

EEB 2208 (Introduction to Conservation Biology)

Homework 5: Lectures 1-10

Homework checklist

- Answer every question or you will get no points
- Submit your responses before midnight on the day they are due or you will get no points
- Submit your answers via huskyct, following the instructions in the “Homework overview” document. Do not put your answers in the “Comments” box, or you will get no points.
- If you write your homework in Word and then copy & paste into HuskyCT, make sure you are not using Word’s auto-numbering, otherwise all the question numbers will disappear when the homework is submitted (and you will get no points).
- Be sure to use the format explained in class and for Homework 1. Each numbered item is a separate question and would be worth 1 point on an exam.
- A = true, B = false

For the following sets of questions identify which answers are correct and which are false.

Why did heath hens go extinct?

1. Because no land was protected for them.
2. Because their habitat was destroyed.
3. Because they are a long-lived species, with high reproductive rates.
4. Because a harsh winter killed many individuals.
5. Because they were hunted.

Which of these statements about habitat loss are true?

6. The area of tropical rainforest destroyed each year is about the same as the area of Connecticut.
7. About half of the wetland habitat in the U.S. (excluding Alaska) has been lost in the last two centuries.
8. Most habitat loss is caused by urban development.
9. Well over half the coral reef habitat in the world has been lost or severely damaged.
10. Habitat loss and degradation affects more endangered species in the US than any other threat.

One of the best studies to examine the characteristics of successful invading species involved birds introduced to New Zealand. In this study, what were the best predictors of invasion success?

11. The number of individuals released.
12. Reproductive rates.
13. The number of potential competitors.
14. Life spans.
15. The number of introduction attempts.

Which of the following statements correctly link a species with the factors that threaten it?

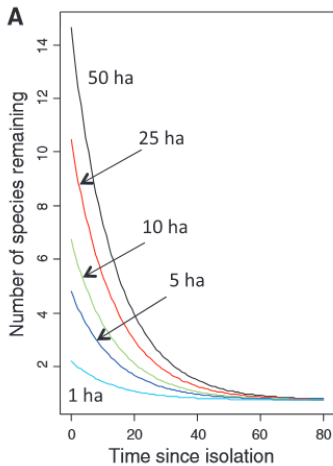
16. Sea turtles are threatened because they are poor dispersers.
17. Red-cockaded woodpeckers are threatened because they require specific habitat conditions that are rare.
18. Large blue butterflies are threatened because they are extreme habitat specialists.
19. Flattened musk turtles are threatened because they hybridize with other turtle species.
20. Vultures are threatened by overuse of painkillers in farming.

Which of the following statements about over-harvest are true?

21. Species with high reproductive rates are most vulnerable to over-harvest.
22. Over-harvest tends to affect endangered US plants more than animals.
23. Bush-meat is exported from Africa for profit.
24. Many marine species are threatened by over-harvest even though they have no commercial value.
25. The annual harvest of millions of mourning doves is sustainable.

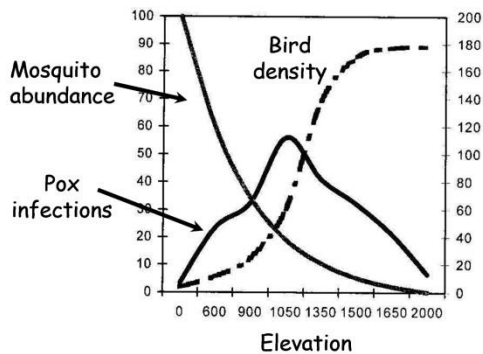
Which of these statements about the following figure are accurate (note, parts B and C are not included and are not relevant)?

Fig. 3. Loss of species from forest fragments of various sizes based on model (1). (A and B) Number of species remaining and number of species lost per year on fragments after time (in years) since isolation. **(C)** Time to extinction of half of the species ($t_{1/2}$) initially present on forest fragments according to fragment area.



26. The data in the figure show that smaller patches have fewer species.
27. As time goes by species, evenness declines.
28. Large habitat patches have more species than smaller habitat patches.
29. The more isolated a patch is the fewer species it has.
30. The rate of extinction is higher for large patches.

The figure below describes factors relating to the incidence of avian pox in Hawaii, where it is an introduced disease that is transmitted to birds by mosquitoes. Which of the following statements about the figure are true?



31. This figure shows that birds are uncommon in the lowlands.
32. This figure shows that birds can effectively control introduced mosquito populations.
33. This figure suggests that pox infections are highest where the mosquito vector is most common.
34. This figure shows that pox infections are more common than mosquitoes at mid-elevations.
35. This figure suggests that high elevations provide a refuge where birds are safe from disease.

36. In 1998, Wilcove et al. published a summary of the different threats faced by endangered species in the U.S. Describe the relative importance of the different threats they considered, and compare the results for vertebrates, invertebrates, and plants. (6 points)

37. Define the following terms. (3 points)

By-catch:

Propagule pressure:

Genetic bottleneck:

38. Give four distinct ways in which roads negatively affect species. (4 points)

39. Beavers have been introduced to southern Chile, where no similar mammals exist, and their populations have undergone considerable growth. Given what you have learned in the class, what effects would you expect to see? (2 points)