



Tropentag, September 16-18, 2015, Berlin, Germany

“Management of land use systems for enhanced food security:
conflicts, controversies and resolutions”

Wild Pollinator Diversity in Landscapes Surrounding Cranberry Bogs in Quebec (Canada) and their Usefulness to Harbour Species Providing Crop Pollination

AMÉLIE GERVAIS¹, MADELEINE CHAGNON², CORY SHEFFIELD³, VALÉRIE FOURNIER¹

¹*Laval University, Horticulture Research, Canada*

²*Université du Québec à Montréal, Biological Sciences, Canada*

³*Royal Saskatchewan Museum, Invertebrate Zoology, Canada*

Abstract

Although honeybee hives are routinely introduced in cranberry bogs to ensure high pollination rates, the importance of wild bees as pollinators of both these commercial crops and the surrounding native plants has been increasingly recognised. It has been established that wild bees have a strong complementary role in cranberry crop pollination. Sustainable agriculture must thus favour the preservation and protection of these wild pollinator species. Landscape context and availability of nesting and foraging resources are among the main factors strongly influencing these bee communities. In order to protect and enhance the habitats for the bee species important for cranberry crop pollination and the resulting crop yield, our study compared bee communities present in cranberry fields to those from three types of natural habitats (i.e. fallow, bog and forest) surrounding cranberry fields in Quebec (Canada). The objectives were to identify the bee species visiting cranberry flowers and recognise environmental factors that are the main drivers of these bee assemblages. Specimens were collected in 2013 and 2014 using pan-traps and net sweeping in 15 natural habitats adjacent to cranberry fields as well as in the flowering crop. Overall, 135 bee species were captured, 106 from natural habitats and 88 from cranberry fields. Our results show that bee community assemblages are strongly shaped by natural habitats, and unequally distributed among habitat types. Sunlight intensity and soil compaction were found to be the main drivers of bee community assemblages. Results also suggest that each natural habitat studied played a specific role in maintaining bee biodiversity within this agro-ecosystem.

Keywords: Cranberry crop, diversity, habitat, landscape, pollination, wild bees