Discussion Questions Laura Macano, Wei Chen, Isaac Valdiviezo

Hiller & Lessios 2017

1. "In temperatures similar to the ones experienced by the southern and mid-Atlantic coast of the United States during abnormally cold-spells between January and March 2010, 39% of specimens survived" (p.2). Is it possible for more hardy invasive species to emerge as a result of die-offs from the harsh conditions of local climates? Why?
2. "Clearly, this is a species with low ability to disperse, either within the western Atlantic or within the eastern Pacific, although our limited sample from the eastern Atlantic indicates higher genetic connectivity between the more closely spaced samples in this region" (p.8). Is more sampling required to reach a better conclusion of P. armatus' genetic diversity in the Eastern Atlantic? Why?
3. Does a higher level of population structure correlate with range expansion? And given P. armatus' poor ability to spread in introduced areas, is it possible for the species to sustain itself in new areas over the long-term (p.9)?
4. Do you think the differences between range shift and invasion are clearly defined in the case of P. armatus and beyond? If not, how could they be more clearly differentiated?
5. How do you think climate change will affect the behavior of species with low dispersal? Will it force them to migrate, or will they succumb to the eventual warmer environments?

Wilcox et al. 2018

1. The authors mention potential hybrids are first identified through meristic differences (e.g., differing number of scales, etc.) and imply marine hybridization events are likely underestimated since they're not conspicuous. What would you suggest as an alternative means of identification?
2. "Given the lack of diagnostic differences either genetically or morphologically (Tables 4 and 5), the detection of recent gene flow between the 2 taxa, and the introgression between both and P. miles, it is likely that P. lunulata and P. russelii are members of a single polytypic species" (p.167). Do you think these species should be considered different species given their biased statement at the end?
3. The authors found that all first generation hybrids are fertile and capable of interbreeding/backcrossing to parental lineages. Is it possible that hybrids will ever diverge as a separate species under such circumstances? Why or why not?
4. "Since sampling at each site was nonrandom for these 2 lineages (targeted at putative species rather than a representative geographic sample), the proportion of specimens from each location may not represent their relative abundance" (p.167). Based on the paper's nonrandom/biased methods of data collection, can we confidently reach conclusions with the data provided?
5. 5. Are hybridized species less susceptible to genetic disorders when faced with the founder effect?