



Forestry Walk Through

CASS WOODLOT – Big Loop Walk Through

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Resources from OFA
Focus on Forests – Intermediate/Senior
Project Wild

1. Compare Ecosystems by looking at CASS woodlot which is relatively undisturbed in comparison to the property directly adjacent to the school
2. **Woodlot species**
 - **Pines** - can stand up for a long time even if dead because resin protects outside; great place for insects; susceptible to get hit by lightning
 - **Jack Pine** grows up quickly but dies quickly
 - **White Pine** grows older, bark becomes corky/thick, crinkly; can grow well on less soil
 - **Balsam Fir** are very flammable, adapted to the shade rather than sun; bubbles on the surface of bark which contain resin and can be burst; can get quite old because they grow in shade; flat leaves with white lines on underside; trunk has resin blisters (resins are used in plastic, paint; cellophane is from cellulose, like plastic but crinkly***another

research activity would be to check all products that come from resins) which has an anti-insect strong aroma; the balsam fir needle lays flat to maximize its exposure to the sun.

- **Spruce** resemble a bottle brush, but contain no resin

3. **Managing a Forest**

- Shelter e.g. for wood pecker for eating or roost; for raccoons the dying trees become their home
- Dead trees are not waste trees, but become important trees for wildlife
- If there is an infectious disease, trees are cut down but otherwise they are left

4. **Roost with a View**

- Woodpecker holes
- Squirrel homes

Take a Walk

1. **Entry on water side of CASS Woodlot**

- Species introduction:
 - Balsam Fir compared to Spruce (**see above**)
 - Balsam Fir (first tree seen on the walk) has been damaged with an axe; resin oozes out to flush out insects and pests---this protects the inside of the tree by drowning or flushing insects out
- How to find out the age of a tree:
 - Count the years of growth by counting the branches from the ground (each group of branches from the main trunk represents a year)
 - Tree Cookie is taken from the bottom of the tree (1.3 m from the ground is the standard height above the ground); can count the rings; growth of the tree is similar to a stack of cups, the tree grows up and puts a ring on each year from just under the bark of the tree which is the live part of the tree; the centre of the tree is not alive
- Ecology: moss polka-dots on bark may be due to the spruce species providing the right habitat for the moss (does not seem to form on balsam fir resin)
- Logs on Ground: show decomposition; compare those that have been there a long or short time; moss finds it easier to grow on a trunk than on soil
- Woodpeckers: will keep pecking if there are ants/insects or if the tree is already in trouble and dying; the feeding hole can be larger and more elongated for larger woodpeckers e.g. Pileated Woodpecker
- Insect holes: Engraver beetle---parent lays eggs under bark and beetle chews back and forth---the tunnel gets as large as the larvae grows

- Forest Whodunit:
 - Find out what killed the tree---e.g. if the tree is healthy and becomes stressed, it tries to heal itself
 - If bark is off---why?---once bark is off it is easier for fungus to get into tree
- Fungus: on White Birch, some fungus was on the tree when it is alive, some fungus grew after the tree is dead; fungus usually grows horizontal to the ground e.g. Horseshoe fungus---this is a way to tell if fungus was on the tree before falling

2. Proceeding along path

- Scars on tree: Damage may be mechanical; if there is black material at damaged area on the tree, this may be bacterial growth

3. Close to Bend

- Sunscald: bark appears dark. When the tree is warmed by sun, the sap flows. When the tree cools down, the coolness may cause the bark to pop off. Then insects may enter the tree or woodpeckers peck holes in the tree.

4. At Rock slope clearing

- Woodland Whodunit:
 - Use White Pine as example of healthy versus declining;
 - oldest needles are lost once a year; the tree cuts off old needles to put cuticle on new fresh young needles;
 - top may have been attacked by insects e.g. weevil; at the growing tip; larvae under bark, girdles tree, so nutrients cannot get up; top wilts but tree wants to keep living so branch tries to take over and a leader grows e.g. the top is dead and the branches need to take over to get sunlight; weevil is sun-loving so it is better if the top of the tree is partly shaded
- Shrub/Tree identification:
 - Choke (Saskatoon) Cherry is a single shrub, loses leaves very early; will have fruit earlier in the year, very small berries
 - Pin Cherry is long-leafed, leaf droops, fruit is in bunches
- Super Canopy Trees get above other trees and are therefore important to wildlife e.g. some birds will nest on pine trees but need deciduous trees for insects; note also that pine and oak trees are well suited to same soils
- Forest Thriving or Declining: assess trees health; illustrate with tree decline diagram; note bushy part at crown and use as dieback demo; tree can start to die from inside out since centre rings are oldest, outer new branches may initiate new growth; when there is damage from hacking, resin flows to try to heal tree but critters can still go in and out
- Lichen = fungus + algae; mutualism exists since algae needs water; fungus on outside holding water for algae on inside

- Lichens⇒Sumacs⇒Poplars⇒Maples⇒Spruce⇒White Pine shows progression from ground to canopy

5. Back of Loop

- Large Poplars:
 - are very old, close to 90-110 years;
 - leaves stay alive if there is enough light
 - small cracks are normal but frost crack are larger
 - black bark on tree if tree does not heal and bacteria is looking for food; a bad sign is if the tree is not healed over but is oozing black
- Beaked Hazel (by old poplar) – grow up to the sun then flatten out

6. Toward Road – primarily Spruce/Balsam Area (most in number)

- Poplars (some large)
 - trunk has horseshoe fungus which is a good sign that there is a rot problem
 - there may be a fruiting body on outside after fungus is inside tree
 - not a lot of soil in this area
 - dead branch stub sticking out provides an entry point for fungus
 - a side leader took over and lived for a long time (see sketch)
- Red Maples
 - Short lived whereas sugar maples are long-lived
 - May grow in a clump from start but some sprouts become stronger and one stem becomes leader
 - Bulged at knot branches shows that tree is not growing fast and is stressed
- Ground Cover
 - Large leafed aster – leaves in ring around base with flowers that are white or pinkish-white in August or September

7. Grove of Balsam Fir on Turn

- light metre test areas
 - #1 (400 lux) - nothing grows underneath; no ground life; even balsam fir can grow in deep shade but not here
 - #2 (1900-2400 lux) - across path there are moss growing
 - #3 (12000 kLux) – in clearing
- soil pH test area – test under balsam fir then compare to where there are more hardwood trees since needles make the soil more acidic

8. Dead Stump Towards Road

- Tree may have died from old age
- Damage below is cause by pileated woodpecker which makes many elongated holes; woodpeckers will keep pecking until the tree falls down; smaller holes are feeding only
- Moisture here allows growth of dogwood (red leaves, red stem) and pond weed

9. At Turn in Weedy Area

- Porcupine has been feeding in a barber shop pole pattern around the white pine; porcupines prefer conifer bark; usually feed at night so we don't see them

10. Next turn

- Large poplars may have frost cracks or sun burn facing south (typically south or west); the snow can also reflect more heat onto bark from snow, heating up under the bark
- This area may have been cut for white pines which created opening for poplar to grow

11. Road side Balsam Fir – good example of porcupine damage to part of base although there is bark on top (Whodunit possibility)

12. Red Maple

- (bark curls off) tapped in error. Only sugar maples can be tapped for maple syrup
- Chickadees may use poorly healed branch stubs for homes; therefore, food as wildlife trees

13. Oak

- Massive number of acorns
- Need full sun,
- Can grow on rock with nothing much around it
- Slow to start
- Could have burned area but sprung back after burn
- After a fire small oaks survive because they like open sunlight
- Lower branches may die when lower branch costs more energy than new shoots and branches growing at top
- Possible that there was a forest fire in this area or when clearing for farmland the stumps were pushed into a pile
- If there is a drought, it may be followed by a bumper seed crop year.
- Acorns are the largest seed we have
- Acorns are food for turkeys, bear, deer, insects
- Insects may destroy a lot of acorns (pinhead hole) in a poor year but in a bumper crop year

- A lot of acorns go to animals
- There is a lot of meat in an acorn
- Every 3-5 years there is an acorn bumper crop