

Bio. Study 23. Development of a web-based tool for grower assessment of native bee abundance in the wild blueberry production landscape. 2014. Report from Brianne Du Clos (Ph.D Student); Dr. Sam Hanes, Department of Anthropology; Dr. Cyndy Loftin, USGS Coop Research Unit and Professor WLE; and Dr. Frank Drummond

OBJECTIVE:

This study aims to share landscape-scale ecological model output with wild blueberry growers in a useful and meaningful way.

METHODS:

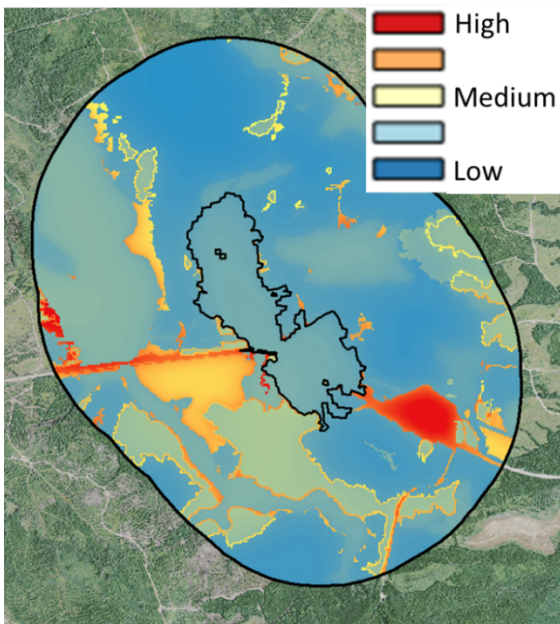
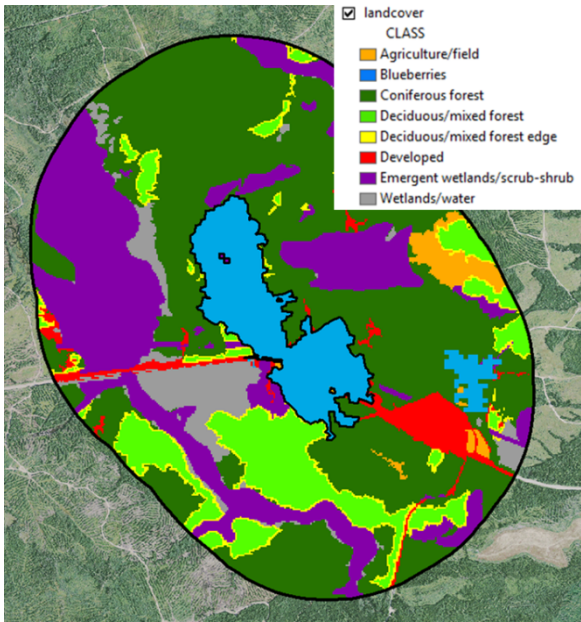
Wild bees are an important source of pollination, and growers that contribute to wild bee conservation near their fields will benefit from increased crop pollination. We are developing a novel web-based tool for stakeholders to visualize estimated bee abundance associated with land cover in the landscape around focal crops. This tool aims to show growers where their conservation efforts are best focused at the landscape scale. Development of the web-based tool includes an iterative, participatory process that will incorporate grower feedback about the tool's design. We presented an early version of the web tool at the annual Wild Blueberry Commission Advisory Board meeting (November 2014), and anticipate three further opportunities for grower feedback in early 2015: in-depth one-on-one sessions with six key informant growers chosen for their knowledge of different growers groups, a hands-on workshop with growers identified based on their interest in bee conservation, and two workshops at Blueberry Field Schools.

RESULTS:

An early version of the tool has been presented at a meeting of the Wild Blueberry Commission Advisory Board in November 2014, where feedback was collected from wild blueberry growers and researchers. The tool will be accessible over the internet. Once in the tool, growers will locate their blueberry field using aerial

photography and other visual navigation aids such as roads, rivers, and town boundaries. Growers will then display two circular buffers around the field representing the area from which small solitary bees or large bumblebees can reach the blueberry field in the surrounding landscape. Growers can display land cover—the types of land found around the blueberry field—and the bee abundance map within the foraging distance of large and small bees (Fig. 1). Coniferous land cover harbors bee communities with low abundance; areas around blueberry fields that are highly coniferous may benefit from efforts to enhance bee communities. Wetlands and deciduous/mixed forest edge harbor more abundant bee communities and may benefit future bee communities by being conserved. Further information on pollinator conservation practices from the UMaine Cooperative Extension will be linked to in the web tool.

Fig. 1. Land cover and bee abundance within the foraging distance of a large bumblebee around a blueberry field in the web tool.



CONCLUSIONS:

We will continue to develop the web tool and seek feedback from wild blueberry growers throughout the tool development process. The final version of the tool will help growers visualize the contribution of the landscape surrounding their fields as wild bee habitat and inform their decisions about land management to enhance crop pollination as well as wild bee conservation.