

**2015 ACORN Conference & Trade Show
Delta Prince Edward Hotel, Charlottetown, PE**

Workshop Title: Habitat Management for Native Pollinators

Speaker & their title: Robyn McCallum, Dalhousie University

Executive Summary:

Robyn's presentation addressed the importance and presence of native pollinators in Atlantic Canada, including identification, biology, habitat requirements, and described existing examples of conservation biology and habitat management applicable to organic farms in the region.

Detailed Notes

Robyn reminded participants that as one enhances habitat for pollinators one also improves habitat for enemies of bees.

There are many native pollinators in the Atlantic provinces. In Nova Scotia alone there are 200 species of bees. In Canada there are 900 species. They range in size from Bumble bees to Halictidae - the size of ants. Andrenids or miner bees are another variety common in our region. They are solitary and a ground nesting species. Apidae or honey bees are not native to the Atlantic provinces. Habitat improvement can benefit all these species.

Why are native pollinators important?

- Conservation
- Insurance policy
- Free services, food and plant biodiversity
- Efficient and effective, some native species are 80-90% effective in their pollination role
- Pollination

Native bee biology

Most bees are solitary, nesting in cavities and on the ground. Some are social such as honey bees and bumble bees. Nesting sites vary widely - trees, stems, reeds, under rocks, old cars. Water proximity is very important to bees. Soil tilling makes it hard for some bees to nest.

Food typically consists of pollen and nectar, but also oils. Some are specialists - relying on very specific food sources - some are generalists.

Food sources can be increased by providing additional habitat and food sources at critical times:

- Floral planting along field edge
- Planting on marginal land and in ditches
- Mix annuals and perennials and native flowers
- Provide a diversity of flowers as tongue length in bees varies
- Food needs to be provided all season long and after crop bloom
- Blueberry nectar only provides 13% protein. Other flowers have much higher protein content.

Foraging range

- Depends on body size and species
- Ranges from 100m to 5 km

Emergence, phenology

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- spring arrival varies in our region as does emergence of bees; it depends on the weather and the species
- varying life spans

Habitat management

We need to think like bees and meet their needs for food, water and habitat.

Plants to cultivate which will encourage bee populations:

- Red clover, alfalfa, sweet clover, buckwheat
- Wild roses, goldenrod, St. John's wort
- Spring-flowering trees

Soil prep

- Avoid tillage
- Set aside poor land for flowers
- Maintain old wood and brush piles
- Establish pollinator gardens

Despite declines in some species, others are actually increasing. Pesticides are having an effect and pathogens are spilling over from managed hives.

We as farmers can affect habitat and food sources. Native pollinators are efficient, effective and already present. They should be encouraged.

Blueberry work

Robyn has concentrated her research on blueberry production and provided a summary of her efforts.

Habitat and food sources were provided in and around blueberry fields.

- Buckwheat was used extensively in these trials. It was planted around the field for food after blueberry bloom ended. Buckwheat handles low pH, improves soil and blooms for five weeks. Often it was planted twice to provide a continuous food source.
- Planted with a no-till system to minimize soil disruption.

Buckwheat results

- No results in first year
- Second year showed a clear association between crop improvement (yield) and bee density.

Operation Pollinator was a project that emerged from this work. It consisted of passing out seeds to farmers. The seed contained a good mix of wild and other flowers.

Habitat management was also part of the research. Mason bees (*Osmia*) were the focus of an effort to increase nesting sites.

- These are solitary bees nesting in tube like cavities
- Milk cartons were used to construct multiple tube nesting sites. These worked well with 50-60% nesting evidence in the tubes. The tubes were made of rolled paper. Plastic strays have also been used.

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- Further work is needed to experiment with tube length and colour of the cartons.

The diversity of pollinators requires a diverse approach in all aspects of habitat enhancement.

Q. What varieties are used in the flower mixes?

A. Black eyed Susan, about 15 different varieties

A. Do bumble bees stay in the area if you increase their population in a given year?

B. Yes.

A. Is there a benefit to having honey bees in an environment that has a healthy native bee population?

B. The evidence suggests that competition does increase and all species do work a little harder but all species do flourish.

Q. How high should the tube nests be placed?

A. About a meter or a meter and a half off the ground.

Q. Is all buckwheat effective?

A. Some varieties are more effective than others. We have noticed that nectar is made in the morning and not so much in the afternoon.

Q. What size should the tubes be?

A. Best diameter is 7mm for the rolled up tubes. Plastic tubes don't work as well.