Texas Forest Information Portal

(Texas Forest Info)

User Manual

Texas A&M Forest Service
Forest Resource Development Department

April 22th, 2014

Texas Forest Information Portal (Texas Forest Info) Project

Table of Contents

About the Texas Forest Info Portal (TexasForestInfo.com)

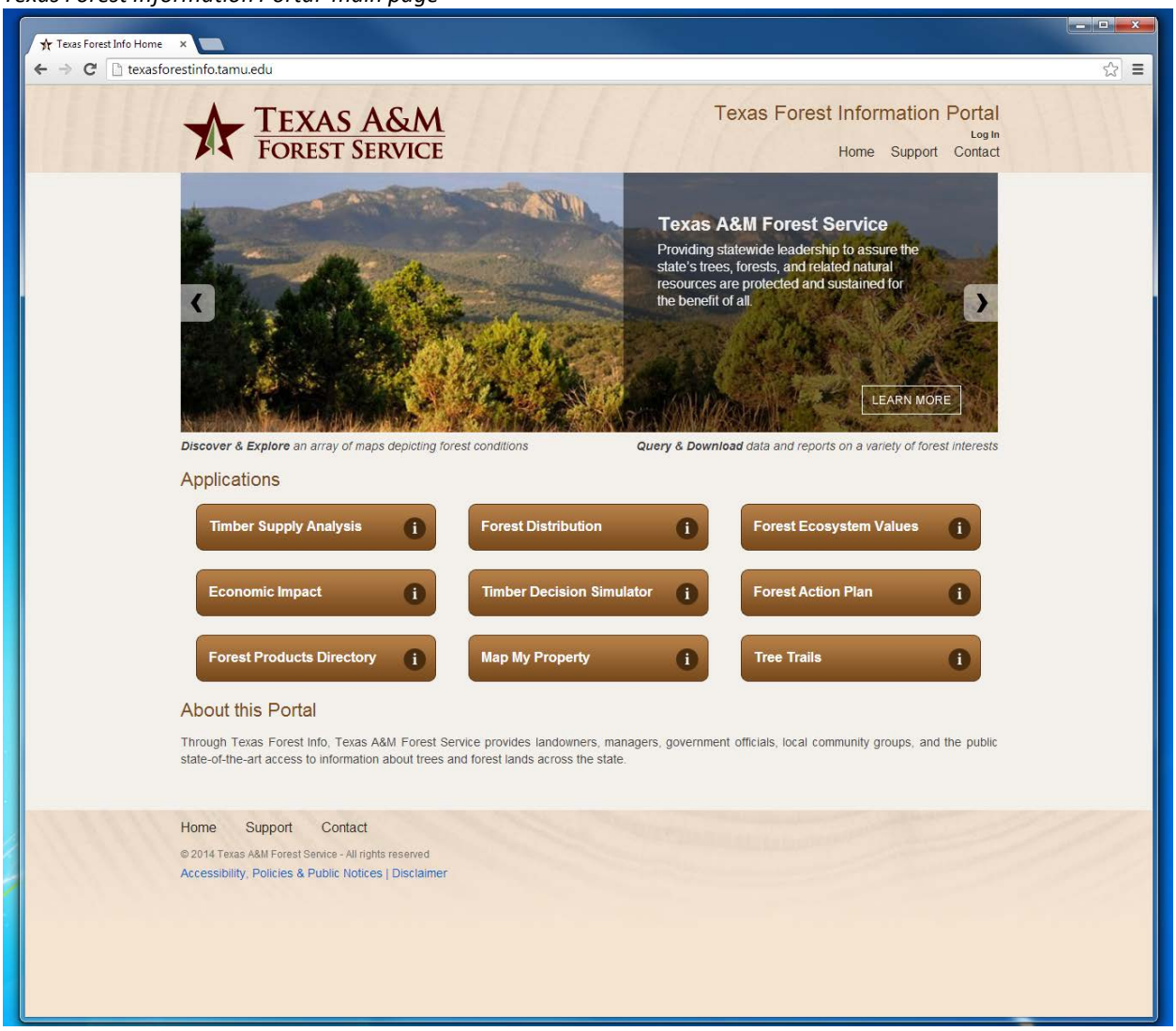
The Texas Forest Information Portal, or **Texas Forest Info**, is a web site that provides landowners, managers, government officials, local community groups, and the public state-of-the-art access to information about trees and forest lands across the state. Texas Forest Info is comprised of a main web portal site that provides access to custom web mapping applications with capabilities to discover and explore an array of maps depicting forest conditions, and query and download data and reports on a variety of forest interests. Currently, the portal provides applications for:

- **Timber Supply Analysis**
- **Forest Distribution**
- **Forest Ecosystem Values**
- **Economic Impact**
- **Timber Decision Simulator**
- **Forest Action Plan**
- **Forest Products Directory**
- **Map My Property**
- **Tree Trails**

1.1 Accessing Texas Forest Info

Texas Forest Info is located at www.texasforestinfo.tamu.edu and is accessible using standard web browsers such as Microsoft Internet Explorer, Mozilla Firefox, Google Chrome or Apple Safari. Microsoft's Internet Explorer can result in unexpected errors using the mapping applications due to its incompatibility with some mapping components. Accordingly, it is recommended that Firefox or Google Chrome be used with the application to optimize performance. 1280 x 720 is the minimum recommended resolution. The following figure presents the main web portal page for Texas Forest Info. Access to all associated applications is available as links from this main portal page.

Texas Forest Information Portal main page



1.2 Getting Support

Support is available throughout the web site in the following formats.

Documentation

User documentation is provided online. Click the Support link available on every page to access the user manual. A single PDF user manual (this document) is provided to describe the use and data content for all applications.

Quick Help and Info

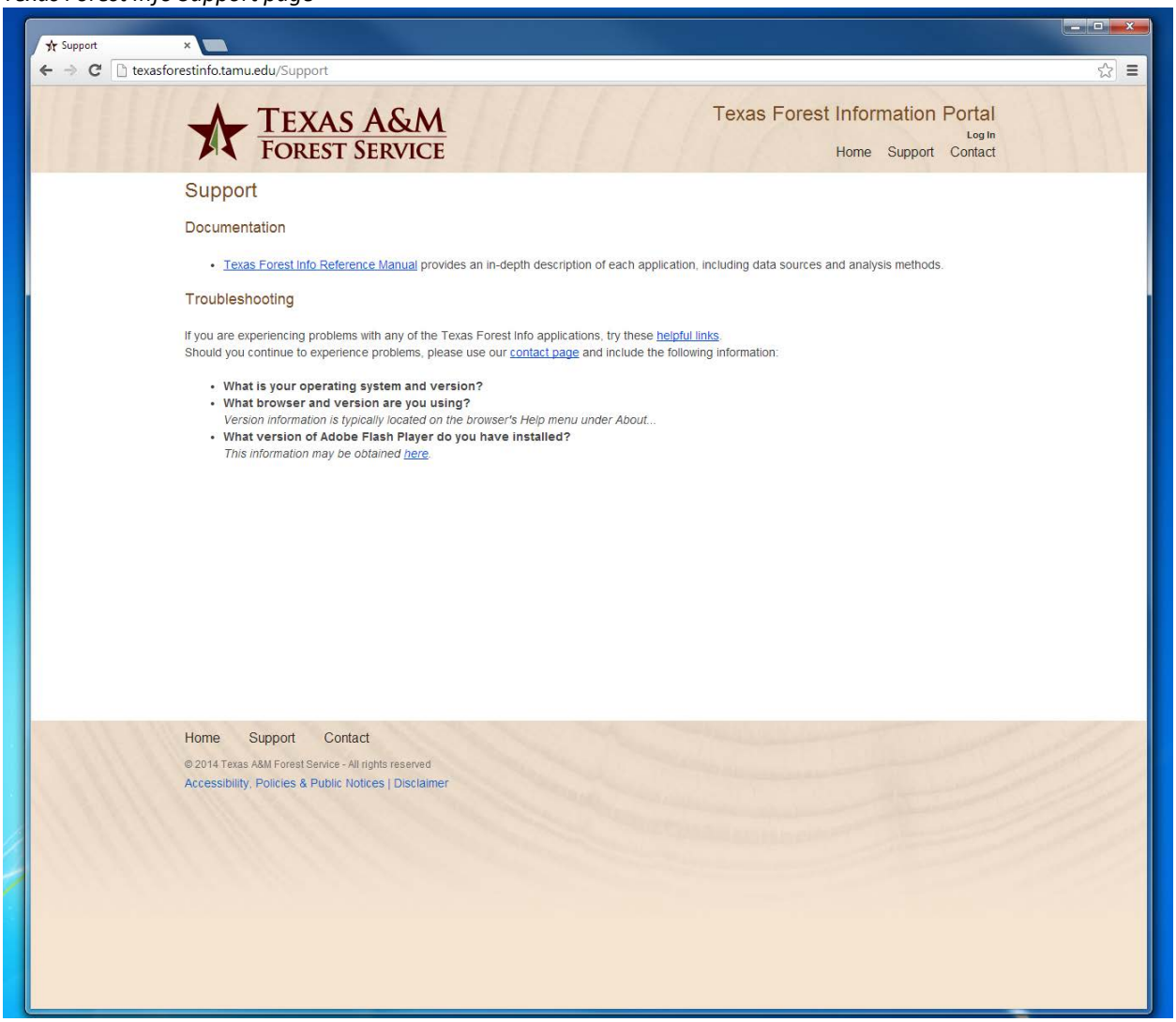
Throughout the site, you will find icons. Press these for quick information.

Help Desk

Currently there is no help desk for Texas Forest Info. We hope to implement this with future versions as user demand warrants. Please refer to the Texas Forest Info User Manual for information about using the web site applications.

The following figure presents the main Support page. This is the primary location to obtain help about using Texas Forest Info.

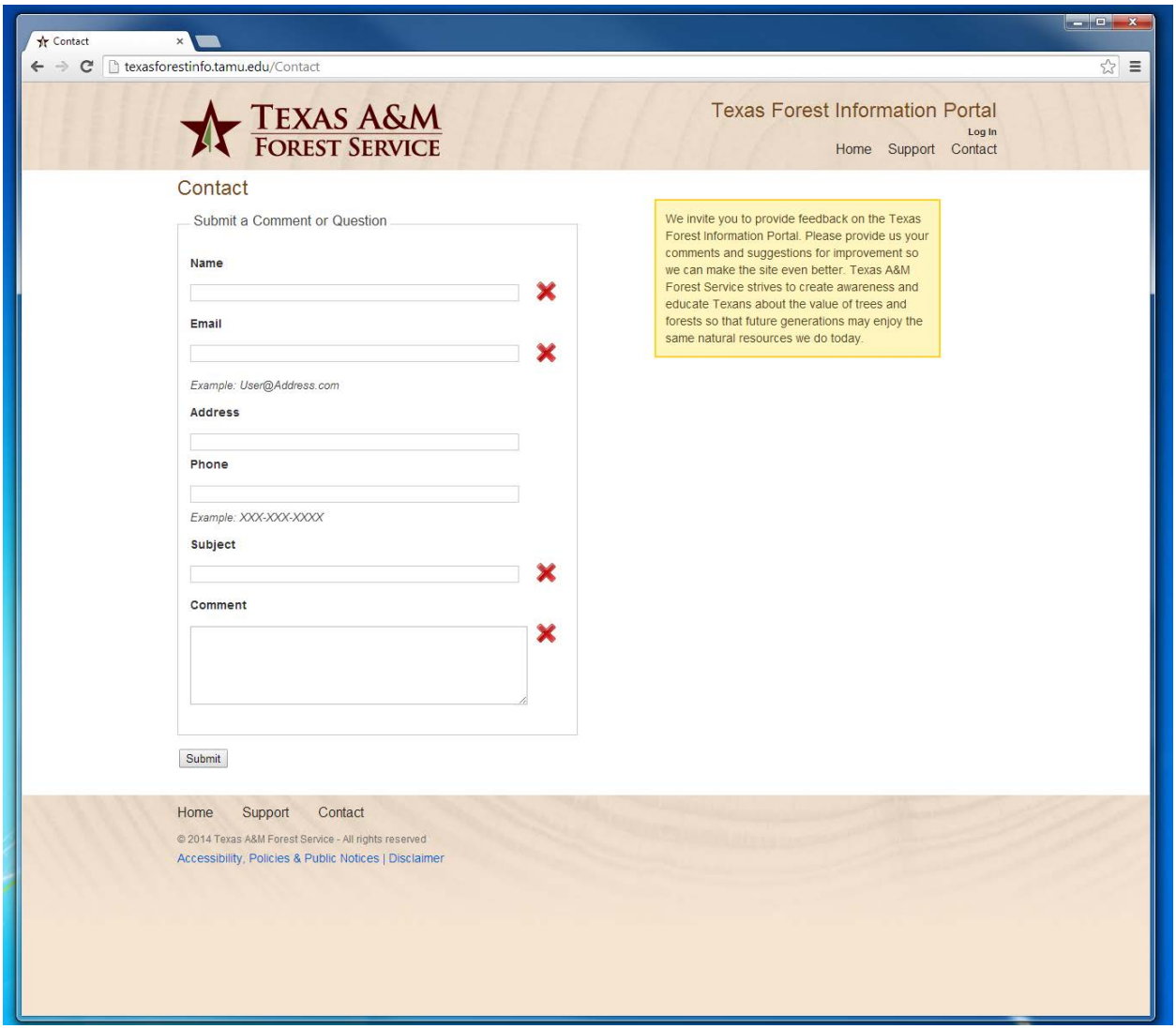
Texas Forest Info Support page



1.3 Providing Feedback

The Texas A&M Forest Service (TFS) invites you to provide feedback on Texas Forest Info. Please provide your comments and suggestions for improvement using the Contact page on the site. The Texas A&M Forest Service strives to create awareness and educate Texans about the value of trees and forests so that future generations may enjoy the same natural resources we do today. The following figure presents the Contact page on the Texas Forest Info site.

Texas Forest Info Contact page



Please refer to the main TFS site at http://txforestservice.tamu.edu/main/default.aspx for more information regarding the vast array of services offered by the agency.

Using the Forest Information Portal

2.1 Home

The Home button is accessible from every page in Texas Forest Info. Click "**Home"** to return to the Forest Information Portal main page.

2.2 Support

The Support button is accessible from every page in Texas Forest Info. Click "**Support**" to access documentation and support documentation.

2.3 Contact

The Contact button is accessible from every page in Texas Forest Info. Click "**Contact**" to access the feedback form.

2.4 Log In

This site provides access to TFS staff for administering the web site and applications. It is not available to the public.

2.5 Learn More

For more information about Texas Forest Info, and Sustainable Forestry in Texas, press the **Learn More** button on the main page.

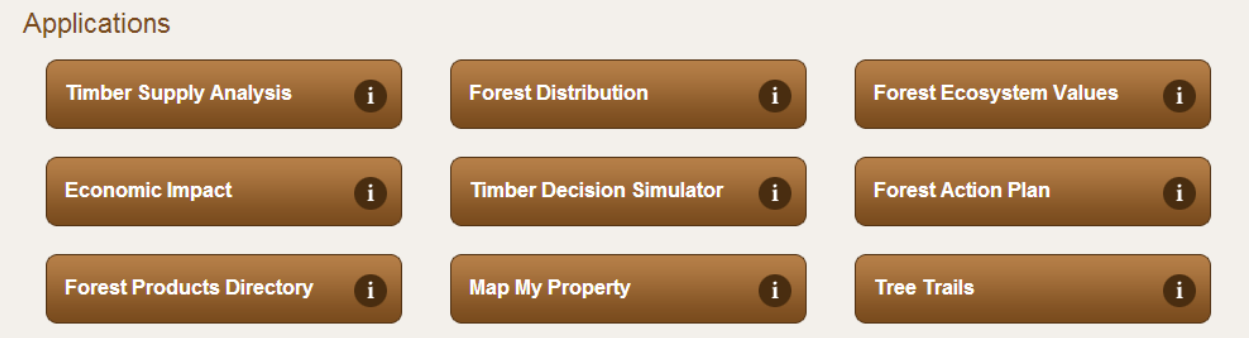
2.6 About the Applications

The Texas Forest Information Portal, or **Texas Forest Info**, is a web site that provides landowners, managers, government officials, local community groups, and the public state-of-the-art access to information about trees and forest lands across the state. It is comprised of a main web portal site that provides access to custom web mapping applications with capabilities to discover and explore an array of maps depicting forest conditions, and query and download data and reports on a variety of forest interests. Currently, the portal provides applications for:

- **Timber Supply Analysis**
- **Forest Distribution**
- **Forest Values**
- **Economic Impact**
- **Timber Decision Simulator**
- **Forest Action Plan**
- **Forest Products Directory**
- **Map My Property**
- **Tree Trails**

Applications can be accessed from main button links on the main web portal page. The following figure presents these buttons.

Texas Forest Info Applications



2.7 Timber Supply Analysis

The Timber Supply Analysis application estimates the amount of timberland, timber volume, growth, and removals within a user-specified distance – 50, 75, or 100 miles – from a point of interest in East Texas. Estimates are derived from Forest Inventory and Analysis (FIA), a U. S. Forest Service program conducted in partnership with Texas A&M Forest Service. For help with this application go to page 20.

2.8 Forest Distribution

The Forest Distribution application provides an estimate of the amount of forest biomass that occurs within three distances—50, 75, and 100 miles—of a user defined point in Texas along with the total for the entire state. Estimates of biomass are derived using plot data from the national Forest Inventory and Analysis Program (FIA) and are provided in units of oven-dry tons (2000 lbs./ton). Per acre values are based on per acre of forestland. Forestland area within the area of interest is estimated from expansion factors applied to the data for plots that occur within the area of interest.

In addition to estimates of amount of biomass within the three areas of interest and the whole state, a map is displayed of the state showing the distribution of forests, or trees within a species group, in Texas. The map is produced using a geo-statistical interpolation technique that produces a prediction surface of biomass amount per acre. This map is best viewed from a small scale (zoomed out on the web map) since its intent is to provide only a general sense of where the forests occur and how much biomass is present. For help with this application go to page 22.

2.9 Forest Ecosystem Values

Healthy forests and woodlands are essential ecological life-support systems that provide a full suite of goods and services, including climate regulation (carbon storage and sequestration), watershed services (water flow regulation and filtration, nutrient retention, soil erosion control, flood control), air quality, wildlife habitat and biodiversity, recreation, as well as cultural values associated with forests. These ecosystem services are crucial to human well-being; however, most of these services do not have established market values like forest products.

The Forest Ecosystem Values application provides an estimate of the economic value of forest ecosystem services that occur within a user defined area. This includes air quality, biodiversity, carbon, cultural, and watershed services. Users can delineate a custom polygon on a map, select a county or urbanized area from a dropdown box, or view a pre-prepared standard summary report for the entire state or region.

Estimates are based on analysis of forest resources in the area, results of existing literature, non-market valuation techniques, evapotranspiration model, and current GIS information on forest resource distribution, soil productivity, and hydrology. The results should be viewed as conservative estimates of the value of the forest ecosystem services. The ecosystem services that are valued and reported here are only part of a full suite of ecosystem services provided by the forest within the area of interest. All the values herein are in 2011 constant dollar. For help with this application go to page 27.

2.10 Economic Impact

Most of the timberland in Texas is located in the eastern part of the state. More than two-thirds of all forestry and logging companies and the great majority of the forest product companies in the state are found in this region. In 25 of the 43 East Texas counties, wood-based industries are one of the top two largest manufacturing employers.

This application offers an interactive tool to summarize economic impacts of the forest sector in East Texas for 2007 and 2009. The tool allows users to display economic impacts of a selected set of counties. In addition, thematic maps of the economic impacts can be generated. Likewise, statewide economic impacts of forest-related industries during 2007-2011 and the impacts of the recent economic downturn are analyzed.

Pre-prepared reports for 2007 and 2009 can be downloaded for individual or groups of East Texas counties. Reports for 2009 for each of the Texas Senate districts are also available for download. Similarly, statewide economic impacts reports between 2007 and 2011 can also be downloaded. For help with this application go to http://tfsfrd.tamu.edu/economicimpacts/FAQs.html.

2.11 Timber Decision Simulator

Texas A&M Forest Service Timberland Decision Support System (TDSS) is a web-based decision tool for non-industrial private forest landowners and others who are interested in timberland investment and management. TDSS currently includes a:

(1) set of Basic Financial Calculators for illustrating basic concepts of timberland investment;
(2) Timberland Investment Calculator to calculate the returns on an investment given cost and revenue information and
(3) Timberland Management Simulator with loblolly pine growth and yield models.

2.12 Forest Action Plan

The Forest Action Plan application provides a brief description of the issues addressed in the Forest Action Plan produced for Texas and allows the user to view the priority maps developed for each issue in relation to underlying basemaps. For help with this application go to http://tfsfrd.tamu.edu/ForestActionPlan/Help.html to download the user manual in PDF format.

2.13 Forest Products Directory

The Directory of Forest Products Industries is an interactive application that allows users to search the forest products directory maintained by Texas A&M Forest Service. The application includes a suite of tools that allows users to find information about wood-manufacturing industries through a spatial search using mapping tools or a text search with drop-down menus. The results of both searches are displayed on a map. Additional tools allow users to preview and print the map and to save the results to PDF or excel files.

Information in the directory is provided for both the primary and secondary industries. In this directory, the primary industries are those that process logs removed from the forests into products such as lumber and plywood as well as industries that utilize forest and urban residues such as tops and branches. The secondary wood using industries are those that make use of lumber and plywood, etc., to further manufacture products such as furniture, cabinets, and moldings. For help with this application go http://tfsfrd.tamu.edu/ForestProductsDirectory/Help2.html to download the user manual in PDF format.

2.14 Map My Property

The Map My Property application provides users with tools to locate their property, draw and edit the property boundary, measure areas and distances, create labels and points of interest and preview the property boundary map before it is printed or converted to PDF. The application also allows users to view and identify soils, clip the soils layer to the property boundary and display in a table the proportion of each type of soil in the property. For help with this application go to http://tfsfrd.tamu.edu/MapMyProperty/Help2.html to download the user manual in PDF format.

2.15 Tree Trails

Tree Trails is an application that allows teachers, youth organization leaders, and the general public to map a custom tree trail, utilize the corresponding educational curriculum to learn about these trees, and share this information with others. This application integrates language arts, math, science, social studies and technology with outdoor learning activities to create real and virtual arboretums at schools and other public spaces. For help with this application, please go to http://texasforestinfo.tamu.edu/treetrails/pdf/TreeTrailHelp.pdf to download instructions.

2.16 State Summary Reports

The applications provide capabilities for users to define specific areas of interest and to generate detailed forest information statistics and reports about those areas. This allows users to only query those areas they are most interested in. To facilitate a more complete description of forest resources across the state, each application also provides a tool with links to statewide and regional summary reports. This ensures that access to all levels of reporting is available from a single web source.

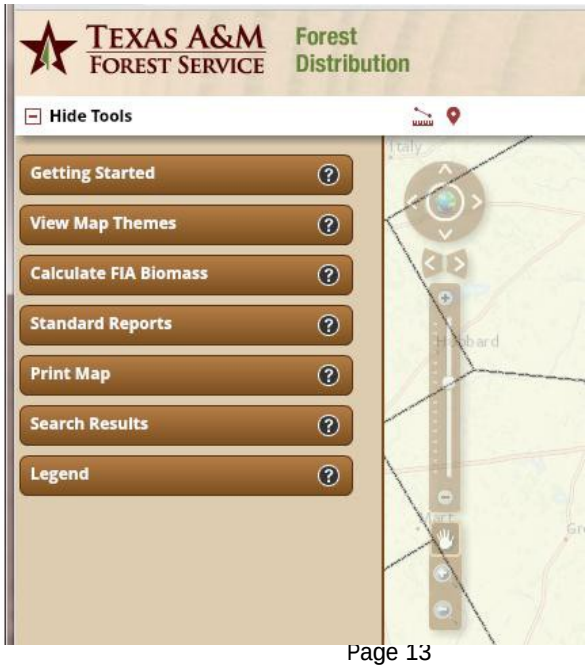
2.17 User Registration

The Texas Forest Info web site and all applications are currently *public-facing*. This means they are accessible to all public users without registration or logins. Logins are required for TFS administrators for configuring the web site and applications.

General Application Tools

Several standard tools are provided in each application. These are consistently used in each application and provide general mapping and query capabilities.

3.1 Using Toolboxes



Each mapping application uses a set of *toolboxes* on the far left of the application. The adjacent figure shows an example of the organization of toolboxes.

To use a toolbox, you must first click it to *expand* the menu. Click the toolbox title bar again to *collapse* the menu. A series of standard toolboxes exist in each application. They are:

- Getting Started
- View Map Themes
- Standard Reports
- Print Map
- Search Results
- Legend

Custom toolboxes are provided in each application, such as the Calculate FIA Biomass toolbox, shown in the example on the right.

3.2 Getting Started Tour

The Getting Started tool provides help to guide you on how to use the Texas Forest Info applications. To use the Getting Started guide, click the Getting Started toolbox to expand the tools, then click *Take the Tour*.

The Getting Started Tour will pop up in the center of the screen. Use the left and right navigation arrows at the bottom of the screen to follow the tour. When you are done, click the X in the upper right corner to dismiss the window.

3.3 Navigating the Map

There are several ways to navigate around the map. You can Search a specific location by entering an address or you can manually zoom around the map using the zoom slider, your mouse, or the extent tools. Texas Forest Info incorporates the Microsoft Bing! Maps address search capability.

Navigating to a Specific Location

Using the Search tool address bar at the top of the screen, enter an address or place name. All places matching that location will be listed in the Search Results box. Click on any of the results to zoom the map to that location. See the section below for more information on how to use this tool.

Zooming and Panning

There are several ways to zoom and pan around the map. These include using the Zoom Slider, Mouse, or the Zoom Extent tools.

Navigation Controls

Using the navigation controls, you can:

- Search Texas – use globe icon to Search full extent
- Pan – use four-way arrows to pan map in any direction
- Zoom Previous/Next Extent – use two-way arrows
- Search Scale – drag zoom slider to desired scale
- Incremental Zoom – use the +/- on zoom slider

Mouse

You can use your mouse to easily zoom or pan the map.

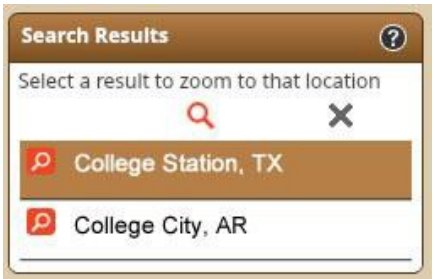
- Pan – use hand tool to click and drag map
- Rectangle Zoom – use + or – magnifying tools
- Incremental Zoom – use mouse center scroll wheel
- Zoom in & Center – double-click the map

Note: mouse controls depend on mouse compatibility and may not work with a wireless mouse.

3.4 Map Search & Search Results Tools

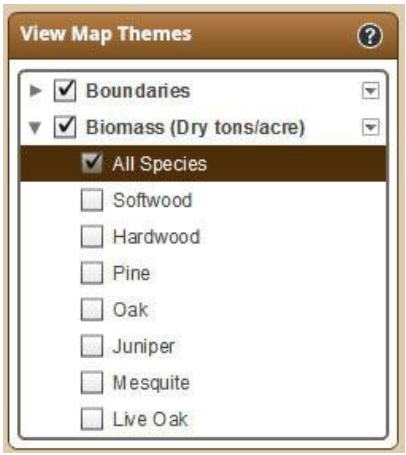
The Map Search tool allows you to select and Search a specific location. You can enter an address or location and then press the magnifying glass icon to search. The following figure presents an example. The tool is located on the main application banner.

When you enter a place name or address to search for a specific location, any search results will be presented in the Search Results toolbox. The map will Search the extent of all search results.



You can use the map navigation tools to zoom in or out, or pan the map without clearing your search results.

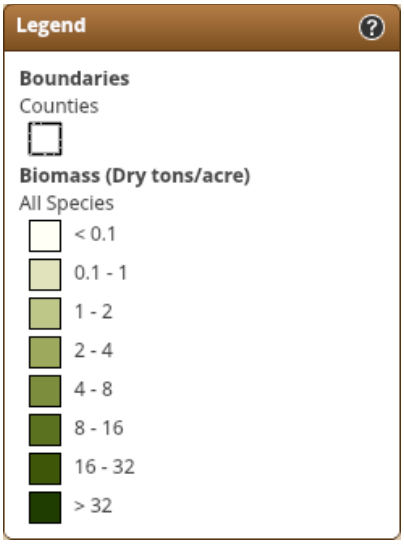
3.5 View Map Themes



The View Map Themes tool allows you to view key maps associated with each of the Texas Forest Info applications. Available map themes (or layers) will vary among applications. The example on the left shows the Forest Distribution Application map themes. These include classified map layers for different types of biomass.

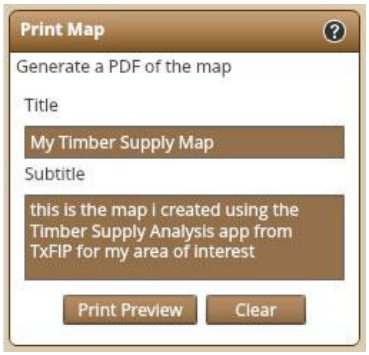
Simply click on the checkbox to turn a map layer on or off. Typically only a single classified map is viewable at any time; however, it is left to the user to decide which layers to view.

Map legends are displayed using the Legend toolbox. Simply click on the toolbox title bar to expand or collapse the toolbox. This toolbox will only show the map classes for the themes that are displayed (i.e. turned on with a check). An example legend for the All Species Biomass theme is shown on the right.



3.6 Print Map

The Print Map tool allows you to create a simple map matching the contents of your map. Simply click on the Print Map title bar to expand the tool. You can enter a custom title and subtitle to appear on the map.



Press the Print Preview button to preview the map. Press the Clear button to clear the map. The following figure presents an example print preview.

The Print Preview map provides capabilities to zoom and pan the map prior to printing. Once you are ready to print the map press the Print button.

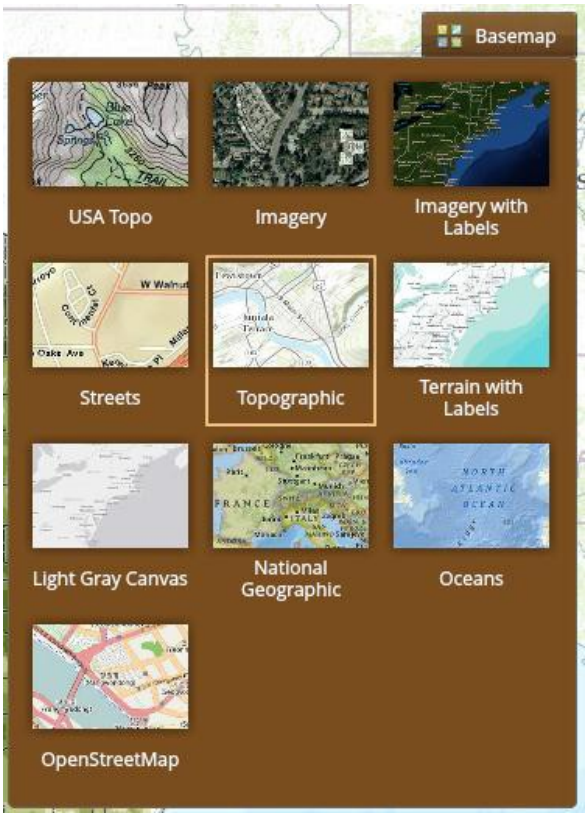
The map is created as a PDF and is available for download. Depending on which web browser you are using, the process for downloading the map will differ. Most browsers will prompt you to save the map on your computer by browsing to a folder, depending on your browser settings.

3.7 Selecting a Base Map

A wide range of different base maps are provided to use with each application. The following figure presents the base maps available within the applications.

To select a base map simply select the Basemap icon/button, and the following popup will appear (see figure on the right).

Click on the base map you prefer. The map background will automatically switch to this base map.



3.8 Standard Reports

Each Texas Forest Info application includes a standard report toolbox. This toolbox provides a mechanism for users to download predefined standard reports generated by TFS staff for statewide, regional or districts areas of the state. The list of standard reports differs for each application. The following figure presents the Standard Reports toolbox for the Timber Supply Analysis application.

3.9 Map Tools

Tools are provided that allow you to view and explore the map layers in more detail. These include:

Measure – use this tool to measure distance or area/perimeter on the map
Coordinates – use this tool to show the current coordinates of the mouse pointer, show coordinates of a user-defined point on the map, or enter coordinates to search for a specific location

Measure

Click the Measure icon to activate the tool. The measure ment tools allow you to measure distance or area on the map. Three distance and two area tools are available. You may specify units using the dropdown menus. Units may be specified before or after measuring. Use the *Copy* button to copy measurement results. After pressing *Copy*, you may paste this information into another application, such as a text editor. Click *Close* to dismiss the window.

Coordinates

Click the Coordinates icon to activate the tool. There are three ways to use the Coordinates Tool.

- Use the Mouse tab to determine coordinates for the location of your mouse on the map. Use the dropdown menu to change the format of the mouse coordinates.

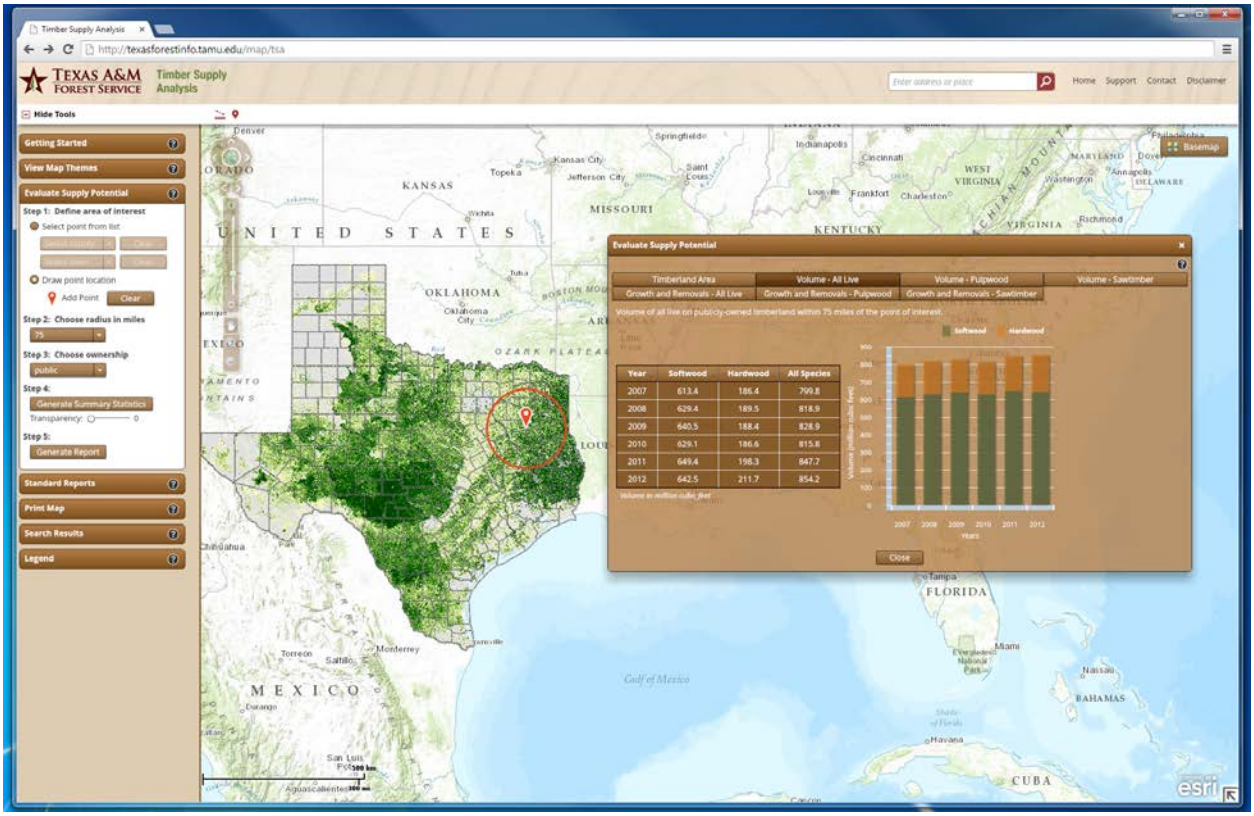
- Use the Point tab to determine coordinates for a specific location on the map. Simply click the point tool to activate and click on the map. The coordinate format can be changed with the dropdown menu. Use the Copy tool to copy the coordinates and paste in another application, such as a text editor.

- Use the Search tab to enter your own coordinates. The map will Search the coordinates entered. You may change the format required for coordinates by using the dropdown menu. Press *Search* to zoom the map to the location of your coordinates.

Click *Close* to dismiss the window.

Using the Timber Supply Analysis Application

The Timber Supply Analysis application estimates the amount of timberland, timber volume, growth, and removals within a user-specified distance – 50, 75, or 100 miles – from a point of interest in East Texas. Capabilities are provided to allow the user to define a specific location (point) and a radius around that location. The timber supply potential within that buffer area is then calculated using the USFS Forest Inventory and Analysis (FIA) data and presented in a series of data tables and charts. If desired, the user can then export the summary statistics to a Microsoft Word document for use outside of Texas Forest Info. The following figure presents the application interface with an example of a user defined supply area and output timber supply statistics.



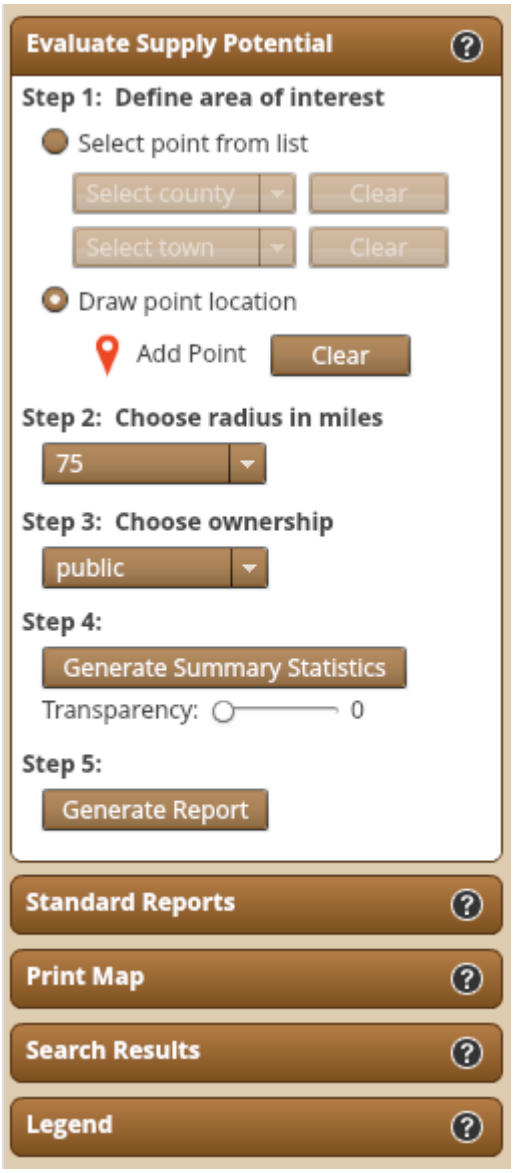
A step-by-step instruction on how to use this application is provided below.

4.1 Evaluate Supply Potential

The main capability within the Timber Supply Analysis application is the tool to evaluate supply potential. This tool allows the user to define a geographic area of interest and then summarize the timber supply within that area. A simple, procedural interface is provided with a series of steps for selecting analysis inputs.

Step 1: Define Area of Interest

The first step is to define the area of interest by selecting a point (location) on the map. Two main options are available:



1. **Select a county and/or town, or**
2. **Draw a point on the map**

To select a county or town to use as the point on the map, simply toggle the option from the tool menu, select the County from the pulldown list, or select a Town from the pulldown list. Selecting a county first will result in only the towns in that county being available for further selection. Press the *Clear* button to clear either selection. The geographic centroid location of either the county or town will be used to define the point on the map.

To draw a point on the map, toggle the option from the tool menu, press Add Point and click on the map. You can zoom and pan the map at any time to view the location you are interested in. Press **the** *Clear* button to clear the selection.

Step 2: Choose Radius in Miles

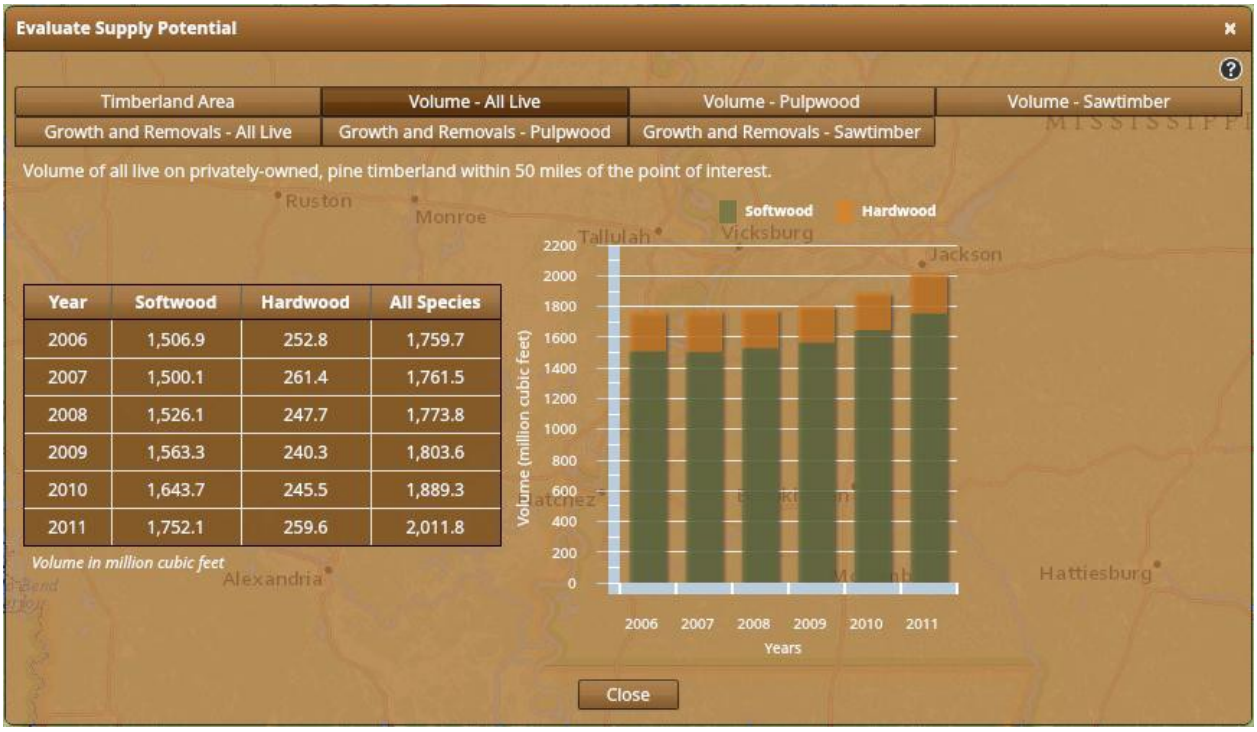
Once you have defined the area of interest you must select the buffer radius. Three options are provided - **50, 75 and 100 miles**. Choose the option that best meets your requirement. Only one radius distance at a time can be selected. By default, the radius is set to 75 miles and when the point on the map is defined a 75 mile buffer will be drawn. If you change the radius, the buffer on the map will automatically change as well.

Step 3: Choose Ownership

Three options exist for choosing the ownership - **Public, Private or All**. Select the option you prefer from the pull-down menu.

Step 4: Generate Summary Statistics

Press the *Generate Summary Statistics* button to generate the summary statistics. This can take several seconds. Once the statistics are completed they will be displayed in a popup information panel. An example is shown below.



Seven different summary statistics categories are generated. Simply select the individual tabs to view each summary. To obtain more information about each of the summary statistics categories, including information about the calculations, criteria etc., press on the question mark icon in the top right of the panel. Press *Close* to dismiss the summary panel.

Step 5: Generate Report

To generate a Microsoft Word format report of the summary statistics, press the *Generate Report* button. A report for your defined area of interest will be generated in a few seconds and you will be prompted to download the report to your computer. The exact method for downloading will differ depending on the browser used and the settings for your computer. The report is provided in Microsoft Word format to facilitate the copying and pasting of report content. This will make it easier for users to utilize the information for their own purposes.

4.2 Standard Reports

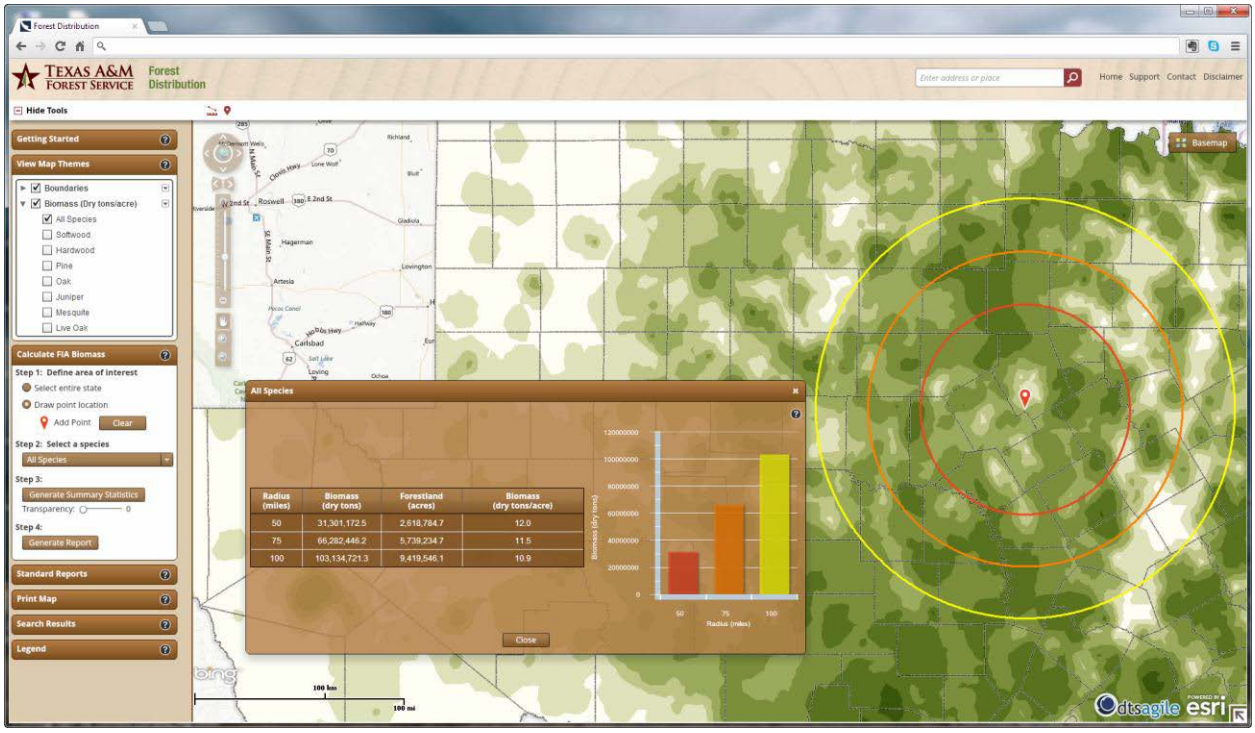
The Standard Reports tool provides access for downloading the predefined standard summary reports created by TFS staff. Click on the links provided to download the reports. These reports are in PDF format.

Using the Forest Distribution Application

The Forest Distribution application provides an estimate of the amount of forest biomass that occurs within three distances—50, 75, and 100 miles—of a user defined point in Texas along with the total for the entire state. Estimates of biomass are derived using plot data from the national Forest Inventory and Analysis Program (FIA) and are provided in units of oven-dry tons (2000 lbs./ton). Per acre values are based on per acre of forestland. Forestland area within the area of interest is estimated from expansion factors applied to the data for plots that occur within the area of interest.

In addition to estimates of amount of biomass within the three areas of interest and the whole state, a map is displayed of the state showing the distribution of forests, or trees within a species group, in Texas. The map data has been produced using a geo-statistical interpolation technique that produces a prediction surface of biomass amount per acre. This map is best viewed from a small scale (zoomed out on the web map) since its intent is to provide only a general sense of where the forests occur and how much biomass is present.

The biomass potential within that buffer area is calculated using the USFS Forest Inventory and Analysis (FIA) data and presented in a series of data tables and charts. If desired, the user can then export the summary statistics to a Microsoft Word document for use outside of Texas Forest Info. The following figure presents the application interface with an example of the three buffer distances and output biomass statistics.

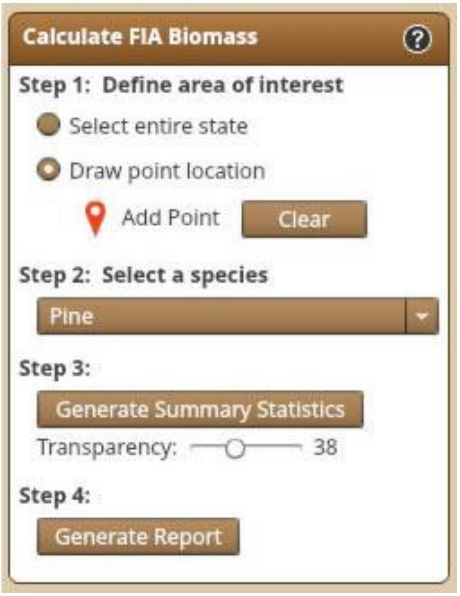


A step-by-step instruction on how to use this application is provided below.

5.1 Calculate FIA Biomass

The main capability within the application is the tool to calculate biomass potential for predefined buffer areas around a user defined location. This tool allows the user to define a geographic area of interest and then summarizes the biomass within that area. A simple, procedural interface is provided with a series of steps for selecting analysis inputs.

Step 1: Define Area of Interest



The first step is to define the area of interest. Two main options are available:

1. **Select the entire state, or**
2. **Draw a point on the map**

To select the entire state select the *Select entire state* option.

To draw a point on the map, simply toggle the *Draw point location* option from the tool menu, press *Add Point* and click on the map. You can zoom and pan the map at any time to view the location you are interested in. Once you define a point on the map, the 50, 75 and 100 mile buffers will be displayed around the point and the map will zoom to the 100 mile extent. Press the *Clear* button to clear the area definition.

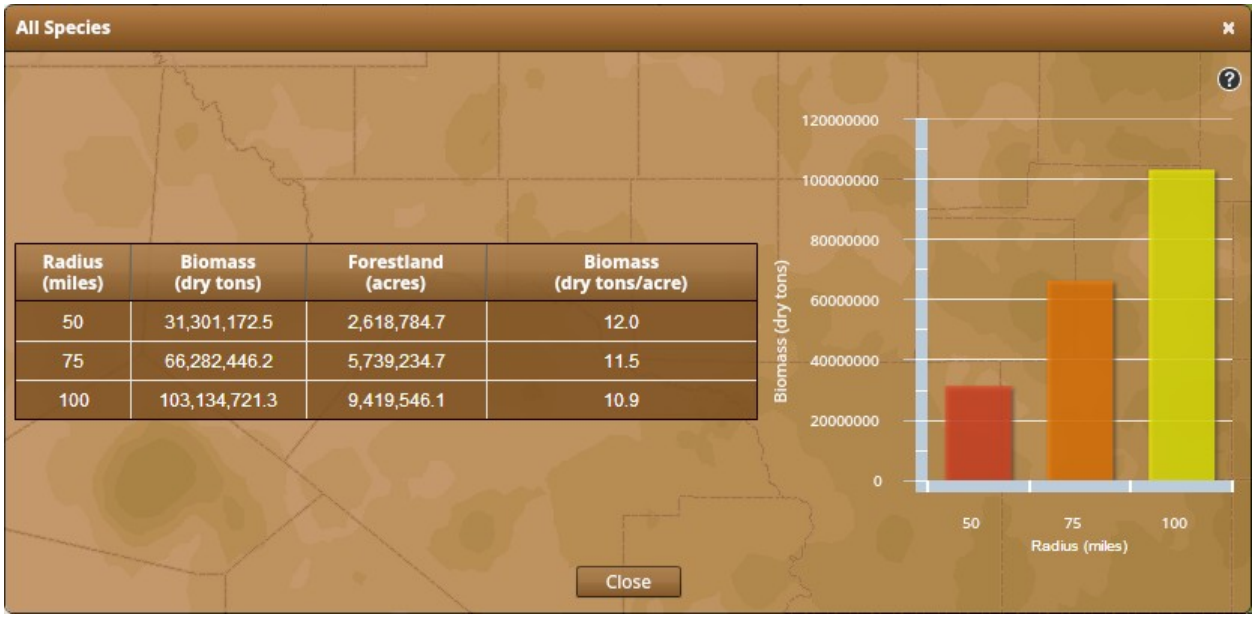
Step 2: Select a species

Once you have defined the area of interest you must now select the species. Several options are provided, these are: **All Species, Softwood, Hardwood, Pine, Oak, Juniper, Mesquite or Live Oak**.

Choose the option that best meets your requirement.

Step 3: Generate Summary Statistics

Press the *Generate Summary Statistics* button to generate the summary statistics. This can take several seconds. Once the statistics are completed they will be displayed in a popup information panel. An example is shown below.



To obtain more information about the summary statistics, including information about the calculations, press on the question mark icon in the top right of the panel.

Press *Close* to dismiss the summary panel.

Step 4: Generate Report

To generate a Microsoft Word format report of the summary statistics, press the *Generate Report* button. A report for your defined area of interest will be generated in a few seconds and you will be prompted to download the report to your computer. The exact method for downloading will differ depending on the browser used and the settings for your computer.

The report is provided in Microsoft Word format to facilitate the copying and pasting of report content. This will make it easier for users to utilize the information for their own purposes.

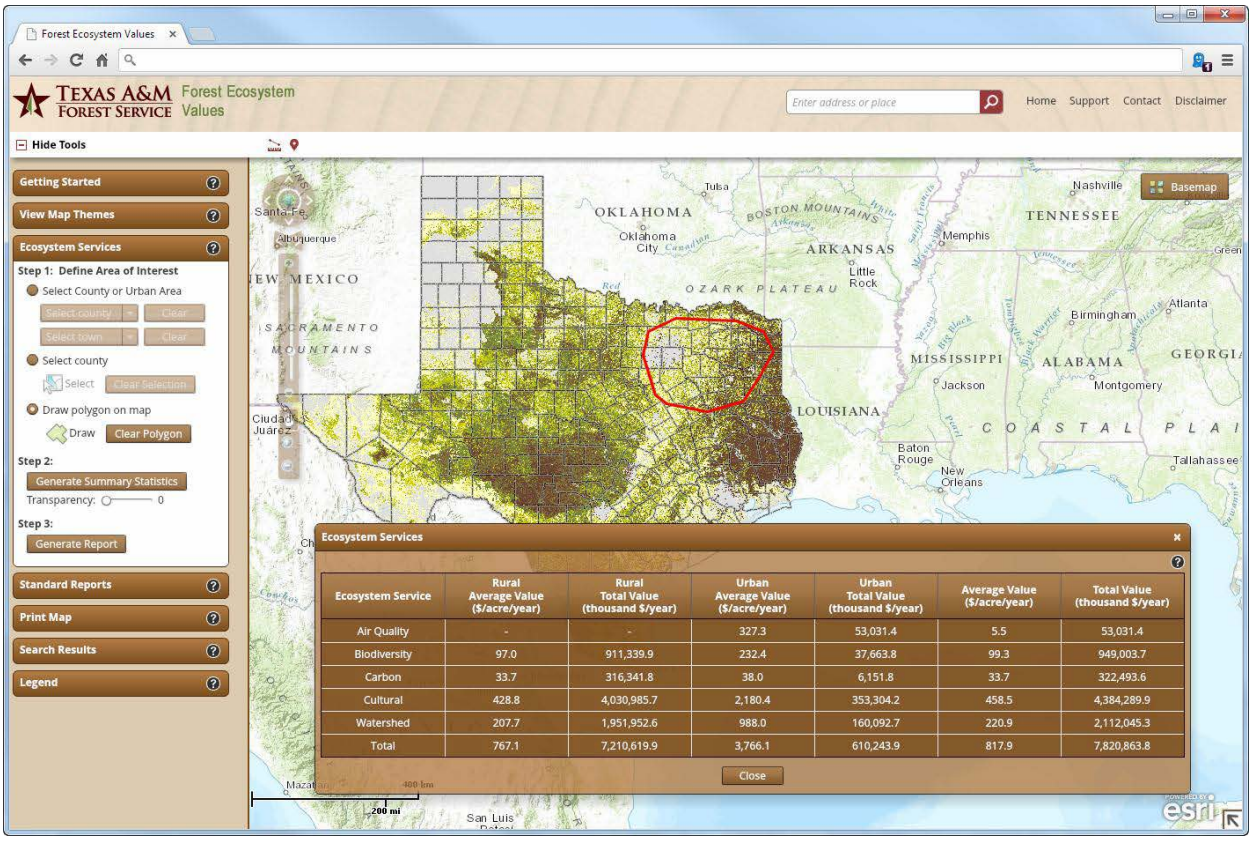
5.2 Standard Reports

The Standard Reports tool provides access for downloading the predefined standard summary reports created by TFS staff. Simply click on the links provided to download the reports. These reports are in PDF format.

Using the Forest Ecosystem Values Application

The Forest Ecosystem Values application provides an estimate of the economic value of forest ecosystem services that occur within a user defined area. These include air quality, carbon, watershed, biodiversity, and cultural, as well as a total summary of all services. User-defined areas can be identified as either counties or polygons drawn on the map.

Estimates are based on analysis of forest resources in the area, results of existing literature, non-market valuation techniques, evapotranspiration model, and current GIS information on forest resource distribution, soil productivity, and hydrology. The results should be viewed as conservative estimates of the value of the forest ecosystem services. The ecosystem services that are valued and reported here are only part of a full suite of ecosystem services provided by the forest within the area of interest. All the values herein are in 2011 constant dollar. The following figure presents the application interface with an example of a user defined area of interest and the resulting ecosystem services statistics.

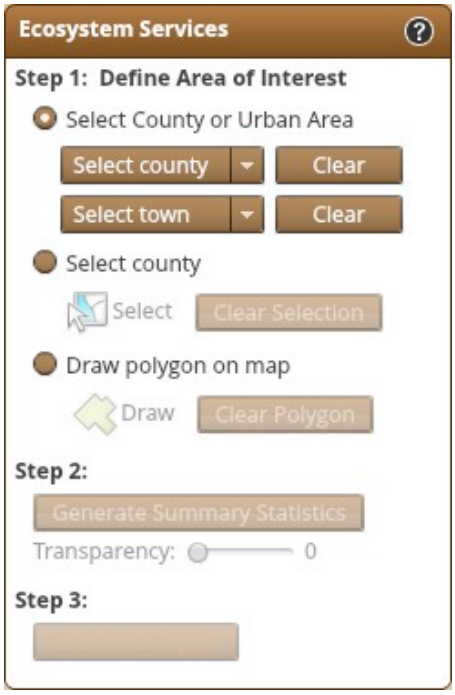


Ecosystem Service	Rural Average Value ($/acre/year)	Rural Total Value (thousand $/year)	Urban Average Value ($/acre/year)	Urban Total Value (thousand $/year)	Average Value ($/acre/year)	Total Value (thousand $/year)
Air Quality	-	-	327.3	53,031.4	5.5	53,031.4
Biodiversity	97.0	911,339.9	232.4	37,663.8	99.3	949,003.7
Carbon	33.7	316,341.8	38.0	6,151.8	33.7	322,493.6
Cultural	428.8	4,030,985.7	2,180.4	353,304.2	458.5	4,384,289.9
Watershed	207.7	1,951,952.6	988.0	160,092.7	220.9	2,112,045.3
Total	767.1	7,210,619.9	3,766.1	610,243.9	817.9	7,820,863.8

A step-by-step instruction on how to use this application is provided below.

6.1 Ecosystem Services

The main capability within the Forest Ecosystem Values application is the tool to calculate the ecosystem services available within a user defined area of interest. This tool allows the user to define a geographic area of interest and then summarize the ecosystem services within that area. A simple, procedural interface is provided with a series of steps for selecting analysis inputs.



Step 1: Define Area of Interest

The first step is to define the area of interest. Three options are available:

1. **Select a county and/or town from a list,**
2. **Select one or more counties on the map, or**
3. **Draw a polygon (area) on the map**

To select a county or town, toggle the option from the tool menu, select the County from the pull-down list, or select a Town from the pull-down list. Selecting a county first will result in only the urban areas in that county being available for further selection. Press the *Clear* button to clear either selection.

To select a county, toggle the option from the tool menu, select the 

button and then select one or more counties on the map. You can zoom and pan the map at any time to view the map area you are interested in.

County boundaries are automatically displayed on the map as reference. Once a county is selected it will be highlighted. When you have finished selecting counties, press the Select button again to deactivate the tool. Press the *Clear* button to clear the county selection.

To draw a user defined area of interest, toggle the *Draw polygon on map* option, select the *Draw* button, and then digitize a polygon boundary on the map. It is usually better to zoom into the general area of interest on the map using the standard drawing and navigation map tools. To digitize the polygon, click on the map to define the individual vertices of the polygon area. The polygon will draw as you digitize. Double-click to finish the polygon area. Press the *Clear* button to clear the polygon definition if you want to redraw the polygon.

Step 2: Generate Summary Statistics

Once the area of interest is defined, press the *Generate Summary Statistics* button to generate the summary statistics. A large area of interest may take a few minutes to process. Once the statistics are completed they will be displayed in a popup information panel. An example is shown below.

Ecosystem Service	Rural Average Value ($/acre/year)	Rural Total Value (thousand $/year)	Urban Average Value ($/acre/year)	Urban Total Value (thousand $/year)	Average Value ($/acre/year)	Total Value (thousand $/year)
Air Quality	-	-	327.3	4,540.6	321.4	4,540.6
Biodiversity	103.3	26.3	232.0	3,219.0	229.7	3,245.3
Carbon	39.3	10.0	57.9	802.6	57.5	812.6
Cultural	506.3	128.8	1,477.2	20,494.7	1,459.8	20,623.5
Watershed	160.6	40.9	1,312.1	18,203.4	1,291.4	18,244.3
Total	809.5	205.9	3,406.5	47,260.4	3,359.7	47,466.3

Summary statistics are available for Air Quality, Biodiversity, Carbon, Cultural, Watershed, and a Total of all ecosystem services. Statistics are calculated for rural forested areas, urban forested areas, and total forested areas.

To obtain more information about each of the summary statistics categories, including information about the calculations, criteria etc., press on the question mark icon in the top right of the panel.

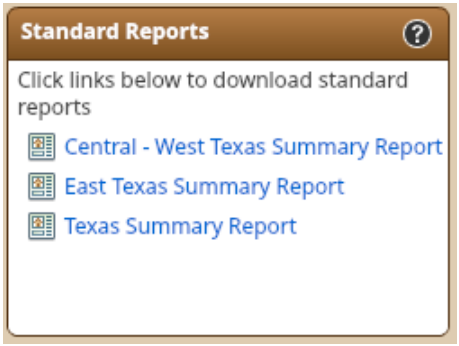
Press *Close* to dismiss the summary panel.

Step 3: Generate Report

To generate a Microsoft Word format report of the summary statistics, press the *Generate Report* button. A report for your defined area of interest will be generated in a few seconds and you will be prompted to download the report to your computer. The exact method for downloading will differ depending on the browser used and the settings for your computer.

The report is provided in Microsoft Word format to facilitate the copying and pasting of report content. This will make it easier for users to utilize the information for their own purposes.

6.2 Standard Reports



The Standard Reports tool provides access for downloading the predefined standard summary reports created by TFS staff. Click on the links provided to download the reports. These reports are in PDF format.

More Information

Texas Forest Info has been developed by the Timmons Group (Richmond, VA) under contract to, and in collaboration with, the Texas A&M Forest Service. For more information about this project please contact Brad Barber, Texas A&M Forest Service at bbarber@tfs.tamu.edu.

For more information about Texas A&M Forest Service please visit our web site at http://txforestservice.tamu.edu/main/default.aspx. Detailed information about Forest Resource Development and Sustainable Forestry can be found at http://txforestservice.tamu.edu/main/default.aspx?dept=frd including descriptions of the services reflected in the Texas Forest Info web portal.

For more information about Timmons Group please contact David Buckley at David.Buckley@Timmons.com or visit www.TimmonsGIS.com.