

Biodiversity and Ecosystem Services: Assessing the Economic Contribution of Native Bees to Crop Production

Ecosystem services are the processes by which the environment produces resources that we humans often take for granted. Examples include: provision of clean air and water, maintenance of soil fertility, maintenance of stable climates, pollination of crops and natural vegetation, control of potential pests, provision of genetic resources, production of food and fiber, and provision of cultural, spiritual and intellectual experiences. Biodiversity in general, and insect biodiversity in particular, underpins the services that ecosystems provide and has significant, but sometimes under-appreciated, value.

Pollination is an ecosystem service that my lab studies in some detail. We have a long-term project on the role of native bees as crop pollinators in apple orchards in central NY. Our first two years of data reveal an enormous diversity of bee species (>80 species to date) in orchards ranging from 2 acres to up to 100 acres, and our investigations of pollinator effectiveness indicate that native species may be more important pollinators than (non-native) honey bees in many orchards. We are interested in developing collaborations with others on campus to develop a comprehensive program to evaluate the economic contribution of native bees to pollination in agricultural systems. We can also expand the discussion to include natural enemies and a broader array of ecosystems services. I am interested in developing an ACSF-AVF proposal focused on quantifying the value of native pollinators and would welcome input on this idea.