

## **Workshop Title: Challenges and Opportunities for Urban Beekeeping**

Speaker(s) & their titles: Katherine Marsters and Nicole Arsenault, Halifax Honey-Bee Society

### **Executive Summary:**

Katherine and Nicole give a history of urban beekeeping and discuss their current practices in Halifax, NS. They provide the background of the Halifax Honey-Bee Society and explain what the current projects are, as well as issues to consider. They also provide basic information necessary for someone considering urban beekeeping.

### **Detailed Notes:**

The speakers describe themselves as being new to beekeeping. This is the Halifax Honey-Bee Societies' third season in Halifax.

### **History of Beekeeping**

-Humans have always exploited bees for honey and wax.

There are images of honey hunting in Neolithic cave drawings, but the earliest example of true beekeeping was the Ancient Egyptians in 5000 B.C.

-Bees in North America came from Europe, as the 'European Honey-Bee' which is native to Europe and Africa. In the 1600's they were brought by the English to Virginia and in the 1700's were first brought to Canada.

-It used to be that Bees were used only for their honey, nectar and wax, but with the rise of monoculture agriculture in the 1940's began the renting of bees for pollination purposes.

### **Current Systems of Beekeeping**

1-Large scale, conventional, migratory beekeeping.

-Hives are transported on transport trucks with thousands of colonies (hence millions of bees) and there are (multiple?) instances of these trucks crashing in Canada.

2-Organic small scale

3-Urban backyard scale (topic of today's lecture)

Large Scale

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- Hives are moved thousands of kilometres.
- The honey is taken from the hives and the bees are fed corn syrup.
- The hives are placed in monocrops where bees only have one source of food, which is not good for them.
- Pesticides are sprayed while the bees are on the crops
- Many bees are in a small area, which means that diseases spread quickly. These bees are treated for disease with chemicals.

In Nova Scotia bees are migratory and put on mono-crops. There is a need to promote this as small scale!

## **The Hive**

[Description of Hive Image, Outside, Inside - Outer cover, inner cover, supers, brood box, and hive stands]

Image of a frame in St. Margaret's Bay

### **Tools**

Hive tool (the red device in image) - Used to pry things open

Smoker- Smoke allows the beekeeper to go into the hive, and the bees leave since they think there is a fire.

Protective gear - Veil & gloves (Protective gear makes it harder to see and lift things, leading to killing more bees and getting stung more

Bee Brush- Used to gently move bees off a surface.

### **Who's in the hive?**

1) Queen - You can recognize her by her long abdomen. She mates at a young age, by flying up high and then mating with lots of drones. She lays up to 1200 eggs per day.

2) 500 Drones- Drones mate with the queen and eat. Can't do anything else. No stinger. Die at mating or get kicked out at winter (by being dragged out of the hive).

3) There are approximately 60000+ Worker bees (in a healthy hive) - Worker bees collect nectar, pollen, propolis, water and care for the young.

Picture of brood: You can check for a healthy hive by pattern of eggs, larvae and pupae. A drone brood is larger than a worker brood, sperm is used for a worker bee but not for a drone.

The worker bee can feel for the size of the hive cell to determine if it is a male or female bee and then that determines how they are fed.

-The queen is fed Royal Jelly, which differentiates her from other worker bees.

Images:

- Bees covered in different colours of pollen
- Hive on North Street
- Pollen stored on a bee

**Video** Produced by a member of the Halifax Honey-Bee Society with a hive in the North end of Halifax. 3 minute video can be viewed on the Halifax Honey-Bee Society website (<http://halifaxhoneybees.wordpress.com/>). The footage is viewed in slow motion to see bees moving at a human speed. You never really get to see bees move in slowtime. Shows bees how they typically come out of the hive, tumbling and doing flips and bees weighed down with pollen. [Aside: A hornet can take off a bees head in seconds].

## Urban Beekeeping

### Photo in Paris

In the last 5 years, beekeeping has become 'hip,' with more urbanites expressing interest.

-Bees are in the news, positive interest and as agricultural animals. Much of the recent press is about the concerning decline of bee-populations.

-Recent news has also been on colony collapse disorder; the disorder differs in syndromes and symptoms but is characterized by a mysterious collapse where entire hives disappear within days. This differs from swarms where some bees are left behind and others go to find a new hive.

-A recent USDA study found that particular agricultural chemicals are responsible for the bee decline (i.e. 'Imidacloprid').

-A lot of factors contribute to the bee decline, agricultural practices are just one factor.

-Keeping bees in Halifax is still new and on the quiet side.

-Paris has a history of beekeeping. There has been an Apiary school since 1850 and there are hundreds of beekeepers in the city.

-In NYC there is an active Beekeepers Association and though beekeeping was only just legalized there in 2010, the Association and beekeeping has been there for a number of years.

-In Halifax the by-laws are ambiguous and so people have just gone ahead with it.

-There are a lot of urban beekeepers in Toronto

-Beekeeping is legal in Vancouver and Calgary. Hopefully also legal in Halifax soon!

## Why keep bees in the city?

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- Bees are interesting, beautiful and fuzzy little pets.
- It is a conservation opportunity.
- City bees are far less stressed; Not moving, not exposed to many other hives, not exposed to high volumes and high intensities of agricultural chemicals (in part due to urban pesticide bans). BUT there are city and car pollutants and toxins.
- A way to do our part as urban-based residents to society: promote, educate, preserve the practice of agricultural skills in the city. Related to growth of urban chickens and gardens.
- Movement among chefs and foodies; urban honey is special. Flavours are unbelievable due to variety of plants. Can taste of mint, lavender, cinnamon...
  
- In NYC a tiny jar of urban honey can go for 10\$ (image of NYC honey). It is cool, hip, different and making big bucks.

### **Halifax Honey-Bee Society**

- Started as a book club reading Ross Conrad's book, 'Natural Beekeeping'.
- Then they decided to just go ahead and get hives!
- 2 of the members had experience, but no money. Society provided funding to start out.
- In the first year they had 5 hives spread out in St. Margaret's Bay, Spryfield and between the north and south ends of Halifax. The membership of the society was between 75 and 100 and the hives were based in members backyards.
- Year 1 was a good learning experience
- Year 2: 2 beekeepers moved away, One (Nicole) became pregnant and developed an allergy to bees and the beekeeping fell onto Katherine, who describes that year as exhausting, filled with travelling, reading and learning. The hives being spread out was difficult for one person to manage.
- Year 3: Now the people with hives in their backyards are taking care of their own bees. The society has started holding workshops on different topics (whereas before they simply hosted hive visits). Workshops are put on by interested beekeepers.. There are 80 members (at a 20-25\$ membership fee). There are between 12 and 14 beekeepers in the society, ranging from none to 25 years experience, this allows for a transfer of knowledge and system of support for new beekeepers.
- Often people who start without experience put down 400-500\$ to get started and then the bees die. The support system prevents this. Hive visits provide opportunities for questions and skill sharing (some people can't see eggs in the cell, need others to come look for them).
- This is an amazing and exciting opportunity for Halifax and they are looking for more people involved. The city can hold lots of hives...
- Gardeners have claimed that it is making a difference in the city.

### **Challenges faced using organic methods**

- Shiny red mites (varroa mites) on bees are the biggest challenge faced by all beekeepers.

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-Mites chew through the exoskeleton of the bees and drink their 'blood' (bees don't have blood but have body fluids), the hole allows viruses to enter and creates a host of related illnesses. The viruses are only a new area of research, and it may prove that this is why the mites are killing off bees.

-The mites are extremely hard to tackle with conventional or organic methods. Beekeepers are still figuring out how to combat them.

-The Halifax Honey-Bee Society has lost a few hives and attributes it to mites.

-Need to attack them aggressively

#### Methods

1- Examine the genetics of the bees, and breed for the hygienic behaviour of worker bees. When they clean themselves the mites fall off. If the hive has a screened bottom board than the mites fall through and out.

2- Dust the bees with sugar, to encourage hygienic behaviour. The bees clean it up really nice and knock off the mites in the process. Some organic beekeepers use only this method, but it cannot fully eradicate mites, just keep them in balance.

-Need to use confectioners' sugar (avoid icing sugar) or organic cane sugar ground really fine in a (clean) coffee grinder.

Q: How much sugar do you use for one hive?

A: You open the hive, smoke it and when the bees come up dust them with sugar (the image has too much sugar). The more you are in a hive, manoeuvring, the more likely it is that the queen will get injured, so you want low impact but good coverage.

3- There are a few organically approved chemicals, that can be acquired at Country Fields (New Brunswick equipment supplier).

-Oxalic Acid (toxic). Very specific application in late October as you put the bees away for winter. The acid is strong but volatile so it does not persist in the hive or the wax.

-Thymal. Derived of thyme oil and kills mites but not bees. This is more popular among organic beekeepers and is also applied once a season as bees are put away for winter.

4-Beekeepers have increased the size of cells, which are built up from a wax press. With smaller cells you get smaller bees. Smaller bees have shorter life cycles, which means their life cycle is shorter than the mites and so their life cycles are out of sync.

#### **Buying a colony**

-Make sure it is inspected for bacterial or fungal infections.

-Be careful where you source your colony. The bees need to be all enclosed in a nucleus colony that has been inspected.

-Nova Scotia beekeepers can't import bees.

[Audience member tells us that there are no mites on bees in Newfoundland and that Cape Breton has a much lower number of mites]

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-In Nova Scotia, if you get a nucleus colony without mites and they don't come into contact with bees from any other hives then they will not get them.

## **Wintering**

Put foam insulation on top of the hive but maintain airflow. You need to keep bees warm and dry.

Hopefully, 'Common Ground' (planned urban farm in Halifax) will have a hive or a few.

Plans: To have communal honey extractor and other resources, to have a library.

The society is an incubator organization for urban beekeepers.

[Final image is the demolition site of the future urban farm (and it's hives?)]

## **Questions**

Q: What equipment would you recommend to someone starting out.

A: Usually you start out with a Langstroff Hive, which is standard and easy to buy.

Though one society member started out his first hive with a top bar hive, which is like a trough, only one layer as bees build wax down from the top bar. This is a lower impact way of beekeeping, since one moves less things around. The member built his hive and it is deep and has helped with mites but makes other things difficult.

They recommend starting out standard and then experimenting. 'Backyard Bees' website ([www.backyardbees.ca](http://www.backyardbees.ca)) has top bar plans, since buying a top bar hive would be difficult, building is the main option. Once you have the hive you would buy a box of bees and a queen, instead of a nucleus colony.

Q: What do you do if your queen dies?

A: Act quickly.

Option 1- If the queen had laid prior to death the worker bees will build a queen cell, feed it royal jelly and produce a new queen, but this doesn't always happen.

Option 2- You can buy a queen from a beekeeper (Bees can be sent in the mail!) But if you wait too long a worker bee will start laying and then it is much harder to introduce a new queen (there is a process for doing this though).

Q: Have you tested your honey for chemicals/toxins?

A: No that would be an expensive process. We think our honey is just as safe or even safer than non-urban honey.

Q: What about by-laws in Halifax?

A: Members have received a vague 'yes' from the city to keeping hives in the city. It might not be technically allowed but as long as the neighbours don't complain the city does not care. ("Sweeten the deal with a little honey")

Q: If there is no honeybee importation, where do you buy bees?

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A: You need to book it early. Winters are unpredictable and it is harder and harder to have extra bees. Breeding queens is a highly skilled, specific science. Book early or end up with unhealthy hives. We buy from Nova Scotia beekeepers, so no importation from other provinces.