

April 18, 2018. **Niche evolution**

Reading:

Evans ME, Smith SA, Flynn RS, Donoghue MJ (2009) Climate, niche evolution, and diversification of the “bird-cage” Evening Primroses (*Oenothera*, Sections *Anogra* and *Kleinia*). *The American Naturalist*, 173, 225-240.

Crisp MD, Arroyo MT, Cook LG, Gandolfo MA, Jordan GJ, McGlone MS, Weston PH, Westoby M, Wilf P, Linder HP. Phylogenetic biome conservatism on a global scale. *Nature*. 2009 Apr;458(7239):754.

Outline

1. Geographic space and Climate space
 - a. Niche evolution occurs in climate space
 - b. Dispersal and gene flow occur in geographic space
 - c. Climate is geographically structured
 - d. So it’s hard to know how the two interact!
2. Geography, environment and speciation
3. Niche models
 - a. Climate envelopes
 - b. Maxent statistical models
4. Reconstructing niche evolution
 - a. Species mean climate values as traits
 - b. Min/max as traits
 - c. Is niche breadth intraspecific variation or a trait?
5. Niche conservatism during dispersal

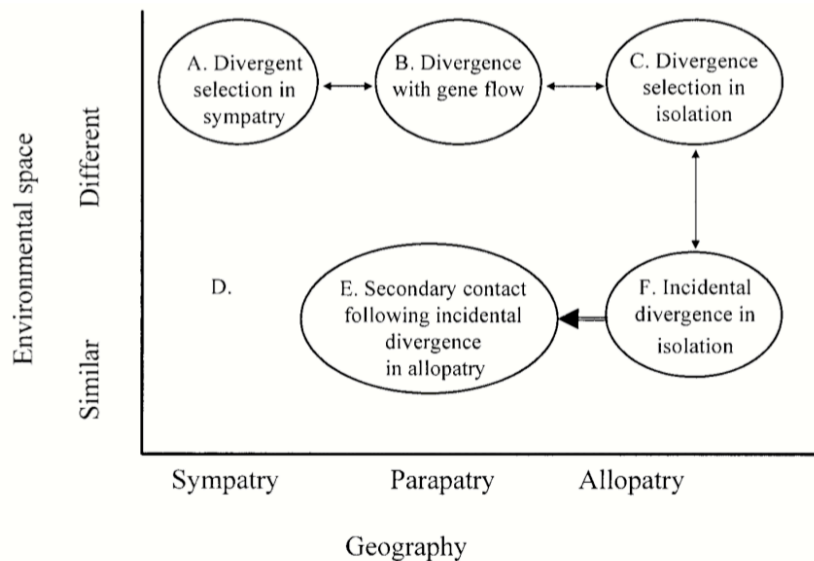


FIG. 1. Speciation mechanisms predicted from combined information on geographic and environmental space use by sister lineages.

Literature:

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