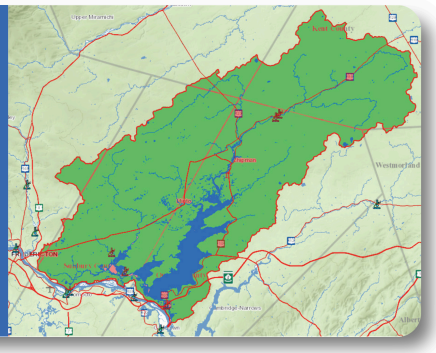
Jemseg Grand Lake Watershed Association
Notes from the First N.B. Invasive Species Summit
Held February 24-25, 2021

by
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March 6, 2021

Jemseg Grand Lake Watershed Association Report 21-03

Jemseg Grand Lake Watershed Association



New Nouveau Brunswick
Your Environmental Trust Fund at Work

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NB Invasive Species Summit - Feb 24-25, 2021

Host: NB Invasive Species Council [URL: nbinvasives.ca]
Virtual Platform: Pheedloop.com
Speakers: 20 "practitioners"
Attendees: approx. 100
Format: presentations c/w Q&A & several breakout & network sessions
NBISC summit recorded: portions available to attendees for personal education purposes only

Dieter Kromm's summary notes follow; scribed with good intentions but may not be 100% accurate & certainly not complete.

[A] Policy

"Species at Risk Act" c/o Isabelle Thériault, Biologist, Fisheries & Oceans Canada

- 5 priority marine endangered species in our area [sorry, missed this list]
- "Species at Risk Public Registry" offers info about invasive species of concern
    - URL: canada.ca/en/environment-climate-change/services/species-risk-public-registry.html

"Aquatic Invasive Species Regulation" c/o Ulrike Irlich, Biologist, Fisheries & Oceans Canada

- 160 species identified in the various schedules
- Part 2 lists 89 invasive species and the requisite prohibitions & control measures; eg. zebra mussel, black carp
- Part 3 lists 14 invasive species without requisite prohibitions but are viewed as significant risk to our aquatic ecosystems eg. European green crab, yellow perch
- URL: dfo-mpo.gc.ca/species-especes/ais-eae/regulations-reglements/index-eng.html
- Licenced anglers must contain & report any invasive species caught

"Ontario Invasive Species Act" c/o Jerome Downe, Sr. Invasive Species Policy Advisor, Ontario Min. of Natural Resources & Forestry

- Ontario is noteworthy in the Canadian invasive species arena:
    - Highest # invasive species in Canada
    - Early to develop regulatory & management processes
    - Estimates invasive species cost their economy $3.6B/yr
    - Spending $50M+/yr at the municipal & conservation authority level

  - Can offer go-by's and will share their research, regulatory & management successes/failures
- NGO's need to share the responsibility & response as the invasive species problem dwarfs provincial resources & funding

"Recommendations for a Provincial Strategy on Invasive Species Management in NB" c/o Kayvon Monjezi, Masters of Environmental Management Student @ UNB

- Current NB invasive species regulations & management seen to have holes, are ineffective & insufficient
- Gap analysis flagged 3 deficiencies:
  - Lack of legislation & policy
  - Lack of defined roles
  - Insufficient funding
- Looking at what other provinces have; eg. Ontario
- NB-Maine don't have an invasive species working relationship across the St John River; like Ontario has with USA across the Great Lakes

[B] Outreach & Education

"Developing Awareness & Education Programs" by Ken Donnelly, President, Beyond Attitude Consulting

- Most people recognize positive outcomes & the behaviour required to achieve those outcomes; however there is an intention -action gap preventing the vast majority to take action
- Explained a 4 step education & social attitude change process to help people to take action to achieve a shared positive outcome
  - Identify & remove barriers
  - Secure promises
  - Provide reminders
  - Develop a culture
- Process seems to be effective with BC's "clean drain dry" program; encouraging boat owners to clean their boats at the boat slip when pulling boat out of the water

"Addressing Invasive Species in BC – successes, learnings & next steps" c/o Danielle Toperczor, Director of Programs &Communications, Invasive Species Council, BC

- Programs implemented include:
  - "Clean Drain Dry"

        - Focused on behaviour change to prevent spread of aquatic invasive species
        - Posted 200 signs; install wash stations at boat slips & provided coaching to boaters about the issue, how to clean their boats & get their commitment to be a steward for the cause
    - "Plant Wise
        - Working with growers, retailers & gardeners to eliminate invasive species from the system
    - "Buy Local Burn Local"
        - Working with firewood suppliers, campgrounds and campers to eliminate moving firewood between regions
    - "Don't Let It Loose"
        - Messaging about being a responsible pet owner [eg. gold fish, rabbit, etc]
    - "Play Clean Go"
        - Messaging to outdoor enthusiasts to prevent transporting invasive species back after recreating outdoors [eg. hikers, campers]
- Youth Volunteer Programs
    - Targeting 15-30 yr olds to become lifelong leaders
    - Offer variety of volunteer opportunities and actively recruit from a variety of school & community programs

"Nature Trust of NB Deals with Invasive Species" c/o Shaylyn Wallace, Stewardship Coordinator

- Manage 69 Nature Trusts on 9,000 acres of private land in NB
    - eg. Pickerell Pond Nature Reserve being 191 acres adjacent Maquapit Lake SE of Estabrooks Pond
- URL: https://www.naturetrust.nb.ca/
- Invasive species identified on 44 of 69 preserves [focus only on plants]
- Some preserves have volunteer groups involved to steward projects like removal of invasive species
- Priority given to remove the following:
    - Woodland angelica
    - Japenese knotwood
    - Glossy buckthorn
    - Purple loosestrife
    - Garlic mustard
- Top priority given where invasive species threaten rare species
- Support from volunteer groups is needed noting some groups are quite self sufficient

[C] Lunch Keynote Speaker

"Alberta Rat Control Program" c/o Karen Wickerson, Rat & Pest Control Specialist, Alberta Agriculture & Forestry

- Legislation, program & funding put in place in anticipating rats migrating into Alberta from Saskatchewan in the early 1950's
- Rat control prevents crop loss, property damage and prevents rats spreading disease
- Errant rats brought in by trucks, containers etc. typically discovered quickly at nearest food source [eg. grocery stores, restaurants]
- There is a designated rat interceptor band along the east border with Saskatchewan that has routine surveillance and intervention

[D] Picking the Right Targets

"Assessment & Ranking of Invasive Species" c/o David Mazerolle, Resource Management Officer II, Parks Canada @ Kouchibouguac Nat'l Park

- Exotic species are those introduced by humans to areas where they are not native; eg. goldfish, ring-necked pheasant, wild turkey, dog-strangling vine
- Most exotic plants limited to highly disturbed areas and remain innocuous
- An exotic becomes invasive when established in natural areas & has –'ve impact on the ecosystem
- Invasive species have numerous adverse impacts: ecological, economic, social
- 75+ invasive species in Kouchibouguac, eg. garlic mustard, dog-strangling vine

- Noteworthy NB invasive pests:
  - Dutch elm disease
  - It's co-conspirator European elm bark beetle
  - Hemlock woolly adelgid
  - Emerald ash borer
  - Brown spruce longhorn beetle
  - White nose fungus [bats]
  - Smallmouth bass, chain pickerel, European green crab
- Several invasive species impact risk assessment protocols presented [interesting, detailed, like engineering design risk management assessment processes]

[E] Advancements On-the-Ground for Invasive Species Management

"European Green Crabs @ Kejimkujik Nat'l Park Seaside Estuary, NS] c/o Gabrielle Beaulieu, Project Manager, Parks Canada

- These crabs decimated the softshell clam population, destroyed 90+% of the eelgrass looking for crustaceans and the estuary water quality deteriorated as eelgrass disappeared
- Implemented a trapping/monitoring program staffed where possible with students which removed more than 2 million crabs since 2009
- Gradually reduced the crab population to manageable levels & now trap to a 20 crab/trap/day threshold
- After 6 yrs, the eelgrass has recovered 36% & softshell clam population is rebounding

" How to Turn Crustacean & Insect Shells into New Plastics" c/o Dr Audrey Moores, Assoc Professor McGill University

- Plastification of waterways & oceans well documented
- Canada recycles 9% of plastics, leaks 1% [46,000 ton/yr] into the environment and buries/incinerates the rest
- Recent research confirms compostability & biodegradability of PLA's is overstated; with a degradation process 100+ yrs in the natural environment
- Studying how to convert Canada's 6-8 mil tonnes/yr crustacean waste problem into plastic
- Feedstock includes shells from lobster, shrimp, dunk beetle, southern wood cricket, etc
- Also using European green crab shells from aforementioned project
- Conversion chemically not feasible due to excessive harmful chemical waste, high energy and water demand
- Progress being made with mechanochemistry & aging processes that use a fraction of the energy & produce a fraction of the waste compared to chemical processes
- Also working with NRC to produce higher value materials than plastic

"Goldfish, Koi & Flowering Rush Invasion in St Albert, AB" c/o Mehgan Meyers, Environmental Coordinator – Community Strategy & Engagement, City of St Albert & Melissa Logan, Environmental Coordinator, Sturgeon River & Natural Areas, City of St Albert

- Discovered goldfish & koi populations in the storm water ponds along the Sturgeon River [typical non-glacial fed prairie river]

- "Electro-therapy" and "lowering water levels/freezing therapy" both failed
- After further study, obtained provincial gov 't approvals, trained staff, put safety & water test procedures in place, communicated with the community, etc; successfully killed off both fish species using two applications of Rotenone pesticide in Sept 2019
- Removed 120 kg of fish; none of the 5 species were native
- Stocked rainbow trout in these ponds had been fished out the prior year

- A significant flowering rush infestation along much of the Sturgeon River through the city was studied
- Verified that the plants were not spreading via seed
- Could not get approval for Diquat herbicide & not certain if it would be effective
- Received approval to hand pull over 5 yrs; harvesting 60 m3 to date

- Preplanning and having all resources available & community informed were key learnings

"Slow the Spread – Hemlock Woolly Adelgid" c/o Donna Crossland, Hemlock Woolly Adelgid Coordinator, Hejimkujuk Nat'l Park, Parks Canada

- Hemlock considered the redwood of the east
- 5 yr project to manage rapid decline of hemlock due to hemlock woolly adelgid
- it spreads quickly & kills hemlock in 2-3 yrs
- Discovered in Nova Scotia in 2018; has no natural predators, spreads by birds, wind, firewood, people & pets; prolific self reproducing,
- Hemlock loss with result in:
    - loss of unique biodiversity & altered ecosystem
    - habitat loss for many songbirds
    - loss of unique fungi [eg. reishi] & lichen
    - stream temperatures will rise & lose certain fish species
    - drying soils & increased erosion
- Parks Canada & other national/provincial agencies are studying the problem

[F] Early Detection & Rapid Respnse

"NB Case Studies" c/o Drew Carleton, NB Dept of Natural Resources & Energy Development

- Primary focus on forestry health, with less than 40% of time spent dealing with invasive species

- Brown Spruce Longhorn Beetle [BSLB] – Memramcook
  - BSLB discovered in Nova Scotia 1999; likely arrived undetected 1990
  - First NB discovery in Kouchiguac Nat'l Park in 2011
  - Memramcook BSLB discoveries
    - One at trap A in 2014
      - thought to be isolated [trap in stand of trees w/o spruce], no action taken
    - Another at trap B, less than 1 km from trap A, in 2015
      - these private land parcels were logged with logs milled in NS at facility capable to process these compromised logs
      - residual brush mulched in place
    - Another in trap C, ~ 1 km from trap B, in 2016
      - triggered detail study within 3 km radius
      - monitoring continues & has shown no further BSLB
    - Next BSLB discovery in Moncton area
      - Believed to be imported into area by firewood

- Emerald Ash Borer [EAB] – Edmundston
  - Found in NB & NS in 2018
  - In NB, ash make up 2% of rural landscape but is a much bigger problem in urban areas, eg. 11% of Fredericton trees
  - Discovered in Edmundston in 2018 along the St John River, with numerous trees affected ie. EAB had arrived a few yrs prior
  - Area study confirmed it was too late for "early detection & rapid response", rather move into "slow the spread" management
  - Problem also well progressed across river in Maine & nearby Quebec

- Browntail Moth
  - Arrived early 1900s & known to be active in Maine
  - Observation ongoing but not known to be active in NB at this time
  - Is a pest to humans, with varied rash & respiratory response
  - "Dust" on many moths triggers the aforementioned responses to varying degrees

"Frameworks for Invasive Species Rapid Response Planning" c/o Sara Stahlman, Pennsylvania Sea Grant

- Presented a rigorous purpose built planning process c/w flowcharts, checklists, stepwise action lists by stakeholder

- Implemented in 2014 c/w mock-up simulations involving all the stakeholders, regular stakeholder reviews for continuous improvement and promote networking
- Has 2 companion apps [could not find on Apple store?]

"Invasive Species Survey Strategy for Terrestrial Plants" c/o Kate Drier, Masters student @ UNB

- Developed an efficient methodology to assess extent of an invasion & develop a response plan
- After doing a literature search & networking with practitioners, developed a methodology
- Tested the methodology at four Nature Trust NB preserves
- Focused on four species:
  - Garlic mustard
  - Glossy buckthorn
  - Japanese knotweed
  - Woodland angelica
- Presented her findings from her methodology field trials

[G] Mapping & Reporting

"iMapInvasives for Invasive Species Data" c/o Nancy Olmstead, Gov't of Maine & Shelley Cooke, NatureServe

- iMapInvasives owned, developed & maintained by NatureServe, a non-profit organization
- iMapInvasives is a comprehensive online map based database for"
  - GI database
  - Invasive species data library, customizable to subscribers needs
  - Tracking identification through treatment of invasive species
  - Data aggregator
  - Networking platform between invasive species practitioners across North America
- Free access for public & organizations offering limited features
- $5K USD/yr subscription + local administrator costs
- Saskatchewan is a subscriber; various organizations in NB are evaluating

ATTACHMENTS:

[1] screenshot of NB invaders from NBISC's website /www.nbinvasives.ca/species-info; note detail species info is pending.



[2] Phragmites

Photo from Wikipedia



[3] Yellow Flag Iris

Photo from Wikipedia



[4] Small & Largemouth Bass
Photos from Wikipedia





[5] Zebra/Quagga Mussels
Photo from Wikipedia



Photo from iMapInvasives.org



[6] Emerald Ash Borer

Photo from iMapInvasives.org



[7] Eurasian Water Milfoil

Photo from invadingspecies.com



[8] Flowering Rush

Photo from Wikipedia



[9] Japanese Knotwood

Photo from iMapInvasives.org



[10] Chain Pickerel

Photo from Wikipedia



[11] Oriental Bittersweet

Photo from iMapInvasives.org



[12] Giant Hogweed

Photo from Wikipedia

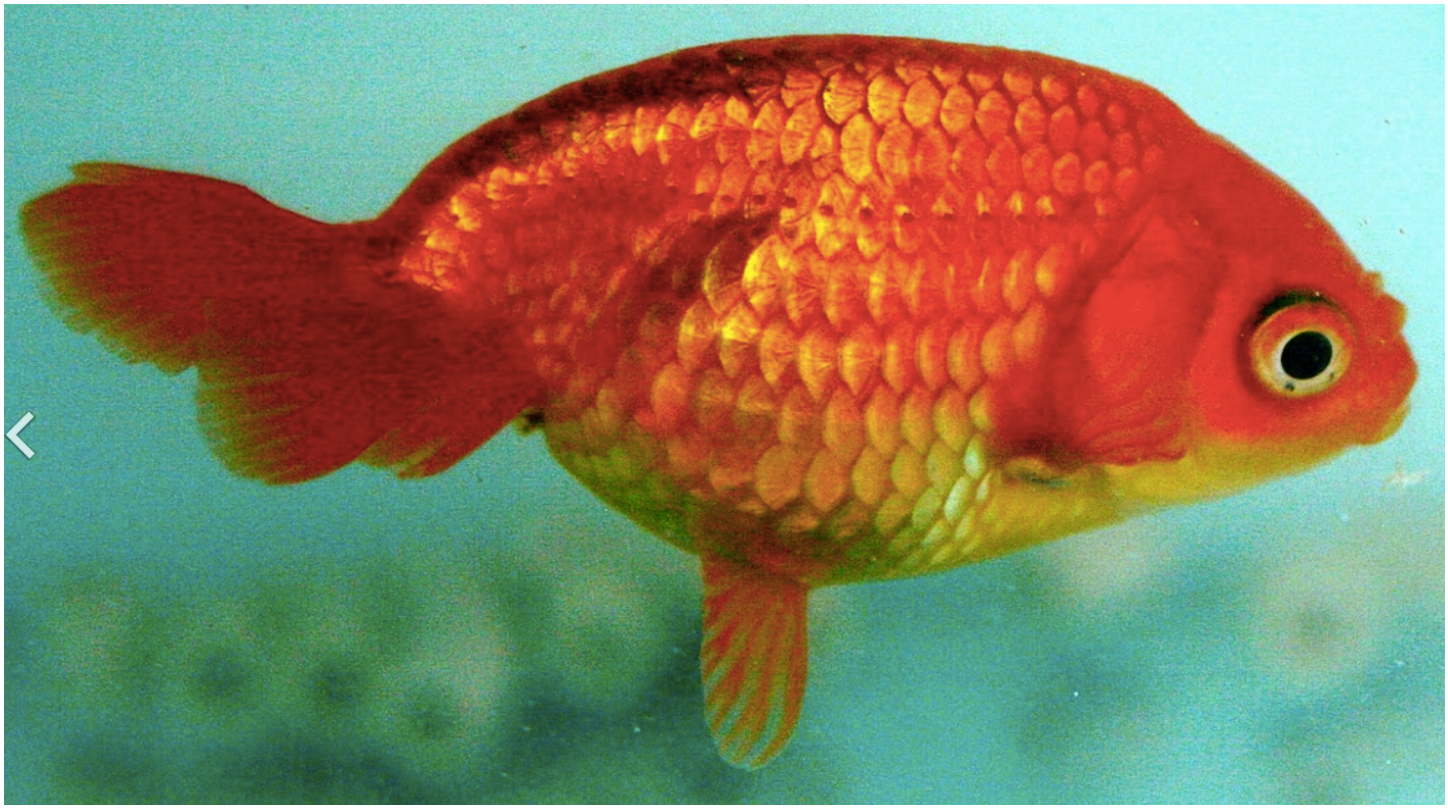


Photo from iMapInvasives.org



[13] Goldfish

Photo from Wikipedia



[14] Garlic Mustard

Photo from iMapInvasives.org



[15] Spotted Lanternfly

Photo from Wikipedia



[16] Glossy Buckthorn

Photo from Wikipedia



[17] Hemlock Woolly Adelgid

Photo from iMapInvasives.org



[18] Purple Loosestrife [not on NBISC list, but clearly invasive]
Photo from iMapInvasives.org

