The Evolution of Long-tongued Fly Pollination (Diptera: Tabanidae) in South Africa.

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I am interested in the role species interactions play in shaping organismal evolution and diversity. My dissertation research will use phylogenetics and systematics to study the process of coevolution, with a focus on morphological coevolution between plants and their insect pollinators. I will create a phylogenetic hypothesis of relationships within Philolichini (long-tongued horse flies, Diptera: Tabanidae), and use this phylogeny to infer the evolutionary history of flower-association in Philoliche. Specifically, I will use empirical and phylogenetic comparative methods to answer the following questions: 1) Does the current classification of Philolichini represent evolutionary relationships between these flies? 2) Are nectar-feeding Tabanidae in South Africa co-evolved with the plants they pollinate? 3) Is the ancestral condition of horsefly females nectar-feeding or blood-feeding? Additionally, with a phylogenetic hypothesis, it will be possible to ask 4) Is the current distribution of the Philolichini the result of vicariance during the Gondwanan breakup? This work will produce the first phylogenetic analysis of Tabanidae below the family level.