(Above) Boudeman Farms Conservation Easement

8th Annual Edition

Neonicotinoid Pesticides and Your Farm

If you have agricultural lands on your conservation easement that are being actively farmed by you or a tenant farmer, you may want to consider the implications of using neonicotinoids (also known as "neonics") on your property. Concerns have been raised recently regarding the impact of these widely used pesticides on honey bees and native pollinators, and many people feel the decline in honey bee populations known as Colony Collapse Disorder (CCD) may be directly linked to their increased use.

Neonicotinoids are systemic insecticides that are taken up by plants through roots and leaves, moving through the tissues of the plants, and providing very effective control of piercing and sucking insects. Unfortunately, this systemic action is one of the reasons these insecticides are a problem for honey bees and other pollinators, because it is found in the nectar and pollen of the flowers.

Over the last several years, this class of insecticides has become important for use in agriculture, with over 90% of all seed corn being coated with neonicotinoids (most commonly Imidacloprid) prior to planting. The pesticide is applied to the seed with a sticky coating to help it adhere, but before planting a talc powder is added to the seed in the hoppers to avoid clogging and improve the flow of the seed. Planting the irregular-shaped corn with modern air-pressurized seeders kicks up the talc dust, which inadvertently carries the pesticide with it. Direct exposure to the dust created during planting of neonicotinoid-coated seed can have acute and devastating impacts on honey bees and other insect pollinators, including important native bees such as bumble bees and mason bees in the area. That toxic dust also lands on nearby flowers growing along the edges of fields, and when bees feed on pollen from those flowers, the dust can easily kill them.

There is also growing concern about chronic exposure through nectar, pollen, and water picked up by foraging bees and carried back to the hive.
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REMINDER — Please contact the SWMLC office prior to exercising your reserved rights or transferring the property. Any contractor/lessor/renter, etc., should be informed of the restrictions in your easement; the responsibility lies with the landowner. If you need additional copies of your CE or if you have questions about the restrictions, call or email Cindy (cmills@swmlc.org) at the SWMLC office (269) 324-1600.

2014 Conservation Easements – Year in Review

It's been another productive year with **1175** acres protected in **Barry, Berrien, Calhoun, Cass and St. Joseph Counties** between **2 conservation easements** and **5 new preserves**. This brings our **total** acreage conserved (including transfers and assists) to **13,789 acres**.

A warm welcome to our new conservation easement landowners!

Smith Nature Trust CE, Barry County — Karl and Dana Smith have protected 300 acres in Barry Township that include all of Little Gilkey Lake and most of Shallow Gilkey Lake, as well as surrounding wetlands that make up the headwaters of Augusta Creek. The easement is made up of about 1/3 open water, 1/3 oak-hickory forest, and 1/3 former ag fields that are enrolled in CRP, and contains a variety of desirable ecological communities. An MDEQ grant awarded to the Four Townships Watershed Council and SWMLC was used to purchase development rights on this high priority property.

Van Horn's Pine Creek CE, Calhoun County — Gary Van Horn has donated a conservation easement on his property which includes 160 acres and protects high-quality forested uplands as well as a large wetland complex adjacent to Pine Creek. The Pine Creek corridor in Calhoun County is one of several tributaries that still have a high predominance of naturalized land and intact wetlands. Interesting plant species that were found on the site include Tamaracks, Indian Cucumber Root, Marsh Bellflower, Turtlehead, and 2 kinds of native blueberries.

Cindy Mills, Conservation Easement Specialist — Hello! I'd like to introduce myself to those of you who I haven't met yet. I've been a member of SWMLC since its inception, a long-time member of the Land Protection Team, and recently finished my second term on the board of directors. Since September, I have been working part-time with Geoff and Emily, coordinating SWMLC's conservation easement monitoring program. I'm excited to be involved in helping you protect the land you love. This coming spring and fall, our talented and dedicated volunteers and I will be contacting you to schedule our annual monitoring visits to all 85 of our easements! If you have questions or concerns, please feel free to contact me at the SWMLC office (269-324-1600), and I will do my best to answer your questions and help you accomplish your plans.

Neonicotinoid Pesticides and Your Farm

(continued from page 1) The foraging bees don't usually die immediately after visiting flowers in the treated crops or along the field edges because residual levels are below the acute LD50 and the bees take most of what they collect back to the hive. It is the daily sublethal doses the pollinators ingest in the hive that are the problem in this case. Health concerns include olfactory learning, locomotory and memory impairment, inhibited feeding (1), and weakening of their immune systems, leading to susceptibility to viruses (2).

We are becoming more and more aware of the dangers to bees, but neonicotinoids are also toxic to many other terrestrial and aquatic insects, including ants, butterflies, mayflies, caddisflies, stoneflies, and midges. Because most neonicotinoids persist in soils for a year or more, and are water soluble, 80-98% of residues remaining in the soil of treated crops eventually move into surface waters or leach into groundwater (3). The effects of neonicotinoid residues on living things in the soil remain largely unknown, but the extreme efficiency with which these insecticides eliminate grub populations in turf is worrisome (4). The European Union has taken the precaution of suspending neonicotinoid use for at least 2 years starting in late 2013.

Although these and other issues require additional study, current knowledge calls for a reconsideration of prophylactic seed treatments with neonicotinoids. These seed treatments are the main source of neonicotinoid soil and water contamination, and are often unnecessary as they either do not increase yields or are not profitable, and go against the principles of integrated pest management (5). **If your land is being farmed, please consider having a conversation with the farmer about pesticide use. If you are interested in additional information on this topic, there are references listed below, or feel free to call us at SWMLC.**

References and Further Reading:

1. Decourtye, A. and J. Devillers, Ecotoxicity of neonicotinoid insecticides to bees. In Insect Nicotinic Acetylcholine Receptors, S. H. Thany, Ed. Springer, pp. 85-95 (2010).
2. DiPrisco, G. et al., Proc. Natl. Acad. Sci. U.S.A. 110, 18466 (2013).
3. Sanchez-Bayo, F., The trouble with neonicotinoids, Chronic exposure to widely used insecticides kills bees and many other invertebrates, Science. 346, 806 Sciencemag.org (2014).
4. Pisa L.W., et al., Environ. Sci. Pollut. Res. 22:68-102 (2015).
5. Chagnon, M., et al., Environ. Sci. Pollut. Res. 22:119-34 (2015).
6. Krupke, C. H., G. J. Hunt, B. D. Eitzer, G. Andino, and K. Given. 2012. Multiple routes of pesticide exposure for honey bees living near agricultural fields. PLoS One 7(1): e29268. doi: 10.1371/journal.pone.0029268.

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Preserving wild and scenic places for today —
and keeping them healthy for tomorrow

CRP-SAFE Options for Wildlife Protection

If you are interested in improving wildlife habitat on your property, the USDA Farm Service Agency is offering two Conservation Reserve Program initiatives to landowners in southwest Michigan. The Native Pollinator Planting program is available in Allegan, Barry, Berrien, Cass, Kalamazoo, and Van Buren counties, while the Diverse Grassland Planting program is available in Barry, Calhoun, Kalamazoo, and St. Joseph counties.

Pollinators provide a very important ecological service, with three quarters of all flowering plants relying on animals to pollinate their blossoms. A pollinator habitat planting consists of a diverse stand of native grasses, wildflowers and native shrubs (optional). Wildflowers in the planting mix have been selected to provide a large diversity of species, flower color and structure, and to ensure flowering throughout the growing season.

The Diverse Grassland Planting consists of a mixture of planted short and tall native grasses and wildflowers reminiscent of the short and tall grass prairies that were once common in southern Michigan.

There are also financial benefits! The USDA offers up to 100% cost share for preparation and establishment of the diverse grasslands, and up to 90% cost share for the native pollinator plantings. And, there is a one-time signing bonus of $100 per acre and annual rental payments for enrolled acres. To learn more about benefits, eligibility, and management, you can contact your local Farm Service Agency (FSA). Phone numbers for eligible counties are listed in brochures available at the USDA Farm Service Agency website which you can visit at:
www.fsa.usda.gov

This publication is sent to all conservation easement landowners annually to share information. It is created by the SWMLC Land Protection Department. For more info on featured content or ideas for future content, please contact Land Protection Director Geoff Cripe at the SWMLC office (269) 324-1600 or visit us at www.swmlc.org.