

Evidence for Evolution: Biogeography

Biogeography is the study of the distribution of species and ecosystems in geographic space and through geological time. Many organisms can only be found in very distinct locations on our planet and some species only inhabited Earth during a certain time periods.

In this activity, we are going to investigate the connection between the geologic history of the Earth and evolution by taking a look at the location of various species of the Malay Archipelago. This data was collected by Sir Alfred Russel Wallace, a naturalist studying species diversity at the same time as Charles Darwin (although he did not receive the recognition he deserved).



Step 1: Examine the list of species below. Predict which animals will be found closer together than others. Explain your reasoning.

<u>Latin Family</u>	<u>Common</u>
A. Cacatuidae	Cockatoos
B. Cercopithecidae	Old World Monkeys
C. Felidae	Cats
D. Macropodidae	Kangaroos
E. Megapodiidae	Mound-Building Birds
F. Meliphagidae	Honeyeater Birds
G. Paradisaeidae	Birds-of-paradise
H. Picidae	Woodpeckers
I. Ursidae	Bears
J. Petauridae	Possums

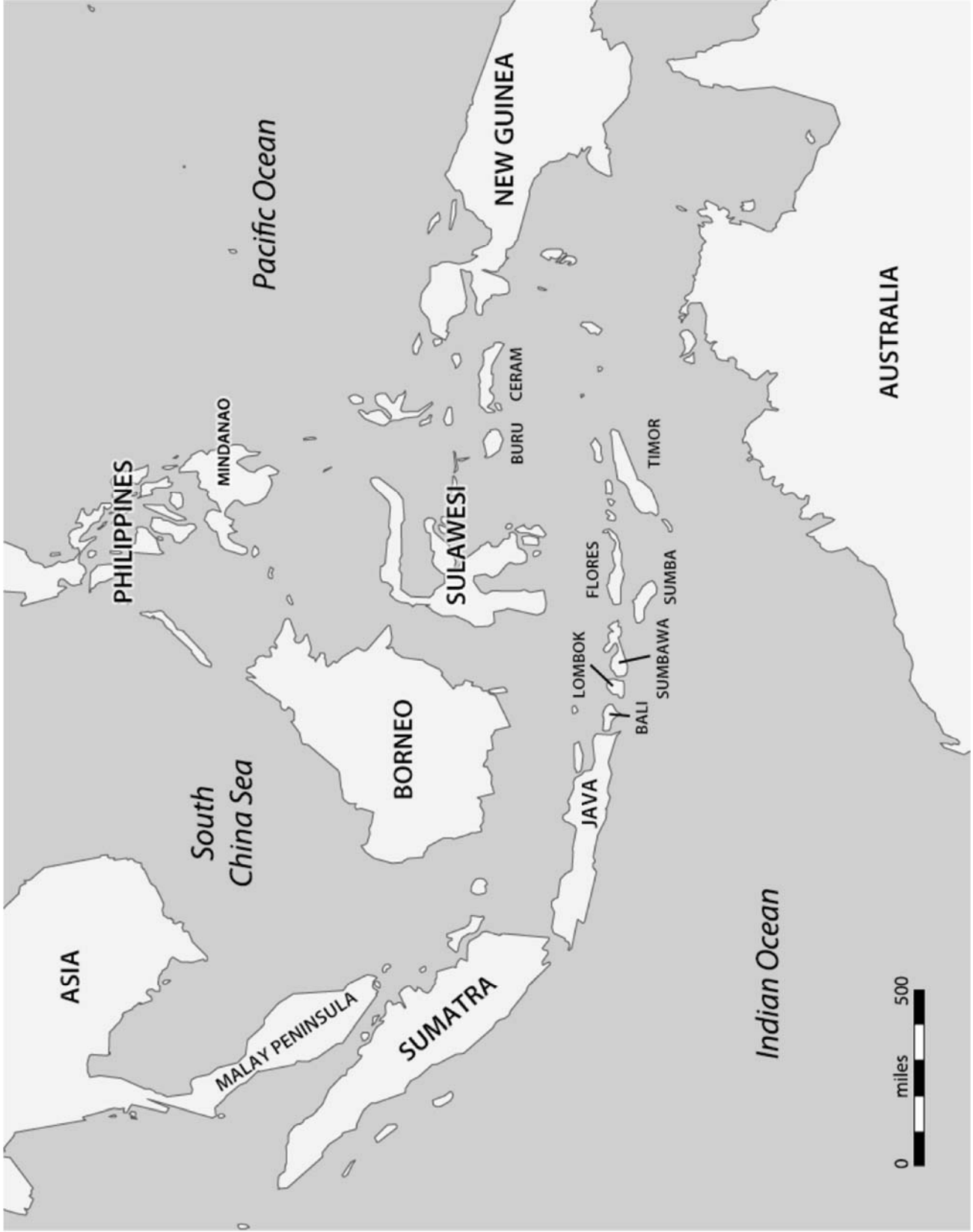
Step 2: Using the observations contained in "Field Journals" of Sir Wallace, mark the locations of each species on your map of the Malay Archipelago. Use a different colour for each family and make a Legend using the species common names.

Step 3: Observe your completed map:

- Describe any patterns and trends that you notice, identifying any data that does not support the patterns or trends.
- Discuss whether the data agrees with your predictions from Step 1.

Step 4: Watch the "sea level animation" and the "plate tectonic animation".

- Use the information from these two animations to explain the pattern in species distribution on the Malay Archipelago.



FIELD NOTEBOOKS

Faunal Observations Location: Malay Peninsula		Faunal Observations Location: Australia	
<input type="checkbox"/>	Cacatuidae	<input checked="" type="checkbox"/>	Cacatuidae
<input checked="" type="checkbox"/>	Cercopithecidae	<input type="checkbox"/>	Cercopithecidae
<input checked="" type="checkbox"/>	Felidae	<input type="checkbox"/>	Felidae
<input type="checkbox"/>	Macropodidae	<input checked="" type="checkbox"/>	Macropodidae
<input type="checkbox"/>	Megapodiidae	<input checked="" type="checkbox"/>	Megapodiidae
<input type="checkbox"/>	Meliphagidae	<input checked="" type="checkbox"/>	Meliphagidae
<input type="checkbox"/>	Paradisaeidae	<input checked="" type="checkbox"/>	Paradisaeidae
<input checked="" type="checkbox"/>	Picidae	<input type="checkbox"/>	Picidae
<input checked="" type="checkbox"/>	Ursidae	<input type="checkbox"/>	Ursidae
<input type="checkbox"/>	Petauridae	<input checked="" type="checkbox"/>	Petauridae

Faunal Observations Location: Borneo		Faunal Observations Location: Sulawesi	
<input type="checkbox"/>	Cacatuidae	<input checked="" type="checkbox"/>	Cacatuidae
<input checked="" type="checkbox"/>	Cercopithecidae	<input checked="" type="checkbox"/>	Cercopithecidae
<input checked="" type="checkbox"/>	Felidae	<input type="checkbox"/>	Felidae
<input type="checkbox"/>	Macropodidae	<input type="checkbox"/>	Macropodidae
<input checked="" type="checkbox"/>	Megapodiidae	<input checked="" type="checkbox"/>	Megapodiidae
<input type="checkbox"/>	Meliphagidae	<input checked="" type="checkbox"/>	Meliphagidae
<input type="checkbox"/>	Paradisaeidae	<input checked="" type="checkbox"/>	Paradisaeidae
<input checked="" type="checkbox"/>	Picidae	<input checked="" type="checkbox"/>	Picidae
<input checked="" type="checkbox"/>	Ursidae	<input type="checkbox"/>	Ursidae
<input type="checkbox"/>	Petauridae	<input type="checkbox"/>	Petauridae

Faunal Observations Location: Lombok		Faunal Observations Location: Bali	
<input checked="" type="checkbox"/>	Cacatuidae	<input type="checkbox"/>	Cacatuidae
<input checked="" type="checkbox"/>	Cercopithecidae	<input checked="" type="checkbox"/>	Cercopithecidae
<input type="checkbox"/>	Felidae	<input checked="" type="checkbox"/>	Felidae
<input type="checkbox"/>	Macropodidae	<input type="checkbox"/>	Macropodidae
<input type="checkbox"/>	Megapodiidae	<input type="checkbox"/>	Megapodiidae
<input checked="" type="checkbox"/>	Meliphagidae	<input checked="" type="checkbox"/>	Meliphagidae
<input type="checkbox"/>	Paradisaeidae	<input type="checkbox"/>	Paradisaeidae
<input checked="" type="checkbox"/>	Picidae	<input checked="" type="checkbox"/>	Picidae
<input type="checkbox"/>	Ursidae	<input type="checkbox"/>	Ursidae
<input type="checkbox"/>	Petauridae	<input type="checkbox"/>	Petauridae

Faunal Observations Location: Java		Faunal Observations Location: Sumatra	
<input type="checkbox"/>	Cacatuidae	<input type="checkbox"/>	Cacatuidae
<input checked="" type="checkbox"/>	Cercopithecidae	<input checked="" type="checkbox"/>	Cercopithecidae
<input checked="" type="checkbox"/>	Felidae	<input checked="" type="checkbox"/>	Felidae
<input type="checkbox"/>	Macropodidae	<input type="checkbox"/>	Macropodidae
<input type="checkbox"/>	Megapodiidae	<input type="checkbox"/>	Megapodiidae
<input type="checkbox"/>	Meliphagidae	<input type="checkbox"/>	Meliphagidae
<input type="checkbox"/>	Paradisaeidae	<input type="checkbox"/>	Paradisaeidae
<input checked="" type="checkbox"/>	Picidae	<input checked="" type="checkbox"/>	Picidae
<input checked="" type="checkbox"/>	Ursidae	<input checked="" type="checkbox"/>	Ursidae
<input type="checkbox"/>	Petauridae	<input type="checkbox"/>	Petauridae

Faunal Observations
Location: New Guinea

- Cacatuidae
- Cercopithecidae
- Felidae
- Macropodidae
- Megapodiidae
- Meliphagidae
- Paradisaeidae
- Picidae
- Ursidae
- Petauridae

Faunal Observations
Location: Timor

- Cacatuidae
- Cercopithecidae
- Felidae
- Macropodidae
- Megapodiidae
- Meliphagidae
- Paradisaeidae
- Picidae
- Ursidae
- Petauridae