



California Department of Fish and Wildlife Biogeographic Information and Observation System (BIOS 5) Data Viewer User Guide

January 2016

The BIOS team in the Biogeographic Data Branch of the California Department of Fish and Wildlife is pleased to release its new internet based map and data viewer, BIOS 5. Many new enhancements have been made to the BIOS data viewer and are detailed in this User Guide.

BIOS is a system that enables the visualization of the spatial distribution of biological data generated by the California Department of Fish and Wildlife (CDFW) and its Partner Organizations, the management of those data when necessary, and the sharing of those data with Department employees and partners. It is an evolving system and is expected to change in response to the Department's needs and improvements in technology.

The BIOS Data Viewer is an easy to use, interactive, web-based map viewer that allows basic geospatial viewing and querying without the need for GIS software installed on your computer. It provides a means to manage, archive, display, and analyze information within the scientific and research community and also with the public.

This User Guide is intended to help you become familiar with the components of the BIOS viewer and to provide instruction on the access and use of the many tools and functions available within the viewer.



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Public vs. Secure Data Viewer

Upon web map viewer startup, a welcome screen provides you with information about the viewer and links to additional information. You will be asked to either log in or choose the Public BIOS Viewer.

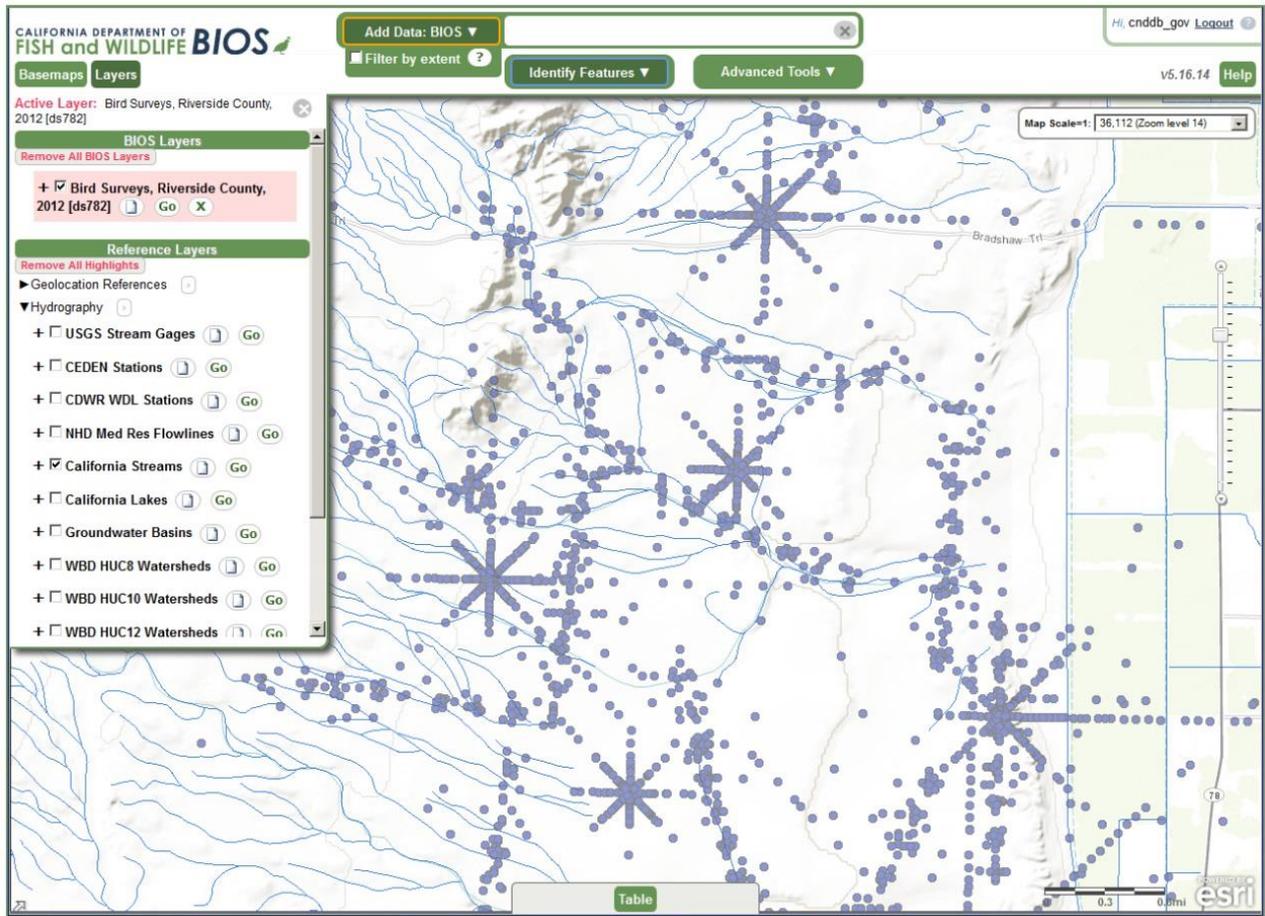


Each dataset in BIOS is assigned a level of security. The majority of the datasets are available to the public, but some are restricted for a variety of reasons. You must log in to access the secured datasets. An example of this would be our California Natural Diversity Database (CNDDB) which is available in the BIOS viewer as part of the CNDDB subscription service. (More information about the CNDDB is available at <http://www.dfg.ca.gov/biogeodata/cnddb/>).

Access to these secure datasets is managed by using assigned user names and passwords. California Department of Fish and Wildlife (CDFW) users can sign in using their usual Department log in information and CNDDB subscribers can sign in using the monthly user name and password that is emailed to them.

You are not required to sign in to access the hundreds of publicly available datasets in the BIOS viewer. If you opt to use the Public BIOS Viewer and later find that you want to sign in to the Secure BIOS Viewer in order to work with secure datasets you can do so by clicking the **Login** link in the top right corner of the BIOS window.





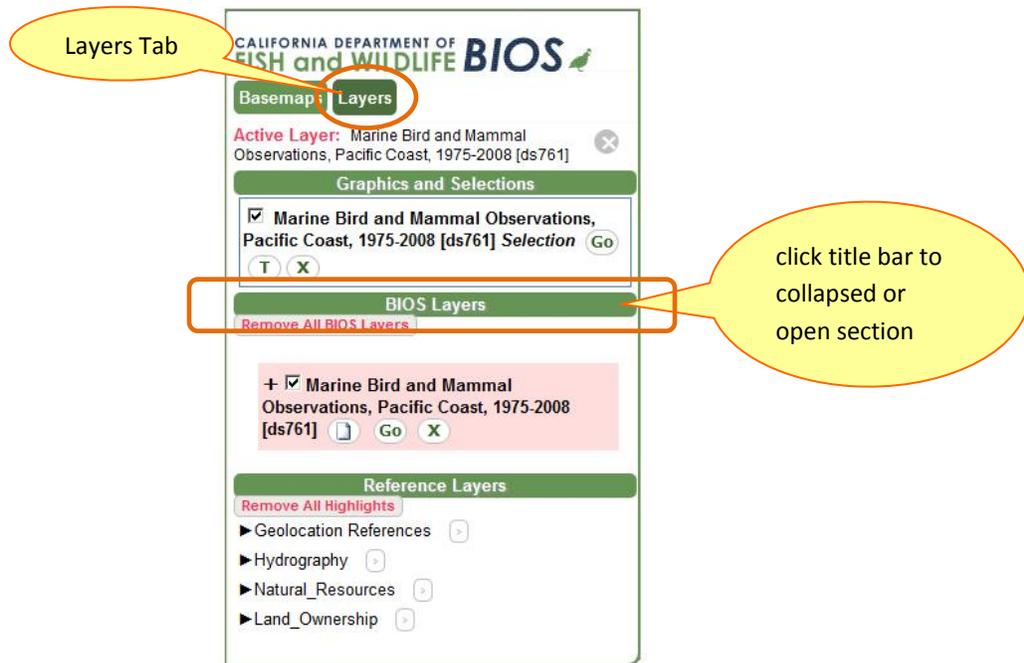
Overview of the Map Viewer

In the left side panel is the **Table of Contents (TOC)**. The TOC lists the data layers that have been added to the viewer, the reference data layers that are available to the particular viewer by default, available basemaps, temporary graphics and sets of selected features. The TOC also provides other map content related functionality, such as metadata and symbology for your data layers.

If the TOC Panel is collapsed it can be made visible again by clicking on one of the tabs on the toolbar such as the Layers tab or the Basemaps tab. If it is open and you wish to close it you can do so by clicking on the close (X) button on the upper-right corner of the panel. You can switch the contents of the panel by clicking the different tabs on the toolbar. Click on the tab that is already 'on' will close the panel.

The Table of Contents panel may include the following contents:

Layers - This tab is active by default in the TOC panel. It displays a list of all the current map content with the exception of the background map. Sections within the Layers tab can be collapsed or reopened by clicking on the green title bar for the section, for example the Graphics and Selections or BIOS Layers sections can be opened and closed in this way.



- To draw a data layer, simply check on the small box to the left of the name of the data layer in the Table of Contents. We have many large and complex datasets in BIOS, so we do not draw them automatically when they are loaded into the map. This gives you a chance to zoom in to your area of interest before checking the box to draw to data, improving both the performance of the viewer and the legibility of the data.

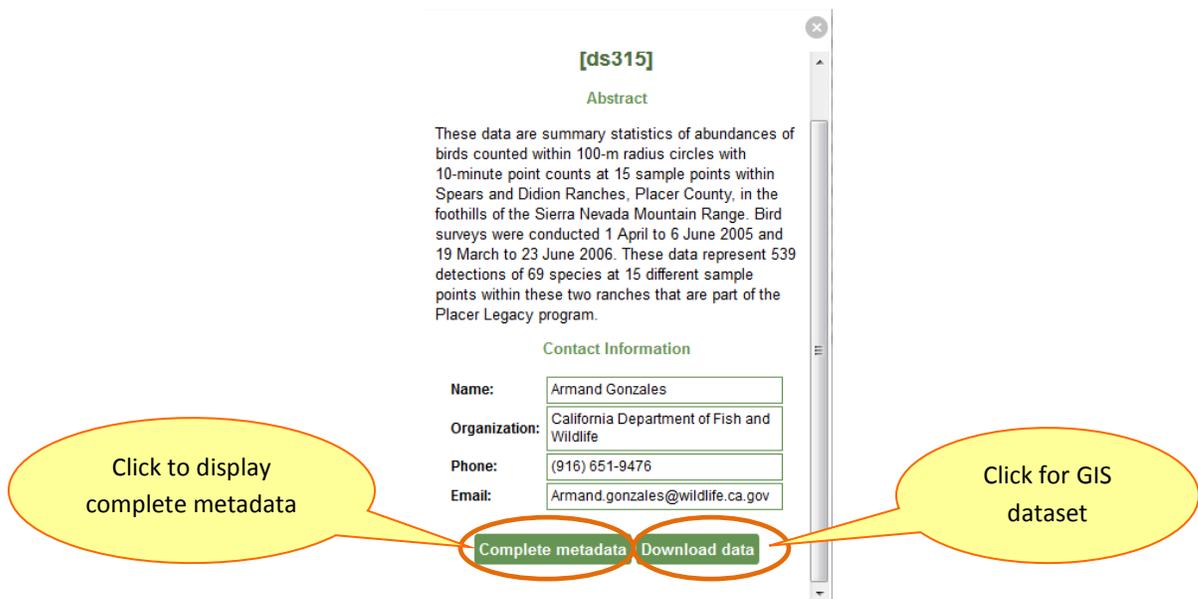


- Active Layer Display - Along the top of the Table of Contents panel and just below the Layers tab is a small display showing the currently selected **Active Layer**. Any of the tools that interact with

the data layers will work only on the **Active Layer**. To make a layer active you simply click on the layer name in the Table of Contents. You will see a pink box appear around the layer showing that it is active and the name of the layer will show in the Active Layer display.



- You can view a summary of the metadata for a layer by clicking on the **metadata**  button to the right of the layer name. The metadata displays in a small window on the right side of the viewer. The metadata summary displays the abstract, contact information, and a green **Download data** button if the dataset is available on CDFW's Ftp site. The complete metadata can be viewed by selecting the green **Complete metadata** button.

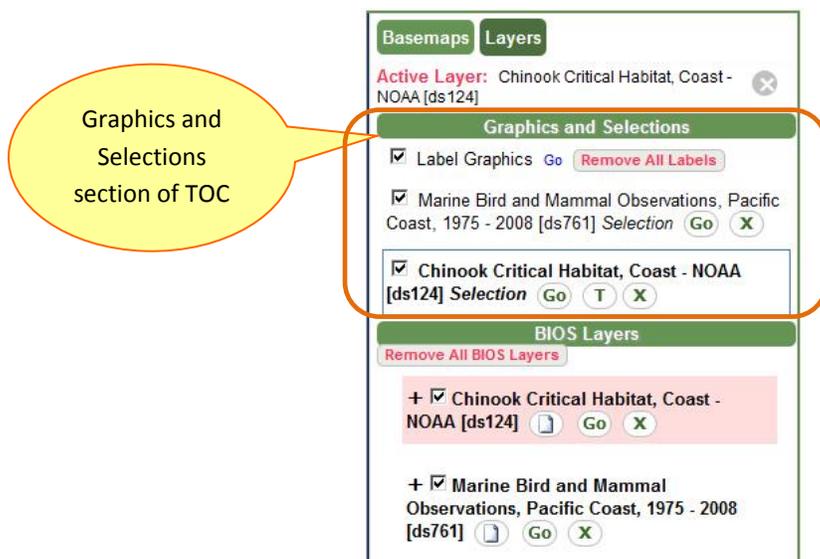


- The **Go** button will allow you to quickly zoom the map to the full spatial extent of the Active Layer.
- A symbology legend is available for each data layer in the Layer tab. Click on the **+** to the left of the Layer name and check box. The **+** will change to a **--** and a drop-down legend will appear below the layer name showing each type of symbol used to display that dataset in the map. Feature symbology is not editable in BIOS at this time.



- Click on the (X) button after the data layer name to remove the layer from your map session.

Graphics and Selections - This section lists any graphics layers that you have created in your map, such as map labels, as well as any selections that you have created while working with the layers and tools.

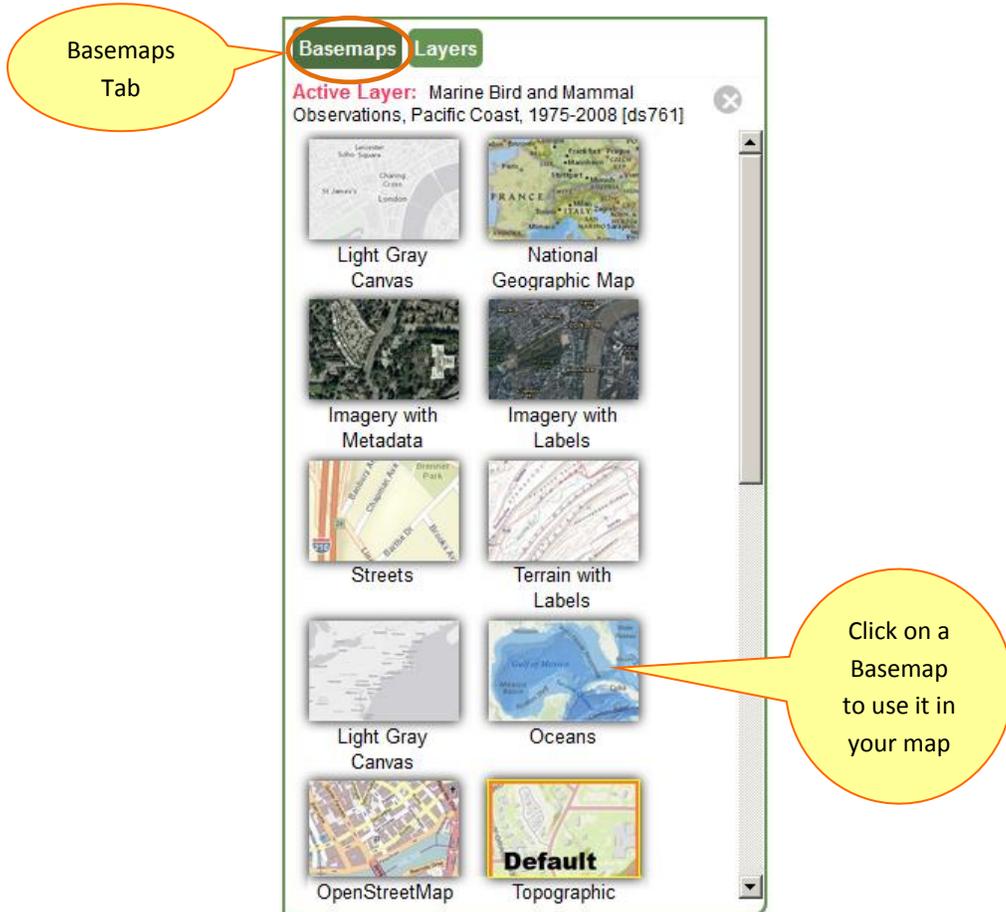


Reference Layers - This section lists the general purpose map layers that are provided for geographic reference. These include layers for cities, place names, county boundaries, USGS Quads, and

US Township/Range/Sections. By default, the *Point Info* tool uses these layers to display general location information about a point that you click on the map. The Reference Layers are grouped into categories such as Hydrography and Natural Resources. You can click on the black drop-down arrow to the left of each category to open it up and see what layers are available in it.



Basemaps - You can change the background map to any map available under the Basemap tab in the Table of Contents on the left side of the viewer window. Click on the thumbnail image of the basemap that you would like to use and you will see the map update to display the basemap that you have selected.



Map choices include imagery, street maps, topographic maps and several years of NAIP imagery, among other options. The default basemap that is loaded when the viewer opens is the ESRI World Topographic Map and you will see it labeled as **Default** in the list.

Map Canvas

In the center spanning the most of the page height and width is the map canvas. This is where map layer data will be displayed and where you can interact with the data with the provided tools. Panels that run along the side of the viewer (side panels or sidebars) can be minimized to reveal a larger map area.

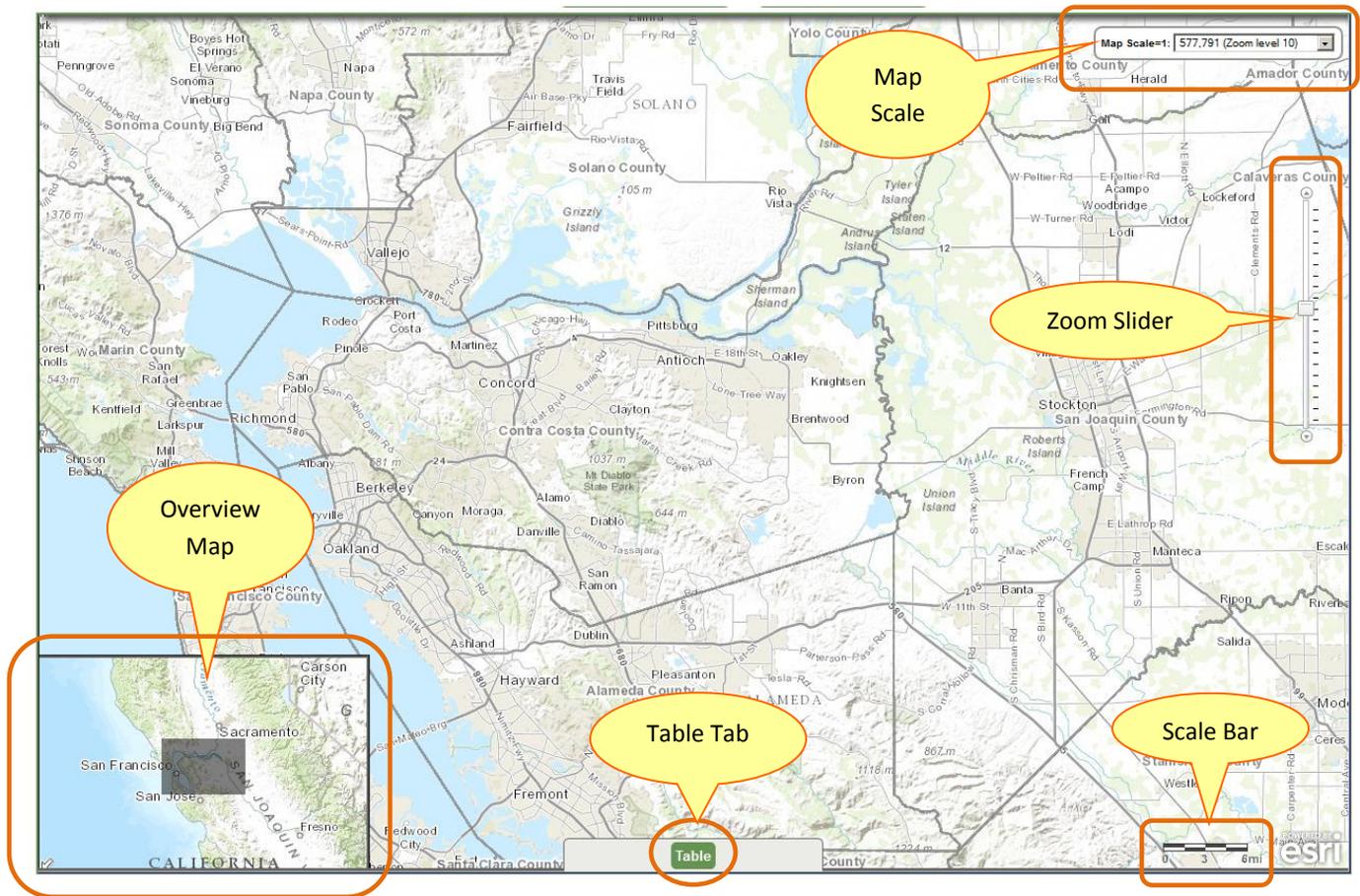
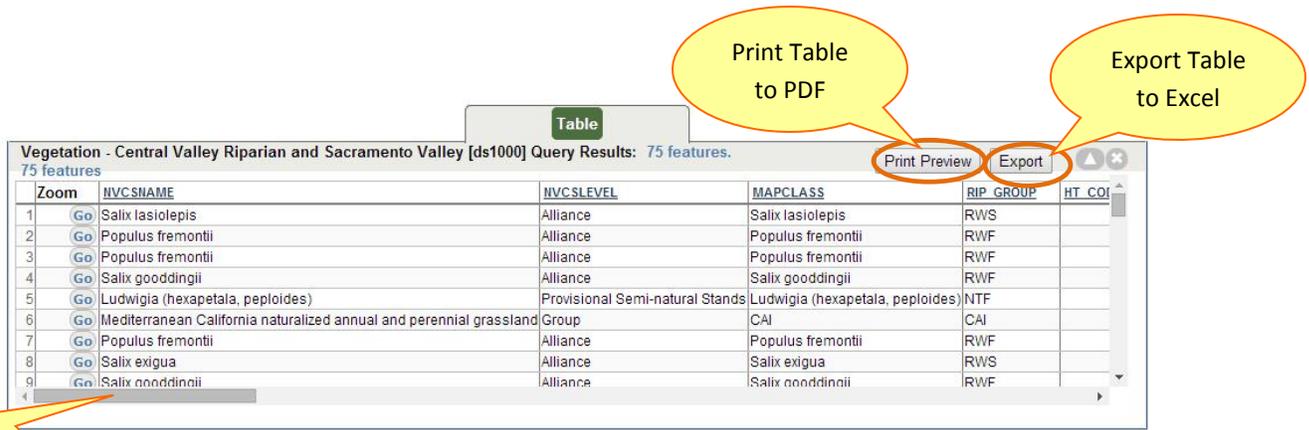


Table Tab— Centered at the bottom of the Map Canvas you will find the Table tab. This tab will open and close the collapsible data panel along the bottom border of the viewer. When you search for a layer feature by using the **Search Active Layer** Quick Tool or select features using the Select tool or Query Builder tool, valid results will be displayed in a table format in this Table panel.



Zoom Slider - Zoom in and out of the map view by clicking on the bar or hold mouse down and drag the slider up or down the bar. You can also hold the **Shift** key down on your keyboard and use your mouse to draw a box in the map to zoom to the specified area.

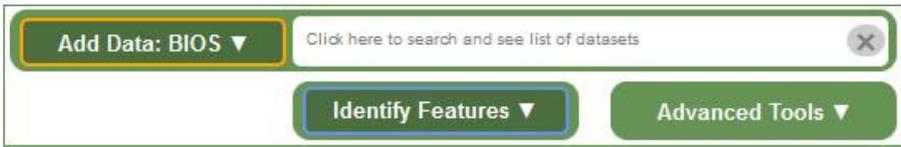
Map Scale pick list – Scale is a ratio of distance on the map vs. distance on the ground. A ratio of 1:24,000 means 1 inch on map = 24000 inches on ground. (~ 1/3 mile). The Map Scale pick list allows you to select a preset map scale from a drop-down list and adjusts the map according to your selection.

Scale Bar - The map scale bar along the bottom right of the map next to the ESRI logo shows the current map scale in miles distance.

Overview Map - The overview map lies on the bottom left corner of the Map Canvas and offers a broader overview of the current map view extent. Upon first opening the map viewer, the Overview map may be hidden. Click on the little arrow at the lower left corner to expand it. The overview map may be hidden by the Table panel when the Table panel is open.

BIOS 5 Tools

All of the tools from the previous version of the BIOS viewer are still available in the new version. They have been arranged into the three drop-down menus that you see at the top of the viewer.

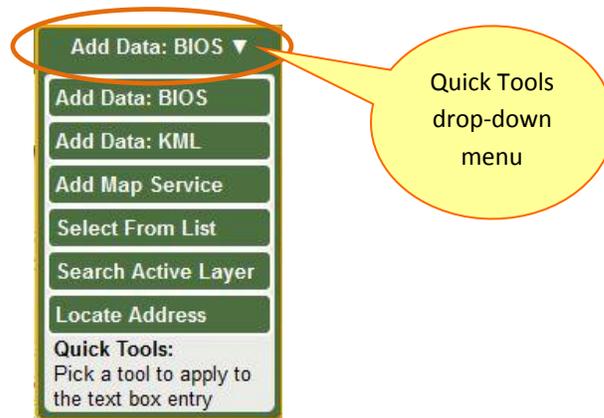


To use a tool in BIOS, you must first select the layer that you want to use the tool on in the Layers tab of the Table of Contents on the left side panel of the viewer, making it the Active Layer. Once you have an Active Layer to work with you can select and use your tool. The current Active Layer is indicated by a solid pink box around the layer name in the Layers list.

Quick Tools Menu

NOTE: Depending on the viewer, not all the quick tools described below will be available.

On the top center of the viewer, next to the logo area is the Quick Tools menu. Here you will find tools that interact with the text box to the right of the menu to perform various tasks. Results may be displayed in an automatic drop-down selection list directly below the input text box. Click on the Quick Tools drop-down to see a list of available tools.



Add Data: BIOS Tool – You can click into the text box to the right of the tool and select data layers to add into your map.



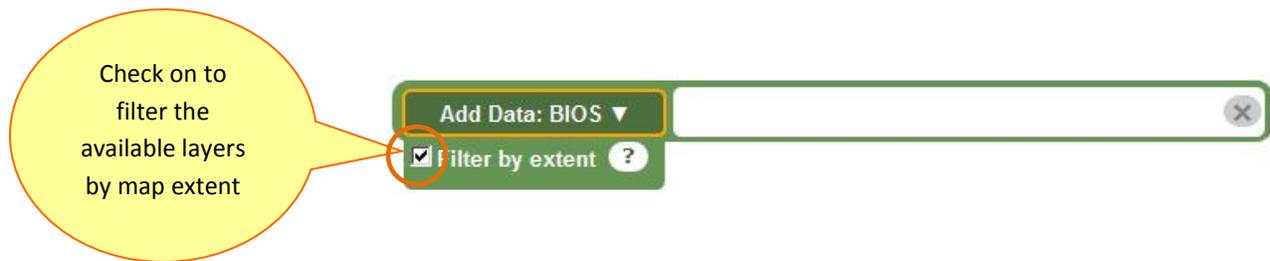
When you click in the textbox a drop-down list will appear showing you all of the available data layers. Scroll through the list and select the one that you would like to add.

You can also type the name of the dataset that you would like to add in the Add Data box or enter a search term such as a dataset number (ds#) or a species name. You will see the drop-down list redraw dynamically as you type to include only those datasets that meet your criteria.



If you click once on the title of the dataset, the metadata will display in a new window on the right side of the viewer. If you double click on the title of the dataset, it will load into the map. The **Add Data: BIOS** tool is the default Quick Tool that is active when you open the viewer. As you add layers into your map you will see them listed in Layers tab of the Table of Contents on the left side of the viewer (see Table of Contents section above).

As you zoom your map in from a statewide scale to a local scale you will see a **Filter by extent** option appear below the **Add Data BIOS** tool. If you check the box to turn this option on, the list of available data layers will include only datasets that contain features within your current map extent.



Add Data: KML Tool – This tool allows you to add a publicly accessible dataset that is formatted as KML (Keyhole Markup Language) or KMZ (zipped or compressed KML files) to your BIOS session. Select the **Add Data: KML** tool from the Quick Tools menu and then enter the public URL into the input box. Press the Enter key on your keyboard and the KML will be added to the Other Layers section of the Table of Contents.



Add Map Service Tool – This tool allows you to add any publicly accessible ad hoc map data source in the format of an ArcGIS Server REST Map Service. Select the **Add Map Service** tool from the Quick Tools menu and then enter the URL into the input box. Press the Enter key on your keyboard and the Map Service will be added to the Other Layers section of the Table of Contents.



- NOTE: Some functionality will be limited if the map service coordinate system / spatial reference is not in Web Mercator (wkid=102100, conforming to ArcGIS.com/Bing/Google Maps).

Select From List – This tool allows you to select from a list of names in the current active layer.



Search Active Layer Tool – This tool allows you to search for features in the current Active Layer by attribute values. First you must activate a feature layer and choose the Search Active Layer tool from the Quick Tools menu.



Click on the Search Active Layer Tool

Then type in a search term in the text box and press the Enter key on your keyboard to run the tool.

Search Active Layer:			
ZoomTo	COMMON_NAM (undefined)	Found Field	Found Value
1	Go	COMMON_NAM	Sooty Shearwater
2	Go	COMMON_NAM	Sooty Shearwater
3	Go	COMMON_NAM	Sooty Shearwater
4	Go	COMMON_NAM	Sooty Shearwater
5	Go	COMMON_NAM	Sooty Shearwater
6	Go	COMMON_NAM	Pink-footed Shearwater
7	Go	COMMON_NAM	Sooty Shearwater
8	Go	COMMON_NAM	Pink-footed Shearwater
9	Go	COMMON_NAM	Sooty Shearwater

You can type in a partial search term if you are not certain of the full term. For example a search of the Marine Birds and Mammal Observations, Pacific Coast, 1975-2008 dataset for “shear” returns all records with a value of “shearwater”.

A record for each of the features selected will be listed in the Table panel along the bottom of the viewer. The corresponding features will be highlighted yellow in the Map Canvas. Click on the **Go** button in the ZoomTo field to zoom to a particular feature listed in the table.

Locate Address Tool - Type a full or partial street address, zip code, city or place name into the search box and press the Enter key on your keyboard. A geocoding service will locate the address entered on the map and the map will zoom to the location of the closest match results.

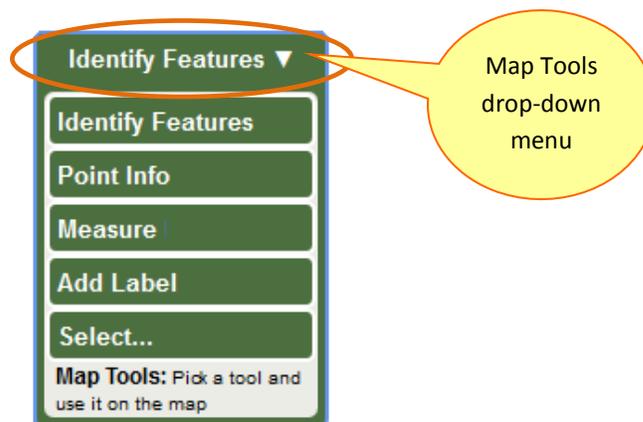


Additional Tools

Above the map area and just below the banner and the Quick Tools menu you will find additional tools grouped into two drop-down menus. These are the Interactive Map Tools and the Advanced Tools.

Map Tools Menu

These tools interact directly with the map canvas. Select a tool from the drop-down menu and click on the map to perform the desired task.



Identify Features Tool - This is the default Interactive Map Tool and also the most familiar to most users. Select the tool and click on a feature in the Active Layer and the attribute data for the feature identified is displayed in a table at the bottom of the viewer window.

Multiple features identified

Scroll down to see additional results

	SNAME	CNAME	PHOTO	FAMILY	INVDATE	TIME	CLASS	ORDER	STAGE	NUMOBS	SUBSTRATE1	SUBSTRATE2	SUBSTRATE3	LOCATION	INVTEMP	FLOWVE
1	Bufo boreas	Western toad	-	Bufoinae	10/13/1962	-1	Amphibia	Salientia	Unknown	2	Unknown	-	-	Unknown	-1	
2	Lepomis cyanellus	Green Sunfish	-	Centrarchidae	6/23/1983	1200	Osteichthyes	Perciformes	Adult	24	Unknown	-	-	Pool	20	
3	Lepomis macrochirus	Bluegill	-	Centrarchidae	6/13/1983	-1	Osteichthyes	Perciformes	Adult	1	Unknown	-	-	Unknown	18	
4	Lepomis cyanellus	Green Sunfish	-	Centrarchidae	6/23/1983	1200	Osteichthyes	Perciformes	Adult	20	Unknown	-	-	Unknown	20	
5	Micropterus salmoides	Largemouth Bass	-	Centrarchidae	6/23/1983	1200	Osteichthyes	Perciformes	Adult	1	Unknown	-	-	Pool	20	

Scroll across to see additional information

If the Identify Features tool finds multiple features at a location a record for each feature will be made available in the table. A scroll bar will also appear at the bottom of the table if the number of columns exceeds the width of the viewer window. Use the scroll bar to view the additional information.

Point Info Tool - Select this tool and click on the map to get some basic location information about a location in the map, including various coordinates formats, county, and quad.

Point Location Info

NAD83:
 Latitude/Longitude:
 DD: 39.770499, -121.57974
 DMS: 39 46 13.8, -121 34 47.06
 DDM: 39 46.22994, -121 34.78440
 UTM: 4403250, 621640
 Zone: 10

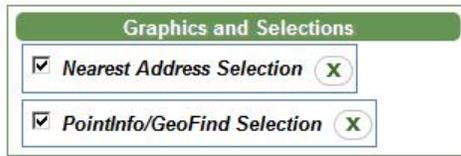
NAD27:
 Latitude/Longitude:
 DD: 39.77062, -121.57866
 DMS: 39 46 14.21, -121 34 43.16
 DDM: 39 46.23690, -121 34.71940
 UTM: 4403055, 621736
 Zone: 10

City: Paradise
County: Butte County
24K Quad: PARADISE EAST
PLSS Section: M 22N 03E 12
Zip: 95969
Watershed (HUC8): Sacramento River
Ecoregion Section: Southern Cascades

+ **Nearest Address:** 6445 PENTZ RD,
 PARADISE, CA, 95969

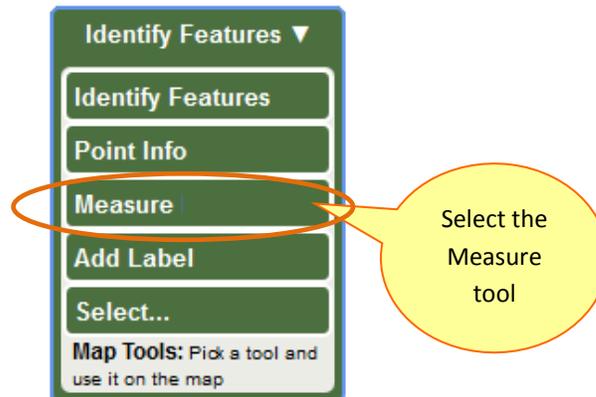
NOTE: The basic geographic reference information displayed below the potential street address found comes from data layers limited by the California state boundary, so results may be incomplete or unavailable if you click on a map point outside of California.

You will see a PointInfo/GeoFind Selection layer appear in the Graphics and Selections section of the Table of Contents.

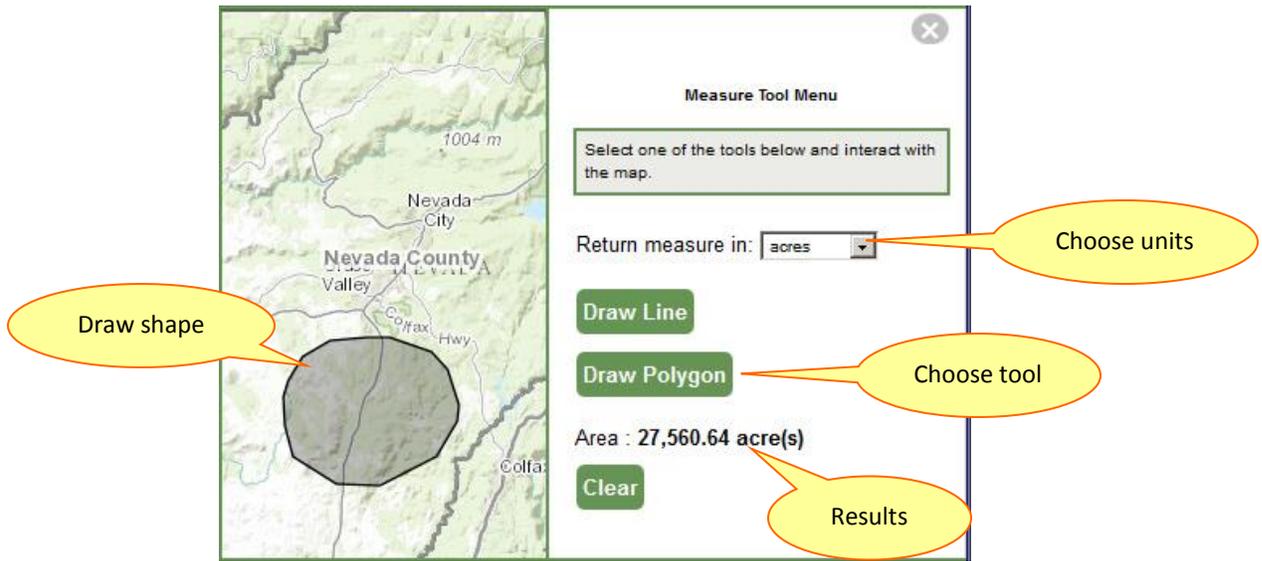


This controls the graphic that was placed in the map by the **PointInfo** tool to represent the location that you clicked. You can turn the graphic on or off in the map by checking or unchecking the box or remove it by clicking the **X** button. If you clicked in an urban area with the **PointInfo** tool, a second item will appear in the Graphics and Selections section. The Nearest Address Selection represents the nearest street address found to the point that you clicked on the map.

Measure Tools- The **Measure** tool allows you to perform length and area measurement within the Map Canvas. To open the tool you must select it from the Map Tools menu.

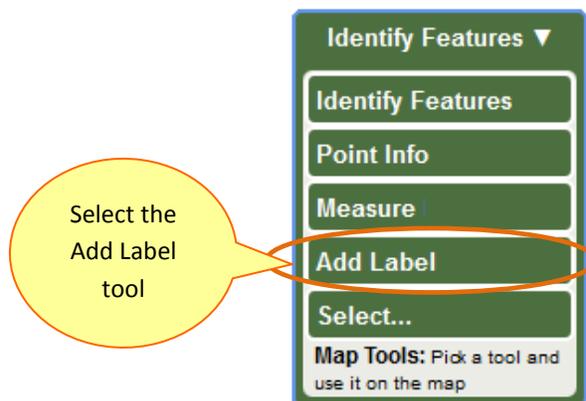


You will see a Measurement Tools menu open in the right panel of the viewer.



Choose the measurement units that you would prefer from the drop-down menu and then select either the Line Measurement tool or the Polygon measurement tool. As you click point in the Map Canvas you will see your line or polygon drawn in the map. Click once to add a point to the line or polygon and double click to end the line or close the polygon. Measurement Results will be displayed below the Measurement Tools in the right side panel of the viewer.

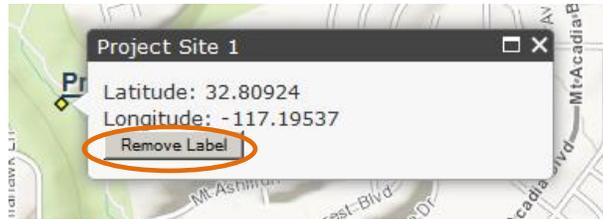
Add Label Tool – You can use the **Add Label** tool to click in the Map Canvas and manually place labels. To open this tool, select it from the Map Tools menu.



Enter your text in the pop-up box and click the Add button to place the label on the map.



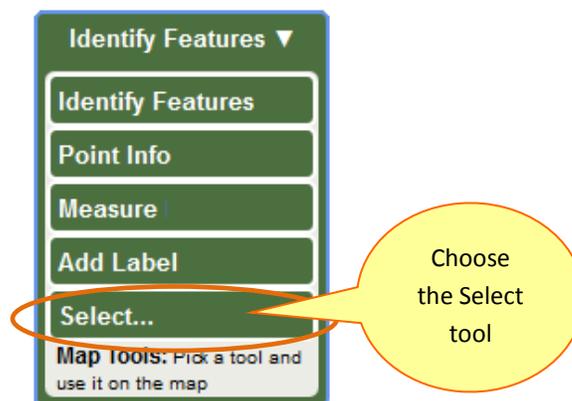
To remove a label click on it and then click the Remove Label button in the pop-up box.



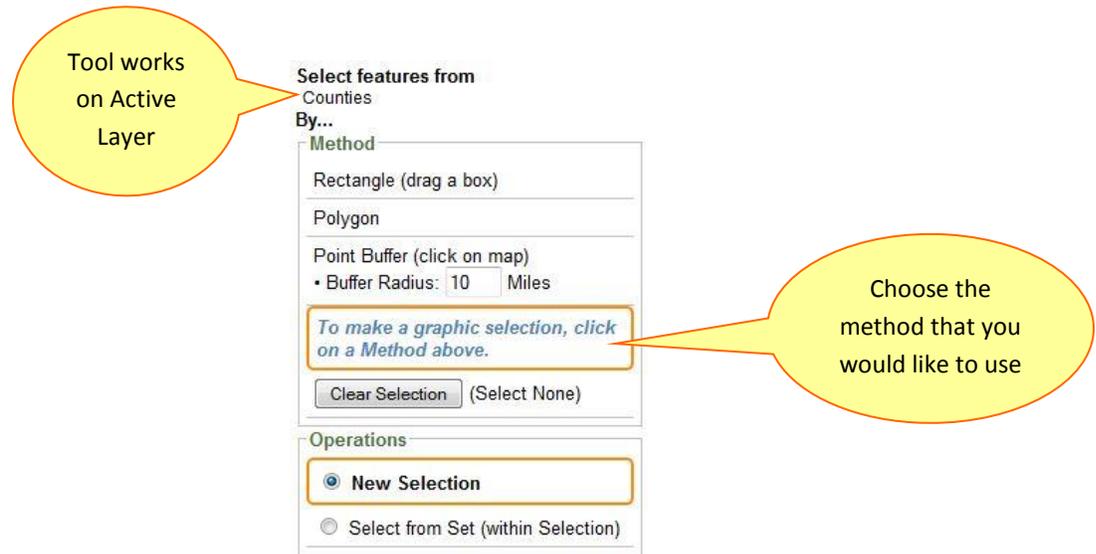
To remove all of your labels at once click on the Remove all Labels button in the Graphics and Selections section of the Table of Contents.



Select Tool – You can use the **Select** tool to create a highlighted subset of data from a data layer . To open the tool you must select it from the Map Tools menu.



A panel will open on the right side of the viewer offering you a choice of selection methods. Click on the selection method that you would prefer to use and you will see a thin orange box appear around the tool indicating that it is ready to use.



The **Rectangle (drag-a-box)** method allows you to select features from the **Active Layer** by using the mouse to click on or to drag a box around features in the map. The selected features will be highlighted yellow in the map and their attribute information will appear in the Table panel at the bottom of the viewer window.

The **Polygon** method selects features from the **Active Layer** by using the mouse to draw a polygon shape around the features to be selected on the map. The selected features will be highlighted yellow in the map and their attribute information will appear in the Table panel at the bottom of the viewer window.

The **Point Buffer (click on map)** method selects features from the **Active Layer** that are within a distance of a point that you specify by clicking in the map. You can adjust the size of the buffer that will be used to select the features by changing the buffer radius before clicking in the map. The selected features will be highlighted yellow in the map and their attribute information will appear in the Table panel at the bottom of the viewer window.

Table

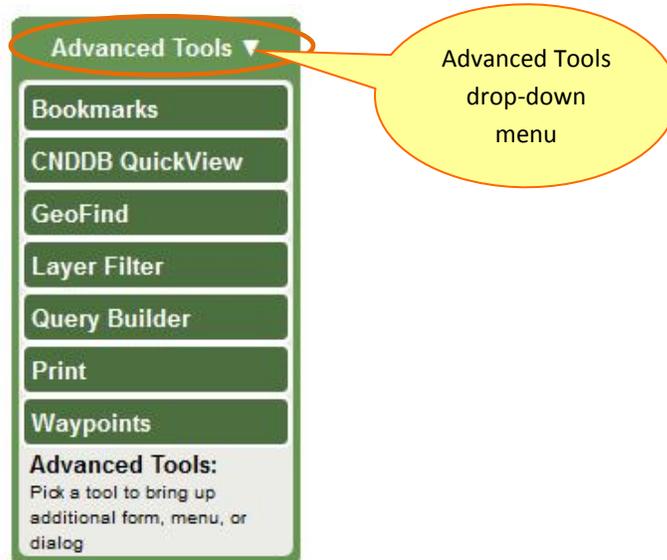
Zoom	SNAME	CNAME	LABEL	SOURCE
1	Go Carpobrotus edulis	Iceplant	CE	HELIX spring 2004
2	Go Bougainvillea spectabilis	Bougainvillea	BS	HELIX spring 2004
3	Go Schinus molle	Peruvian Pepper Tree	SM	HELIX spring 2004
4	Go Eucalyptus sp.	Eucalyptus	EUC	HELIX spring 2004
5	Go Eucalyptus sp.	Eucalyptus	EUC	HELIX spring 2004
6	Go Eucalyptus sp.	Eucalyptus	EUC	HELIX spring 2004
7	Go Carpobrotus edulis	Iceplant	CE	HELIX spring 2004
8	Go Eucalyptus sp.	Eucalyptus	EUC	HELIX spring 2004
9	Go Schinus molle	Peruvian Pepper Tree	SM	HELIX spring 2004

You will see a Selection layer appear in the Graphics and Selections section of the Table of Contents.

This holds the features that you have selected. You can turn the Selection Layer on or off in the map by checking or unchecking the box or remove it by clicking the **X** button. The **Go** button will allow you to quickly zoom the map in to the selected features.

Advanced Tools Menu

These tools open a pop-up window requesting user input for more advanced analysis. Tools such as the Query Builder tool, the Layer Filter tool and the Waypoint tool can be found in this menu.

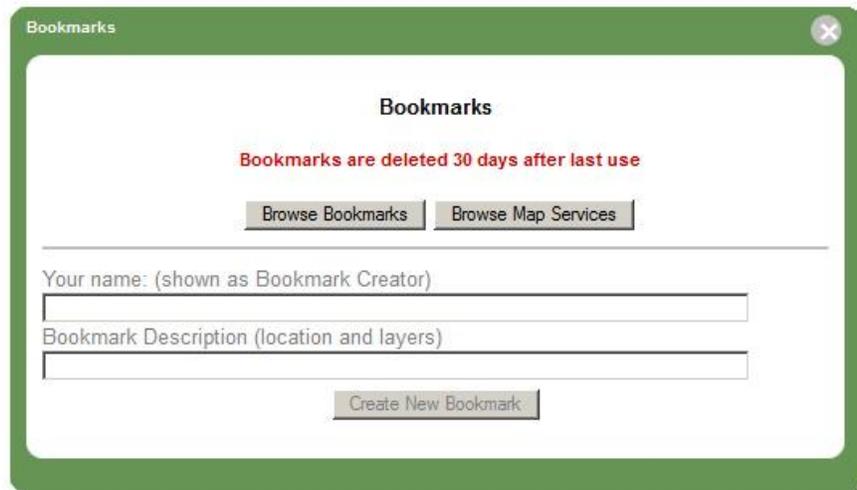


Bookmarks Tool - This tool saves the location and layer information for the current map session. The bookmarked BIOS map session can be reloaded at a later time or on a different computer by using this tool to Browse for existing Bookmarks or by opening the URL provided after the Bookmark is created in an internet browser such as FireFox or Chrome. The map extent, layer info (on/off, order, etc.), and any labels that you have added to the map are all saved in the Bookmark.

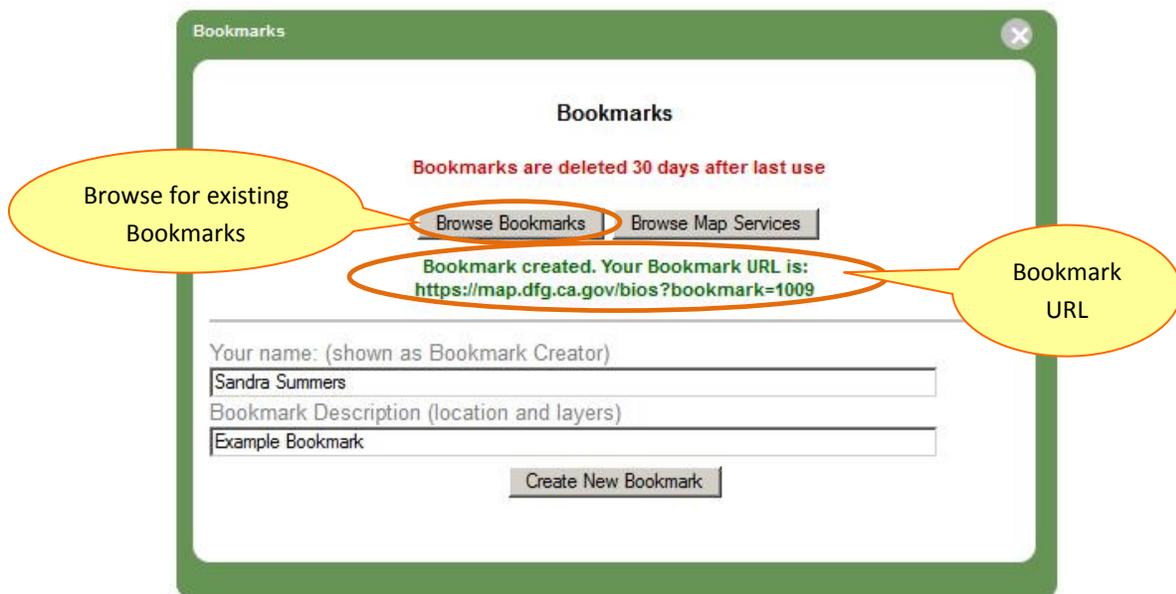
To open the **Bookmark** tool you will need to select it from the Advanced Tools drop-down menu.



A pop-up window will open displaying the **Bookmark** tool. From here you can create a new bookmark or browse for an existing bookmark.



To create a new bookmark, enter your name and a brief description of your bookmark and click the **Create New Bookmark** button. The tool window will update to display the URL for your new bookmark. You can copy this URL and save it in a document or share it in an email.



You can also click on the **Browse Bookmarks** button to open a table of existing bookmarks.

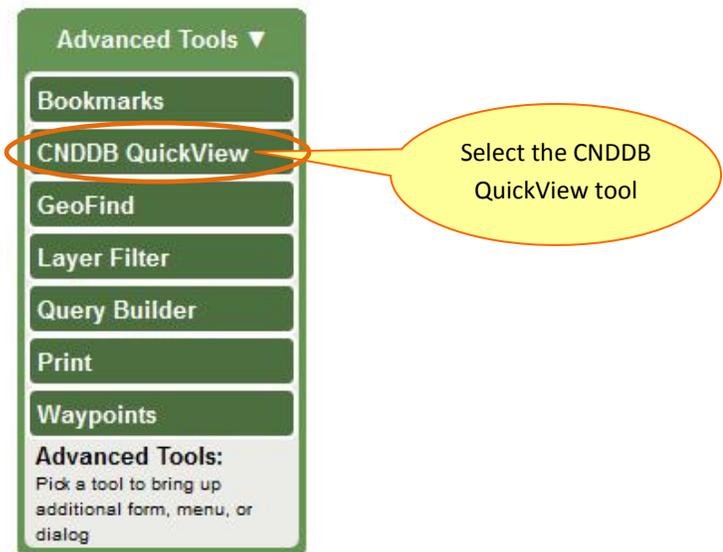
	Load	Add	Description	Creator	Created	Last Used	Usage
1	Load	Add	CNDDDB GOV / Spotted Owls	BIOS	2013-08-21	2013-11-27	2120
2	Load	Add	NRIS - Mono & Inyo with GOEA filter	BAcord	2013-11-27	2013-11-27	4
3	Load	Add	R1 Interior Timber	rfallscheer	2013-04-17	2013-11-27	46
4	Load	Add	Example Bookmark	Sandra Summers	2013-11-27	2013-11-27	1
5	Load	Add	Vegetation Bookmark Nov. 6, 2013	Rosie Yacoub	2013-11-06	2013-11-27	70
6	Load	Add	CNDDDB COM / Spotted Owls	BIOS	2013-08-21	2013-11-27	1675
7	Load	Add	CalFish: Protected Lands and Waters (draft)	CalFish	2013-10-21	2013-11-27	5

Locate the bookmark that you would like to use in the table. Click **Load** to clear the current map and load only the layers from the bookmark, or click **Add** to add the layers from the bookmark and change the map extent to the extent saved in the bookmark without removing layers that were already in the map prior to adding the bookmark.

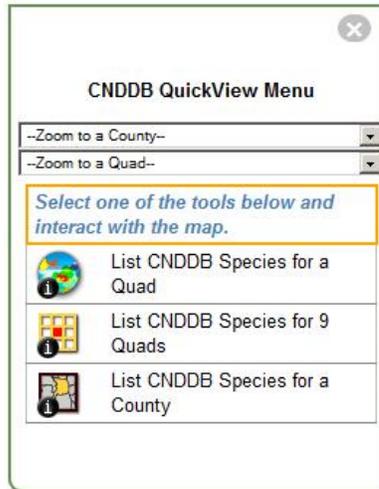
- NOTE: If you include secure data layers in your bookmark anyone that opens the bookmark will be prompted to log in. If the person opening the bookmark does not have the appropriate permission to view the secure data layers they will be removed from the session before it opens in the viewer.

To close the Bookmark tool click the **X** button in the top right corner of the tool window.

CNDDDB QuickView Tool – This tool provides a list of species that are currently mapped or in the unprocessed data files for the California Natural Diversity Database (CNDDDB). To open the **CNDDDB QuickView** tool you will need to select it from the Advanced Tools drop-down menu.



A panel will open on the right side of the viewer displaying the **CNDDDB QuickView** tool interface. The top two dropdown lists allow you to choose a county or quad and zoom the map into that area. Below this you will see three tools listed.



Choose the tool that you would like to use and click in the map. If you select the **List CNDDDB Species for a Quad** tool and then click in the map, the quad will be selected in the map and a list of all of the species currently mapped into the CNDDB or in the unprocessed data files of the CNDDB that are in that quad will be returned in the table panel of the viewer.

If you select the **List CNDDDB Species for 9 Quads** and click in the map, the quad that you clicked on will be selected in the map as will all of the quads that adjoin it. A list of all of the species currently mapped into the CNDDB or in the unprocessed data files of the CNDDB that are in the quad that you clicked and all of the quads that adjoin it will be returned in the table panel of the viewer.

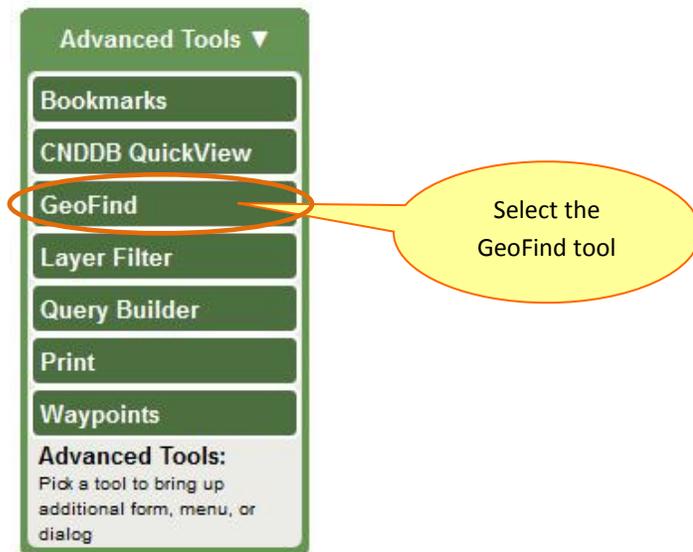
If you select the **List CNDDDB Species for a County** tool and then click in the map, the county will be selected in the map and a list of all of the species currently mapped into the CNDDB or in the unprocessed data files of the CNDDB that are in that county will be returned in the table panel of the viewer.

CNDDDB Quad Species List 20 records.

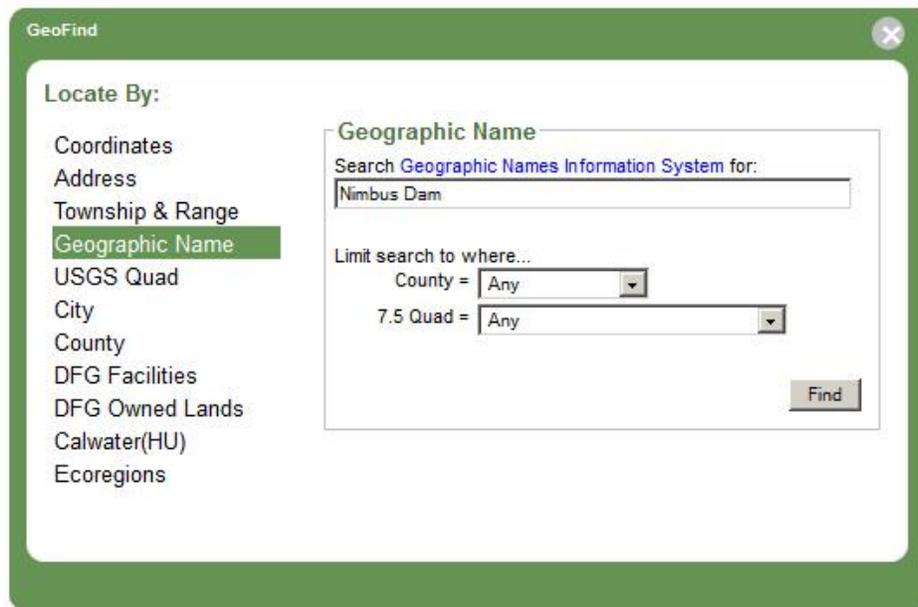
Element Type	Scientific Name	Common Name	Element Code	Federal Status	State Status	CDFW Status	CA Rare Plant Rank	Quad Code	Quad Name	Data Status	Taxonomic Sort
Animals - Amphibians	Ambystoma californiense	California tiger salamander	AAAAA01180	Threatened	Threatened	SSC	-	3712114	Gilroy Hot Springs	Mapped and Unprocessed	Animals - Amphibians - Ambystomatidae - Ambystoma californiense
Animals - Amphibians	Rana boylei	foothill yellow-legged frog	AAABH01050	None	None	SSC	-	3712114	Gilroy Hot Springs	Mapped and Unprocessed	Animals - Amphibians - Ranidae - Rana boylei
Animals - Amphibians	Rana draytonii	California red-legged frog	AAABH01022	Threatened	None	SSC	-	3712114	Gilroy Hot Springs	Mapped and Unprocessed	Animals - Amphibians - Ranidae - Rana draytonii
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	None	SSC	-	3712114	Gilroy Hot Springs	Unprocessed	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Athene cucularia	burrowing owl	ABNSB10010	None	None	SSC	-	3712114	Gilroy Hot Springs	Unprocessed	Animals - Birds - Strigidae - Athene cucularia
Animals - Mammals	Vulpes macrotis mutica	San Joaquin kit fox	AMAJA03041	Endangered	Threatened	-	-	3712114	Gilroy Hot Springs	Mapped	Animals - Mammals - Canidae - Vulpes macrotis mutica
Animals - Mammals	Macrotus californicus	California leaf-nosed bat	AMACB01010	None	None	SSC	-	3712114	Gilroy Hot Springs	Unprocessed	Animals - Mammals - Phyllostomidae - Macrotus californicus

GeoFind Tool – This tool provides several options for finding a location in the map.

To open the **GeoFind** tool you will need to select it from the Advanced Tools drop-down menu.



The **GeoFind** tool will open in a new window with a list of location search options on the left of the tool window.



The location options are:

- **Coordinates:** Find a location in the map by entering coordinates in Geographic (Latitude/Longitude) or UTM formats. Click the Find button and the map will redraw zoomed in to the specified location.
- **Address:** This option allows you to enter a partial or complete street address and zoom to it in the map.

- **Township and Range (PLSS):** Select your Township, Range and Section values and specify the appropriate meridian using the drop-down lists. When you click the Find button a list of results matching your criteria will open in the Table. You can zoom the map to one of the locations listed by clicking the **Go** button in the ZoomTo field.
- **Geographic Name:** This option will allow you to search for a place or geographic feature by searching the USGS Geographic Names Information System (GNIS) database. This database contains location references to all text that appears on all USGS quad maps. A record for each result that matched your search criteria will be displayed in the Table panel at the bottom of the viewer window. You can zoom the map to one of the features listed by clicking the **Go** button in the ZoomTo field.
- **USGS Quad** – Choose from a list of 1:24,000-scale (24K), 7.5-minute by 7.5-minute Quadrangle maps from the U.S. Geological Survey and zoom to the boundary of the specified Quad.
- **City** – Select a city of interest from the drop-down list provided and zoom to it by clicking the Find button.
- **County** – Select a county of interest from the drop-down list provided and zoom to it by clicking the Find button.
- **DFG Facilities** – Choose from a drop-down list of California Department of Fish and Wildlife offices and facility locations and zoom to it by clicking the Find button.
- **DFG Owned Lands** – Choose from a drop-down list of properties that are owned and/or administered by the California Department of Fish and Wildlife. Click the Find button to redraw the map zoomed in to the specified property.
- **Calwater(HU)** – Use this option to select a watershed boundary at the Hydrologic Unit (HU, major rivers) level from a list compiled from the California Interagency Watershed Map. Click the Find button to zoom the map in to the specified Hydrologic Unit.
- **Ecoregions** – Use this option to select an Ecoregion from a list derived from Ecological Unit Sections for the state of California as described by ECOMAP (1993), United States Department of Agriculture, Forest Service. Click the Find button to zoom the map in to the specified Ecoregion.

You will see a PointInfo/GeoFind Selection layer appear in the Graphics and Selections section of the Table of Contents.



This controls the graphic that was placed in the map by the **GeoFind** tool to represent the location that you chose. You can turn the graphic on or off in the map by checking or unchecking the box or remove it by clicking the **X** button.

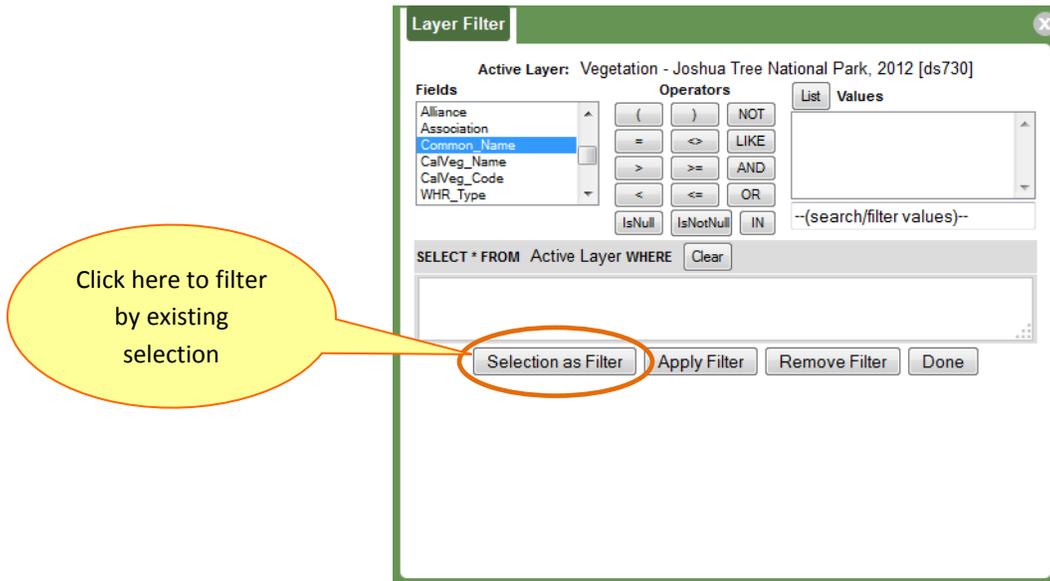
<i>Operator</i>	<i>Description</i>	<i>Example Query</i>
=	Equals	Name = 'mount whitney'
<>	Not equal to	Name <> 'mount whitney'
>	Greater than	Elevation > 14000
>=	Greater than or equal to	Elevation >= 14000
<	Less than	Elevation < 400
<=	Less than or equal to	Elevation <= 400
AND	Joins expressions. Returns records where both are true.	Elevation > 14000 and Name = 'mount whitney'
OR	Joins expressions. Returns records where either are true.	Elevation < 100 or Name = 'mount whitney'
LIKE	Used to find a portion of text, with a wildcard '%'	Name like '%whit%'
NOT	Used to find records without a portion of text	Name not like 'whit%'
IsNull	Returns records with a null value	Name IsNull
IsNotNull	Returns all records except those with a null value	Name IsNotNull
IN	Returns records that match a specified list of values in the specified field.	Name IN ('mount whitney', 'mount tam', 'mount shasta')

- **Values** - Listed in the Field Values box are all of the unique values that occur in the field you last selected on the left. Double-click on a field value to add it to the Filter Request box. You can also manually enter a value in the Filter Request by typing it into the Enter Value box and pressing the Enter key on your keyboard.
- **Filter Request** - The Filter Request box shows the query that will execute when you click on the "Apply Filter" button. This filter is defined by clicking on items in the Fields, Operators, and Values areas above.

When you apply your filter the data layer will be altered to display only those features that meet your filter criteria. An Applied Filter Icon will appear to the right of the Layer name in the Table of Contents. Click on this Applied Filter Icon to reopen the Layer Filter Tool and edit or remove your filter.

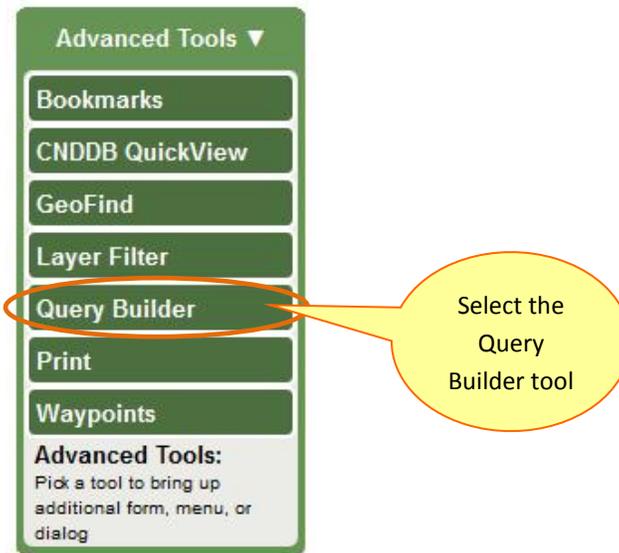


If you have an existing selection in the map and you choose the **Layer Filter** Tool you will be given an additional option to use that existing selection in the active layer as a Filter. To use the selection as a filter click on the **Selection as Filter** button at the bottom of the Layer Filter tool pop-up window.

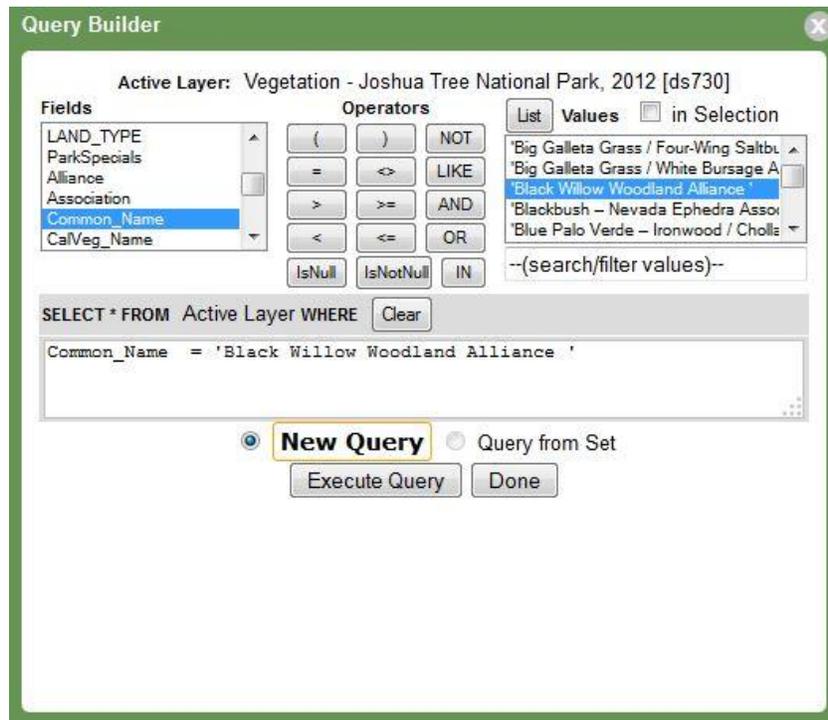


Query Builder Tool – This tool allows you to compose a conditional query that will be applied to the Active Layer. Features that meet the criteria defined in the query will be returned as a selected set in the viewer. You will see them highlighted in yellow in the Map Canvas and a Selection Layer will be added to the Graphics and Selections section of the Layers tab in the Table of Contents. Attribute information for the selected records will be displayed in the Table panel at the bottom of the viewer.

To open the **Query Builder** tool you will need to select it from the Advanced Tools drop-down menu.



A pop-up window will open displaying the **Query Builder** tool.



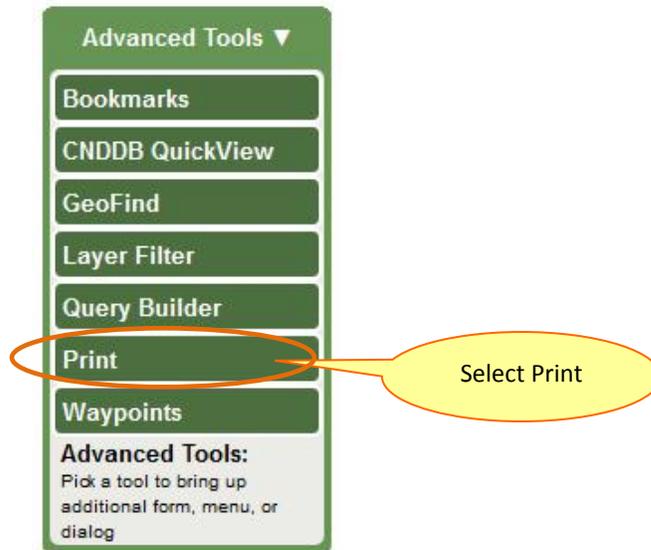
- **Fields List** - Listed in the Fields box are all of the fields in the Active Layer. These are the fields that you can choose from to build a query. Double-clicking on a field name in the list will add that field to the Query Command box at the bottom, where you will build the query command.
- **Operators** - Click one of the operators to add it to the Query Command box at the bottom to include as part of your query command.

<i>Operator</i>	<i>Description</i>	<i>Example Query</i>
=	Equals	Name = 'mount whitney'
<>	Not equal to	Name <> 'mount whitney'
>	Greater than	Elevation > 14000
>=	Greater than or equal to	Elevation >= 14000
<	Less than	Elevation < 400
<=	Less than or equal to	Elevation <= 400
AND	Joins expressions. Returns records where both are true.	Elevation > 14000 and Name = 'mount whitney'
OR	Joins expressions. Returns records where either are true.	Elevation < 100 or Name = 'mount whitney'
LIKE	Used to find a portion of text, with a wildcard '%'	Name like '%whit%'
NOT	Used to find records without a portion of text	Name not like 'whit%'
IsNull	Returns records with a null value	Name IsNull
IsNotNull	Returns all records except those with a null value	Name IsNotNull
IN	Returns records that match a specified list of values in the specified field.	Name IN ('mount whitney', 'mount tam', 'mount shasta')

- **Values** - Listed in the Field Values box are all of the unique values that occur in the field you last selected on the left. Double-click on a field value to add it to the Query Command box. You can also manually enter a value in the Query Command by typing it into the Enter Value box and pressing the Enter key on your keyboard.
- **In Selection** – clicking the **In Selection** box will limit the values to those of the selected features.
- **Query Command** - The Query Command box shows the query that will execute when you click on the "Execute Query" button. This query is created by clicking on items in the Fields, Operators, and Values areas above.
- **New Query** – will create a new selection based on the input query
- **Query from Set** – will create a selection from the existing query selection set

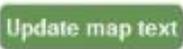
Print Tool - The Print tool allows you to print your current map. A pop-up box will open allowing you to enter a title, author and brief notes to be included in your printed map. (Your browser must be set to

allow pop-ups or this window will be blocked) To open the Print tool you need to select Print from the Advanced Tools drop-down menu.



The Print tool will open in a pop-up window.



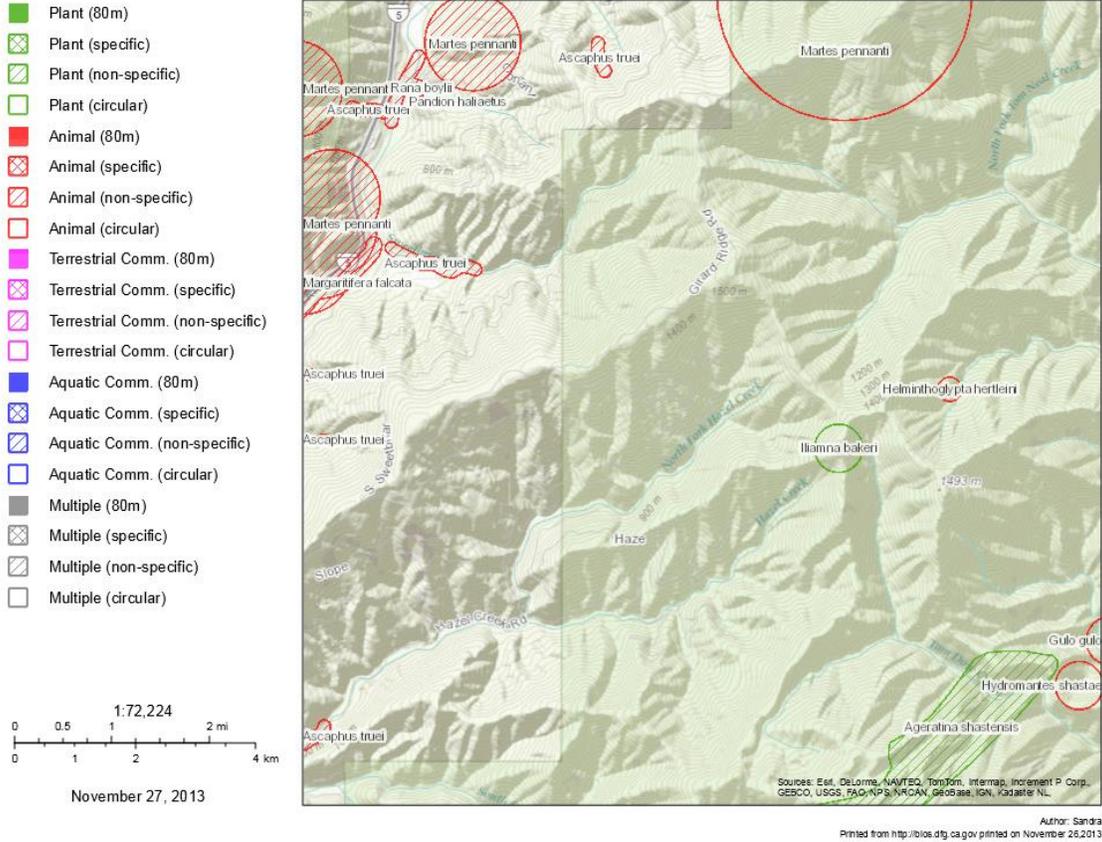
You can edit the Title, Map author and Additional notes as needed and then click the Update map text button to accept the edits. 

Click the dropdown arrow next to the Print button and select either the Landscape or Portrait option for your print layout.



BIOS will take just a moment to compile the map and it will open in a new tab in your browser. Please be patient as this process may take a minute or two depending on the complexity and scale of the map.

Example Map



The map that is created is in a PDF format. You can download the map to your computer from your browser by using the download tool. In FireFox the Download button looks like the one below.

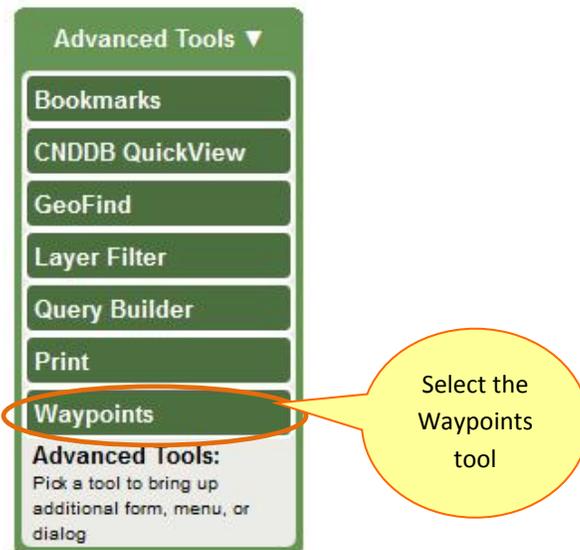


You can use the print function in your browser to send it to the printer. To do this you will need to either click the Print button (see above) or open your browser menu and select the Print option. In FireFox that will look like the example below.

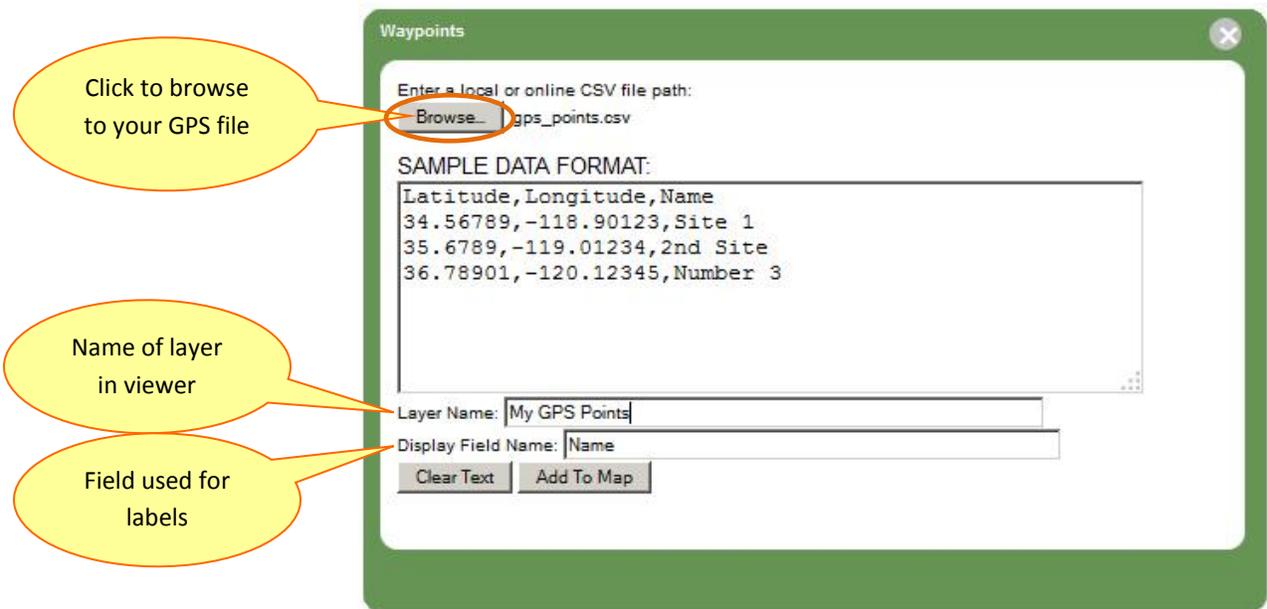


The browser print window will open allowing you to choose a printer and print the map as you would any other document.

Waypoints Tool - You can load your GPS waypoints into the map using the Waypoints tool in the Advanced Tools drop-down menu. They must be stored in a comma separated values (CSV) format on your computer in order for the tool to load them.



The **Waypoints** tool will open in a pop-up window.



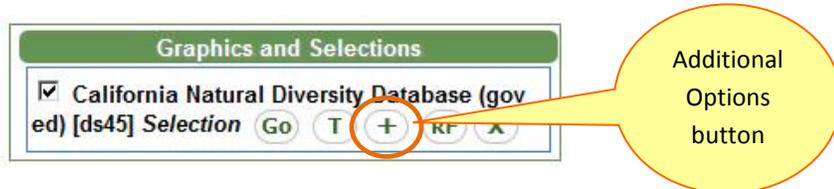
Click the **Browse** button and navigate to the waypoints file on your computer. Enter a Layer Name to be used for this file in the BIOS viewer. You will also need to indicate the Display Field name which will be used to label your waypoints in the map.

Working with CNDDDB in BIOS and RareFind

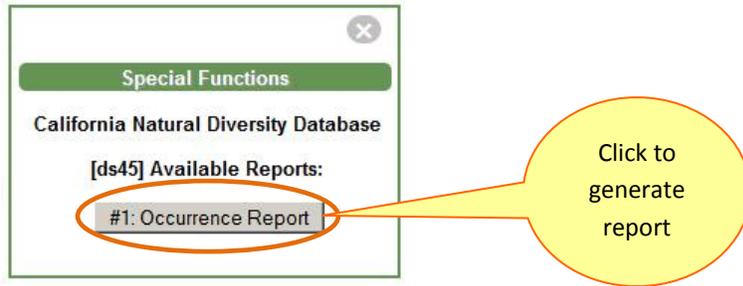
Subscribers to the California Natural Diversity Database (CNDDDB) can move selected features easily between the BIOS 5 map viewer and the RareFind 5 query tool. In addition to the references below, please see the CNDDDB specific tutorial for using CNDDDB in BIOS 5.

Once you have added the CNDDDB data layer into the BIOS viewer you will see it listed in the Table of Contents. Zoom the map in to your area of interest and click on the CNDDDB layer in the Table of Contents to make it the Active Layer. Use the **Select** tool to select the feature that you are interested in. Once you have records selected you can access the additional tools created to work with this dataset.

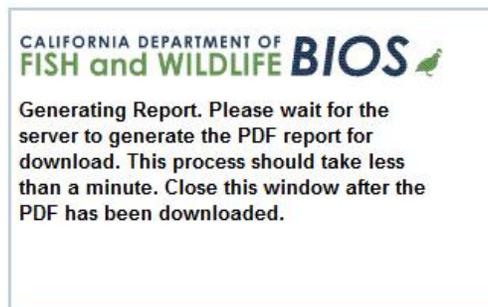
On the CNDDDB layer in the Table of Contents, you will see the **Additional Options** button  next to the CNDDDB layer name.



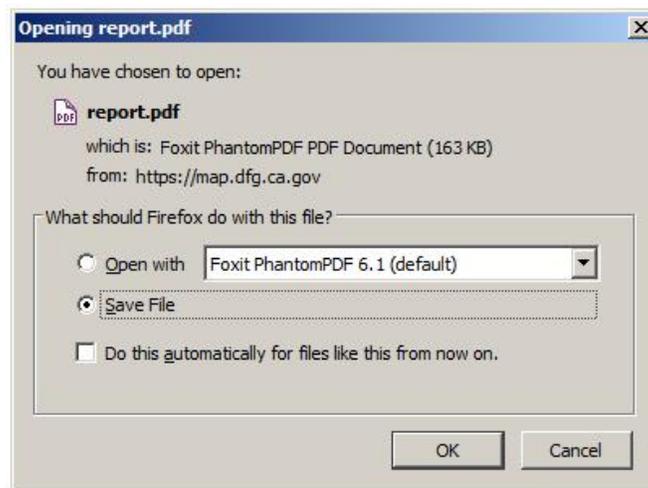
Click the **Additional Options** button and a panel will open on the right side of the viewer window listing the Special Functions available when working with this layer.



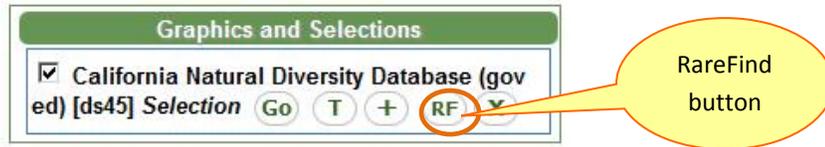
Click on the Occurrence Report button to generate a full report with details for each selected CNDDDB feature. You will see a window pop up telling you that the report is being generated on our server. This process can take a moment or two if you have a large number of selected features. Please be patient.



You will see another pop-up window when the PDF of the report is complete offering you a choice between saving the report to your computer or opening it with your PDF reader software.



There is also a button on the CNDDDB Selection in the Table of Contents that links to RareFind. ^{RF}



Click this button to pass the currently selected features from the CNDDDB data layer to RareFind . A new browser window will open allowing you to work with your selected features in the RareFind query tool. In RareFind you can investigate the details for the selected records, refine your selection and find additional report options for the selected data.

CA.GOV DEPARTMENT OF FISH and WILDLIFE **RareFind** Version 5 | User: ssummers | Signoff

Query Results Occurrence Details Reports BIOS Export/Import Help Query tool for CNDDDB

Elements
 Change visible columns 3 elements returned from a total of 3,832 elements in CNDDDB.

Image Search	Scientific Name	Common Name	Element Code	Total Occs	Returned Occs	Global Rank	State Rank	Fel St
	Case sensitive filter...							
g+ / Ca	Ambystoma californiense	California tiger salamander	AAAAA01180	1054	3	G2G3	S2S3	Thre
g+ / Ca	Emys marmorata	western pond turtle	ARAAD02030	1135	1	G3G4	S3	None
g+ / Ca	Rana draytonii	California red-legged frog	AAABH01022	1327	7	G4T2T3	S2S3	Thre

Occurrences by Selected Element
 Change visible columns 3 occurrences returned from a total of 1054 occurrences for AMBYSTOMA CALIFORNIENSE

Occ Number	EOnDx	Date Element Last Seen	Date Site Last Seen	Presence	Accuracy	County
268	4132	2003-04-06	2003-04-06	Presumed Extant	Specific bounded area with an 80 meter radius	Santa Clara
757	54032	2003-04-06	2003-04-06	Presumed Extant	Specific bounded area with an 80 meter radius	Santa Clara
758	54033	2003-04-06	2003-04-06	Presumed Extant	Specific bounded area with an 80 meter radius	Santa Clara

For additional information about the CNDDDB and the RareFind tool please visit <http://www.dfg.ca.gov/biogeodata/cnddb/>.

Thank you for using BIOS. Please email any comments or questions that you may have to: bios@wildlife.ca.gov