource Aeronautical Data and the Office of Airline Information (OAI) Enplanement Data. The FAA Data was published by the Aeronautical Information Services (ATA-100) with an Effective Date of 21 February 2002. Horizontal positional accuracy is based on coordinate data provided in the FAA National Airspace System Resource Aeronautical Dataset (Effective 21 February 2002). These coordinate data identify the approximate location of the Airport Reference Point (ARP) as reported by the landing facility on the NFDC (National Flight Data Center) 5010 form. According to NFDC guidelines, the location of the ARP should be reported to a horizontal accuracy of one arc second of latitude and longitude. However, the accuracy of these reported coordinates are not verified by FAA. The records were loaded into a GIS and checked for any unusual or obviously erroneous locations.

Lineage:

Source_Information:

Source_Citation:

Citation_Information:

Originator: Primedia Information Inc. 2002

Publication_Date: 2002

Publication_Time: Bi-Monthly

Title: The Official Railway Guide. Freight Service Edition

Online_Linkage: www.primedia.com

Type_of_Source_Media: paper

Source_Contribution:

Facility information containing cargo, commodity, and directionality. This publication is biannual.

Source_Information:

Source_Citation:

Citation_Information:

Originator: American Authority Port Association

Publication_Date: Unknown

Publication_Time: Unknown

Title: American Authority Port Association

Online_Linkage: www.aapa-ports.org

Type_of_Source_Media: online

Source_Citation_Abbreviation: AAPA

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Publication_Date: Unknown

Title: Aberdeen and Rockfish

Online_Linkage: www.aberdeen-rockfish.com/

Type_of_Source_Media: online

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Publication_Date: Unknown

Title: AIR CANADA CARGO

Online_Linkage: www.aircanada.ca/cargo/

Type_of_Source_Media: online

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Title: AIR CARGO WORLD ONLINE/2001 AIR EXPRESS DIRECTORY

Online_Linkage: www.aircargoworld.com/

Type_of_Source_Media: paper

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Publication_Date: Unknown

Title: AIR CARGO WORLD ONLINE/2002 AIRPORT DIRECTORY

Online_Linkage: www.aircargoworld.com/

Type_of_Source_Media: online

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Title: AIR CARGO WORLD ONLINE/2002 FORWARDER DIRECTORY

Online_Linkage: www.aircargoworld.com/

Type_of_Source_Media: online

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Title: AIR JAMAICA

Online_Linkage: www.airjamaica.com/

Type_of_Source_Media: online

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Title: AMERICAN TRANS AIR

Online_Linkage: www.ata.com/

Type_of_Source_Media: online

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Title: ANACOSTIA AND PACIFIC COMPANY, INC.

Online_Linkage: www.anacostia.com/

Type_of_Source_Media: online

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Title: ARKANSAS - MISSOURI RAIL ROAD

Online_Linkage: www.arkansasmissouri-rr.com/

Type_of_Source_Media: online

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Title: Burlington Northern Santa Fe

Online_Linkage: www.bnsf.com/

Type_of_Source_Media: online

Source_Citation_Abbreviation: BNSF

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Title: CANADIAN NATIONAL

Online_Linkage: www.cn.ca/index.shtml

Type_of_Source_Media: online

Source_Citation_Abbreviation: CN

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Title: INTERMODAL CARTAGE COMPANY

Online_Linkage: www.imcg.com/

Type_of_Source_Media: online

Source_Citation_Abbreviation: IMCG

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Publication_Date: Unknown

Title: MARYLAND PORT AUTHORITY

Online_Linkage: www.mpa.state.md.us/

Type_of_Source_Media: online

Source_Citation_Abbreviation: MPA

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Title: Norfolk Southern

Online_Linkage: www.nscorp.com/nscorp/html/home.html

Type_of_Source_Media: online

Source_Citation_Abbreviation: NS

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Title: OMNITRAX

Online_Linkage: www.omnitrax.com/

Type_of_Source_Media: online

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Title: PACIFIC COAST CONTAINER

Online_Linkage: www.pacificcoastcontainer.net/

Type_of_Source_Media: online

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Title: PORT OF LOS ANGELES

Online_Linkage: www.portoflosangeles.org/

Type_of_Source_Media: online

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Originator: U.S. Army Corp of Engineers

Publication_Time: 2001

Title: NDC Publications and U.S. Waterway Data (Port Report)

Edition: 7

Online_Linkage: www.hecsa.usace.army.mil/

Type_of_Source_Media: CD-ROM

Source_Citation_Abbreviation: USACE

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Title: THE RAIL-BRIDGE CORPORATION

Online_Linkage: www.railbridge.com/

Type_of_Source_Media: online

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Title: VIRGINIA PORT AUTHORITY

Online_Linkage: www.vaport.com/

Type_of_Source_Media: online

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Originator: MODALGISTICS

Publication_Date: Unknown

Publication_Time: Unknown

Title: MODALGISTICS

Online_Linkage: [<http://www.modalgistics.com/>](http://www.modalgistics.com/)

Type_of_Source_Media: online

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Originator: FEDERAL MOTOR CARRIER SAFETY ADMINISTRATION

Publication_Date: Unknown

Publication_Time: Unknown

Title: FEDERAL MOTOR CARRIER SAFETY ADMINISTRATION

Online_Linkage: [<http://www.dot.gov/>](http://www.dot.gov/)

Type_of_Source_Media: online

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Originator: PACIFIC HARBOR LINE, INC.

Publication_Date: Unknown

Publication_Time: Unknown

Title: PACIFIC HARBOR LINE, INC.

Online_Linkage: <<http://www.anacostia.com/phl/faciliti.html>>

Type_of_Source_Media: online

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Originator: PORT OF INDIANA

Publication_Date: Unknown

Publication_Time: Unknown

Title: PORT OF INDIANA

Online_Linkage: <<http://www.portsofindiana.com/?pageRef=87>>

Type_of_Source_Media: online

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Originator: PORT OF LONG BEACH

Publication_Date: Unknown

Publication_Time: Unknown

Title: PORT OF LONG BEACH

Online_Linkage: <<http://www.polb.com>>

Type_of_Source_Media: online

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Originator: PORT OF OAKLAND

Publication_Date: Unknown

Publication_Time: Unknown

Title: PORT OF OAKLAND

Online_Linkage: <<http://www.portofoakland.com/>>

Type_of_Source_Media: online

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Originator: PORT OF TAMPA

Publication_Date: Unknown

Publication_Time: Unknown

Title: PORT OF TAMPA

Online_Linkage: <http://www.tampaport.com/display.asp?PAGE_NAME=Home+Page>

Type_of_Source_Media: online

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Originator: United States Postal Service

Publication_Date: Unknown

Publication_Time: Unknown

Title: United States Postal Service

Online_Linkage:

Type_of_Source_Media: Direct Inquiry

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Source_Information:

Source_Citation:

Citation_Information:

Originator: Emery

Publication_Date: Unknown

Publication_Time: Unknown

Title: Emery

Online_Linkage:

Type_of_Source_Media: Direct Inquiry

Source_Contribution:

Facility information containing cargo, commodity, and directionality.

Process_Step:

Process_Description:

The use of this data for network or attribute related queries should note that supplementary data is stored in a separate dbf files. These tables hold pertinent information in a relational database format, ID fields being linked as the primary keys and foreign keys. PU_FAC table's primary key is ID

and is the foreign key in PU_CAR, PU_COM, and PU_DIR, identified by FAC_ID. The shape files match the corresponding dbf files, no conversion is needed to utilize either format for analysis. Data is based on various public and private published sources, i.e. IANA Railway Guide, WWW, Army Corps of Engineers - Port Report. These sources are frequently updated and revised, any particular inquiries should be directed to the data source of the record or records.

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Entity point

Point_and_Vector_Object_Count: 3279

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Geographic:

Latitude_Resolution: 0.000001

Longitude_Resolution: 0.000001

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: Facility

Entity_Type_Definition:

An Intermodal facility is defined as generalized descriptors for collated customers and services. The PU_FAC table contains facilities that support two or more modes of transportation. These facilities can contain an address, but must contain a latitude and longitude.

Entity_Type_Definition_Source: USDOT/BTS

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_Definition: Primary Key

Attribute_Definition_Source: BTS

Attribute:

Attribute_Label: NAME

Attribute_Definition: Unique name for the facility location

Attribute_Definition_Source: BTS

Attribute:

Attribute_Label: TYPE

Attribute_Definition:

Name of the function of the primary function of the facility. Truck - Rail - Port - Air

Attribute_Definition_Source: BTS

Attribute:

Attribute_Label: MODE_TYPE

Attribute_Definition: Defines all the modes that are affiliated with this facility.

Attribute_Definition_Source: BTS

Attribute_Domain_Values:

Attribute:

Attribute_Label: CITY

Attribute_Definition: The city for the facilities location

Attribute_Definition_Source: BTS

Attribute:

Attribute_Label: STATE

Attribute_Definition: The state abbreviation for the facilities location

Attribute_Definition_Source: BTS

Attribute_Domain_Values:

Attribute:

Attribute_Label: FIPS

Attribute_Definition: Federal Information Processing Standards for the states

Attribute_Definition_Source: BTS

Attribute:

Attribute_Label: ZIP

Attribute_Definition: The zip code for the facilities location

Attribute_Definition_Source: BTS

Attribute:

Attribute_Label: ZIP2

Attribute_Definition: Zip Code Plus 4

Attribute_Definition_Source: BTS

Attribute:

Attribute_Label: PARCEL

Attribute_Definition: Indicates if a mail carrier is affiliated with this location

Attribute_Definition_Source: BTS

Attribute:

Attribute_Label: LATITUDE

Attribute_Definition: Latitude for the location

Attribute_Definition_Source: BTS

Attribute:

Attribute_Label: LONGITUDE

Attribute_Definition: Longitude for the location

Attribute_Definition_Source: BTS

Attribute:

Attribute_Label: GEOSOURCE

Attribute_Definition:

Source information of the latitude/longitude: either pre-determined or geocoded with Dynamap 2000

Attribute_Definition_Source: BTS

Attribute:

Attribute_Label: CREATEDATE

Attribute_Definition: The date the information was placed into the database

Attribute_Definition_Source: BTS

Attribute:

Attribute_Label: CREATOR

Attribute_Definition: The group of individuals responsible for populating that record

Attribute_Definition_Source: BTS

Attribute:

Attribute_Label: MODDATE

Attribute_Definition: Date of modifications to that facility's entry in the database

Attribute_Definition_Source: BTS

Attribute:

Attribute_Label: ASSOC

Attribute_Definition: List of other major business associated with this facility

Attribute_Definition_Source: BTS

Attribute:

Attribute_Label: BTSVERSION

Attribute_Definition: BTS tracking number

Attribute_Definition_Source: BTS

Attribute:

Attribute_Label: VERSION

Attribute_Definition:

The VERSION is a 2-digit number that will be incremented for all records in the database whenever a new release is distributed.

Attribute_Definition_Source: BTS

Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 00

Range_Domain_Maximum: 99

Attribute:

Attribute_Label: REVISION

Attribute_Definition:

REVISION is a 2-digit number that will be incremented individually for each record whenever a change is made to one of its fields.

Attribute_Definition_Source: BTS

Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 00

Range_Domain_Maximum: 99

Overview_Description:

Entity_and_Attribute_Overview:

Facilities a.Large scale operation that services various public and private customers in the transfer of various cargoes. b.Only successful geocoding is included in a dataset and reported in the attributes latitude, longitude, and geosource.

Entity_and_Attribute_Detail_Citation:

Directionality is directly related to the facility table, includes cargo or commodity records that have mode 1 to mode 2 restrictions or limitations requiring it to flow in only one direction.

Entity_and_Attribute_Detail_Citation:

Cargo is directly related to the facility table, used aggregated classifications of cargo types and commodity specific cargo types.

Entity_and_Attribute_Detail_Citation:

Commodity is directly related to the facility table, includes classifications based on the Commodity Flow Survey (USDOT/BTS) categorizations.

Distribution_Information:

Distributor:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: Bureau of Transportation Statistics (BTS)

Contact_Address:

Address_Type: mailing and physical address

Address: Bureau of Transportation Statistics (BTS)

Address: 400 Seventh Street, S.W.

City: Washington

State_or_Province: District of Columbia

Postal_Code: 20590

Country: USA

Contact_Voice_Telephone: 202-366-DATA

Contact_Facsimile_Telephone: 202-366-3640

Contact_Electronic_Mail_Address: answers@bts.gov

Resource_Description: National Transportation Atlas Databases (NTAD) 2003

Distribution_Liability: None

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Format_Name: ESRI Shapefile

Format_Version_Date: 2003

Transfer_Size: 5.438

Digital_Transfer_Option:

Online_Option:

Computer_Contact_Information:

Network_Address:

Network_Resource_Name: <<http://www.bts.gov/gis/>>

Access_Instructions:

Anyone with access to the World Wide Web may connect to the BTS server. To access a specific database, go to the address listed above in the Network Resource Name. The visitor can create a package of the dataset for download in a .zip format (i.e. MS-DOS zip archive). This archived package is stored in a temporary file that can then be copied to the visitor's home directory.

Offline_Option:

Offline_Media: CD-ROM

Fees: None

Ordering_Instructions:

Call 202-366-DATA, fax 202-366-3640, or E-mail (answers@bts.gov) BTS to request the National Transportation Atlas Databases (NTAD) 2003 CD-ROM. This and other BTS products may be ordered from the BTS Internet website (<<http://www.bts.gov/gis/>>).

Technical_Prerequisites: Basic database skills to relate dependent tables.

Available_Time_Period:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2003

Metadata_Reference_Information:

Metadata_Date: 20030422

Metadata_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: Bureau of Transportation Statistics (BTS)

Contact_Address:

Address_Type: mailing and physical address

Address: 400 Seventh Street, S.W.

Address: Bureau of Transportation Statistics (BTS)

City: Washington

State_or_Province: DC

Postal_Code: 20590

Country: USA

Contact_Voice_Telephone: 202-366-DATA

Contact_Facsimile_Telephone: 202-366-3640

Contact_Electronic_Mail_Address: answers@bts.gov

Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001-1998

Metadata_Time_Convention: local time

Metadata_Access_Constraints: The access of this data is not restricted.

Metadata_Use_Constraints: The use of this data is not restricted.

Metadata_Extensions:

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

Profile_Name: ESRI Metadata Profile

Appendix B

FIA Measurement Year

State	Source	Measyear	FIA Cycle	Notes
Alabama	FIA Plots	1997	7	
Alabama	FIA Plots	1998	7	
Alabama	FIA Plots	1999	7	
Alabama	FIA Plots	2000	7	
Alabama	FIA Plots	2001	7	
Arizona	FIA Plots	1984	2	
Arizona	FIA Plots	1985	2	
Arizona	FIA Plots	1990	2	
Arizona	FIA Plots	1991	2	
Arizona	FIA Plots	1995	2	
Arizona	FIA Plots	1996	2	
Arizona	FIA Plots	1997	2	
Arizona	FIA Plots	1998	2	
Arizona	FIA Plots	1999	2	
Arizona	FIA Plots	2000	2	
Arizona	FIA Plots	2001	2	
Arkansas	FIA Plots	1900	1	
Arkansas	FIA Plots	1994	1	
Arkansas	FIA Plots	1995	1	
Arkansas	FIA Plots	1996	1	
California	FIA Plots	1991	3	
California	FIA Plots	1992	3	
California	FIA Plots	1993	3	
California	FIA Plots	1994	3	
California	FIA Plots	1997	3	
California	FIA Plots	1998	3	
California	Region 5, Pacific Southwest Region Plots	1980		N/A
California	Region 5, Pacific Southwest Region Plots	1984		N/A
California	Region 5, Pacific Southwest Region Plots	1993		N/A
California	Region 5, Pacific Southwest Region Plots	1994		N/A
California	Region 5, Pacific Southwest Region Plots	1995		N/A
California	Region 5, Pacific Southwest Region Plots	1996		N/A
California	Region 5, Pacific Southwest Region Plots	1997		N/A
California	Region 5, Pacific Southwest Region Plots	1998		N/A
California	Region 5, Pacific Southwest Region Plots	1999		N/A

California	Region 5, Pacific Southwest Region Plots	2000	N/A	
California	Region 5, Pacific Southwest Region Plots	1993	N/A	
California	Region 5, Pacific Southwest Region Plots	1995	N/A	
California	Region 5, Pacific Southwest Region Plots	1996	N/A	
California	Region 5, Pacific Southwest Region Plots	1997	N/A	
Colorado	FIA Plots	1979	1	
Colorado	FIA Plots	1981	1	
Colorado	FIA Plots	1982	1	
Colorado	FIA Plots	1983	1	
Colorado	FIA Plots	1984	1	
Colorado	FIA Plots	1993	1	
Colorado	FIA Plots	1997	1	
Colorado	FIA Plots	2001	1	NF Lands Only
Colorado	FIA Plots	2002	2	NF Lands Only
Colorado	FIA Plots	2003	2	NF Lands Only
Connecticut	FIA Plots	1997	4	
Connecticut	FIA Plots	1998	4	
Delaware	FIA Plots	1999	4	
Florida	FIA Plots	1900	2	
Georgia	FIA Plots	1900	7	
Idaho	FIA Plots	1981	1	
Idaho	FIA Plots	1990	1	
Idaho	FIA Plots	1991	1	
Idaho	FIA Plots	1992	1	
Idaho	FIA Plots	1993	1	
Idaho	FIA Plots	1994	1	
Idaho	FIA Plots	1995	1	
Idaho	FIA Plots	1996	1	
Idaho	FIA Plots	1997	1	
Idaho	FIA Plots	1998	1	
Idaho	FIA Plots	1999	1	
Idaho	FIA Plots	2000	1	
Idaho	FIA Plots	2001	1	
Idaho	FIA Plots	2002	1	
Idaho	FIA Plots	2004	1	
Illinois	FIA Plots	No Year Listed	4	
Illinois	FIA Plots	1987	4	
Illinois	FIA Plots	1996	4	
Illinois	FIA Plots	1997	4	
Illinois	FIA Plots	1998	4	
Indiana	FIA Plots	1998	5	
Indiana	FIA Plots	1999	5	
Indiana	FIA Plots	2000	5	
Indiana	FIA Plots	2001	5	
Indiana	FIA Plots	2002	5	

Indiana	FIA Plots	2003	5
Iowa	FIA Plots	1999	4
Iowa	FIA Plots	2000	4
Iowa	FIA Plots	2001	4
Iowa	FIA Plots	2002	4
Iowa	FIA Plots	2003	4
Kansas	FIA Plots	1992	4
Kansas	FIA Plots	1993	4
Kansas	FIA Plots	1994	4
Kentucky	FIA Plots	1999	4
Kentucky	FIA Plots	2000	4
Kentucky	FIA Plots	2001	4
Kentucky	FIA Plots	2002	4
Kentucky	FIA Plots	2003	4
Louisiana	FIA Plots	2000	3
Louisiana	FIA Plots	2001	3
Louisiana	FIA Plots	2002	3
Louisiana	FIA Plots	2003	3
Louisiana	FIA Plots	2004	3
Maine	FIA Plots	1999	5
Maine	FIA Plots	2000	5
Maine	FIA Plots	2001	5
Maine	FIA Plots	2002	5
Maine	FIA Plots	2003	5
Maryland	FIA Plots	1999	5
Maryland	FIA Plots	2000	5
Massachusetts	FIA Plots	1997	4
Massachusetts	FIA Plots	1998	4
Michigan	FIA Plots	2000	6
Michigan	FIA Plots	2001	6
Michigan	FIA Plots	2002	6
Michigan	FIA Plots	2003	6
Minnesota	FIA Plots	1982	5
Minnesota	FIA Plots	1984	5
Minnesota	FIA Plots	1986	5
Minnesota	FIA Plots	1987	5
Minnesota	FIA Plots	1988	5
Minnesota	FIA Plots	1989	5
Minnesota	FIA Plots	1990	5
Minnesota	FIA Plots	1991	5
Mississippi	FIA Plots	1900	1
Mississippi	FIA Plots	1992	1
Mississippi	FIA Plots	1993	1
Mississippi	FIA Plots	1994	1
Missouri	FIA Plots	1998	5

Missouri	FIA Plots	1999	5
Missouri	FIA Plots	2000	5
Missouri	FIA Plots	2001	5
Missouri	FIA Plots	2002	5
Missouri	FIA Plots	2003	5
Montana	FIA Plots	1988	1
Montana	FIA Plots	1989	1
Montana	FIA Plots	1990	1
Montana	FIA Plots	1993	1
Montana	FIA Plots	1994	1
Montana	FIA Plots	1995	1
Montana	FIA Plots	1996	1
Montana	FIA Plots	1997	1
Montana	FIA Plots	1998	1
Montana	FIA Plots	1999	1
Montana	FIA Plots	2000	1
Montana	FIA Plots	2001	1
Nebraska	FIA Plots	2001	4
Nebraska	FIA Plots	2002	4
Nebraska	FIA Plots	2003	4
Nebraska	FIA Plots	2004	4
Nevada	FIA Plots	1978	1
Nevada	FIA Plots	1979	1
Nevada	FIA Plots	1980	1
Nevada	FIA Plots	1981	1
Nevada	FIA Plots	1982	1
Nevada	FIA Plots	1994	1
Nevada	FIA Plots	1995	1
Nevada	FIA Plots	1996	1
Nevada	FIA Plots	1997	1
New Hampshire	FIA Plots	1996	5
New Hampshire	FIA Plots	1997	5
New Jersey	FIA Plots	1998	4
New Jersey	FIA Plots	1999	4
New Mexico	FIA Plots	1986	2
New Mexico	FIA Plots	1987	2
New Mexico	FIA Plots	1993	2
New Mexico	FIA Plots	1994	2
New Mexico	FIA Plots	1996	2
New Mexico	FIA Plots	1997	2
New Mexico	FIA Plots	1998	2
New Mexico	FIA Plots	1999	2
New Mexico	FIA Plots	2000	2
New Mexico	FIA Plots	2001	2
New York	FIA Plots	1991	4

New York	FIA Plots	1992	4		
New York	FIA Plots	1993	4		
New York	FIA Plots	1994	4		
North Carolina	FIA Plots	1998	3		
North Carolina	FIA Plots	1999	3		
North Carolina	FIA Plots	2000	3		
North Carolina	FIA Plots	2001	3		
North Carolina	FIA Plots	2002	3		
North Dakota	FIA Plots	1992	3		
North Dakota	FIA Plots	1994	3		
Ohio	FIA Plots	1990	4		
Ohio	FIA Plots	1991	4		
Ohio	FIA Plots	1992	4		
Oklahoma	FIA Plots	1900	1		
Oklahoma	FIA Plots	1988	1		
Oklahoma	FIA Plots	1989	1		
Oklahoma	FIA Plots	1990	1		
Oklahoma	FIA Plots	1992	1		
Oregon	FIA Plots	No Year Listed	4		
Oregon	FIA Plots	1995	4		
Oregon	FIA Plots	1996	4		
Oregon	FIA Plots	1997	4		
Oregon	FIA Plots	1998	4		
Oregon	FIA Plots	1999	4		
Oregon	Bureau of Land Management Western Oregon Plots	1997		N/A	
Oregon	Region 6, Pacific Northwest Region Plots	1993		N/A	
Oregon	Region 6, Pacific Northwest Region Plots	1994		N/A	
Oregon	Region 6, Pacific Northwest Region Plots	1995		N/A	
Oregon	Region 6, Pacific Northwest Region Plots	1996		N/A	
Oregon	Region 6, Pacific Northwest Region Plots	1997		N/A	
Pennsylvania	FIA Plots	2000	5		
Pennsylvania	FIA Plots	2001	5		
Pennsylvania	FIA Plots	2002	5		
Pennsylvania	FIA Plots	2003	5		
Rhode Island	FIA Plots	1998	4		
South Carolina	FIA Plots	1998	3		
South Carolina	FIA Plots	1999	3		
South Carolina	FIA Plots	2000	3		
South Carolina	FIA Plots	2001	3		
South Carolina	FIA Plots	2002	3		
South Dakota	FIA Plots	No Year Listed	4		
South Dakota	FIA Plots	1900	4		
South Dakota	FIA Plots	1994	4		
South Dakota	FIA Plots	1995	4		
South Dakota	FIA Plots	1996	4		

South Dakota	FIA Plots	1999	4		
Tennessee	FIA Plots	1900	6		
Tennessee	FIA Plots	1996	6		
Tennessee	FIA Plots	1997	6		
Tennessee	FIA Plots	1998	6		
Tennessee	FIA Plots	1999	6		
Texas	FIA Plots	2001	3		
Texas	FIA Plots	2002	3		
Texas	FIA Plots	2003	3		
Utah	FIA Plots	1988	1		
Utah	FIA Plots	1991	1		
Utah	FIA Plots	1992	1		
Utah	FIA Plots	1993	1		
Utah	FIA Plots	1994	1		
Utah	FIA Plots	1995	1		
Utah	FIA Plots	1996	1		
Vermont	FIA Plots	1996	5		
Vermont	FIA Plots	1997	5		
Vermont	FIA Plots	1998	5		
Virginia	FIA Plots	1997	3		
Virginia	FIA Plots	1998	3		
Virginia	FIA Plots	1999	3		
Virginia	FIA Plots	2000	3		
Virginia	FIA Plots	2001	3		
Virginia	FIA Plots	2002	3		
Washington	FIA Plots	1988	3		
Washington	FIA Plots	1989	3		
Washington	FIA Plots	1990	3		
Washington	FIA Plots	1991	3		
Washington	FIA Plots	1998	3		
Washington	Region 6, Pacific Northwest	Region Plots	1993	N/A	
Washington	Region 6, Pacific Northwest	Region Plots	1994	N/A	
Washington	Region 6, Pacific Northwest	Region Plots	1995	N/A	
Washington	Region 6, Pacific Northwest	Region Plots	1996	N/A	
Washington	Region 6, Pacific Northwest	Region Plots	1997	N/A	
West Virginia	FIA Plots	1999	5		
West Virginia	FIA Plots	2000	5		
West Virginia	FIA Plots	2001	5		
West Virginia	FIA Plots	2002	5		
Wisconsin	FIA Plots	1999	6		
Wisconsin	FIA Plots	2000	6		
Wisconsin	FIA Plots	2001	6		
Wisconsin	FIA Plots	2002	6		
Wisconsin	FIA Plots	2003	6		
Wyoming	FIA Plots	1998	2		

Wyoming	FIA Plots	1999	2
Wyoming	FIA Plots	2000	2
Wyoming	FIA Plots	2001	2
Wyoming	FIA Plots	2002	2
Wyoming	FIA Plots	2004	2

Appendix B: Host Species

FIA Code	Common Name	Genus	Species	Potential
124	Monterey pine	<i>Pinus</i>	<i>radiata</i>	Very High
130	Scotch pine	<i>Pinus</i>	<i>sylvestris</i>	Very High
131	loblolly pine	<i>Pinus</i>	<i>taeda</i>	Very High
136	Austrian pine	<i>Pinus</i>	<i>nigra</i>	Very High
105	jack pine	<i>Pinus</i>	<i>banksiana</i>	High
108	lodgepole pine	<i>Pinus</i>	<i>contorta</i>	High
110	shortleaf pine	<i>Pinus</i>	<i>echinata</i>	High
111	slash pine	<i>Pinus</i>	<i>elliottii</i>	High
116	Jeffrey pine	<i>Pinus</i>	<i>jeffreyi</i>	High
122	ponderosa pine	<i>Pinus</i>	<i>ponderosa</i>	High
125	red pine	<i>Pinus</i>	<i>resinosa</i>	High
132	Virginia pine	<i>Pinus</i>	<i>virginiana</i>	High
103	knobcone pine	<i>Pinus</i>	<i>attenuata</i>	Medium
107	sand pine	<i>Pinus</i>	<i>clausa</i>	Medium
112	Apache pine	<i>Pinus</i>	<i>engelmannii</i>	Medium
115	spruce pine	<i>Pinus</i>	<i>glabra</i>	Medium
120	bishop pine	<i>Pinus</i>	<i>muricata</i>	Medium
121	longleaf pine	<i>Pinus</i>	<i>palustris</i>	Medium
123	Table Mountain pine	<i>Pinus</i>	<i>pungens</i>	Medium
126	pitch pine	<i>Pinus</i>	<i>rigida</i>	Medium
128	pond pine	<i>Pinus</i>	<i>serotina</i>	Medium
135	Arizona pine	<i>Pinus</i>	<i>arizonica</i>	Medium
137	Washoe pine	<i>Pinus</i>	<i>washoensis</i>	Medium
101	whitebark pine	<i>Pinus</i>	<i>albicaulis</i>	Low
102	bristlecone pine	<i>Pinus</i>	<i>aristata</i>	Low
104	foxtail pine	<i>Pinus</i>	<i>balfouriana</i>	Low
106	common pinyon	<i>Pinus</i>	<i>edulis</i>	Low
109	Coulter pine	<i>Pinus</i>	<i>coulteri</i>	Low
113	limber pine	<i>Pinus</i>	<i>flexilis</i>	Low
114	southwestern white pine	<i>Pinus</i>	<i>strobiformus</i>	Low
117	sugar pine	<i>Pinus</i>	<i>lambertiana</i>	Low
118	Chihuahua pine	<i>Pinus</i>	<i>leiophylla</i> var. <i>chihuahuana</i>	Low
119	western white pine	<i>Pinus</i>	<i>monticola</i>	Low
127	gray pine	<i>Pinus</i>	<i>sabiniana</i>	Low
129	eastern white pine	<i>Pinus</i>	<i>strobus</i>	Low

133	singleleaf pinyon	<i>Pinus</i>	<i>monophylla</i>	Low
134	border pinyon	<i>Pinus</i>	<i>discolor</i>	Low
138	four-needle pinyon	<i>Pinus</i>	<i>quadrifolia</i>	Low
139	Torrey pine	<i>Pinus</i>	<i>torreyana</i>	Low
140	Mexican pinyon pine	<i>Pinus</i>	<i>cembroides</i>	Low
142	Great Basin bristlecone pine	<i>Pinus</i>	<i>longaeva</i>	Low
143	Arizona pinyon pine	<i>Pinus</i>	<i>monophylla</i> var. <i>fallax</i>	Low