Where's My Dinosaur: Users' Guide

An educational computer program for science students

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About this program

Where's My Dinosaur is an educational tool for science students interested in paleontology, the study of ancient life.

Its central element is an interactive map of locations where fossils have been found. Users can create a variety of customizable maps. For example, you can search for a specific species of animal, such as the dinosaur Triceratops, and Where's My Dinosaur will show you a map that lists every known location where a Triceratops fossil has been found. Or, you can search by location, and look up what dinosaurs might have been found near your hometown.

Each fossil is pinned on the map with its own custom map icon. Clicking on an icon will show the user more information about that fossil, including an article about the species from Wikipedia, the online encyclopedia.

For a more detailed description of how Where's My Dinosaur gets its information and creates the interactive maps, please see "**How the program works**" on page 12.

Downloading and launching the app

Where's My Dinosaur uses the Internet to do its work, and can be run on any web browser such as Chrome, Safari, or Internet Explorer. To run the program, you will first need to download the app from our website, then launch it from your desktop.

How to download

1.   Go to our website at wheresmydinosaur.com.

2.   Click the green button labeled "**Download**." When prompted, save the ZIP file called "**dinosaur.zip**" to your desktop.

3.   Double-click **dinosaur.zip** to unpack its contents. When it is finished, a folder titled "**Where's My Dinosaur**" will appear next to the ZIP file.

4.   Open the "Where's My Dinosaur" folder. Inside, you will find a file titled "**Dinosaur.py**."

5.   Doubleclick the **Dinosaur.py** file to launch the program.

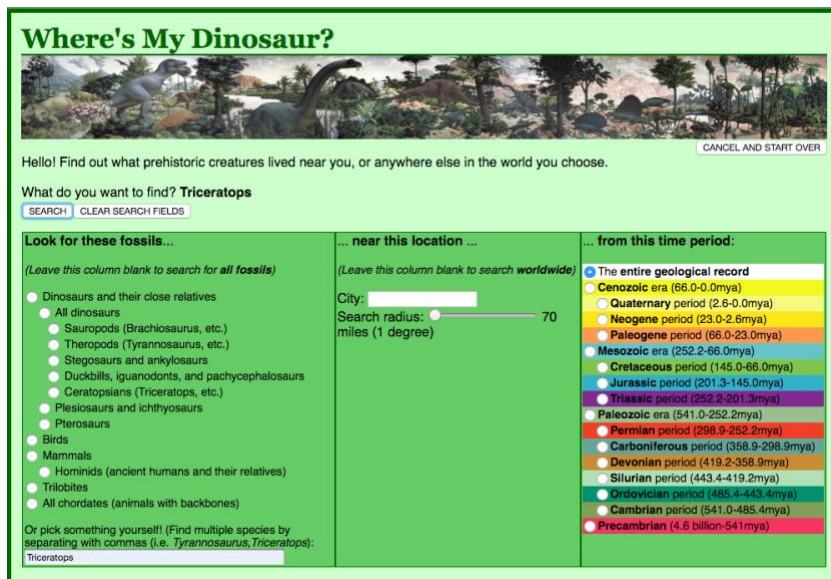6.   The program will open a new window in your web browser. You should see the following screen:

Figure 1: Where's My Dinosaur start screen

NOTE: If this page does not appear, type the address **http://127.0.0.1:5000/** into your browser. This will open a local connection to the program.

Using the Search Page

The Search function finds fossil animals by **species**, **location**, **age** or any combination of the three.

The Search Page helps you narrow down a search to create a desired interactive fossil map. Larger result sets require much more time to generate, so it is **recommended to refine your search as much as possible.**

The Search Page is divided into three sections, which may be used one at a time or in combination to create more refined results:

- "**Look for these fossils…**": Search for an individual species, or a group of animals, by name.
- "**… near this location …**": Search for fossils within a certain distance from a given location, such as your hometown.
- "…**from this time period**.": Search for fossils from a particular era of the Earth's history.

Figure 2: The Search Page

As you refine your search by selecting or changing the different search options on the Search Page, your search parameter will appear at the top of the page next to the sentence "What do you want to find?" If you change your search options, the bold text will also change to match.

Figure 3: A complete search parameter, created by choosing elements from all three sections of the Search Page.

Creating the search parameter

Searching by name of species

The section titled "**Look for these fossils...**" refines your search by selecting fossil animals by name of an individual species or group of species.

If nothing is selected in this section, the program will search for all species.
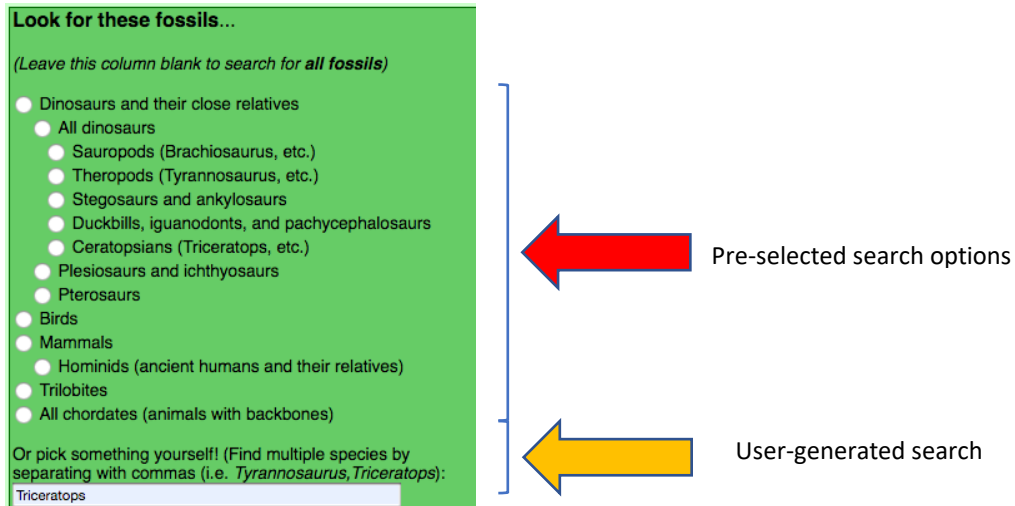

Figure 4: To search for a specific fossil species, or group of species, you must either: 1) choose one of the pre-selected search options (shown by the red arrow), or 2) create your own user-generated search (shown by the yellow arrow)

There are two ways to search for a specific fossil species or group of species. Choose one of the following options:

• **Pre-selected search**: Select an option from the list by clicking on one of the white radio buttons (⦿). This will search for entire groups of animal families, such as birds, mammals, or reptiles.

• **User-generated search**: Type a name, such as "Triceratops," into the white box at the bottom of this section. This will search for a specific species. You can also search for multiple species by separating them with commas. The phrase "Tyrannosaurus,Triceratops,Quetzalcoatlus" will return listings for all three animals.

Note: Do not use spaces in between search terms.

Searching by location

The section titled "**…near this location…**" refines your search by narrowing the geographical area to a given distance around a chosen location.

If nothing is selected in this section, the program will search for all fossils worldwide.
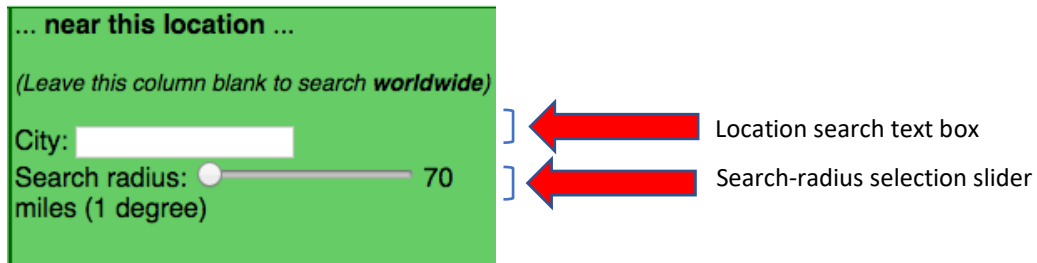

Figure 5: To search by location, type in a city name and select a search radius.

Type in a city name, such as "Boston," into the white text box (see Figure 5) and Where's My Dinosaur will return results for all fossils found near this location.

Slide the search-radius distance selector (see Figure 5) to widen the area of your search. By default, location searches cover an area 70 miles wide. This distance may be increased up to 700 miles.

Searching by time period

The section titled "**…from this time period**" refines your search by restricting it to a chosen time period.

If nothing is selected in this section, the program will search for fossils from the entire geological record.
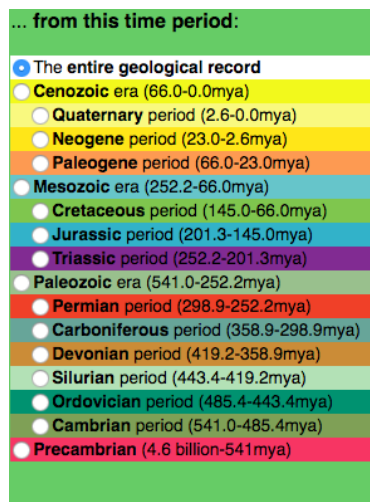

Figure 6: To search by time period, choose a geological era from the list by selecting a radio button.

Select a radio button from the provided list of the Earth's geological eras (see Figure 6). The eras are listed in chronological order from the youngest to oldest. The abbreviation "mya" stands for "millions of years old."

After a selection is made, your search will return only fossils found in this time period.

Activating your search

When you're ready, click the "**Search**" button on top of the search box to create a map of fossils.

If you change your mind or wish to start over, click "**Clear Search Fields**" to erase your search parameters and begin again.
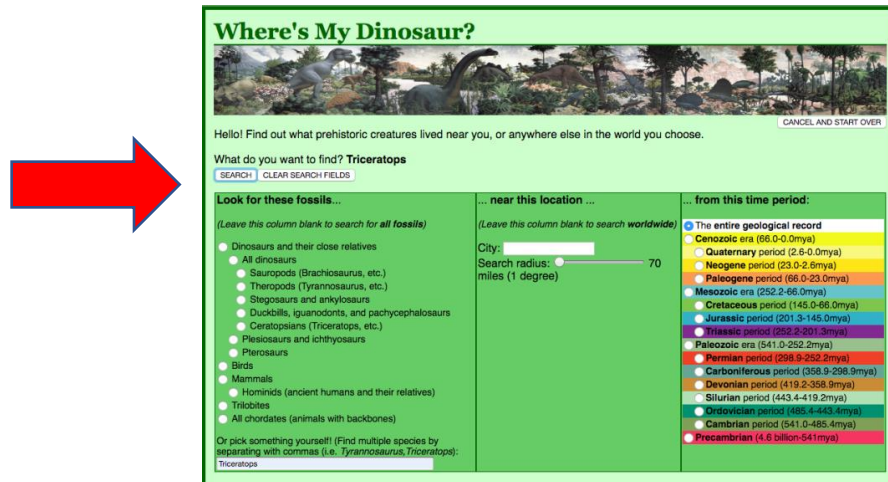

Figure 7: Arrow showing location of the "Search" and "Clear Search Fields" buttons.

Cancelling a search in progress

Results may take several minutes to display a fossil map, depending on the speed of your internet connection. Very large results may require 10 minutes or more. If you wish to abandon a fossil map before completion, click the "**Cancel and Start Over**" button at the top right of the page (see Figure 8). This will return you to the start screen.

 Cancel and Start Over button

Figure 8: Arrow showing location of the "Cancel and Start Over" button

Using the Map Page

After Where's My Dinosaur has found your fossils, it will display them on an interactive Map Page.
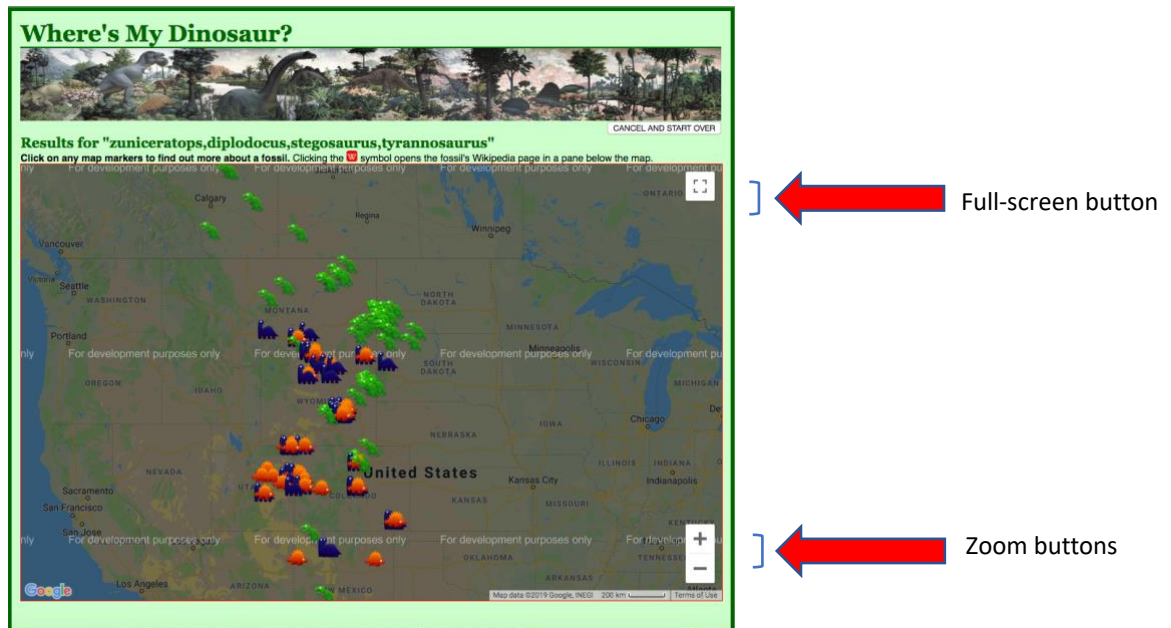
Figure 9: A finished map page, with arrows showing the full-screen and zoom buttons

The map icons

Each fossil is displayed on the map with its own custom map icon (see Figure 10). For example, Triceratops and its relatives are designated by an orange or yellow dinosaur, while meat-eating dinosaurs such as Tyrannosaurus have a green dinosaur.

Figure 10: Examples of three map icons, left to right: Theropod dinosaurs,

sauropod dinosaurs, and ornithischian dinosaurs

Navigating the map

By default, the program will display a map showing where the highest concentrations of the selected animals can be found. This map will sometimes display all fossils from your search result, especially when relatively few specimens of a fossil have been discovered. But in most cases, you will need to interact with the map to see your entire search result.

Moving the map

Navigate the map by dragging it with your cursor to move east, west, north or south.

Zooming in and out

Zoom in and out by clicking the plus and minus buttons (⊞) at the lower right of the map (see Figure 9).

Expanding the map to full-screen

To see the most detail, open a larger map by clicking the full-screen button (⊡) at the top right of the map (see Figure 9).

The pop-up information window

Click on an icon to display a pop-up window with more information about that fossil.
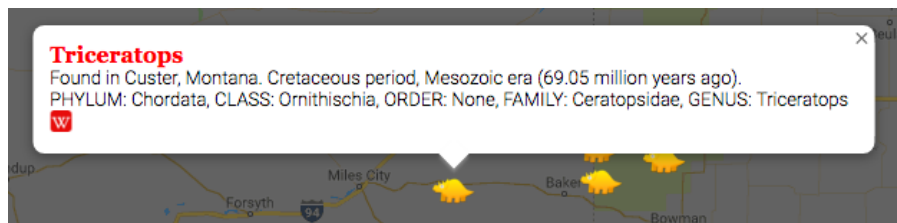

Figure 11: An expanded pop-up window containing more information about the fossil

The pop-up window (see Figure 11) will show the following information:

Age: the fossil's age in millions of years, as well as the name of the geological period in which it lived

Location: the precise location where the fossil was found

Scientific name: the animal's taxonomic classification, meaning how scientists believe the animal is related to other organisms that have evolved on Earth

Wikipedia link

The pop-up window will also show a red "W" icon: 🅦 Clicking this icon will open an article about the species from Wikipedia. The article will open in a new window below the map screen (see Figure 12).
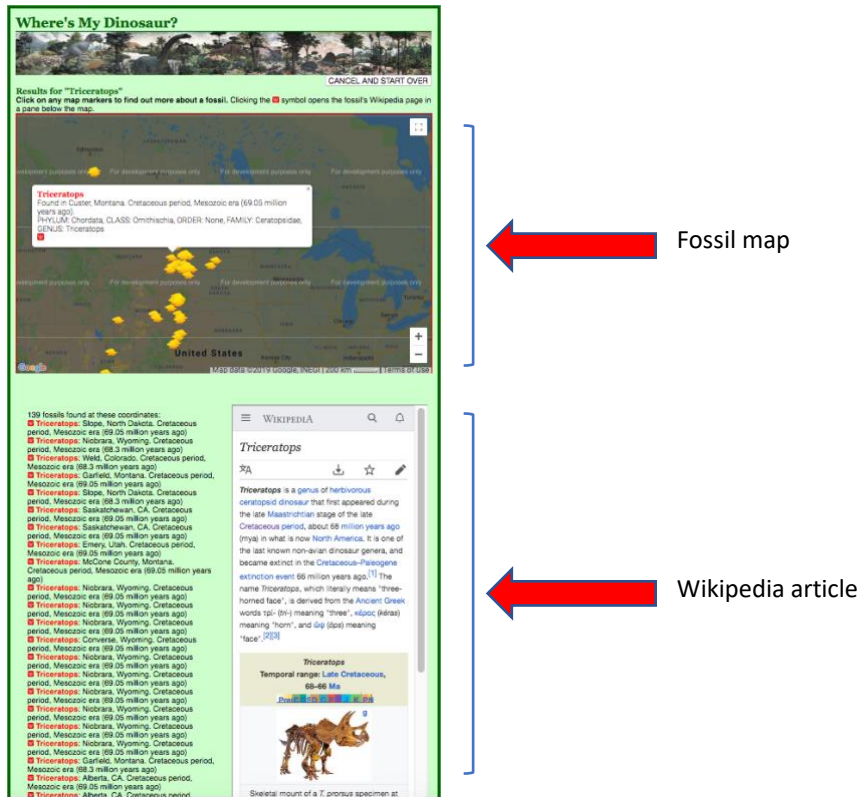
Figure 12: An expanded view of the Map Page showing a fossil map (top) and Wikipedia article about a selected fossil (lower right)

Starting a new search

To start over again and find a new set of fossils, click the "**Cancel and Start Over**" button at the top of the page, above the map (see Figure 13). This will return you to the Search Page.
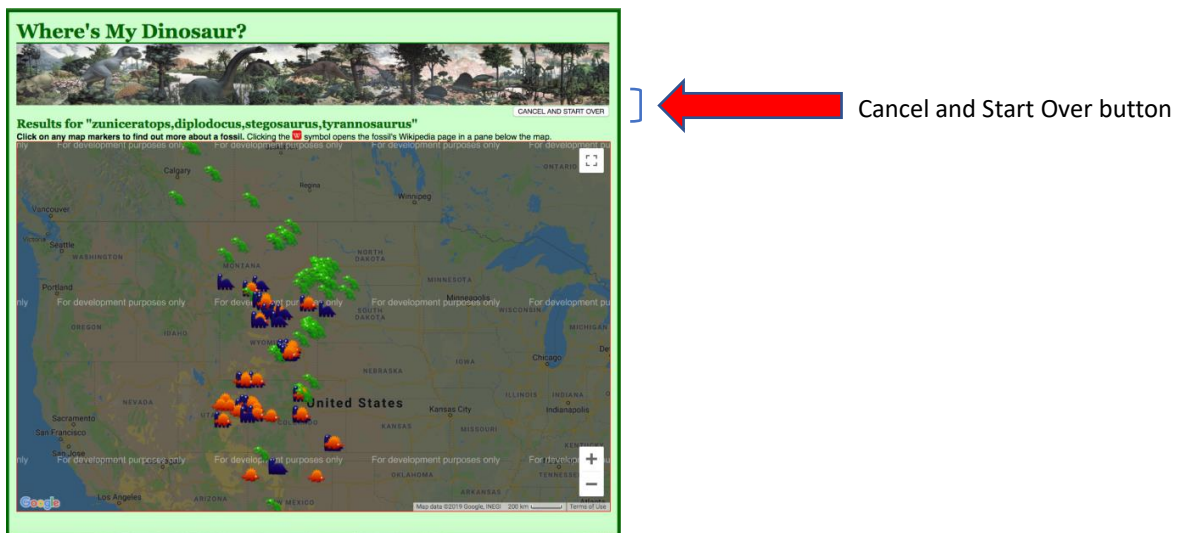

Figure 13: Map Page with arrow showing location of "Cancel and Start Over" button

How the program works

After you choose what you want to search for, Where's My Dinosaur sends a request for that information to the National Science Foundation's Paleobiology Database (PBDB) at https://paleobiodb.org. The PBDB is an online repository of detailed records of hundreds of thousands of fossil discoveries from across the world. The PBDB sends back a list of all records that match your searchterm.

Each record includes a wealth of information about the fossil, including the name and scientific classification of the object, how old it is, and the U.S. state or nation in which it was found, with its precise latitude and longitude.

Where's My Dinosaur compiles the information from the PDBD into a new format suitable for mapping. It then sends the latitude and longitude data for each listing to Google Maps (maps.google.com). Google creates and sends back a new set of mapping data. Where's My Dinosaur adds a few further elements, such as our dinosaur map pins, and displays the finished page to the user.

Finally, the name of the species in each listing is plugged into a preset Wikipedia search. Clicking on the listing's red Wikipedia icon triggers that search, and opens the encyclopedia's article about that species inside the Where's My Dinosaur program.