

## Notes by David Oldacre on talk by Jenna McGuire to Halton MG – May 7th 2014

This talk was on the subject of “Terrestrial Orchids of Ontario” by Jenna McGuire from the Bruce Peninsula National Park/Fathom Five National Marine Park. She lives at Ferndale near Lion’s Head on the Bruce Peninsula and has been with the National Park for ten years.

Below are my notes on this very interesting talk which were taken directly from her slide presentation:

- 1: Orchids are members of the largest flowering plant families with the following distinctive characteristics:
  - They are Zygomorphic (Bilateral symmetry - flowers can be divided by only a single plane into two mirror-image halves, and generally have petals of two more different shapes, sizes, and colors.)
  - Have a fused stamen and carpel (known as the column)
  - Have a highly modified petal (labellum)
  - Have tiny seeds
  - Flowers are often resupinate (i.e. upside-down, supine, facing upward)
  
- 2: Uses of orchids include
  - Medicinal value
  - Has a large food value – e.g. vanilla – from dried seed pods) and also powder from ground tubers from cooking and tea from the leaves
  - Has a commercial value as ornamental plants
  - Ecotourism
  
- 3: Orchids as a plant species first appeared about 80 million years ago and were associated with insects from the beginning. There are endless forms of orchids to attract insects, and they have mycorrhizal associations for the purposes of reproduction
  
- 4: Orchids use fungi from five families – some of which provide nutrients from trees. The following website has more detailed information on this subject:
 

<http://www.anbg.gov.au/fungi/mycorrhiza.html>
  
- 5: The originating family is the Lily family of which Trilliums are also members. The column comprises:
 

Dorsal sepal – Labellum  
Lateral petals – sepals

 and resupination occurs it twists the upper petal a full 180 degrees,
  
- 6: The orchid seed is very tiny. You can access many images of orchids by going to the website
 

<https://www.google.ca/imghp>

 and selecting orchids, orchid flowers, etc.
  
- 7: Factors in growth of orchids:
  - Availability of Orchid Mycorrhiza (MRA)
  - Pollinators
  - Insects and browsers which eat parts of the orchid
  - Soil chemistry
  - Site characteristics – sun light, shade, ground cover, etc
  - Unnatural disturbance – very sensitive issue – poaching orchids, compacting ground etc.
  - Natural disturbance – weather, etc

- Climate
- Other individuals of the same species – inbreeding is a threat
- Other plants growing in the area.

#### 8: Species of Orchids and habitat

- There are 60 species of orchids in Ontario – Why so many?
- Latitude at about 45°C, climate, wetlands (although 95% of the wetlands prior European colonization are now gone) Many habitat types, Many areas settled late
- Great Lakes create moderate microclimates
- The area is a gradient between two eco-zones – the Boreal to the North and the southern Carolinian
- The Great Lakes are the largest freshwater ecosystem on the planet, which moderates the weather and provides cool moist air offshore.

#### 9: Families and specific species of orchids.

References: Native Orchids by Ethen Meleg. See also photos in the Bruce Peninsula - Wildflower & Fern Photos section of <http://www.ethanmeleg.com/bruce.htm>  
Newtonsapple.org.uk/parts-of-a-plant-the-flower

##### a: Eastern Prairie Fringed Orchid –

- A species at risk and endangered
- Pollinated by hawk moths
- Susceptible to inbreeding
- Very long nectar spur – hawk moths have a long tongue to get at the nectar

##### b: Slipper Orchids – yellows

Lots of floizomewers in a group

Flowers in late May – early June

Pollination of the slipper orchids is quite a complex process. Jenna provided her own diagram to explain it, but unfortunately it is not available for reproduction – briefly the steps are

- Pollinator entrance
- Pigment guidelines to the back of the labellum
- Nectar producing hairs
- Pollination
- Pollinator exit

Cypripedium sub-family of 68 orchids (See Wikipedia entry)

the name comes from the Greek Kypris and pedis meaning “The shoe of Venus”

The most common members of this family are:

- *Cypripedium acaule* – commonly known as Moccasin Flower, Pink Lady's-Slipper, Two-leaved Lady's-slipper
- *Cypripedium reginae* - commonly known as The Showy Lady's-slipper, Pink-and-white Lady's-slipper or the Queen's Lady's-slipper. This is a very large plant which blooms in July and is occasionally double headed. Crab spiders are attracted to this and other orchids
- *Cypripedium arietinum* – commonly known as Ram's-Head Lady's-Slipper the blooms of which are like a ram's head. This is a relatively rare orchid and occurs in areas close to the Lake Huron shore.

##### c: Other Species of Orchids

- *Calypso bulbosa* – commonly known as Calypso orchid which grows in the middle of cedar woods and reproduces by rhizome. It does not give any rewards to bumble bees!
- *Calopogon tuberosus* – the white variety commonly known as Grass Pink orchid (tuberous grasspink) which does not resupinate
- *Corallorhiza striata* – commonly known as the Spotted or Striped Coral Root orchid which does not photosynthesize because it has no chlorophyll in it.
- *Corallorhiza trifida* - commonly known as early coralroot, northern coralroot, or yellow coralroot.
- *Platanthera orbiculata* - an orchid with large round leaves commonly known as the Large round-leaved orchid
- *Goodyera repens* - commonly known as the dwarf rattlesnake plantain whose spikes appear in August but it does not flower much.
- *Spiranthes* – a genus of orchid of many species commonly known as Lady’s Tresses which are quite common in fenlike and lakeshore areas, and bloom in August
- *Platanthera psycodes*, - commonly called small purple-fringed orchid, which unfortunately now seems to be defunct in this area
- *Pogonia ophioglossoides* – commonly called Rose pogonia – an orchid which occurs in wet habitats.
- *Platanthera aquilonis* – commonly called the Tall Northern (bog) orchid

## 10: Conserving Orchids

### a: Threats

- Habitat loss – 95% of the original wetlands of Ontario prior to European colonization have now gone
- Habitat degradation, fragmentation, etc
- Poaching – people like to take them from their natural location and put them in their gardens – but unfortunately it is almost impossible to replicate their home environment and they do not survive.
- Pollinator loss – orchids species generally have specific pollinators and if the population of these pollinators start to fall, then so does the species of orchid which is dependent on that pollinator
- Invasive plants – such as Phragmites – which take over the natural environment where various species of orchid have formerly thrived
- Genetic Isolation – Some species become unviable if they are isolated from others of the same species
- Climatic change – Particularly if it is variable
- Fire repression practices

### b: Conservation needs

- Thorough assessment of status, threats, and ranges
- More research – Scientific knowledge and literature on orchids is a grey area. More rigorous studies and identification of knowledge gaps such as MRAs and genetic status is needed.
- Protect a large proportion of native plants “in situ”. The plant conservation biologist Dr Gary Krupnick had proposed that we should aim to protect at least 75% of the native population of orchids.
- Protect a large proportion of orchids “ex situ” facilities
- Seed bank and fungal banking (active cultures or spores)
- End international and regional trade in orchids
- Drastically increase public awareness and desire for conservation
- Centralize the effort of North American orchid conservation
- Pollinator protection

### c: Ways to conserve Orchids

- Encourage large scale habitat protection
- Discourage invasive non-native plants
- Plant native plantings
- Give them space when visiting
- Discourage poaching
- Engage in breeding and genetic conservation projects
- Support work of researchers, native plant breeders, etc.
- Share knowledge and passion with others

11: Where to purchase native plants

- a) Native plants in general
  - Acorus Restoration (<http://www.ecologyart.com/>)
  - Native Plants in Claremont ([www.nativeplants.ca](http://www.nativeplants.ca)) a nursery devoted to the increased awareness and restoration of Ontario's native plants and their habitats.
  - Native Plants Nurseries, Zephyr, NE of Newmarket (<http://www.nativeplantnurseries.ca> )
- b) Planteck Biotechnologies, Quebec (<http://www.planteck.com>)
- c) Fraser's Thimble Farms, BC (<http://thimblefarms.com/>)
- d) Native Plants Source, Kitchener ([www.nativeplantsource.com](http://www.nativeplantsource.com))
- e) Raising Rarities – Toledo Ohio (<http://www.raisingrarities.com/garden.htm>)

12: Enjoying Native Orchids

- a) Visiting natural areas
- b) Visiting orchid houses and botanical gardens
- c) Gardening and/or growing orchids
- d) Macro photography and botanical illustrations
- e) Growing and sharing your knowledge and passion with others