A major challenge for evolutionary biologists is to explain the extraordinary species richness and diversity of organisms. We will discuss progress in our understanding of the key evolutionary process, speciation, with special reference to the radiation of Darwin’s Finches. We draw upon the results of a long-term field study of finch populations spanning four decades, combined with laboratory investigations of the molecular genetic basis of beak variation and development. The process of speciation in the finches has been inferred by comparing the ecology and phylogeny of the species, and has been studied directly on the small island of Daphne Major. Introgressive hybridization has been an important factor in two respects, enhancing the potential for adaptive change by increasing additive genetic variation, and in the formation of a new species.

*Abstract provided by the speaker.*