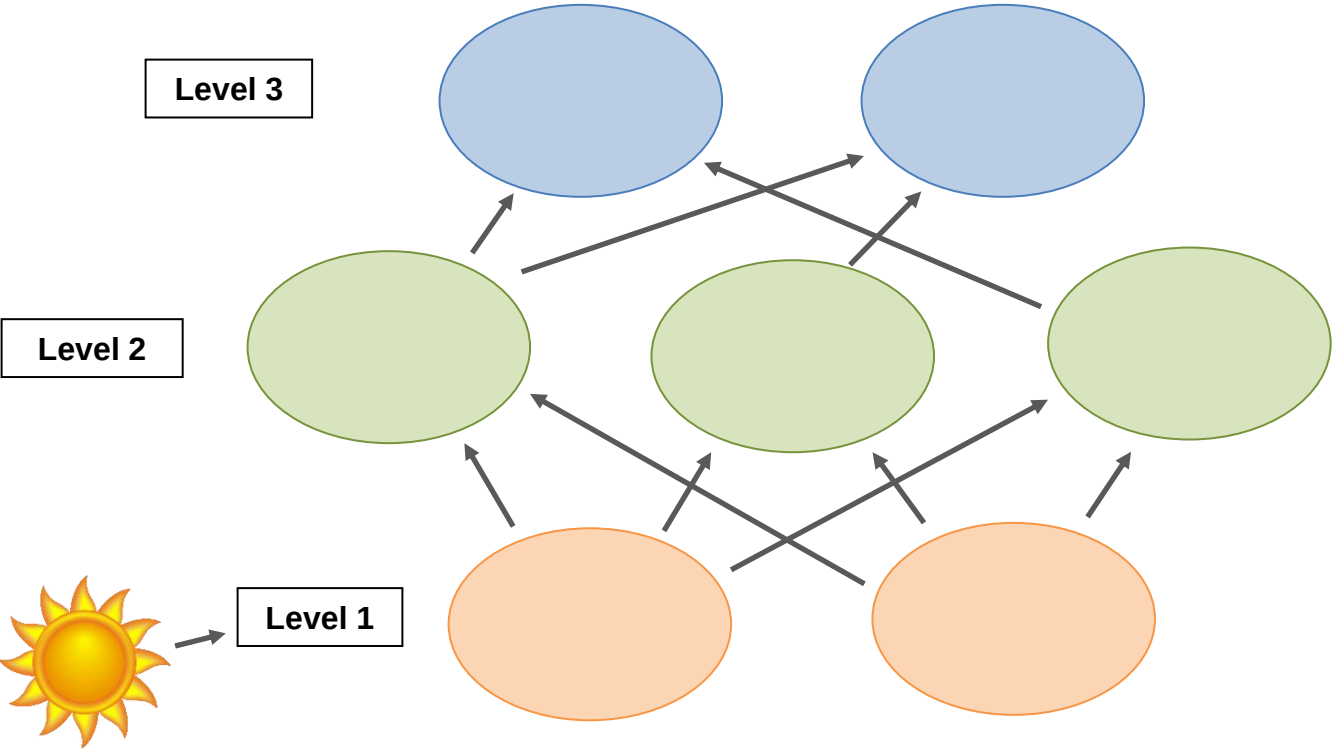


Part I: Wildlife Ecology Concepts

1-7. Energy flows in a food-web. In the diagram below, write the letter of each of the species listed into one of the circles to create a logical food web representing three trophic levels for a **Shrub-Steppe Ecosystem** where sunlight is captured at Level 1. Please note the arrows point in the direction of energy flow (the direction of the consumer). [7 points]



<u>Species</u>	A. Sagebrush	E. White-tailed antelope squirrel
<u>List:</u>	B. Black-tailed jack rabbit	F. Mountain lion
	C. Red-tailed hawk	G. Pronghorn
	D. Prickly pear cactus	

8. What trophic level of this food web has herbivorous animals? _____
9. What trophic level is most likely to be affected by bioaccumulation? _____
10. What trophic level of this food web has autotrophic organisms? _____

_____ / 10 points

Part II: Wildlife Management Issue – American Pika in Oregon

Each Team should find a copy of a document entitled “***Habitat availability and gene flow influence diverging local population trajectories under scenarios of climate change: a place-based approach.***”

Don’t worry; you will **NOT** need to read the whole thing. Instead, just skim this document to help you answer the following questions.

11. Species Distribution Models (SDMs) are widely used by scientists for what purpose?
[2 points]

12. Why do scientists predict that the American pika will experience dramatic range reductions due to climate change? [2 points]

13. What is the distance at which gene flow occurs within pika populations in Oregon?
[2 points]

- a. 3.4 km
- b. 3.5 km
- c. 2.5 km

14. According to the results of this study, how are future pika populations in Oregon predicted to change due to climate change? [2 points]

- a. Populations will decline consistently without extirpation.
- b. Populations will increase.
- c. Populations will be extirpated.

15. According to Figure 5, what does this study predict about maximum pika occupancy probability in Oregon in the future, under the eight climate models? [1 point]

____/ 9 points

Part III: Wildlife Interaction – Oregon Owls

Refer to book “*Field Guide to the Birds of North America.*”



Species A



Species B

Both of these owls are found in Oregon. Only one of the owls shown here is a native species associated with old forests, the other is a non-native that has expanded its range from the eastern United States and was first reported in Oregon in the 1970s.

16. Why is Species B decreasing in number and range? [1 point].

17. Give the common name of Species A [1 point]. _____

18. Give the scientific name of Species B [1 point]. _____

19. Besides differences in physical markings, list two other characteristics/traits that help identify the native species. [2 points]

20. These two species utilize the same types of habitats and eat similar diets. Circle the term that best describes this type of interaction. [1 point]

Predation Parasitism Commensalism Competition

____ / 6 points

Part IV: Skins, Skulls, and Bones

Your test station should have **field guides** and **materials** to help answer the following questions.

21. Examine and identify the set of **6 skins** of animals that are **all found in Oregon**.

Match the **Letter** attached to each **skin** to the correct mammal species in the list below. [6 points]

- | | |
|----------------------------|-----------------------------|
| _____ Virginia opossum | _____ American mink |
| _____ American badger | _____ gray fox |
| _____ northern river otter | _____ coyote |
| _____ red fox | _____ long-tailed weasel |
| _____ ermine | _____ northern raccoon |
| _____ nutria | _____ bobcat |
| _____ woodchuck | _____ yellow-bellied marmot |

22. Examine each labeled **Animal skull** displayed on the table (**be gentle with them**).

Assign each of the **4 skulls** to the appropriate mammal family. [4 points]

- | | |
|-----------------------------|--------------------------------------|
| _____ Felidae (cats) | _____ Castoridae (beavers) |
| _____ Mustelidae (weasels) | _____ Didelphidae (opossums) |
| _____ Canidae (dogs, foxes) | _____ Cervidae (deer, elk) |
| _____ Mephitidae (skunks) | _____ Procyonidae (coatis, raccoons) |

23. Compare the two skins and give the scientific name for each. [2 points]

A. _____

B. _____

The skull is from one of these two species. Which species does it belong to? (Circle one.)
[1 point]

A

B

____ / 13 points

Part B: Identifying Tracks and Sign

For each of the following, use the picture and the track provided to identify the species.
Book: "*Scats and Tracks of the Pacific Coast*"

Sign A



See "Track A" for reference

Background. This species is the largest rodent in North America. They are seldom found far from a creek, river, pond, or lake.

Questions: [2 points]

24. What is the common name of this animal? _____

25. Name a type of structure that this species builds? _____

____ / 2 points

Sign B



See “Track B” for reference

Background. This species digs dens on exposed hilltops or ridges with a view of the surrounding area. Their scat varies from pure black animal protein to mostly hair with some bones. Tips are tapered into long ends.

Questions: [2 points]

26. What is the common name of this animal? _____

27. What family does this mammal belong to? _____

____/ 2 points

Sign C



See “Track C” for reference

Background. This species inhabits areas with dense cover, especially with rocky ledges. Rock piles, caves, and high rocky ledges are important for bearing young. Besides scat, individuals often leave behind other signs such as scrapes (see picture above) or scent marks.

Questions: [2 points]

28. What is the common name of this animal? _____

29. What family does this mammal belong to? _____

____/ 2 points

Part VII: Species Identification

Use the available **field guides** to help you identify the following species pictured on the next page. All these species can be found in Oregon.

Species A. [2 points]

This bird is partial to conifer seeds and has a long dagger-like bill that differentiates it from a closely related species. In the high elevation conifer forest at tree line Species A is a keystone species and is also involved in mutualism with White bark pine.

30. What is the scientific name of Species A? _____

31. What family is Species A in? _____

Species B. [2 points]

32. Give the scientific name: _____

33. What is the area called where sage-grouse congregate in the spring and males conduct their courtship display? _____

Species C. [2 points]

34. This species is found in Western Oregon. What is its common name? _____

35. Without visual observation, why is Species C sometimes mistaken for a great gray owl?

____/ 6 points



Species A



Species B



Species C