1086-92-1753 **Holly V Moeller*** (hollyvm@stanford.edu) and **Michael G Neubert**. *Optimal investment in a multi-mutualist system: Trees and ectomycorrhizal fungi.*

Many tree species form mutualistic partnerships with a group of belowground fungi known as ectomycorrhizae. The maintenance of these partnerships depends upon tree payments of photosynthetically fixed carbon to the fungi. In return, the fungi provide nutrients, water, and pathogen defense services to the host tree. Interestingly, an individual tree may host dozens of species of ectomycorrhizae simultaneously, including fungi which appear to be less beneficial than other community members at that time.

Empirical evidence suggests that some of this diversity may be explained by niche differences among fungi, with some species better able than others to access particular nutrient pools, provide pathogen defense, and so on. Here, we examine the importance of temporal variation to the maintenance of fungal diversity. In particular, we ask whether a tree that experiences environmental variation might "bet hedge," by investing in a suite of fungi more diverse than its present environmental settings dictate because future conditions might require ready access to other partners. (Received September 24, 2012)