Conservation Biology - Bi8370 Spring 2021

EXAMINATION #1

Your answers should be typed and returned no later than the start of class on May 3.

As you construct your answers to these questions, please make use of the published literature and any other resources you can find to justify your positions. Don't limit yourself to just the papers from class! And, don't forget to cite your references. Use your favorite citation style. The point here is to give me a summary of your positions on these topics, as well as the work that underlies them.

A. Shorter Answer – one to two paragraphs maximum! (10 pts each):

(1) What are the Hofstede cultural dimension values for the country you come from? Based on them, and other socio-economic factors, is your country likely to invest in conservation? Do you trust that connecting his dimensions with other socio-economical factors is useful in conservation? Why or why not? (see: McClanahan, T. R. & Rankin, P. S. 2016. Geography of conservation spending, biodiversity, and culture. *Conservation Biology*. 30: 1089-1101. https://conbio.onlinelibrary.wiley.com/doi/full/10.1111/cobi.12720)

(2) How have humans impacted ecosystems and biodiversity across the globe at different spatial scales?

(3) What methods can you use to predict the long and short-term fate of a specific population of your favorite species? What types of information do they require? And what are their strengths and weaknesses? We are not asking you to do this analysis, only to suggest a way to do it.

(4) What arguments have been put forward to prioritize the conservation of genetic diversity within a species? How important this is, and why? How much do you think it should influence conservation activities?

(5) Give an example of a species that represents each of the 'seven forms of rarity' and explain why. Suggest optimum conservation strategies for each.

(6) How are disturbance regimes characterized over multiple spatial and temporal scales, and how do they impact biodiversity dynamics?

B. Longer Answer – one to two pages maximum! (20 points each):

(7) Define and justify your personal conservation ethic. Then, apply it to a situation where politicians have decided that only one of the following most critically endangered habitats will be prioritized for protection (see Chytrý *et al*. 2019. Red List of Habitats of the Czech Republic. *Ecological Indicators*. 106:105446; https://doi.org/10.1016/j.ecolind.2019.105446: **(a)** Aquatic plant communities of natural lakes and pools; **(b)** Vegetation on wet sand, exposed bottoms, and salt plains; **(c)** Calcareous and acidic moss-rich fens; **(d)** Alpine grasslands and snow beds; **(e)** Pannonian sand steppe and oak forest

Decide which is the most ethical to protect and explain why.

(8) Given the dynamic nature of natural areas over time and space (*e.g.*, population size and location, community composition, nutrient cycling, disturbance size and return frequently), provide and defend some rules-of-thumb which conservation biologists should consider while developing reserve boundary and management plans.