Species’ Meditation

The purposes of this exercise are to 1) enhance your observational skills 2) to see the ways that individual animals and plants can differ from each other, and 3) to identify different ways that plants can interact with the physical and biological environment. Follow the directions and keep notes on what you are seeing and thinking. As you make your observations feel free to make drawings, maps, diagrams or whatever to help describe what you are seeing. Write down any questions that you think of as you are making your observations.

1. Pick a organism- a plant or an animal -choose one that interests you or pleases you. When choosing your organism, try to find something that is relatively easy to observe. Many of the questions revolve around comparing individuals of a species, so choose something that you can find more than one of.

If you chose a plant follow these questions:

2. Sit down in a comfortable place and examine your organism closely. Where are the leaves? Do the leaves differ from the base to the top of the stem? Are there hairs on the stem or leaves? Are there flowers or fruits? Does the inflorescence mature from top to bottom or vice versa? Does the plant consist of several stems that are connected, or is each stem separate? Are there any underground connections?

3. Look at other plants of the same type that are nearby and compare them to your plant and to each other. Are some larger or smaller? Can you find ones that are not flowering? Can you find seedlings or young individuals? How else to they differ: Leaf size or shape? Number of leaves? Color of leaves? Shape of leaves? Number of flowers or fruits? Size of flowers? Color of flowers? Other floral markings or characters? Stem or leaf hairs (density or size)?

4. Now look at where your plants are growing. Is it wet/dry? Is the soil rocky, sandy, or does it have a lot of organic matter on the surface? What other types of plants are growing nearby? Is the vegetation dense or sparse? Is there an overhead canopy? What type of trees? What types of herbaceous species? Grasses? Shrubs?

5. Next look for ways that your plants might be interacting with other organisms. Are there any signs of herbivory on the foliage or flowers? What types (holes, edges, leaf surface, brown spots, large pieces missing)? Can you identify more than one type? Any visitors to the flowers? What types? How many different visitors? Open a flower and look for nectar at the base of the petals. Is there any sign of pollen on the stigmas? Examine several plants and look for herbivores and pollinators.

6. Finally, start walking around and look at the different types of places your plant grows or does not grow. Is your plant widespread or less common? Does it grow in a number of habitats or just one? Is it associated with different types of plants in other places? Can you identify an ecological range for your plant? Do the individuals in different habitats look different? If you chose an animal follow these questions:

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2. Observe an individual closely and try to describe it in words and/or with drawing. How large would you guess it is? What colors? Describe the color patterns. Describe teeth, bill, feather, skin, or hair patterns. Look at the overall morphology- describe special modifications of limbs including wings, tails, and legs. Does your animal make any vocalizations? Try to describe them (e.g., write the call out phonetically).

3. Next describe what your animal is doing. Watch him/her for some period of time and try do describe different behaviors. This will be easier if you use some codes that you can jot down quickly without taking your eyes off of your animal. Is your animal foraging? If so, try to figure out what it is looking for. Try to find some of its food and describe it. Watch its foraging behavior. Does your animal display a particular pattern of actions when it is looking for food? If your animal is not looking for food try to figure out what it is doing. Is it taking courting or being courted? Is it taking care of young? Or maybe it is just resting? Is it watching other individuals of the same or different species? If so, can you figure out why?

4. Now compare your animal to other individuals of the same species. Are different individuals different sizes? Do they have different color patterns? If so, can you figure out whether why-are they juveniles? Or maybe males and females look different?

5. Watch the way that individuals of your species interact with each other. Does their behavior depend on their color patter (i.e., male, female, or juvenile)? Do individuals usually alone or do they move around as a group? How large is the group? Do they stay close together, or do some individuals wonder off? Do individuals tend to maintain the same position as the group moves or is the group more loosely organized? Are they making regular vocalizations? Can you tell if they make calls in response to particular types of interactions with each other or with their environment? Make your presence known to them and watch how they respond. Do they flee? Did you notice any particular vocalizations?

6. Finally, describe how your species interacts with its environment. First, describe the habitat that they live in. Is it wet/dry? how deep is the water? Is the water moving? Marsh, surf, or open ocean? Describe the plants that grow there. Forest, sand dunes, or marsh? How far from the water? Do they use more than one type of habitat? Second, describe how they interact with other species within their environment. Do they have any interactions with other plants or animals? Have you observed them chasing or being chased by individuals of a different species? If so, could you tell why? Are they acting as predators or herbivores? What species might eat them? Are they competing for their food with any other species?