



# Biogeography

Name: \_\_\_\_\_

## Panbiogeography Rhinocerotidae

Section: \_\_\_\_\_

Levelled Assessment \_\_\_\_/4

Score: \_\_\_\_/5



**Directions:** Follow the following steps to complete a panbiogeographic study of the Rhinocerotidae family after completing the notes on Panbiogeographic Methods. Use the example map as reference as you work through the activity (<https://arcg.is/15r5nX>)

### ESRI Login Information



Username: ZABioge01819

Password: Zooacademy1819!


### Step 1: Prepare Map

- Navigate to Arcgis.com and login using the login credentials above
- Once into the main screen left-click on the **Map** option along the top bar
  - o If there is already data on the map create a new map by selecting the **New Map** dropdown menu in the upper right of the screen and selecting the option to **Create New Map**
- Save your map by left clicking on the  button along the top bar and then selecting **Save As**. Enter **PanRhino\_[Last Name]** as the title. Enter in a few tags regarding your project, and then come up with a short summary to detail what your map is showing.
- Change the **Basemap** to the **National Geographic** map by left-clicking the  button along the top bar.
- Center your map on the Indian Ocean so that you can see the continents of Africa, Asia, and Australia

### Step 2: Importing Your Data



- Along the top bar left-click on the  button and select **Search for Layers**. In the menu that comes up search for the word **Rhino** and each of the following layers to your map by clicking on each layer and then selecting the **Add to Map** option that is included in the description.
  - o Dicerohinus\_sumatrensis\_(Sumatra Rhino)
  - o Rhinoceros\_unicornis\_(Indian Rhino)
  - o Rhinoceros\_sondaicus\_(Javan Rhino)
  - o Diceros\_bicornis\_(Black Rhino)
  - o Ceratotherium\_simum\_(White Rhino)
- Back in the **Content** menu change the symbology of each of the layers by hovering your mouse over each layer then selecting the  button
  - o Leave Option 1 the same (It should read that it is showing location only), but change the shapes so that they fit the following color schemes
    - Sumatra Rhino - Purple
    - Indian Rhino – Neon Green
    - Javan Rhino - Red
    - Black Rhino - Yellow
    - White Rhino – White

### Step 3: Find Your Center

- The ranges for the Black Rhino and the White Rhino need to be adjusted as they are fit to countries and may not reflect the actual range of the species
- Perform a **Centroid** analysis for each species by following the steps below
  - o Hover your mouse over the layer (either the White or the Black Rhino and left-click on the analysis button (  )
  - o Select **Find Locations** and then the **Find Centroids** option in the Perform Analysis menu

- Make sure the appropriate layer is selected and that you want the output location **at the true centroid**
- Make it so that the resulting layer is named **Center\_White\_[Last Name]** for the white Rhino and then **Center\_Black\_[Last Name]** for the Black Rhino
- De-select the **Use Current Map Extent** box to ensure all records will be examined
- Before running the analysis ensure the credits used match the limits below by left-clicking the **Show Credits** option
  - Black Rhino – 9 Records for .009 Credits Required
  - White Rhino – 5 records for .005 Credits Required
- If that matches then select Run Analysis and let the program calculate the center point of your areas.
- Once you have run the Centroid analysis for both the Black and White Rhinos then you can navigate back to your **Content** menu and turn off your Black Rhino and White Rhino outline range maps so that only the newly made dots are showing
  - Make sure you change the symbology so that Black Rhinos are represented by Yellow Dots (24px) and that White Rhinos are represented by white dots (24px)



#### Step 4: Create Your Tracks

- Follow the following steps to work through the process of connecting the species together using tracks
  - Identify all of the areas where the species can be found
    - Hint – It may be helpful to turn off all the layers in the **Content** menu besides the one you are working with
  - Left-click the  **Add** dropdown menu along the top bar and select the **Add Map Notes** option.
  - Name your layer **Tracks**
  - Connect the edges of each of the Ranges with a similarly colored line
    - Hint – If you click out of the Map Note menu you can navigate back to it by left-clicking the  **Edit** option along the top bar
    - Hint – The Javan Rhino has two ranges – One is just to the southwest of Jakarta, the other is northeast of Ho Chi Minh City
    - Hint – To identify the closest ranges to one another you may need to use the Measure tool that is available near the search bar in the upper right of the map.
- Once you have completed the Track connections for each individual species link the species together with **BLACK Track Lines** by connecting the Ranges of the closest species Ranges together

#### Step 5: Identify Baselines and Nodes

- Once all your track lines are completed identify any Tracks that cross over significant barriers such as tectonic boundaries, oceans, or mountain ranges
- Once you have identified those tracks mark those areas by placing a large black box (done so by editing your map notes and adding a square shape)
  - The Square should be at the middle of the track which can be identified by using the **Measure Tool**
- Mark all of the Nodes (where tracks of different species intersect with Black Crosses ( + ) that are 3px large

#### Step 6: Save and Share Map

- Select the Save option by again left-clicking the  **Save** button along the top bar
- Share the map by left-clicking the  **Share** button along the top bar
- Select that you would like to share the map with members who are in the Zoo Academy group
- Copy the url Link that is given and copy it into the assignment paper associated with this activity.