Interior West FIA Geospatial Products – 2005, Metadata

The objective of this document is to describe the geospatial data products created in 2005 by the Interior West (IW) region of the Forest Inventory and Analysis (FIA) Program. The USDA Forest Service FIA program has a need for modeled geospatial information of forest attributes for national and regional-scale analysis. The version of this dataset is a *draft*, intended for review by FIA and other interested parties. The release of this dataset is not intended for use beyond these purposes. Future versions of this dataset will be provided with more complete accuracy assessment as well as documentation of the modeling and analysis procedures.

2005 Geospatial Data Products:

1. Forest/Nonforest Mask
    a. Forest Confidence
    b. Forest Probability
2. Forest Types
    a. Forest Types Confidence
3. Forest Type Groups
    a. Forest Type Groups Confidence
4. Basal Area
    a. Basal Area Average Error
    b. Basal Area Normalized Error
5. Biomass
    a. Biomass Average Error
    b. Biomass Normalized Error
6. Crown Cover
    a. Crown Cover Average Error
    b. Crown Cover Normalized Error
7. Growth
    a. Growth Average Error
    b. Growth Normalized Error
8. QMD
    a. QMD Average Error
    b. QMD Normalized Error
9. SDI
    a. SDI Average Error
    b. SDI Normalized Error
10. Stand Age
    a. Stand Age Average Error
    b. Stand Age Normalized Error
11. TPA
    a. TPA Average Error
    b. TPA Normalized Error
12. Volume
    a. Volume Average Error
    b. Volume Normalized Error
13. Weighted Height
    a. Weighted Height Average Error
    b. Weighted Height Normalized Error

Predicted Attribute:	**Forest/Nonforest Mask**
Grid Name:	IW_FNF21
Values:	Pixel-by-pixel estimate of forest or nonforest class. Integer variable, cell values were predicted as either a 1 (forest) or a 2 (nonforest). A classification value of 0.5 was used as the threshold value to create the forest/nonforest mask.
Description:	*Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
Spatial Data Source:	The methodology used to produce the regional forest attribute 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, but are not limited to: • Elevation, slope, aspect, and other topological derivatives • USGS Mapping Zones, Bailey's Ecoregions, and Unified Ecoregions for Alaska • STATSGO data layers (Lower 48) – Available water capacity, soil bulk density, soil permeability, soil ph, soil porosity, soil plasticity, depth to bedrock, rock volume, soil types, and soil texture • MODIS Vegetation Indices such as EVI, NDVI. • MODIS Vegetation Continuous Fields – Percent tree cover, percent herbaceous cover, and percent bare ground • MODIS fire points for developed from the MODIS Active Fire Maps • MODIS 8-day composites – Multiple dates from the spring, summer, and fall • MODIS 32-day composite images that are cloud-free between the years 2001-2003 • USGS NLCD layer summaries • PRISM temperature and precipitation – Minimums, maximums, and averages Statistical models developed in Rulequest's Cubist and/or See5 data mining software link the FIA plot variables with the imagery and geospatial data. Cubist models utilize decision rules, while See5 models create classification trees. Both models have the advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.

Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**Forest Confidence**
Grid Name:	IW_FNFCNF
Values:	Pixel-by-pixel estimate of forest or nonforest confidence. Continuous float variable, cell values range from 0.5 --to-- 1. Values near 0.5 indicate less confidence in that cell's predicted value, while values near 1 are more confident in that predicted value. The confidence values are an indication of how consistently the classification tree predicted forestland on a pixel-by-pixel basis. The confidence value, therefore, is an indication of goodness of fit of the model and represents the model uncertainty of the classification. It can be used as a valuable supplement to an independent suite of accuracy assessments. However, using the classification confidence value alone does not provide any information as to what category that specific pixel was classified (i.e., forest or nonforest category). This type of information can be gain from examining specific areas from the forest probability map.
Description:	*Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
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	• MODIS 32-day composite images that are cloud-free between the years 2001-2003 • USGS NLCD layer summaries • PRISM temperature and precipitation – Minimums, maximums, and averages Statistical models developed in Rulequest's Cubist and/or See5 data mining software link the FIA plot variables with the imagery and geospatial data. Cubist models utilize decision rules, while See5 models create classification trees. Both models have the advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.
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Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**Forest Probability**
Grid Name:	IW_FNFPRB
Values:	Pixel-by-pixel estimate of forest probability. Continuous float variable, cell values range from 0.0 --to-- 1. Predicted values near 0.0 indicate less probability in that cell being forested, while values near 1 have a higher probability of being forested. Values close to 0.5 indicate a low confidence that the pixel was classified correctly (0.5 was used as the threshold value between forest and nonforest classes). Probability values are determined by recording the (predicted confidence value) for those cells predicted as forest, and (1.0 – predicted confidence value) for those cells predicted as nonforest.
Description:	*Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
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	decision rules, while See5 models create classification trees. Both models have the advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.
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Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**Forest Types**
Grid Name:	IW_FTP
Values:	Pixel-by-pixel estimate of forest type class. Integer variable, cell values were predicted as one of several class codes of forest types, as: 182 – Rocky Mountain Juniper 183 – Western juniper 184 – Juniper woodland 185 – Pinyon juniper woodland 201 – Douglas-fir 221 – Ponderosa pine 223 – Jeffrey pine/ Coulter pine/bigcone Douglas-fir 241 – Western white pine 261 – White fir 262 – Red fir 265 – Engelmann spruce 266 – Engelmann spruce/subalpine fir 267 – Grand fir 268 – Subalpine fir 269 – Blue spruce 270 – Mountain hemlock 281 – Lodgepole pine 301 – Western hemlock 304 – Western redcedar 321 – Western larch 365 – Foxtail pine/bristlecone pine 366 – Limber pine 367 – Whitebark pine 368 – Misc. western softwoods 509 – Bur oak 703 – Cottonwood 706 – Sugarberry/hackberry/elm/green ash 901 – Aspen 902 – Paper birch 925 – Deciduous oak woodland 926 – Evergreen oak woodland 952 – Mesquite woodland 953 – Cercocarpus woodland 954 – Intermountain maple woodland 955 – Misc. western hardwood woodlands
Description:	*Forest Types* are based on the forest type code, which compares live tree stocking of softwoods and hardwoods, and then continues comparing successively smaller subgroups of the preceding aggregation of initial types. The stepwise progression proceeds in most cases until a plurality of an initial type group is identified. Forest type codes are listed in Appendix D of Miles, et. al (2001). *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.

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Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**Forest Types Confidence**
Grid Name:	IW_FTPCNF
Values:	Pixel-by-pixel estimate of forest types confidence. Continuous float variable, cell values range from 0.127 --to-- 1. Values near 0 indicate less confidence in that cell's predicted value, while values near 1 are more confident in that predicted value. The confidence values are an indication of how consistently the classification tree predicted forest types on a pixel-by-pixel basis. The confidence value, therefore, is an indication of goodness of fit of the model and represents the model uncertainty of the classification. It can be used as a valuable supplement to an independent suite of accuracy assessments. However, using the classification confidence value alone does not provide any information as to what category that specific pixel was classified (i.e., forest type category). This type of information can be gain from examining specific areas from the forest types map.
Description:	*Forest Types* are based on the forest type code, which compares live tree stocking of softwoods and hardwoods, and then continues comparing successively smaller subgroups of the preceding aggregation of initial types. The stepwise progression proceeds in most cases until a plurality of an initial type group is identified. Forest type codes are listed in Appendix D of Miles, et. al (2001). *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
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Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**Forest Type Groups**
Grid Name:	IW_FGP
Values:	Pixel-by-pixel estimate of forest type group class. Integer variable, cell values were predicted as one of several class codes of forest type groups, as: 180 – Pinyon/Juniper group 200 – Douglas-fir group 220 – Ponderosa Pine group 240 – Western White Pine group 260 – Fir/Spruce/Mountain Hemlock group 280 – Lodgepole Pine group 300 – Hemlock/Sitka Spruce group 320 – Western Larch group 360 – Other Western Softwoods group 500 – Oak/Hickory group 700 – Elm/Ash/Cottonwood group 900 – Aspen/Birch group 920 – Western Oak group 950 – Other Western Hardwoods group
Description:	*Forest Type Groups* are based on the forest type code, which compares live tree stocking of softwoods and hardwoods, and then continues comparing successively smaller subgroups of the preceding aggregation of initial types. The stepwise progression proceeds in most cases until a plurality of an initial type group is identified. Forest type codes were lumped into forest type group codes as per Appendix D of Miles, et. al (2001). *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
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Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**Forest Type Groups Confidence**
Grid Name:	IW_FGPCNF
Values:	Pixel-by-pixel estimate of forest type groups confidence. Continuous float variable, cell values range from 0.127 --to-- 1. Values near 0 indicate less confidence in that cell's predicted value, while values near 1 are more confident in that predicted value. The confidence values are an indication of how consistently the classification tree predicted forest type groups on a pixel-by-pixel basis. The confidence value, therefore, is an indication of goodness of fit of the model and represents the model uncertainty of the classification. It can be used as a valuable supplement to an independent suite of accuracy assessments. However, using the classification confidence value alone does not provide any information as to what category that specific pixel was classified (i.e., forest type groups category). This type of information can be gain from examining specific areas from the forest type groups map.
Description:	*Forest Type Groups* are based on the forest type code, which compares live tree stocking of softwoods and hardwoods, and then continues comparing successively smaller subgroups of the preceding aggregation of initial types. The stepwise progression proceeds in most cases until a plurality of an initial type group is identified. Forest type codes were lumped into forest type group codes as per Appendix D of Miles, et. al (2001). *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
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Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**Basal Area**
Grid Name:	IW_BAA
Values:	Pixel-by-pixel estimate of basal area per acre. Units in square feet/acre. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >5 --to-- <506 square feet/acre.
Description:	*Basal area* is defined as the cross-sectional area of all live trees measured at 4.5' above ground, and expressed in square feet per acre. Basal area values are derived from standard regional formulas from the measured FIA variables. The basal area model was created to produce a region-wide basal area image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
Spatial Data Source:	The methodology used to produce the regional forest attribute 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, but are not limited to: • Elevation, slope, aspect, and other topological derivatives • USGS Mapping Zones, Bailey's Ecoregions, and Unified Ecoregions for Alaska • STATSGO data layers (Lower 48) – Available water capacity, soil bulk density, soil permeability, soil ph, soil porosity, soil plasticity, depth to bedrock, rock volume, soil types, and soil texture • MODIS Vegetation Indices such as EVI, NDVI. • MODIS Vegetation Continuous Fields – Percent tree cover, percent herbaceous cover, and percent bare ground • MODIS fire points for developed from the MODIS Active Fire Maps • MODIS 8-day composites – Multiple dates from the spring, summer, and fall • MODIS 32-day composite images that are cloud-free between the years 2001-2003 • USGS NLCD layer summaries • PRISM temperature and precipitation – Minimums, maximums, and averages Statistical models developed in Rulequest's Cubist and/or See5 data mining software

	link the FIA plot variables with the imagery and geospatial data. Cubist models utilize decision rules, while See5 models create classification trees. Both models have the advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.
Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**Basal Area Average Error**
Grid Name:	IW_BAAERR
Values:	Pixel-by-pixel estimate of basal area average error. Units in square feet/acre. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >41 --to-- <52 square feet/acre. The average error is an indication of prediction uncertainty by providing an estimated error (the average difference in magnitude between the actual and predicted values of that attribute) for each rule. It is calculated by determining the average error magnitude for those cases covered by the rule, with an adjustment by a function based on the number of cases covered along with the complexity of the linear model used by that rule (proprietary function of Cubist software, http://www.rulequest.com/)
Description:	*Basal area* is defined as the cross-sectional area of all live trees measured at 4.5' above ground, and expressed in square feet per acre. Basal area values are derived from standard regional formulas from the measured FIA variables. The basal area model was created to produce a region-wide basal area image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
Spatial Data Source:	The methodology used to produce the regional forest attribute 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, but are not limited to: • Elevation, slope, aspect, and other topological derivatives • USGS Mapping Zones, Bailey's Ecoregions, and Unified Ecoregions for Alaska • STATSGO data layers (Lower 48) – Available water capacity, soil bulk density, soil permeability, soil ph, soil porosity, soil plasticity, depth to bedrock, rock volume, soil types, and soil texture • MODIS Vegetation Indices such as EVI, NDVI. • MODIS Vegetation Continuous Fields – Percent tree cover, percent herbaceous cover, and percent bare ground • MODIS fire points for developed from the MODIS Active Fire Maps • MODIS 8-day composites

	– Multiple dates from the spring, summer, and fall • MODIS 32-day composite images that are cloud-free between the years 2001-2003 • USGS NLCD layer summaries • PRISM temperature and precipitation – Minimums, maximums, and averages Statistical models developed in Rulequest's Cubist and/or See5 data mining software link the FIA plot variables with the imagery and geospatial data. Cubist models utilize decision rules, while See5 models create classification trees. Both models have the advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.
Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**Basal Area Normalized Error**
Grid Name:	IW_BAANER
Values:	Pixel-by-pixel estimate of basal area normalized error. Units expressed as a percentage. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >=9% --to-- <=804%. A normalized error estimate is calculated for each pixel by dividing the estimated average error value by its corresponding predicted forest attribute value. A normalized error map provides the ability to compare model results between different geographic areas for a specific forest attribute. For example, one may investigate model performance between areas of differing topography, which may provide support in distinguishing between areas where a model performs well or poorly (high elevation zones versus low elevation zones, etc.).
Description:	*Basal area* is defined as the cross-sectional area of all live trees measured at 4.5' above ground, and expressed in square feet per acre. Basal area values are derived from standard regional formulas from the measured FIA variables. The basal area model was created to produce a region-wide basal area image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
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	• MODIS 8-day composites – Multiple dates from the spring, summer, and fall • MODIS 32-day composite images that are cloud-free between the years 2001-2003 • USGS NLCD layer summaries • PRISM temperature and precipitation – Minimums, maximums, and averages Statistical models developed in Rulequest's Cubist and/or See5 data mining software link the FIA plot variables with the imagery and geospatial data. Cubist models utilize decision rules, while See5 models create classification trees. Both models have the advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.
Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**Forest Biomass**
Grid Name:	IW_BIO
Values:	Pixel-by-pixel estimate of forest biomass. Units in tons/acre. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >0 --to-- <114 tons/acre.
Description:	*Biomass* is defined as live tree, above ground dry weight (1-inch dbh and larger, including bole wood, top, and limbs), and expressed in tons per acre. Biomass is calculated from regional models/formulas from the measured FIA variables. The biomass model was created to produce a region-wide biomass image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
Spatial Data Source:	The methodology used to produce the regional forest attribute 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, but are not limited to: • Elevation, slope, aspect, and other topological derivatives • USGS Mapping Zones, Bailey's Ecoregions, and Unified Ecoregions for Alaska • STATSGO data layers (Lower 48) – Available water capacity, soil bulk density, soil permeability, soil ph, soil porosity, soil plasticity, depth to bedrock, rock volume, soil types, and soil texture • MODIS Vegetation Indices such as EVI, NDVI. • MODIS Vegetation Continuous Fields – Percent tree cover, percent herbaceous cover, and percent bare ground • MODIS fire points for developed from the MODIS Active Fire Maps • MODIS 8-day composites – Multiple dates from the spring, summer, and fall • MODIS 32-day composite images that are cloud-free between the years 2001-2003 • USGS NLCD layer summaries • PRISM temperature and precipitation – Minimums, maximums, and averages Statistical models developed in Rulequest's Cubist and/or See5 data mining software

	link the FIA plot variables with the imagery and geospatial data. Cubist models utilize decision rules, while See5 models create classification trees. Both models have the advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.
Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**Forest Biomass Average Error**
Grid Name:	IW_BIOERR
Values:	Pixel-by-pixel estimate of forest biomass average error. Units in tons/acre. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >7 --to-- <29 tons/acre. The average error is an indication of prediction uncertainty by providing an estimated error (the average difference in magnitude between the actual and predicted values of that attribute) for each rule. It is calculated by determining the average error magnitude for those cases covered by the rule, with an adjustment by a function based on the number of cases covered along with the complexity of the linear model used by that rule (proprietary function of Cubist software, http://www.rulequest.com/)
Description:	*Biomass* is defined as live tree, above ground dry weight (1-inch dbh and larger, including bole wood, top, and limbs), and expressed in tons per acre. Biomass is calculated from regional models/formulas from the measured FIA variables. The biomass model was created to produce a region-wide biomass image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
Spatial Data Source:	The methodology used to produce the regional forest attribute 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, but are not limited to: • Elevation, slope, aspect, and other topological derivatives • USGS Mapping Zones, Bailey's Ecoregions, and Unified Ecoregions for Alaska • STATSGO data layers (Lower 48) – Available water capacity, soil bulk density, soil permeability, soil ph, soil porosity, soil plasticity, depth to bedrock, rock volume, soil types, and soil texture • MODIS Vegetation Indices such as EVI, NDVI. • MODIS Vegetation Continuous Fields – Percent tree cover, percent herbaceous cover, and percent bare ground • MODIS fire points for developed from the MODIS Active Fire Maps • MODIS 8-day composites – Multiple dates from the spring, summer, and fall

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Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**Forest Biomass Normalized Error**
Grid Name:	IW_BIONER
Values:	Pixel-by-pixel estimate of forest biomass normalized error. Units expressed as a percentage. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >=8% --to-- <=67222%. A normalized error estimate is calculated for each pixel by dividing the estimated average error value by its corresponding predicted forest attribute value. A normalized error map provides the ability to compare model results between different geographic areas for a specific forest attribute. For example, one may investigate model performance between areas of differing topography, which may provide support in distinguishing between areas where a model performs well or poorly (high elevation zones versus low elevation zones, etc.).
Description:	*Biomass* is defined as live tree, above ground dry weight (1-inch dbh and larger, including bole wood, top, and limbs), and expressed in tons per acre. Biomass is calculated from regional models/formulas from the measured FIA variables. The biomass model was created to produce a region-wide biomass image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
Spatial Data Source:	The methodology used to produce the regional forest attribute 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, but are not limited to: • Elevation, slope, aspect, and other topological derivatives • USGS Mapping Zones, Bailey's Ecoregions, and Unified Ecoregions for Alaska • STATSGO data layers (Lower 48) – Available water capacity, soil bulk density, soil permeability, soil ph, soil porosity, soil plasticity, depth to bedrock, rock volume, soil types, and soil texture • MODIS Vegetation Indices such as EVI, NDVI. • MODIS Vegetation Continuous Fields – Percent tree cover, percent herbaceous cover, and percent bare ground • MODIS fire points for developed from the MODIS Active Fire Maps • MODIS 8-day composites

	– Multiple dates from the spring, summer, and fall • MODIS 32-day composite images that are cloud-free between the years 2001-2003 • USGS NLCD layer summaries • PRISM temperature and precipitation – Minimums, maximums, and averages Statistical models developed in Rulequest's Cubist and/or See5 data mining software link the FIA plot variables with the imagery and geospatial data. Cubist models utilize decision rules, while See5 models create classification trees. Both models have the advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.
Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**Crown Cover**
Grid Name:	IW_CRN
Values:	Pixel-by-pixel estimate of forest crown cover. Units in percentage. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >0 --to-- <106 percent.
Description:	*Crown Cover* is defined as the percentage of ground surface area covered by a vertical projection of the live crowns. Crown Cover is calculated from regional models/formulas from the measured FIA variables. The crown cover model was created to produce a region-wide crown cover image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
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	decision rules, while See5 models create classification trees. Both models have the advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.
Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**Crown Cover Average Error**
Grid Name:	IW_CRNERR
Values:	Pixel-by-pixel estimate of crown cover average error. Units in percentage. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >12 --to-- <20%. The average error is an indication of prediction uncertainty by providing an estimated error (the average difference in magnitude between the actual and predicted values of that attribute) for each rule. It is calculated by determining the average error magnitude for those cases covered by the rule, with an adjustment by a function based on the number of cases covered along with the complexity of the linear model used by that rule (proprietary function of Cubist software, http://www.rulequest.com/)
Description:	*Crown Cover* is defined as the percentage of ground surface area covered by a vertical projection of the live crowns. Crown Cover is calculated from regional models/formulas from the measured FIA variables. The crown cover model was created to produce a region-wide crown cover image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
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	• MODIS 32-day composite images that are cloud-free between the years 2001-2003 • USGS NLCD layer summaries • PRISM temperature and precipitation – Minimums, maximums, and averages Statistical models developed in Rulequest's Cubist and/or See5 data mining software link the FIA plot variables with the imagery and geospatial data. Cubist models utilize decision rules, while See5 models create classification trees. Both models have the advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.
Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**Crown Cover Normalized Error**
Grid Name:	IW_CRNNER
Values:	Pixel-by-pixel estimate of crown cover normalized error. Units expressed as a percentage. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >=16% --to-- <=5434%. A normalized error estimate is calculated for each pixel by dividing the estimated average error value by its corresponding predicted forest attribute value. A normalized error map provides the ability to compare model results between different geographic areas for a specific forest attribute. For example, one may investigate model performance between areas of differing topography, which may provide support in distinguishing between areas where a model performs well or poorly (high elevation zones versus low elevation zones, etc.).
Description:	*Crown Cover* is defined as the percentage of ground surface area covered by a vertical projection of the live crowns. Crown Cover is calculated from regional models/formulas from the measured FIA variables. The crown cover model was created to produce a region-wide crown cover image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
Spatial Data Source:	The methodology used to produce the regional forest attribute 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, but are not limited to: • Elevation, slope, aspect, and other topological derivatives • USGS Mapping Zones, Bailey's Ecoregions, and Unified Ecoregions for Alaska • STATSGO data layers (Lower 48) – Available water capacity, soil bulk density, soil permeability, soil ph, soil porosity, soil plasticity, depth to bedrock, rock volume, soil types, and soil texture • MODIS Vegetation Indices such as EVI, NDVI. • MODIS Vegetation Continuous Fields – Percent tree cover, percent herbaceous cover, and percent bare ground • MODIS fire points for developed from the MODIS Active Fire Maps • MODIS 8-day composites

	– Multiple dates from the spring, summer, and fall • MODIS 32-day composite images that are cloud-free between the years 2001-2003 • USGS NLCD layer summaries • PRISM temperature and precipitation – Minimums, maximums, and averages Statistical models developed in Rulequest's Cubist and/or See5 data mining software link the FIA plot variables with the imagery and geospatial data. Cubist models utilize decision rules, while See5 models create classification trees. Both models have the advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.
Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**Forest Growth**
Grid Name:	IW_GRW
Values:	Pixel-by-pixel estimate of forest growth. Units in cubic feet/acre. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >0 --to-- <218 cubic feet/acre.
Description:	*Forest Growth* is defined as the net annual sound cubic foot growth of all live trees. Forest Growth is calculated from regional models/formulas from the measured FIA variables. The forest growth model was created to produce a region-wide forest growth image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
Spatial Data Source:	The methodology used to produce the regional forest attribute 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, but are not limited to: • Elevation, slope, aspect, and other topological derivatives • USGS Mapping Zones, Bailey's Ecoregions, and Unified Ecoregions for Alaska • STATSGO data layers (Lower 48) – Available water capacity, soil bulk density, soil permeability, soil ph, soil porosity, soil plasticity, depth to bedrock, rock volume, soil types, and soil texture • MODIS Vegetation Indices such as EVI, NDVI. • MODIS Vegetation Continuous Fields – Percent tree cover, percent herbaceous cover, and percent bare ground • MODIS fire points for developed from the MODIS Active Fire Maps • MODIS 8-day composites – Multiple dates from the spring, summer, and fall • MODIS 32-day composite images that are cloud-free between the years 2001-2003 • USGS NLCD layer summaries • PRISM temperature and precipitation – Minimums, maximums, and averages Statistical models developed in Rulequest's Cubist and/or See5 data mining software link the FIA plot variables with the imagery and geospatial data. Cubist models utilize

	decision rules, while See5 models create classification trees. Both models have the advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.
Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**Forest Growth Average Error**
Grid Name:	IW_GRWERR
Values:	Pixel-by-pixel estimate of forest growth average error. Units in cubic feet/acre. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >7 --to-- <42 cubic feet/acre. The average error is an indication of prediction uncertainty by providing an estimated error (the average difference in magnitude between the actual and predicted values of that attribute) for each rule. It is calculated by determining the average error magnitude for those cases covered by the rule, with an adjustment by a function based on the number of cases covered along with the complexity of the linear model used by that rule (proprietary function of Cubist software, http://www.rulequest.com/)
Description:	*Forest Growth* is defined as the net annual sound cubic foot growth of all live trees. Forest Growth is calculated from regional models/formulas from the measured FIA variables. The forest growth model was created to produce a region-wide forest growth image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
Spatial Data Source:	The methodology used to produce the regional forest attribute 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, but are not limited to: • Elevation, slope, aspect, and other topological derivatives • USGS Mapping Zones, Bailey's Ecoregions, and Unified Ecoregions for Alaska • STATSGO data layers (Lower 48) – Available water capacity, soil bulk density, soil permeability, soil ph, soil porosity, soil plasticity, depth to bedrock, rock volume, soil types, and soil texture • MODIS Vegetation Indices such as EVI, NDVI. • MODIS Vegetation Continuous Fields – Percent tree cover, percent herbaceous cover, and percent bare ground • MODIS fire points for developed from the MODIS Active Fire Maps • MODIS 8-day composites – Multiple dates from the spring, summer, and fall

	• MODIS 32-day composite images that are cloud-free between the years 2001-2003 • USGS NLCD layer summaries • PRISM temperature and precipitation – Minimums, maximums, and averages Statistical models developed in Rulequest's Cubist and/or See5 data mining software link the FIA plot variables with the imagery and geospatial data. Cubist models utilize decision rules, while See5 models create classification trees. Both models have the advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.
Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**Forest Growth Normalized Error**
Grid Name:	IW_GRWNER
Values:	Pixel-by-pixel estimate of forest growth normalized error. Units expressed as a percentage. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >=0% --to-- <=79417%. A normalized error estimate is calculated for each pixel by dividing the estimated average error value by its corresponding predicted forest attribute value. A normalized error map provides the ability to compare model results between different geographic areas for a specific forest attribute. For example, one may investigate model performance between areas of differing topography, which may provide support in distinguishing between areas where a model performs well or poorly (high elevation zones versus low elevation zones, etc.).
Description:	*Forest Growth* is defined as the net annual sound cubic foot growth of all live trees. Forest Growth is calculated from regional models/formulas from the measured FIA variables. The forest growth model was created to produce a region-wide forest growth image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
Spatial Data Source:	The methodology used to produce the regional forest attribute 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, but are not limited to: • Elevation, slope, aspect, and other topological derivatives • USGS Mapping Zones, Bailey's Ecoregions, and Unified Ecoregions for Alaska • STATSGO data layers (Lower 48) – Available water capacity, soil bulk density, soil permeability, soil ph, soil porosity, soil plasticity, depth to bedrock, rock volume, soil types, and soil texture • MODIS Vegetation Indices such as EVI, NDVI. • MODIS Vegetation Continuous Fields – Percent tree cover, percent herbaceous cover, and percent bare ground • MODIS fire points for developed from the MODIS Active Fire Maps • MODIS 8-day composites

	– Multiple dates from the spring, summer, and fall • MODIS 32-day composite images that are cloud-free between the years 2001-2003 • USGS NLCD layer summaries • PRISM temperature and precipitation – Minimums, maximums, and averages Statistical models developed in Rulequest's Cubist and/or See5 data mining software link the FIA plot variables with the imagery and geospatial data. Cubist models utilize decision rules, while See5 models create classification trees. Both models have the advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.
Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**QMD (Quadratic Mean Diameter)**
Grid Name:	IW_QMD
Values:	Pixel-by-pixel estimate of quadratic mean diameter. Units in inches. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >1 --to-- <31 inches.
Description:	*QMD* is the quadratic mean diameter of all live trees 1 inch or greater. QMD is calculated from regional models/formulas from the measured FIA variables. The QMD model was created to produce a region-wide QMD image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
Spatial Data Source:	The methodology used to produce the regional forest attribute 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, but are not limited to: • Elevation, slope, aspect, and other topological derivatives • USGS Mapping Zones, Bailey's Ecoregions, and Unified Ecoregions for Alaska • STATSGO data layers (Lower 48) – Available water capacity, soil bulk density, soil permeability, soil ph, soil porosity, soil plasticity, depth to bedrock, rock volume, soil types, and soil texture • MODIS Vegetation Indices such as EVI, NDVI. • MODIS Vegetation Continuous Fields – Percent tree cover, percent herbaceous cover, and percent bare ground • MODIS fire points for developed from the MODIS Active Fire Maps • MODIS 8-day composites – Multiple dates from the spring, summer, and fall • MODIS 32-day composite images that are cloud-free between the years 2001-2003 • USGS NLCD layer summaries • PRISM temperature and precipitation – Minimums, maximums, and averages Statistical models developed in Rulequest's Cubist and/or See5 data mining software link the FIA plot variables with the imagery and geospatial data. Cubist models utilize decision rules, while See5 models create classification trees. Both models have the

	advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.
Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**QMD (Quadratic Mean Diameter) Average Error**
Grid Name:	IW_QMDERR
Values:	Pixel-by-pixel estimate of quadratic mean diameter average error. Units in inches. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >2 --to-- <5 inches. The average error is an indication of prediction uncertainty by providing an estimated error (the average difference in magnitude between the actual and predicted values of that attribute) for each rule. It is calculated by determining the average error magnitude for those cases covered by the rule, with an adjustment by a function based on the number of cases covered along with the complexity of the linear model used by that rule (proprietary function of Cubist software, http://www.rulequest.com/)
Description:	*QMD* is the quadratic mean diameter of all live trees 1 inch or greater. QMD is calculated from regional models/formulas from the measured FIA variables. The QMD model was created to produce a region-wide QMD image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
Spatial Data Source:	The methodology used to produce the regional forest attribute 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, but are not limited to: • Elevation, slope, aspect, and other topological derivatives • USGS Mapping Zones, Bailey's Ecoregions, and Unified Ecoregions for Alaska • STATSGO data layers (Lower 48) – Available water capacity, soil bulk density, soil permeability, soil ph, soil porosity, soil plasticity, depth to bedrock, rock volume, soil types, and soil texture • MODIS Vegetation Indices such as EVI, NDVI. • MODIS Vegetation Continuous Fields – Percent tree cover, percent herbaceous cover, and percent bare ground • MODIS fire points for developed from the MODIS Active Fire Maps • MODIS 8-day composites – Multiple dates from the spring, summer, and fall • MODIS 32-day composite images that are cloud-free between the years 2001-2003

	• USGS NLCD layer summaries • PRISM temperature and precipitation – Minimums, maximums, and averages Statistical models developed in Rulequest's Cubist and/or See5 data mining software link the FIA plot variables with the imagery and geospatial data. Cubist models utilize decision rules, while See5 models create classification trees. Both models have the advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.
Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**QMD (Quadratic Mean Diameter) Normalized Error**
Grid Name:	IW_QMDNER
Values:	Pixel-by-pixel estimate of quadratic mean diameter normalized error. Units expressed as a percentage. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >=12% --to-- <=273%. A normalized error estimate is calculated for each pixel by dividing the estimated average error value by its corresponding predicted forest attribute value. A normalized error map provides the ability to compare model results between different geographic areas for a specific forest attribute. For example, one may investigate model performance between areas of differing topography, which may provide support in distinguishing between areas where a model performs well or poorly (high elevation zones versus low elevation zones, etc.).
Description:	*QMD* is the quadratic mean diameter of all live trees 1 inch or greater. QMD is calculated from regional models/formulas from the measured FIA variables. The QMD model was created to produce a region-wide QMD image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
Spatial Data Source:	The methodology used to produce the regional forest attribute 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, but are not limited to: • Elevation, slope, aspect, and other topological derivatives • USGS Mapping Zones, Bailey's Ecoregions, and Unified Ecoregions for Alaska • STATSGO data layers (Lower 48) – Available water capacity, soil bulk density, soil permeability, soil ph, soil porosity, soil plasticity, depth to bedrock, rock volume, soil types, and soil texture • MODIS Vegetation Indices such as EVI, NDVI. • MODIS Vegetation Continuous Fields – Percent tree cover, percent herbaceous cover, and percent bare ground • MODIS fire points for developed from the MODIS Active Fire Maps • MODIS 8-day composites – Multiple dates from the spring, summer, and fall

	• MODIS 32-day composite images that are cloud-free between the years 2001-2003 • USGS NLCD layer summaries • PRISM temperature and precipitation – Minimums, maximums, and averages Statistical models developed in Rulequest's Cubist and/or See5 data mining software link the FIA plot variables with the imagery and geospatial data. Cubist models utilize decision rules, while See5 models create classification trees. Both models have the advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.
Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**SDI (Stand Density Index)**
Grid Name:	IW_SDI
Values:	Pixel-by-pixel estimate of stand density index. Units expressed as an index. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >4 --to-- <804.
Description:	*SDI* is the stand density index of all live trees 1 inch or greater, and is defined as the number of trees per unit area that an even-aged stand would have at a standard average diameter. SDI is calculated from standard formulas from the measured FIA variables. The SDI model was created to produce a region-wide SDI image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
Spatial Data Source:	The methodology used to produce the regional forest attribute 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, but are not limited to: • Elevation, slope, aspect, and other topological derivatives • USGS Mapping Zones, Bailey's Ecoregions, and Unified Ecoregions for Alaska • STATSGO data layers (Lower 48) – Available water capacity, soil bulk density, soil permeability, soil ph, soil porosity, soil plasticity, depth to bedrock, rock volume, soil types, and soil texture • MODIS Vegetation Indices such as EVI, NDVI. • MODIS Vegetation Continuous Fields – Percent tree cover, percent herbaceous cover, and percent bare ground • MODIS fire points for developed from the MODIS Active Fire Maps • MODIS 8-day composites – Multiple dates from the spring, summer, and fall • MODIS 32-day composite images that are cloud-free between the years 2001-2003 • USGS NLCD layer summaries • PRISM temperature and precipitation – Minimums, maximums, and averages Statistical models developed in Rulequest's Cubist and/or See5 data mining software link the FIA plot variables with the imagery and geospatial data. Cubist models utilize

	decision rules, while See5 models create classification trees. Both models have the advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.
Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**SDI (Stand Density Index) Average Error**
Grid Name:	IW_ SDIERR
Values:	Pixel-by-pixel estimate of stand density index average error. Units expressed as an index. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >67 --to-- <93. The average error is an indication of prediction uncertainty by providing an estimated error (the average difference in magnitude between the actual and predicted values of that attribute) for each rule. It is calculated by determining the average error magnitude for those cases covered by the rule, with an adjustment by a function based on the number of cases covered along with the complexity of the linear model used by that rule (proprietary function of Cubist software, http://www.rulequest.com/)
Description:	*SDI* is the stand density index of all live trees 1 inch or greater, and is defined as the number of trees per unit area that an even-aged stand would have at a standard average diameter. SDI is calculated from standard formulas from the measured FIA variables. The SDI model was created to produce a region-wide SDI image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
Spatial Data Source:	The methodology used to produce the regional forest attribute 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, but are not limited to: • Elevation, slope, aspect, and other topological derivatives • USGS Mapping Zones, Bailey's Ecoregions, and Unified Ecoregions for Alaska • STATSGO data layers (Lower 48) – Available water capacity, soil bulk density, soil permeability, soil ph, soil porosity, soil plasticity, depth to bedrock, rock volume, soil types, and soil texture • MODIS Vegetation Indices such as EVI, NDVI. • MODIS Vegetation Continuous Fields – Percent tree cover, percent herbaceous cover, and percent bare ground • MODIS fire points for developed from the MODIS Active Fire Maps • MODIS 8-day composites – Multiple dates from the spring, summer, and fall

	• MODIS 32-day composite images that are cloud-free between the years 2001-2003 • USGS NLCD layer summaries • PRISM temperature and precipitation – Minimums, maximums, and averages Statistical models developed in Rulequest's Cubist and/or See5 data mining software link the FIA plot variables with the imagery and geospatial data. Cubist models utilize decision rules, while See5 models create classification trees. Both models have the advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.
Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**SDI (Stand Density Index) Normalized Error**
Grid Name:	IW_ SDINER
Values:	Pixel-by-pixel estimate of stand density index normalized error. Units expressed as a percentage. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >=10% --to-- <=1826%. A normalized error estimate is calculated for each pixel by dividing the estimated average error value by its corresponding predicted forest attribute value. A normalized error map provides the ability to compare model results between different geographic areas for a specific forest attribute. For example, one may investigate model performance between areas of differing topography, which may provide support in distinguishing between areas where a model performs well or poorly (high elevation zones versus low elevation zones, etc.).
Description:	*SDI* is the stand density index of all live trees 1 inch or greater, and is defined as the number of trees per unit area that an even-aged stand would have at a standard average diameter. SDI is calculated from standard formulas from the measured FIA variables. The SDI model was created to produce a region-wide SDI image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
Spatial Data Source:	The methodology used to produce the regional forest attribute 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, but are not limited to: • Elevation, slope, aspect, and other topological derivatives • USGS Mapping Zones, Bailey's Ecoregions, and Unified Ecoregions for Alaska • STATSGO data layers (Lower 48) – Available water capacity, soil bulk density, soil permeability, soil ph, soil porosity, soil plasticity, depth to bedrock, rock volume, soil types, and soil texture • MODIS Vegetation Indices such as EVI, NDVI. • MODIS Vegetation Continuous Fields – Percent tree cover, percent herbaceous cover, and percent bare ground • MODIS fire points for developed from the MODIS Active Fire Maps • MODIS 8-day composites

	– Multiple dates from the spring, summer, and fall • MODIS 32-day composite images that are cloud-free between the years 2001-2003 • USGS NLCD layer summaries • PRISM temperature and precipitation – Minimums, maximums, and averages Statistical models developed in Rulequest's Cubist and/or See5 data mining software link the FIA plot variables with the imagery and geospatial data. Cubist models utilize decision rules, while See5 models create classification trees. Both models have the advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.
Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**Stand Age**
Grid Name:	IW_AGE
Values:	Pixel-by-pixel estimate of analytical stand age. Units in years. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >-18 --to-- <509 years.
Description:	*Stand Age* is defined as the average total age, to the nearest year, of the trees in the predominant stand-size class. Stand Age is calculated from regional models/formulas from the measured FIA variables. The stand age model was created to produce a region-wide stand age image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
Spatial Data Source:	The methodology used to produce the regional forest attribute 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, but are not limited to: • Elevation, slope, aspect, and other topological derivatives • USGS Mapping Zones, Bailey's Ecoregions, and Unified Ecoregions for Alaska • STATSGO data layers (Lower 48) – Available water capacity, soil bulk density, soil permeability, soil ph, soil porosity, soil plasticity, depth to bedrock, rock volume, soil types, and soil texture • MODIS Vegetation Indices such as EVI, NDVI. • MODIS Vegetation Continuous Fields – Percent tree cover, percent herbaceous cover, and percent bare ground • MODIS fire points for developed from the MODIS Active Fire Maps • MODIS 8-day composites – Multiple dates from the spring, summer, and fall • MODIS 32-day composite images that are cloud-free between the years 2001-2003 • USGS NLCD layer summaries • PRISM temperature and precipitation – Minimums, maximums, and averages Statistical models developed in Rulequest's Cubist and/or See5 data mining software link the FIA plot variables with the imagery and geospatial data. Cubist models utilize

	decision rules, while See5 models create classification trees. Both models have the advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.
Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**Stand Age Average Error**
Grid Name:	IW_ AGEERR
Values:	Pixel-by-pixel estimate of analytical stand age average error. Units in years. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >40 --to-- <62 years. The average error is an indication of prediction uncertainty by providing an estimated error (the average difference in magnitude between the actual and predicted values of that attribute) for each rule. It is calculated by determining the average error magnitude for those cases covered by the rule, with an adjustment by a function based on the number of cases covered along with the complexity of the linear model used by that rule (proprietary function of Cubist software, http://www.rulequest.com/)
Description:	*Stand Age* is defined as the average total age, to the nearest year, of the trees in the predominant stand-size class. Stand Age is calculated from regional models/formulas from the measured FIA variables. The stand age model was created to produce a region-wide stand age image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
Spatial Data Source:	The methodology used to produce the regional forest attribute 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, but are not limited to: • Elevation, slope, aspect, and other topological derivatives • USGS Mapping Zones, Bailey's Ecoregions, and Unified Ecoregions for Alaska • STATSGO data layers (Lower 48) – Available water capacity, soil bulk density, soil permeability, soil ph, soil porosity, soil plasticity, depth to bedrock, rock volume, soil types, and soil texture • MODIS Vegetation Indices such as EVI, NDVI. • MODIS Vegetation Continuous Fields – Percent tree cover, percent herbaceous cover, and percent bare ground • MODIS fire points for developed from the MODIS Active Fire Maps • MODIS 8-day composites – Multiple dates from the spring, summer, and fall

	• MODIS 32-day composite images that are cloud-free between the years 2001-2003 • USGS NLCD layer summaries • PRISM temperature and precipitation – Minimums, maximums, and averages Statistical models developed in Rulequest's Cubist and/or See5 data mining software link the FIA plot variables with the imagery and geospatial data. Cubist models utilize decision rules, while See5 models create classification trees. Both models have the advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.
Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**Stand Age Normalized Error**
Grid Name:	IW_ AGENER
Values:	Pixel-by-pixel estimate of analytical stand age normalized error. Units expressed as a percentage. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >= -43264% --to-- <=20896%. A normalized error estimate is calculated for each pixel by dividing the estimated average error value by its corresponding predicted forest attribute value. A normalized error map provides the ability to compare model results between different geographic areas for a specific forest attribute. For example, one may investigate model performance between areas of differing topography, which may provide support in distinguishing between areas where a model performs well or poorly (high elevation zones versus low elevation zones, etc.).
Description:	*Stand Age* is defined as the average total age, to the nearest year, of the trees in the predominant stand-size class. Stand Age is calculated from regional models/formulas from the measured FIA variables. The stand age model was created to produce a region-wide stand age image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
Spatial Data Source:	The methodology used to produce the regional forest attribute 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, but are not limited to: • Elevation, slope, aspect, and other topological derivatives • USGS Mapping Zones, Bailey's Ecoregions, and Unified Ecoregions for Alaska • STATSGO data layers (Lower 48) – Available water capacity, soil bulk density, soil permeability, soil ph, soil porosity, soil plasticity, depth to bedrock, rock volume, soil types, and soil texture • MODIS Vegetation Indices such as EVI, NDVI. • MODIS Vegetation Continuous Fields – Percent tree cover, percent herbaceous cover, and percent bare ground • MODIS fire points for developed from the MODIS Active Fire Maps

	• MODIS 8-day composites – Multiple dates from the spring, summer, and fall • MODIS 32-day composite images that are cloud-free between the years 2001-2003 • USGS NLCD layer summaries • PRISM temperature and precipitation – Minimums, maximums, and averages Statistical models developed in Rulequest's Cubist and/or See5 data mining software link the FIA plot variables with the imagery and geospatial data. Cubist models utilize decision rules, while See5 models create classification trees. Both models have the advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.
Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**TPA (Trees per acre)**
Grid Name:	IW_TPA
Values:	Pixel-by-pixel estimate of trees per acre. Units expressed as a count of trees. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >0 --to-- <5949 trees per acre.
Description:	*TPA* is the number of trees per acre of all live trees 1 inch or greater. TPA is calculated from standard formulas from the measured FIA variables. The TPA model was created to produce a region-wide TPA image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
Spatial Data Source:	The methodology used to produce the regional forest attribute 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, but are not limited to: • Elevation, slope, aspect, and other topological derivatives • USGS Mapping Zones, Bailey's Ecoregions, and Unified Ecoregions for Alaska • STATSGO data layers (Lower 48) – Available water capacity, soil bulk density, soil permeability, soil ph, soil porosity, soil plasticity, depth to bedrock, rock volume, soil types, and soil texture • MODIS Vegetation Indices such as EVI, NDVI. • MODIS Vegetation Continuous Fields – Percent tree cover, percent herbaceous cover, and percent bare ground • MODIS fire points for developed from the MODIS Active Fire Maps • MODIS 8-day composites – Multiple dates from the spring, summer, and fall • MODIS 32-day composite images that are cloud-free between the years 2001-2003 • USGS NLCD layer summaries • PRISM temperature and precipitation – Minimums, maximums, and averages Statistical models developed in Rulequest's Cubist and/or See5 data mining software link the FIA plot variables with the imagery and geospatial data. Cubist models utilize decision rules, while See5 models create classification trees. Both models have the

	advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.
Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**TPA (Trees per acre) Average Error**
Grid Name:	IW_ TPAERR
Values:	Pixel-by-pixel estimate of trees per acre average error. Units expressed as a count of trees. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >145 --to-- <596 trees per acre. The average error is an indication of prediction uncertainty by providing an estimated error (the average difference in magnitude between the actual and predicted values of that attribute) for each rule. It is calculated by determining the average error magnitude for those cases covered by the rule, with an adjustment by a function based on the number of cases covered along with the complexity of the linear model used by that rule (proprietary function of Cubist software, http://www.rulequest.com/)
Description:	*TPA* is the number of trees per acre of all live trees 1 inch or greater. TPA is calculated from standard formulas from the measured FIA variables. The TPA model was created to produce a region-wide TPA image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
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	• USGS NLCD layer summaries • PRISM temperature and precipitation – Minimums, maximums, and averages Statistical models developed in Rulequest's Cubist and/or See5 data mining software link the FIA plot variables with the imagery and geospatial data. Cubist models utilize decision rules, while See5 models create classification trees. Both models have the advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.
Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**TPA (Trees per acre) Normalized Error**
Grid Name:	IW_ TPANER
Values:	Pixel-by-pixel estimate of trees per acre normalized error. Units expressed as a percentage. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >= 0% --to-- <=97175%. A normalized error estimate is calculated for each pixel by dividing the estimated average error value by its corresponding predicted forest attribute value. A normalized error map provides the ability to compare model results between different geographic areas for a specific forest attribute. For example, one may investigate model performance between areas of differing topography, which may provide support in distinguishing between areas where a model performs well or poorly (high elevation zones versus low elevation zones, etc.).
Description:	*TPA* is the number of trees per acre of all live trees 1 inch or greater. TPA is calculated from standard formulas from the measured FIA variables. The TPA model was created to produce a region-wide TPA image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
Spatial Data Source:	The methodology used to produce the regional forest attribute 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, but are not limited to: • Elevation, slope, aspect, and other topological derivatives • USGS Mapping Zones, Bailey's Ecoregions, and Unified Ecoregions for Alaska • STATSGO data layers (Lower 48) – Available water capacity, soil bulk density, soil permeability, soil ph, soil porosity, soil plasticity, depth to bedrock, rock volume, soil types, and soil texture • MODIS Vegetation Indices such as EVI, NDVI. • MODIS Vegetation Continuous Fields – Percent tree cover, percent herbaceous cover, and percent bare ground • MODIS fire points for developed from the MODIS Active Fire Maps • MODIS 8-day composites – Multiple dates from the spring, summer, and fall

	• MODIS 32-day composite images that are cloud-free between the years 2001-2003 • USGS NLCD layer summaries • PRISM temperature and precipitation – Minimums, maximums, and averages Statistical models developed in Rulequest's Cubist and/or See5 data mining software link the FIA plot variables with the imagery and geospatial data. Cubist models utilize decision rules, while See5 models create classification trees. Both models have the advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.
Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**Forest Volume**
Grid Name:	IW_VOL
Values:	Pixel-by-pixel estimate of forest volume. Units in cubic foot/acre. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >0 --to-- <7835 cubic foot/acre.
Description:	*Volume* is defined as the net volume of wood located in the total stem of all live trees with 1 inch or greater diameter, expressed in cubic foot per acre. Volume is calculated from regional models/formulas from the measured FIA variables. The volume model was created to produce a region-wide volume image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
Spatial Data Source:	The methodology used to produce the regional forest attribute 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, but are not limited to: • Elevation, slope, aspect, and other topological derivatives • USGS Mapping Zones, Bailey's Ecoregions, and Unified Ecoregions for Alaska • STATSGO data layers (Lower 48) – Available water capacity, soil bulk density, soil permeability, soil ph, soil porosity, soil plasticity, depth to bedrock, rock volume, soil types, and soil texture • MODIS Vegetation Indices such as EVI, NDVI. • MODIS Vegetation Continuous Fields – Percent tree cover, percent herbaceous cover, and percent bare ground • MODIS fire points for developed from the MODIS Active Fire Maps • MODIS 8-day composites – Multiple dates from the spring, summer, and fall • MODIS 32-day composite images that are cloud-free between the years 2001-2003 • USGS NLCD layer summaries • PRISM temperature and precipitation – Minimums, maximums, and averages Statistical models developed in Rulequest's Cubist and/or See5 data mining software link the FIA plot variables with the imagery and geospatial data. Cubist models utilize

	decision rules, while See5 models create classification trees. Both models have the advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.
Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**Forest Volume Average Error**
Grid Name:	IW_VOLERR
Values:	Pixel-by-pixel estimate of forest volume average error. Units in cubic foot/acre. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >516 --to-- <1721 cubic foot/acre. The average error is an indication of prediction uncertainty by providing an estimated error (the average difference in magnitude between the actual and predicted values of that attribute) for each rule. It is calculated by determining the average error magnitude for those cases covered by the rule, with an adjustment by a function based on the number of cases covered along with the complexity of the linear model used by that rule (proprietary function of Cubist software, http://www.rulequest.com/)
Description:	*Volume* is defined as the net volume of wood located in the total stem of all live trees with 1 inch or greater diameter, expressed in cubic foot per acre. Volume is calculated from regional models/formulas from the measured FIA variables. The volume model was created to produce a region-wide volume image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
Spatial Data Source:	The methodology used to produce the regional forest attribute 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, but are not limited to: • Elevation, slope, aspect, and other topological derivatives • USGS Mapping Zones, Bailey's Ecoregions, and Unified Ecoregions for Alaska • STATSGO data layers (Lower 48) – Available water capacity, soil bulk density, soil permeability, soil ph, soil porosity, soil plasticity, depth to bedrock, rock volume, soil types, and soil texture • MODIS Vegetation Indices such as EVI, NDVI. • MODIS Vegetation Continuous Fields – Percent tree cover, percent herbaceous cover, and percent bare ground • MODIS fire points for developed from the MODIS Active Fire Maps • MODIS 8-day composites – Multiple dates from the spring, summer, and fall

	• MODIS 32-day composite images that are cloud-free between the years 2001-2003 • USGS NLCD layer summaries • PRISM temperature and precipitation – Minimums, maximums, and averages Statistical models developed in Rulequest's Cubist and/or See5 data mining software link the FIA plot variables with the imagery and geospatial data. Cubist models utilize decision rules, while See5 models create classification trees. Both models have the advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.
Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**Forest Volume Normalized Error**
Grid Name:	IW_VOLNER
Values:	Pixel-by-pixel estimate of forest biomass normalized error. Units expressed as a percentage. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >=0% --to-- <=49206%. A normalized error estimate is calculated for each pixel by dividing the estimated average error value by its corresponding predicted forest attribute value. A normalized error map provides the ability to compare model results between different geographic areas for a specific forest attribute. For example, one may investigate model performance between areas of differing topography, which may provide support in distinguishing between areas where a model performs well or poorly (high elevation zones versus low elevation zones, etc.).
Description:	*Volume* is defined as the net volume of wood located in the total stem of all live trees with 1 inch or greater diameter, expressed in cubic foot per acre. Volume is calculated from regional models/formulas from the measured FIA variables. The volume model was created to produce a region-wide volume image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
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	– Multiple dates from the spring, summer, and fall • MODIS 32-day composite images that are cloud-free between the years 2001-2003 • USGS NLCD layer summaries • PRISM temperature and precipitation – Minimums, maximums, and averages Statistical models developed in Rulequest's Cubist and/or See5 data mining software link the FIA plot variables with the imagery and geospatial data. Cubist models utilize decision rules, while See5 models create classification trees. Both models have the advantage of not assuming parametric properties within the predictor data and are thus are more appropriate for the multi-scale, multi-source data, which are being used.
Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**Forest Height (weighted by basal area)**
Grid Name:	IW_WHT
Values:	Pixel-by-pixel estimate of forest height. Units in feet. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >1 --to-- <216 feet.
Description:	*Height* is defined as the total height of a tree from the ground to the top of the main stem, expressed in feet. Height is obtained from measured FIA variables, and weighted by the tree's basal area. The height model was created to produce a region-wide height image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
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Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**Forest Height (weighted by basal area) Average Error**
Grid Name:	IW_WHTERR
Values:	Pixel-by-pixel estimate of forest height average error. Units in feet. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >5 --to-- <23 feet. The average error is an indication of prediction uncertainty by providing an estimated error (the average difference in magnitude between the actual and predicted values of that attribute) for each rule. It is calculated by determining the average error magnitude for those cases covered by the rule, with an adjustment by a function based on the number of cases covered along with the complexity of the linear model used by that rule (proprietary function of Cubist software, http://www.rulequest.com/)
Description:	*Height* is defined as the total height of a tree from the ground to the top of the main stem, expressed in feet. Height is obtained from measured FIA variables, and weighted by the tree's basal area. The height model was created to produce a region-wide height image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
References:	U.S. Department of Agriculture, Forest Service. 2003. Forest inventory and analysis national core field guide, volume 1: field data collection procedures for phase 2 plots, version 1.7. U.S. Department of Agriculture, Forest Service, Washington Office. Internal report. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250 Miles, Patrick D.; Brand, Gary J.; Alerich, Carol L.; Bednar, Larry F.; Woudenberg, Sharon W.; Glover, Joseph F.; Ezzell, Edward N. 2001. The forest inventory and analysis database: database description and users manual version 1.0. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.
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Horizontal Accuracy:	Source data used to derive this map originally provided at resolutions between 30-meters and 4-kilometers. The MODIS imagery used as an input had a native resolution of 250-meters and 500-meters (spectral band dependent). For modeling purposes all inputs to the model were resampled to a common 250-meter resolution. Due to the diversity of resolutions merged, the horizontal spatial accuracy is variable. For the MODIS imagery, the RMS spatial accuracy is less than one pixel.
Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster

Predicted Attribute:	**Forest Height (weighted by basal area) Normalized Error**
Grid Name:	IW_WHTNER
Values:	Pixel-by-pixel estimate of forest height normalized error. Units expressed as a percentage. Modeled nonforest areas were masked out and appear as NODATA values. Continuous float variable, cell values range from >=7% --to-- <=769%. A normalized error estimate is calculated for each pixel by dividing the estimated average error value by its corresponding predicted forest attribute value. A normalized error map provides the ability to compare model results between different geographic areas for a specific forest attribute. For example, one may investigate model performance between areas of differing topography, which may provide support in distinguishing between areas where a model performs well or poorly (high elevation zones versus low elevation zones, etc.).
Description:	*Height* is defined as the total height of a tree from the ground to the top of the main stem, expressed in feet. Height is obtained from measured FIA variables, and weighted by the tree's basal area. The height model was created to produce a region-wide height image. *Forestland* is defined as areas of forest cover greater than 1 acre in size, greater than 250 feet in width, with greater than 10% stocking, with an understory undisturbed by a nonforest land use.
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Projection:	Albers Conical Equal Area (National USGS Parameters: Parallels 29.5, 45.5 North; Central Meridian 96.0 West, Origin Latitude 23.0 North)
Datum:	NAD27/CLARKE1866
Units of Measure:	meters
Cell Size:	250 x 250 meters
Feature Type:	Raster