Worksheet 8: Describing a Population

1. Explain the difference between the distribution and geographic range of a population. (pgs. 151-153)

2. Populations are distributed on the landscape in subpopulations; considered together, all of the local subpopulations in an area are referred to as a ______________. Why are populations distributed as a collection of subpopulations in natural landscapes? (pgs. 153-154)

3. Define population abundance. What is the problem with using a simple crude density as a measure of population density? What is ecological density? (pgs. 153-155)

4. Explain how the following three dispersion patterns (your book refers to these as spatial distributions) might arise: random, clumped, and uniform (i.e., regular) (pgs. 154-155)

5. You are a wildlife ecologist for the US Forest Service in Humboldt Co., California. Because of concerns over declining numbers of Northern Spotted Owls, you have been tasked with estimating the population size of Spotted Owls in Willow Creek, a forested region of 300 km². (pg. 156)

   a) What method would you use to estimate the population size of Spotted Owls at the Willow Creek site ______________

   b) Given the following data from your sampling effort, calculate the population estimate (use the formula that corrects for overestimation bias) and population density for spotted owls in your region. Be sure to include units in both estimates.

<table>
<thead>
<tr>
<th>Parameter</th>
<th># Owls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Captured and marked</td>
<td>273</td>
</tr>
<tr>
<td>Re-captured</td>
<td>210</td>
</tr>
<tr>
<td>Marked of those re-captured</td>
<td>95</td>
</tr>
</tbody>
</table>

   Write the equation you used here: ______________

   Population estimate: ______________

   Population density: ______________
6. Give an example of a type of measurement you might take to determine the age structure of: a) a plant population; and b) an animal population. (pgs. 156-158)

7. Draw an age pyramid for a population that is rapidly growing, one that is stable (neither growing nor declining), and one that is declining. (pgs. 158-159)

8. Compare and contrast the following types of movement in populations: dispersal, emigration and immigration. (pgs. 158-160)

9. How does dispersal differ between plants and animals? (pgs. 159-160)

10. Humans have played an important role in facilitating the dispersal of plant and animal species to new locations where they did not exist before. Give an example of a plant and an animal that were introduced into the United States. What have been some of the consequences of these instances of human-assisted dispersal? (pgs. 160-162)