

## Keynote Presentation

### “The Hidden Forces That Make Bird Species and Set Their Ranges”

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Genetic mechanisms and microscopic parasites have proven to be critical to the process of speciation and in setting the limits to geographical ranges. For the birder, these hidden forces determine both ‘what goes on the list’ and ‘what you’ll see where’. In this talk, I will review cases of genetic adaptation in the avifauna of western North America. Some of these cases of genetic adaptation are associated with speciation, whereas others clearly occur within species. I will describe cases in which interactions between genes are critical to the speciation process, and I will discuss the implications for our definitions of species. Drawing on our recent research in montane forests of New Mexico, I will describe the striking diversity and ubiquity of the malaria-related parasites in birds. These parasites have proven to vary strikingly from place to place, and bird families, genera, and species vary in their susceptibility to infection. I will reveal the birds that tend to be infected or uninfected among the New Mexico avifauna, and I will argue that these parasites probably promote bird diversity, both locally and globally.