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Lecture Assignment 2

2024-09-12

1. How does the Kellner *et al*. dichotomous definition of habitat suitability compare and contrast with classical definitions of habitat? Do not consider the Northrup *et al*. definition of habitat here; think back to our first Thursday lecture when we discussed “what is habitat?”.

The Kellner *et al*. definition of habitat touches on a couple of the aspects that we have discussed in class but is distinctly different. The authors do mention that a habitat is species specific and are thinking along the lines of promoting positive fitness over a temporal scale. However, the discussion of habitat being suitable or unsuitable, to me infers the potential for it to enable a fitness of zero. The authors also make no mention of residency/occupancy, spatial scale, resources, or conditions.

1. How do Kellner *et al*. define habitat quality? How is this different from habitat suitability?

The authors suggest the definition of habitat quality to be “the expected value of λ or E (λ)” within the context as they described the finite rate of population increase (λ=er) with the reasoning that it relates habitat quality directly to habitat suitability via rates of survival and reproduction. This definition differs from habitat suitability, as the latter depends on whether or not λ is ≥ 1 and is related to population density and carrying capacity.

1. Kellner *et al*. argue for the importance of long-term studies to evaluate habitat suitability. What value (if any) do you see in “short term” studies of habitat suitability (e.g., studies that take place over only a fraction of a species’ lifespan or life cycle)?

The described “short-term” 2-4 year studies are much more likely to receive funding than long-term studies. I believe that investigating a snapshot of an organisms life can indeed lead to misinformed assumptions, but it is better than nothing at all. It can also lead others to investigate further.