

Name_____

Period_____

Date_____

'Ainakumuwai: Ahupua'a of Nawiliwili Bay
Site guide for Natural History

Natural History Contents

1. Which of the six questions from 'Ainakumuwai's home page does Natural History answer?

Island Formation

1. As you scroll through this page, define these words as you come across their meanings:
 - a. hot spot
 - b. shield volcano
 - c. formation
 - d. caldera
 - e. bog
 - f. breccia
 - g. alluvium
 - h. columnar basalt

2. What is the oldest member of the Hawaiian-Emperor Volcanic Chain? How old?
3. How were the islands in the Hawaiian-Emperor Volcanic Chain formed?
4. Shield Volcanoes were formed from what type of lava flows?
5. How do we know where these lava flows came from?
6. Give four characteristics of lava that fills calderas.
7. Describe the Lihue Depression.
8. Describe the Ha'upu Caldera and Ha'upu Ridge. How do we know the Ha'upu Formation was not an independent volcano?
9. Where is Kilohana located with respect to Nawiliwili Bay?
10. How have landslides affected the formation of Kaua'i?
11. What will Kaua'i look like in three million years? Why?
12. Why don't the ahupua'a of Nawiliwili Bay have deeply eroded valleys like those of the Napali cliffs?

13. What is so remarkable about the columnar basalt of the Rice Bridge? Why was it built?

14. What effect have the Koloa Volcanics had on the ahupua'a of Nawiliwili Bay?

Native Plants

1. Name the seven modes of plant dispersal to the Hawaiian Islands.
Give the estimated percentage of plants that arrived with each mode.
2. Where did most of the plants come from?
3. What does endemic mean? How many (not what percent) of the native flowering plants are endemic? How many of the native ferns are endemic?
4. What factors determine a Hawaiian ecosystem?
5. What is the elevation at the top of Ha'upu Ridge?
Where would the 3000 foot contour line be?

6. What is the average rainfall at Hanalei Bay?
It fits into what rain category?
7. How are shrublands different from dwarf shrublands?
8. What is the major ecosystem at Nawiliwili Bay?

Coastal Plants

1. What is another name for the coastal zone?
2. What does indigenous mean? Why do you think most of the coastal plants are indigenous?
3. Give the names and uses of three different coastal plants.
4. Which of these coastal plants have you seen at Nawiliwili Bay. Where?

Lowland Dry and Mesic Forest

1. Where is the **kula** located?
2. Select three native plants from the **kula** and discuss their use by the Hawaiian settlers.

3. Which of the plants on this page have you seen in the **kula** of Nawiliwili Bay? In what specific area?

4. What are the most common plants in the **kula** today?

Wet Forest

1. What are the physical ingredients for the **wao akua**?

2. How did humans use the **wao akua**?

3. Where is the **wao akua** in the ahupua'a of Nawiliwili Bay?

Native Animals: Birds

1. What determined whether or not an animal could colonize the Hawaiian Islands?

2. What is adaptive radiation?

3. When humans arrived in Hawai'i, what was the total number of endemic birds? Of these, how many are extinct today? How many are endangered or threatened today?

4. Describe adaptive radiation in Hawaiian honeycreepers.
5. What are the two main reasons for the decline of native birds?
6. Of all the bird groups today, which has the greatest number of species? The least?

Insects and Snails

1. How many endemic species of native insects are there? How were they used in Hawaiian culture?
2. Which insects did not evolve flightless forms?
3. Why does the Hawaiian pomace fly show its adaptive vigor? What is the host of the Koa bug? (duhh)
4. Why are the native insect faunas undergoing such major changes?
5. Why are the remaining native land and tree snails so vulnerable (easily attacked or wounded)?
6. How are the remains of small land snails used by archaeologists?
7. How many endemic plant species are at risk? How many endemic bird species?

Native Stream Animals

1. Describe the native stream animals of Nawiliwili Bay.
2. Because the native stream animals came from salt water, what part of their life cycle takes place in the ocean?
3. Name each of the 'o'opu and tell what part of the stream it lives in.
4. How did Samson Mahuiki used to catch 'o'opu?
5. Name the native opae and tell where they live.
6. Name the native 'opihi and tell where they live.
7. What does diadromy mean?
8. What is the single most important requirement for native stream animals? Why?

