An Assessment of Disturbance on Hydrophytes Adjacent to Seasonal Ponds

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Landcover change

Weather.com

CNF

#NNX14AK04A
My spiritual journey in advancing Ojibwe forest management practices involves ...

- Observing the affects of land cover change in seasonal ponds located in the Sucker Lakes Watershed of Leech Lake, The Chippewa National Forest (CNF) after two disturbances, Timber Salvage and blowdown.
- Hydrophytes, emergent aquatic plants, endemic to the area are light or shade sensitive.
- Hydro periods dependent upon canopy cover which aids in regulation of infiltration and soil saturation, may affect the hydrophyte, Asaron canadenes, Wild Ginger Root.
- Large scale ecological trophic disruption is eminent if primary producers fail to regenerate.
- The Ojibwe community that harvests Asaron canadenes for a number of medicinal methods will be greatly affected.
Study Site:

- My current homelands
- The Leech Lake reservation is totally enclosed in the CNF
- The surrounding lake chains are the cleanest watersheds in the United States

- Pond 21 incurred blowdown and timber salvage
- Pond 288c incurred blowdown
- Pond 929a is undisturbed
Common: Wildginger Root
Ojibwe: Mashkiki’ojiibik (medicine root)
Latin: Asaron canadenes

Ecology

Range:

Community:
Black Ash, White Cedar, Elm, Ironwood, Yellow Birch, Maple, Leatherwood, Wild Carrot, Morning Star, Strawberry, Goblin Fern, Crested Fern, Bugleweed, Violets, Trilliums, Morels

Habitat:
Mesic soils, moist with good saturation, Low Land Hardwood, Mesic Northern Hardwood, Lowland Conifer
The Objective of My Project is ...

- Survey disturbance
- Is the hydrophyte Asaron canadenes present
- Is there noticeable impacts already in the Sucker Lakes watershed
Data needs and sources ...

- **Difference Map** – Landsat or NAIP data
  - USDA Geospatial Gateway: [https://gdg.sc.egov.usda.gov/](https://gdg.sc.egov.usda.gov/)
  - Minnesota Data Deli CNF staff is willing to work with me: [http://www.mngeo.state.mn.us/chouse/wms/wms_image_server_arcgis_instructions.html](http://www.mngeo.state.mn.us/chouse/wms/wms_image_server_arcgis_instructions.html)

- **Drought Map** – USDA, USGS
  - Vegdri: [http://vegdri.unl.edu/](http://vegdri.unl.edu/)

- **Location Map** - Kiksapa NASA REU
  - GIS

- **Light and Temperature Graph** – USDA, USGS
  - USDA Forest Service: [http://www.nrs.fs.fed.us](http://www.nrs.fs.fed.us)

- **Soils Map** - Minnesota Data Deli
  - MNGeo: [https://gisdata.mn.gov/](https://gisdata.mn.gov/)

- **Elevation Map** – USDA, USGS
  - USDA Geospatial Gateway: [https://gdg.sc.egov.usda.gov/](https://gdg.sc.egov.usda.gov/)

- **Climate Map** – USDA, USGS
  - USDA Geospatial Gateway: [https://gdg.sc.egov.usda.gov/](https://gdg.sc.egov.usda.gov/)
Methodology ...

- Take pictures of site
- Data log journal
- Map pond boundary and vegetation with AcrGIS Collector
- Transecting plot sampling

- Statistical analysis (e.g. T-test)
- Statistical analysis (e.g. Sigma Plot)
  Light and Temperature
- Statistical analysis (e.g. Sigma Plot)
  Canopy Cover
- Anniversary date synchronicity
- Results
- Conclusions
Results ...