Conservation Biology Discussion – Amphibian Decline and Probiotics

Mitigating amphibian chytridiomycosis with bioaugmentation (Bletz et al., 2013)

* This review asserts that bioaugmentation using probiotics is an effective and practical method of mitigating the impact of chytridiomycosis (and potentially other diseases). It also provides a detailed framework for probiotic sampling and filtering procedures.
* I’m interested in what methods would be used if researchers or conservation managers were to apply a generalized probiotic to the environment/community. Is this something that would simply be walking around spraying the probiotic solution over the forest floor, or is there more to it? I know that for antifungal treatments to ponds, the entire pond is scrubbed out and treated with the antifungal solution, but this may be different for terrestrial habitats.
* This paper is highly applicable to my research, particularly because the frogs I study have chemical defenses that likely influence their individual microbiomes (not to mention that the variation in alkaloid defenses among populations could also determine population-level microbiomes), and may provide protection against infectious pathogens like *Bd*. The group of anurans that sequester chemical defenses are a whole different system in a sense, in that their conservation may involve probiotics that are resistant to a range of alkaloids, in addition to providing them alkaloids to defend themselves from pathogens. I would really like to know if an alkaloid bath at some concentration is an effective method of allowing the frogs to uptake alkaloids into their glands, while also potentially reducing viable pathogens/zoospores on infected frogs.

Interventions for reducing extinction risk in chytridiomycosis-threatened amphibians (Scheele et al., 2014)

* These authors suggest a range of methods and measures to mitigate the impact and spread of *Bd*. Their main approaches are attempting to reduce *Bd* in populations or the environment, or to bolster amphibian populations themselves such that *Bd*’s impact is reduced.
* I would have liked to know even more about how *in situ* and *ex situ* approaches can be combined in the future, sort of along the lines of what they did with *Pseudophryne corroboree*. These multifaceted responses were very interesting to me, and working with captive assurance colonies (potentially investigating probiotics and assisted reproduction) while head starting natural populations seems like a very effective approach. I am also interested more in how *in situ* approaches have turned out so far.
* After graduation, I’ll be looking for research jobs with amphibians. While they’ve been hard to come by so far, one of the jobs is at a zoo developing a genome bank and techniques for assisted reproduction for endangered amphibians through assisted reproduction - this is clearly linked to the *ex situ* conservation approaches mentioned in this document, and I think it would be a great experience to work on similar projects for amphibian conservation. It’s very helpful to get an overview on the approaches available for conservation regarding *Bd* at this point. Also, I was perplexed by the formatting of table one (inverse line indentation, etc.)…