



Speaker:

Geoffrey E. Morse

Associate Professor

Biology Department

University of San Diego

Date: Monday, April 18, 2022

Time: 4:00 pm - 4:50 pm

Format: In-Person Seminar & Virtual Access

Location: Genomics Auditorium 1102A

Zoom: 948 0131 1028

Passcode: 347039

Title:

“Extremes of Herbivory: Seed Beetles & Armored Scale Insects”

Abstract:

Ever since Ehrlich & Raven’s seminal paper on Butterflies & Plants (1964), the diversification of plant-feeding insects has been seen as largely due to an adaptive radiation into the multitude of niches provided by the diversity of plant species and plant tissues. But the diversity of these insects also represents remarkable diversity in life history strategies. In this talk, I will present data from two extremes of phytophagous insects: one that appears to fit the Ehrlich & Raven paradigm and one that does not. Seed beetles (Coleoptera: Chrysomelidae: Bruchinae) are highly specialized, they are excellent dispersers, and they have impressive neurosensory mechanisms for locating and finding host plants. In addition, they appear to present an intense selection pressure by being a large source of mortality for the offspring of a plant: they consume their developing embryos by eating their seeds. They appear to be involved in a coevolutionary arms race with their host plants, and diversification in the beetles is largely mediated by this ecological interaction. Armored scale insects (Hemiptera: Diaspididae), on the other hand appear to fall at the opposite of the life history continuum: they are often extreme generalists, and they have undirected dispersal with minimal mechanisms for selecting host plants. Furthermore, by feeding on the contents of individual parenchyma cells of woody plants, it is difficult to imagine a scenario when they pose much of a fitness cost on their host plants. There is no evidence of a coevolutionary dynamic with host plants and their diversification appears to be largely non-adaptive. Despite these differences, the two lineages have remarkably similar diversity and clade age. These results suggest that the notion of adaptive radiation in diversification of insects must be evaluated across multiple dimensions and not simply assumed.

*Please wear a mask if you plan to attend the seminar in person
Refreshments will be served in the Entomology Building Courtyard at 3:00pm*