Field Report – Peru

Host-parasite Coevolution in Neotropical Ants

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Many insects are associated with disease because they can be parasites and vectors, but it is not generally known that insects are often afflicted with diseases, including viruses, bacteria, and fungi. I study a fungal parasite of a lowland Neotropical ant species. In September of 2006 and February of 2007 I went to two sites in Amazonian Peru (Iquitos in the north and Madre de Dios in the south) to collect the ant *Cephalotes atratus*, which is infected by the fungus *Cordyceps kniphfioides*. *Cordyceps* fungi infect insects, causing them to climb trees so they die in elevated locations. The fungus consumes the insect tissue, and then produces an elongated fruiting body (a mushroom) containing spores that disperse aerially to infect other insect hosts.

My aim is to understand host-parasite coevolution by studying both broad and fine-scale geographic patterns of the ant and fungus. *Cephalotes atratus* is a canopy-dwelling ant that rarely comes to the ground, so I climb trees to access their nests. This requires modified rock-climbing equipment and the aid of field assistants from Peru. So far we have collected ants from over 70 colonies. Using specific molecular primers I will be able to extract ant and fungal DNA from infected ants. I can then determine geographic patterns of variation in host and parasite DNA and the level of parasite infection in different ant populations. *Cephalotes atratus* lives in human-altered habitats (e.g., cities and agricultural fields), and I will later examine whether I can detect any effects of habitat destruction on host-parasite dynamics.

Figure 1. *Cordyceps* fungus emerging from ant body

Figure 2. Descent from the canopy.