

Report by David Oldacre on Pollination Guelph Symposium - Saturday April 5th 2014
Trinity United Church 400 Stevenson St N, Guelph 8:30am - 4:00pm

The Program

Neonicotinoids and Pollinators Discussion Panel

- Jim Coneybeare, Ontario Beekeepers Association
- Nathan Carey, National Farmer's Union
- Beatrice Olivastri, Friends of the Earth Canada
- Paul Kozak, Ontario Provincial Apiarist
- Greg Stewart, OMAFRA Corn Specialist
- Terry Daynard, Corn Producer
- Charles Stevens, Apple and Blueberry Producer
- Kenneth Davey, Distinguished Research Professor of Biology Emeritus
- Other Panel Member T.B.D.

Mobilizing Pollination Research in Canada: Report on the 5 Year CANPOLIN Network

Sarah Bates, Canadian Pollination Initiative

Pollination Guelph Updates

Victoria MacPhail, Pollination Guelph

Bumblebees Uncovered

Sheila Colla, Wildlife Preservation Canada

“Cosmopolitan” Bees: Presence, Absence, and Planning

Scott McIvor, York University

Cambridge Pollinator Preserve

Lorna Ferguson, Cambridge Pollinator Preserve

Night Pollinators: Diverse, Important, But Unappreciated

Fiona Reid

Pollinator Action on Three Native Species and their Cultivars

Rodger Tschanz, University of Guelph

The Brooklyn Pollinator Project

Nadja Pausch, BLA Student, University of Guelph

PollinateAIR: A Proposal for Gravel Pit Rehabilitation

Emilio Martinez-Lara, BLA Student, University of Guelph

Brief summary of the notes taken at the symposium.**9am *The Panel Discussion – Neonicotinoids and Pollinators***

Victoria MacPhail introduced the eight members taking part in the panel discussion, who represented organizations who have a “stake” in the outcome of this issue. They were:

- Paul Kozak – Ontario Provincial Apiarist
- Kenneth Davey, Distinguished Research Professor of Biology Emeritus
- Greg Stewart, OMAFRA Corn Specialist
- Charles Stevens, Apple and Blueberry Producer
- Jim Coneybear, Ontario Beekeepers Association
- Beatrice Olivastri, Friends of the Earth Canada
- Nathan Carey, National Farmers Union
- Terry Daynard, Corn Producer

Each panellist was given 5 minutes (most of them went slightly over) to present their position on this issue, after which there would be about 40 minutes for questions.

Unfortunately the different points made during the course of the presentations and the question period left me more confused than ever. Several panel members offered various statistics on the nature of the problem, but these were somewhat contradictory, or not adequately explained, and so were often challenged by other panellists, so it was difficult to tell which were more valid than others.

There was time for a discussion on five the questions which were quite pointed and there was some discussion on whether this problem existed in Western Canada. One other beekeeper made a short presentation, which supported the position taken by Jim Coneybear, but the only thing I got out of this part of the discussion was the impact on native pollinators – to which there were no answers. The last question was “What should be done?” the answers to which were not very convincing. Perhaps the most interesting thing was when one of the panellists asked the audience on who thought neonicotinoids should be banned. More than half the audience responded “Yes”!

Paul Kozak and Greg Stewart were in fact the main authorities on the research, while the producers (Charles Stevens and Terry Daynard) seemed a bit bemused by it all. Nathan Carey was the most level headed, but Jim Coneybear, the person who was probably most affected by the bee colony collapse disorder was plainly the most outspoken and he became quite emotional at times. The other two panel members contributed very little to the discussion. So all in all this was a rather disappointing session.

11am *Mobilizing Pollination Research in Canada: by Sarah Bates*

This was a 45 minute report on the work of the five year CANPOLIN network project which will be closed down within the next 6 months. The speaker described the mission and organization of the project and the focus of the work of the 8 major working groups:

- Working Group 1 – Taxonomy with the mission to increase Taxonomic knowledge of pollinators
- Working Group 2 – Managed Pollination - which was concerned with improving diagnostic capacity, obtaining insights into the cause of bee losses, and the development of tests of new treatments
- Working Group 3 – Plant reproduction – which is mainly concerned with identifying which factors are most important for crop yield
- Working Group 4 – Wind Pollination – how does pollen spread over long distances, and understanding the decline of wind pollinated plant species
- Working Group 5 – Ecosystems – country wide data on the distribution of pollinators and how they are functioning
- Working Group 7 - Pollinator range shifts – comparing range shifts for butterflies and bumblebees and understanding bumble bee decline
- Working Group 8 – Economics – an economic analysis of the bee keeping industry in Canada

This was one of the most interesting sessions of the whole day – with a good set of slides to capture the information presented. More details of the Canpolin project may be found at

www.uoguelph.ca/cowpolin and at <http://www.pollinator.ca/canpolin/>

The only problem is that the project is being terminated within the next few weeks.

11:40am *Pollination Guelph Updates – Victoria McPhail*

This was a brief update of the activities of Pollination Guelph in 2013 and their plans for 2014. Rather than describe it here, the best thing is to check their new website at:

<http://www.pollinationguelph.ca/>

12pm *Bumble Bees Uncovered – Dr Sheila Colla*

The basic premise behind this interesting presentation was the growing evidence of the decline of the bumblebee, and the possible causes of the decline. The speaker outlined the services which bumble bees provide and the challenges

which have to be overcome in identifying the different species, and the retroactive collection of the data since the 1800s. There is growing evidence of species decline for 7 of the 14 historical species identified which she discussed in some detail.

Here are some notes I took on the first part of her presentation:

The Plight of the bumble bee

Bumble bees – Genus *Bombus* – which have large bodies of dense “hair”

Colony cycle

- The queens emerge and forage for pollen
- The queens lay eggs
- The mating period
- Overwintering in mulch

Ecological services

- They pollinate most of our native plants
- They are good at pollinating plants in greenhouses – primarily tomatoes, egg plants, and other vegetables

Challenges

- They are difficult to identify
- They have a largely wild population the size of which is difficult to determine
- There are many species and insufficient or no data is not available on the majority of these
- Most species have large ranges
- The cause of bumble decline are difficult to determine

Retroactive data collection since 1800s – there over individual 250,000 records available

- Specimens identified in collections
- Specimen information provided at the time

Growing evidence for decline 7 of 14 historical species are in decline

- These include *Affinis*, *Pennsylvanian*, *Ashtani*
- The Rusty-patched bumble bee is an endangered species and only 4 specimens were observed in its Canadian range for the period 2000-2013. This is an early emerging bee associated with some forested habitats and likely for early foraging in their overwintering habitat. Climate change, pathogen spillover, and host plant declines are considered to be the major threats to this species
- Also in decline are the American, Yellow Variable Cuckoo bumble bees
- The Boreal Bumblebee is a late emerging bee which has a long tongue. The threats to this bee are unknown, and it is the only member of its group to be in decline.

How you can help – the final slides were on how you can help:

- Join bumble bee watch
- Plant native and/or nectar rich flowers, pesticide free
- Reduce pesticide kills – support organic and small scale farmers
- Support research and NGOs working on native pollinators
- Website = savethebumblebees.com

1.20pm *Cosmopolitan Bees – Presence, Absence, and Planning* - Scott McIvor, York University

This was a most interesting talk which was focussing on the presence of bees and how they can survive in an urban environment. The speaker was a very energetic and lively speaker and his talk covered the following topics:

- The fragmentation of the urban landscape
- The impact of human activity on bees which includes:
 - a) High Rise buildings – under construction
 - b) Complexity and Green roofs
 - c) Moving patterns indicate different foraging strategies

Some impacts are good, but many are not so good

- The behaviour of bees in cities - Over 250 species of bees have been recorded in Toronto.
 - a) Nesting and foraging locations are spatially separated
 - b) Floral diversity high, with many non-native and ornamental species
 - c) Richness and abundance higher in non-urban habitat
- Urban Agriculture
 - a) Sufficient land and rooftop space to produce 10% of required vegetable supply
 - b) Native ravines in Toronto
 - c) Consider bees as “Charismatic mini farming”
 - d) City Mandate “Design for Biodiversity”
 - Sense of place and ecological stewardship
 - Ecological engineering – e.g. Green Roofs

- What bees need
 - a) Places for foraging, Places for nesting, Nesting material
 - b) Urban bees “synurbic” status – these do particularly well in urban environments – mainly cavity nesting bees –
 - c) holes in wood/stems/even dark and dry holes
 - d) Mason species (more than 10 species) – are solitary bees and can be used in orchards
 - e) Leaf Cutter bees (more than 20 species) – are ground and cavity nesting bees which are abundant in gardens and parks
- Some research questions
 - a) Which factors impede and which enhance urban diversity and abundance
 - b) Is their evidence for urban adapter and avoiders?
 - c) What makes an urban adapter?
- Bee nesting boxes considerations
 - a) The smaller the better
 - b) multi sized “houses” (there are over 200 sites in Toronto area)
 - c) Parasite avoidance
 - d) Integrate bee habitat with urban design - Community gardens, Home gardens, Parks, Green roofs
 - e) Nesting material availability
 - f) Leaf cutter bees such as *M. pugnata* like pollen from basil, cucumber, goatsbeard and over 300 other plant types
- Landscape and other issues
 - a) Building footprint seems to have no effect on bees and wasps
 - b) Some exotic bees appear to be everywhere – e.g. *Osmia caerulea*
 - c) *Megachile rotundata* – is found in 39% of the sites
 - d) 6 storeys seems to be the height limit, above this, occupancy falls off
 - e) Pollen analysis of bees nests include birch, oak, clover – i.e. whatever is easy, close and abundant
 - f) Flexibility in nesting materials – Leaf cutter bees have been found to collect leaves from 59 species of plants, and have even used plastic bags and window caulking!
- Audience questions
 - a) Presence of parasites is a strong indicator of environmental issues
 - b) Solitary bees are indeed solitary!
 - c) Leaf litter mulch is the best kind of mulch for bees – normal bark mulch is NOT good for bees nests
 - d) Most exotic bees are coming from the south
 - e) Mason bees are the only bees that overwinter as adults – all other overwinter as larvae.

2pm **Cambridge Pollinator Preserve - Lorna Ferguson, Cambridge Pollinator Preserve**

Lorna’s interesting talk was a down to earth description on the establishment of a pollinator preserve on the property of the Ancient Mariners Canoe Club of Cambridge, Ontario many of whom just happen to be environmental enthusiasts. And good for them!

It is a 2½ acre property and has now become a lovely wildflower meadow. The conceptual model of the pollinator park was approved by the City of Cambridge in January 2010

The Mission statement was “To create and preserve an eco-friendly pesticide-free pollinator habitat where pollinators may thrive and human visitors may learn of the critical role of insect pollinators to the ecology and food chain”

It was somewhat difficult to take notes but in summary:

- It was very quickly implemented by volunteer members of the club which has 125 members with an organizing committee of 8
- First spring planting was done in 2010
- The plant selection was native plants, but they did not take any measures to eliminate existing plants such as Goldenrod which provided pollen already. The most invasive plant was Creeping Vine
- They planted flowering trees, and created circular patches by covering them with cardboard
- The total cost was about \$18,000 of which \$12,000 was the estimated cost of in kind materials

Their website at

<http://www.ancientmariners.ca/Initiatives.html>

is the best place to learn about the project, and how they have achieved it.

2:20pm **Night Pollinators: Diverse, Important, But Unappreciated - Fiona Reid**

This was a simplified version of Fiona’s talk to the Halton MG on April 2nd – but just as amusing. My notes on her talk to Halton Master Gardeners may be found on the Halton MG website.

3:10pm ***Pollinator Action on Three Native Species and their Cultivars - Rodger Tschanz, University of Guelph***

This was a short talk on a research project on three plants which flower at different times of year – Penstemon (June), Monarda (July), and Helianthus (August). Unfortunately, the project was not exactly successful, and the speaker a bit diffident about the results which were not very interesting or conclusive.

3:30pm ***The Brooklyn Pollinator Project - Nadja Pausch, BLA Student, University of Guelph***

This was a theoretical research project - obviously a class assignment – on how to turn an area of vacant publicly owned property in a run down area of a large city into a native pollinator habitat. Quite interesting ideas and very well presented, but how practical the proposal might be – is an open question.

Here is a summary of my notes:

- The objective is to create a native pollinator habitat on vacant, publicly owned property – which in this case was in the subdivision of Wingate in Brooklyn, NY. A sub-objective is to fill an obvious urban void, and strengthen biodiversity and ecological connectivity. A critical requirement for success is the removal of legal restrictions;
- There are 115 publicly owned lots in a 6 by 9 block area of 10 acres (which is the size of 75 football fields), The size of Brooklyn itself is in excess of 600 acres.
- The design process included examination of requirements for the vacant lots, the pollinators and the community
- The average vacant lot is about 6m by 32m and which are often clustered very closely together. The soil is heavily compacted
- For the project to succeed,
 - a) Orderly management of the properties needs to be put in place,
 - b) The design elements must be flexible,
 - c) The sites must require low maintenance
 - d) Consideration must be given to sightlines, signage, and barrier access
 - e) Activities and maintenance regimes must be defined

The design which the speaker presented was too long for me to summarize

3:45pm ***PollinateAIR: A Proposal for Gravel Pit Rehabilitation - Emilio Martinez-Lara, BLA Student, University of Guelph***

This was another theoretical research project - on a proposal to rehabilitate a gravel pit owned by the LaFarge company property in London, Ontario.

The ecological context of this area may be summarized as follows:

- It is within the Carolinian zone and close the great Lakes
- It had a rich biodiversity and is home to 50 insects found nowhere else
- The surrounding uses include a body of water, an aggregate site, agricultural land, and environmentally significant area
- It is on a moraine ridge whose topography has changes a lot over time,

The objectives of the proposal for this 75 acre site were as follows:

- Reinstatement and preserve native pollinators
- Bring national and global interest to site
- Improve the London Communities social and cultural values

The research process included reviewing existing conditions such as stock piles, silt ponds, and processing plants Unfortunately, time was passing by rather too quickly for me to stay to the end of this presentation which was well presented, but again only a proposal. I liked the name (PollinateAIR) of the proposal though because it was short for “Pollination Airport”!