

# Eco-evolutionary dynamics in Galapagos

PhD Project(s) in the Hendry lab at McGill

Key collaborators: [Marc Johnson](#), [Nancy Emery](#), [Anna Hargreaves](#), [Jonathan Davies](#)

Plant-finch interactions in Galápagos represent an excellent system for studying how eco-evolutionary dynamics play out in nature. The *eco-to-eco* side of the story (seed distributions influence beak size distributions) is well established, and has set the stage for new studies of *evo-to-eco* effects. Specifically, changes in beak size distributions should modify seed type distributions, such as when the evolution of larger beaks during a drought leads to the depletion of large/hard seeds from the seed bank. This altered seed distribution could then change the community of plants that germinate and grow after the drought ends. In short, not only might the Galápagos flora be shaping the adaptive radiation of Darwin's finches, but the adaptive radiation of Darwin's finches might be shaping the Galápagos flora. Hendry and collaborators are looking for several PhD students to work on these topics. Examples of projects include:

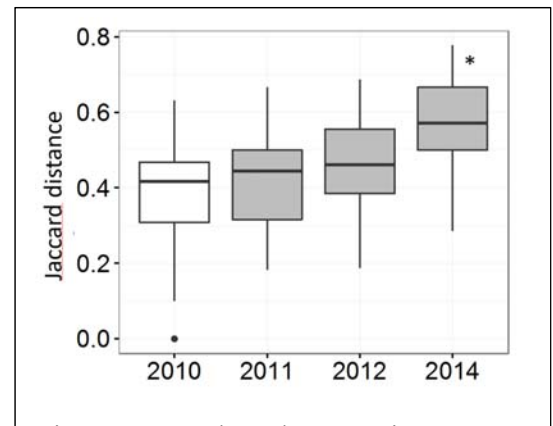
1. How do beak distributions influence seed/plant communities?

This question can be approached through the implementation of finch exclosures and targeted seed removals at sites with different beak distributions. Our initial work (fig at top; Carvajal-Endara et al. In prep.) has shown the effectiveness of such exclosures for revealing effects of finches on seeds and plants.

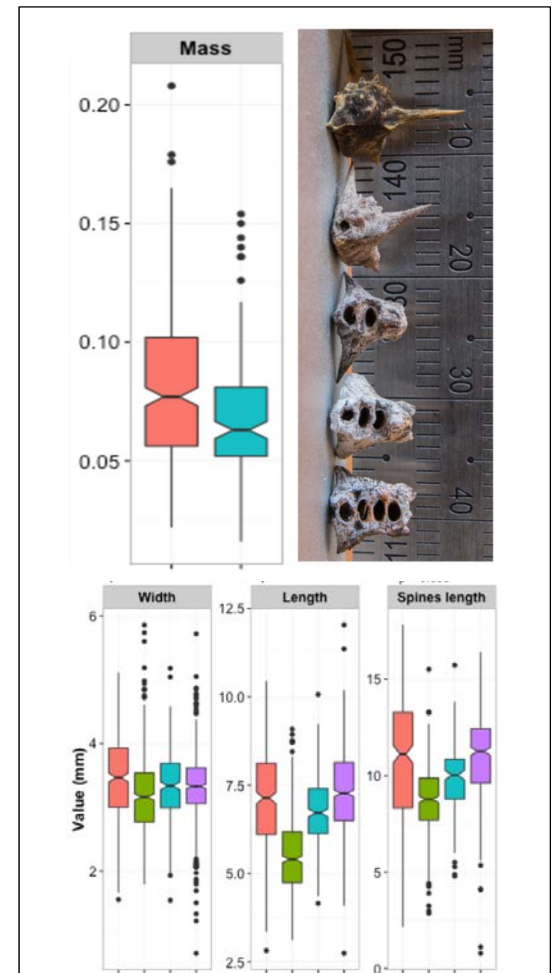
2. How are plants evolving in response to finches? In addition to community-level responses, specific plant species are presumably evolving in response to finches. Hendry and collaborators have found that finches impose selection on seed traits in *Tribulus* (fig at bottom: Carvajal-Endara et al. In prep.), and similar techniques can show how different beak distributions impose different selection pressures and evolutionary responses.

PhD students for these projects could start in January or September 2018. If you are interested, please send your transcripts, CV, and a statement of your interests to [andrew.hendry@mcgill.ca](mailto:andrew.hendry@mcgill.ca)

Our first paper on Galapagos plants: Carvajal et al. (2017 – [Ecol. Lett.](#)).



Since 2010, when the experiment started, seed species composition has increasingly diverged between paired finch-inaccessible exclosures and finch-accessible controls.



*Tribulus* mericarps opened or not (top right) differ in size (top left), & size varies among islands (bottom).