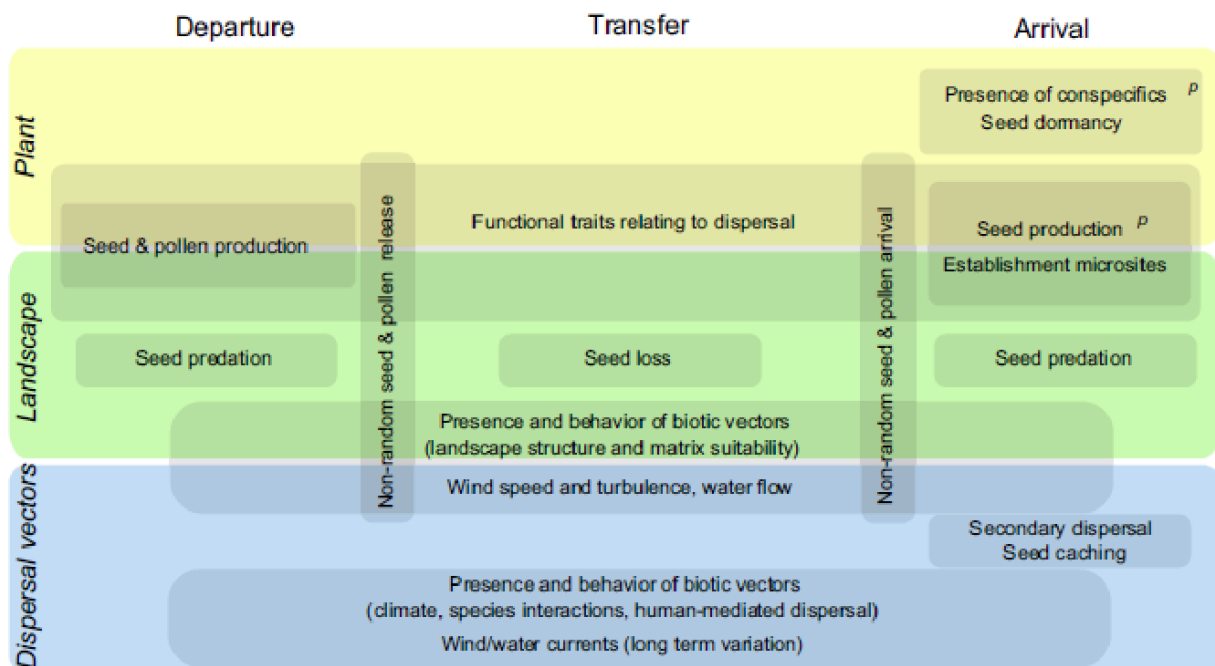


Distributed Graduate Seminar in Landscape Genetics 2024

Week 14 exercise: Plant studies in landscape genetics

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1. The paper of Auffret et al. (2017) "Plant functional connectivity-integrating landscape structure and effective dispersal" suggests examining functional connectivity by looking at three different stages (see below). Based on the hypothetical scenario of a plant species pollinated by wind and seed-dispersed by animal vectors (birds and small mammals) answer the following points:
 - (i) List all potential **landscape or intrinsic biological variables** and their predictions that would be important to test for each stage for pollen and seed-mediated gene flow.
 - (ii) List all potential **environmental variables or biotic interactions** and their predictions that would be important to test for each stage for pollen and seed-mediated gene flow.
 - (iii) ¿Which contemporary **pollen flow** approach (parent-offspring assignments, e.g., Kamm et al. (2010) or pollination networks, e.g. Dyer et al. (2010)) would be more appropriate to test your listed predictions (i & ii)?
 - (iv) ¿Which is the main limitation & advantage of your proposed methodological approach?
 - (v) ¿Do you think seed bank is an important feature to consider for functional connectivity in plants? Put an example.
 - (vi) If the interest is mostly to inform conservation guidelines, which is the main drawback and benefit of conducting contemporary gene flow approaches?



References:

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- Dyer, R. J., Chan, D. M., Gardiakos, V. A., & Meadows, C. A. (2012). Pollination graphs: quantifying pollen pool covariance networks and the influence of intervening landscape on genetic connectivity in the North American understory tree, *Cornus florida* L. *Landscape ecology*, 27(2), 239-251.
- Kamm, U., Gugerli, F., Rotach, P., Edwards, P., & Holderegger, R. (2010). Open areas in a landscape enhance pollen-mediated gene flow of a tree species: evidence from northern Switzerland. *Landscape ecology*, 25(6), 903-911.