Background -Thought Process to Minnesota DNR's 2008 *Wild Rice Distribution and Abundance in Minnesota*

Gary Drotts
Wild rice harvester, 1967 to current
MNDNR Wildlife, Brainerd, 1974-2013, retired
2018 WRTF member, Non-Native wild rice harvester


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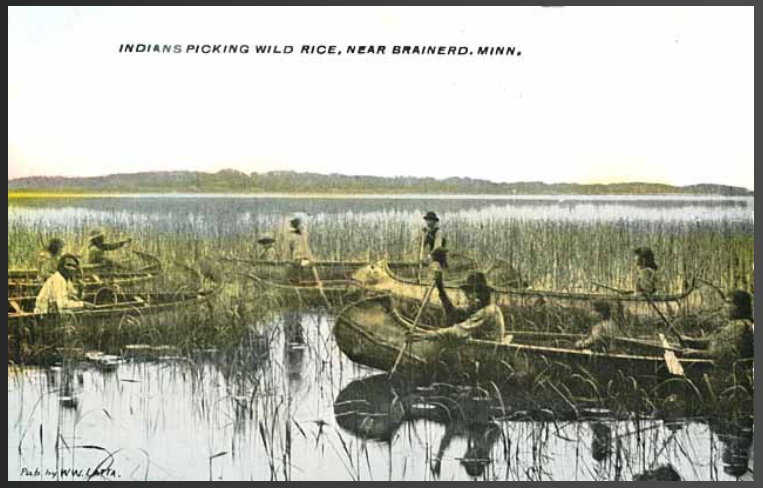
MN 5640 KR

Teaser/trailer thoughts

- Recognize, promote the cultural significance of wild rice to Native Americans.
- Promote, manage wild rice as a natural, organic food source.
- Promote, manage wild rice as a representative of natural, clean water aquatic ecosystems.
- Promote, manage wild rice as a critical component of aquatic related fish and wildlife habitats.

History



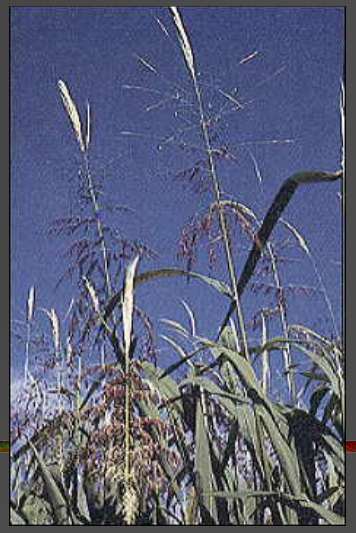
- Wild rice is at the core of Native American culture in the upper Great Lakes region. For many centuries, the people around Lake Superior owed their existence to this food. Not only was wild rice abundant, it was also easy to store for long winters, enabling people to survive when other food sources were unavailable. Since its reliability in the wild made agriculture unnecessary, the cultures of this area were shaped by wild rice, just as the cultures of the plains were shaped by bison.

Wild rice as wildlife habitat

- Straw
  - Nesting material
  - Decomposition releases nutrients for invertebrates and macrophytes
  - Invertebrate cover
- Seed
  - High protein migrational food source
- Roots
  - Invertebrate structure
  - Food source (geese, swans, muskrats)
- Stalk (aquatic)
  - Invertebrate structure
  - Brood cover (late July – August)
- Stalk (aerial)
  - Food source (geese, swans, muskrats)
  - Insect rich structure
- Seed head
  - Food source

What does wild rice grow in?

- Non-stagnant, free flowing water basins
- Water depth:
  - Ideal depth is 6-18” although growth is possible in water as deep as 36”
- Water chemistry: Past directions and research
  - Hardness: tolerant of the entire carbonate range in MN (5-220 ppm), growing best in waters over 40 ppm
  - Sulphates (SO4): intolerant, few large stands found in waters over 10 ppm (limited sample size)
  - However, current research suggests that these variables may not be limiting
- Bottom types:
  - Primary: loose organic substrate
    - Muck, detritus and mud substrates
    - Tend to ripen later
  - Secondary: small diameter inorganic substrates
    - Sand or other very small diameter substrates
    - Tend to ripen earlier



Growing cycle

- Seed lays dormant during the winter. Due to shape of the seed, continues to work it's way into the bottom.
- Seed begins to germinate in early May
- 30 Days in initial root development and aquatic stalk/leaf stage.
  - Early May to early June
- 10 - 15 Days in floating leaf stage
  - Early June to mid June
- 30 - 40 Days in aerial stalk stage
  - mid June – late July
- 15 - 20 Days for flowering and seed head development
  - Late July – early August
- 20 - 30 Days for seed head to mature and completely shatter. August 20th to September 20th.

- Annual Cycle: 105 – 135 days from germination to complete maturity

MNDNR's Mission

- *The mission of the Minnesota Department of Natural Resources (DNR) is to work with citizens*
  - *to conserve and manage the state's natural resources,*
  - *to provide outdoor recreation opportunities, and*
  - *to provide for commercial uses of natural resources in a way that creates a sustainable quality of life.*

My responsibilities as a DNR Area Wildlife Manager

- *Population Management*
  - *Wildlife census & surveys, season setting/management, nuisance animal management*
- *Habitat Management*
  - *Forest habitat, Wetland habitat, Prairie/grassland habitat*
- *Facility Management*
  - *State WMAs: roads, trails, boundaries, etc.*
- *Public Information*

Wildlife Management System

- *Where are we?*
  - *Resource Assessment*
- *Where do we want to go?*
  - *Strategic Planning*
- *How do we get there?*
  - *Operational Planning*
- *Did we make it?*
  - *Monitoring, Adaptive Management*

Appendix B

Wild Rice Distribution and Abundance in Minnesota

EXECUTIVE SUMMARY

Project Leader
Gary Drotts
Minnesota Department of Natural Resources
Area Wildlife Supervisor - Brainerd

Purpose

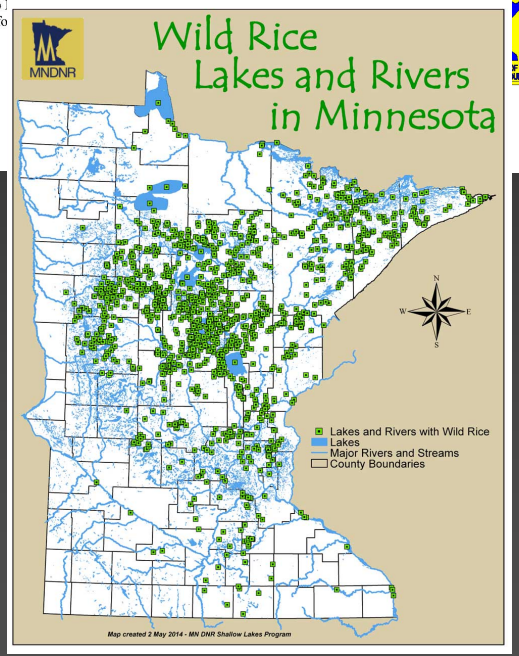
To further the understanding of natural wild rice distribution and abundance in Minnesota, Minnesota Department of Natural Resources (MNDNR) staff and other Technical Team members of the Natural Wild Rice in Minnesota Legislative Study undertook an effort to consolidate and update existing natural wild rice inventory information. The following objectives guided inventory design and development.

1. Consolidate various data/information on the location (i.e. lake, wetland, or river segment) of natural wild rice stands in Minnesota.
2. Determine size and natural wild coverage for each location.
3. Determine type of water level management structure (if present) on each location and primary management authority.
4. Document Tribal, Treaty and/or State authority for each location.
5. Determine natural wild rice harvest potential, harvest pressure, and access for each location.
6. Provide a starting point for a useable data framework/information system for the long-term protection, management and monitoring of natural wild rice in Minnesota.

Methods

An existing dataset (Microsoft Access) maintained by the MNDNR Shallow Lake Program provided the starting point for this effort. This dataset originated in the late 1980's based on a review and consolidation of the best existing data sources at that time (i.e. MNDNR Enforcement wild rice lists, tribal rice camps, etc.) followed up with field interviews to MNDNR Area Wildlife and Tribal offices in the primary natural wild rice range. This initial assessment found over 700 lakes in 31 counties totaling 1.5 million basin acres contained approximately 61,000 acres of natural wild rice.

Since this initial dataset was formed, various MNDNR, federal, treaty and tribal authorities have accomplished a significant amount of additional inventory work. This information was reviewed, consolidated and added to the initial dataset and sent out for review to
and Treaty/Tribal authorities for their comments and input. Return info
a finalized dataset.



Minnesota Natural Wild Rice Harvester Survey: A Study of Harvesters' Activities and Opinions

Wild rice harvesters on Mallard Lake, Aitkin County, MN, 2006

Final Report

A study conducted by:
Minnesota Department of Natural Resources, Division of Fish and Wildlife, Management Section of Wildlife

Birchdale Lake, Crow Wing Co.

Lost Rice Lake, Crow Wing Co.

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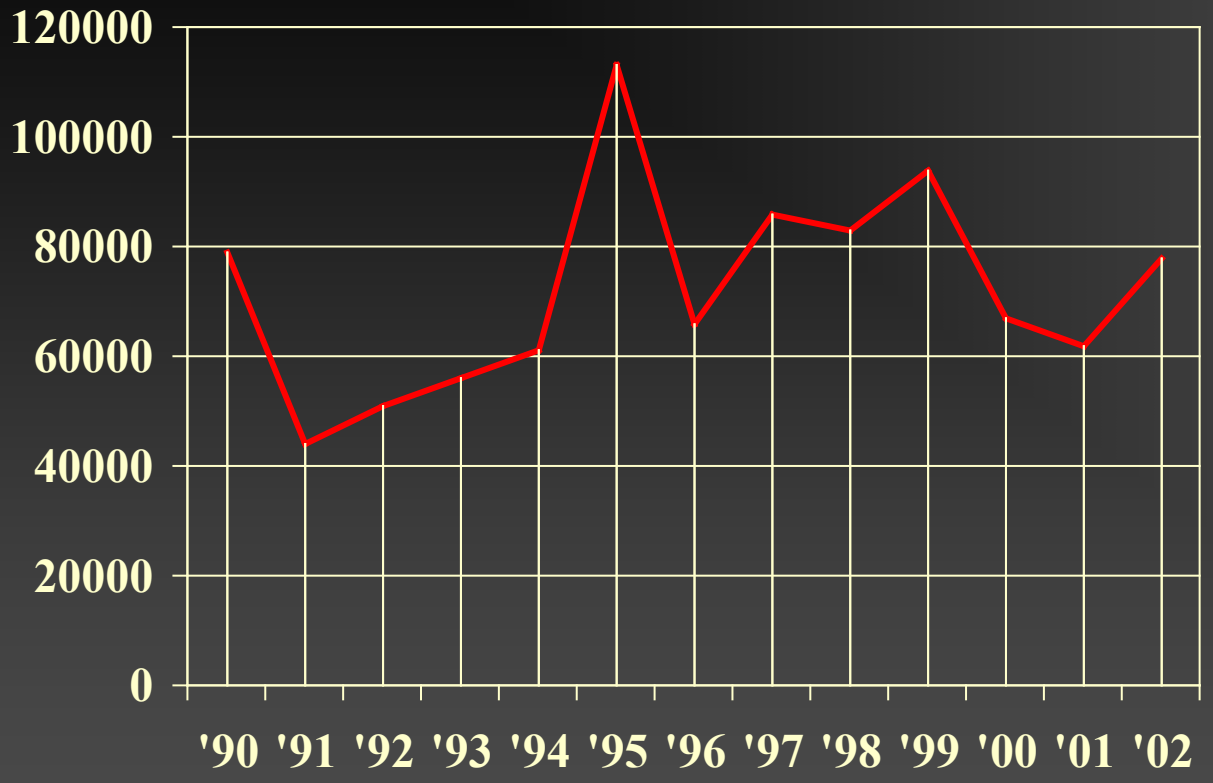
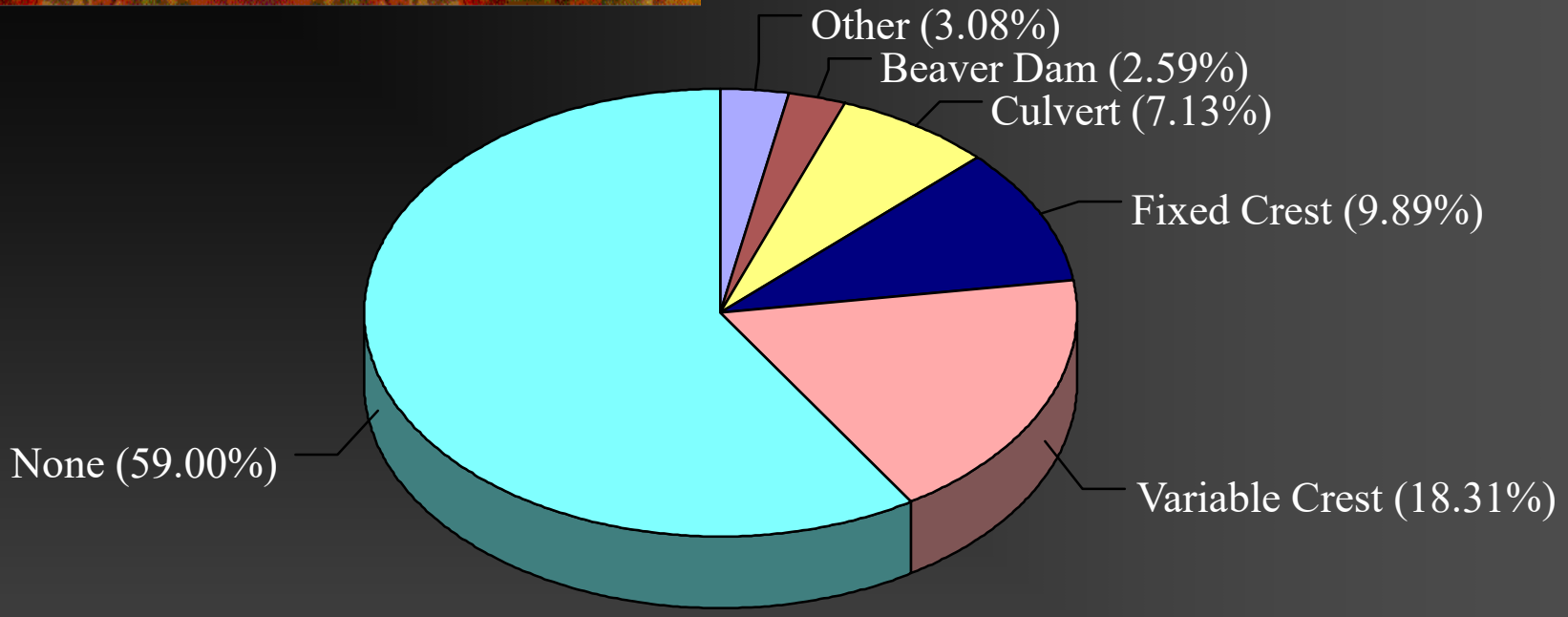
Minnesota Beaver Harvest 1989/90 to 2001/02



Wild Rice Management

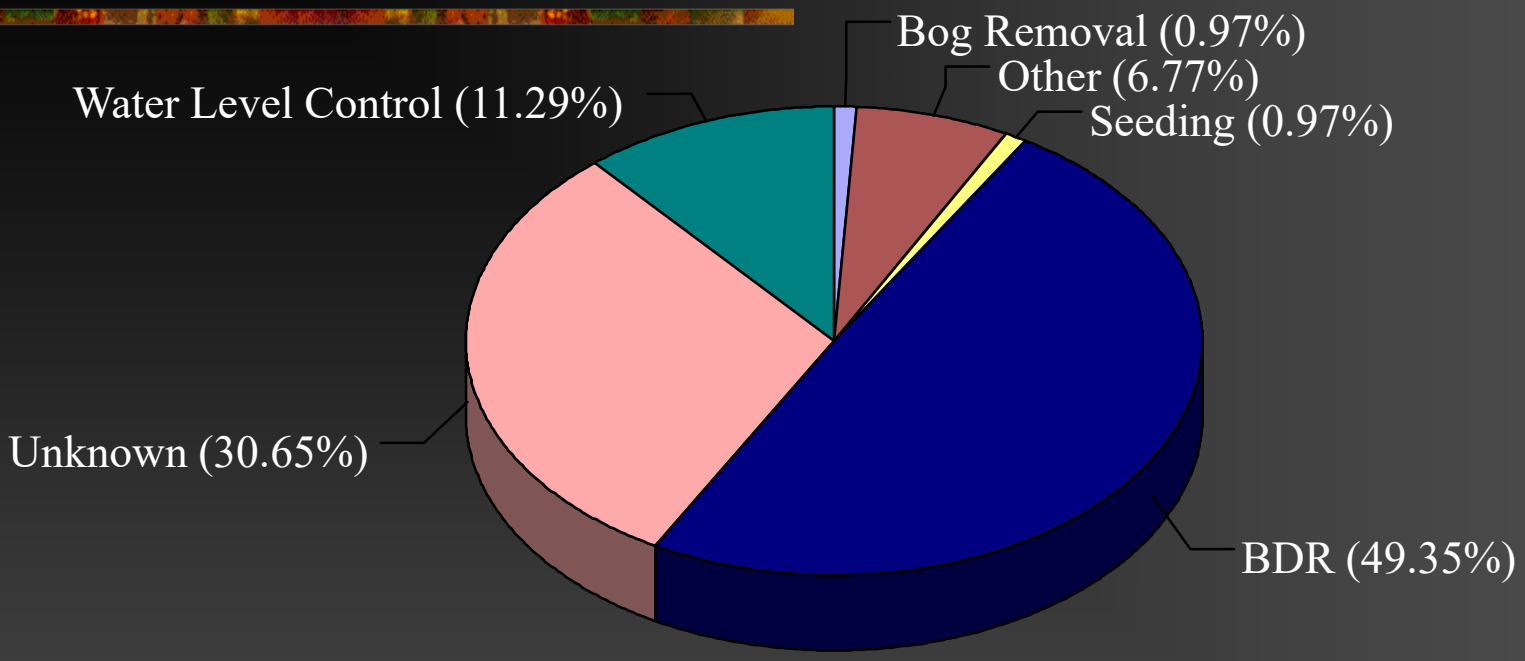
- Primary management technique is water level control:
  - Wild rice requires low, stable water levels
  - Large water level bounces, especially during floating leaf stage can destroy the crop
    - Beaver dam and beaver removal
    - Water control structure manipulations
- Other management activities include:
  - Bog removal (cookie cutter)
  - Seeding

Wild Rice Lake Outlet Structures



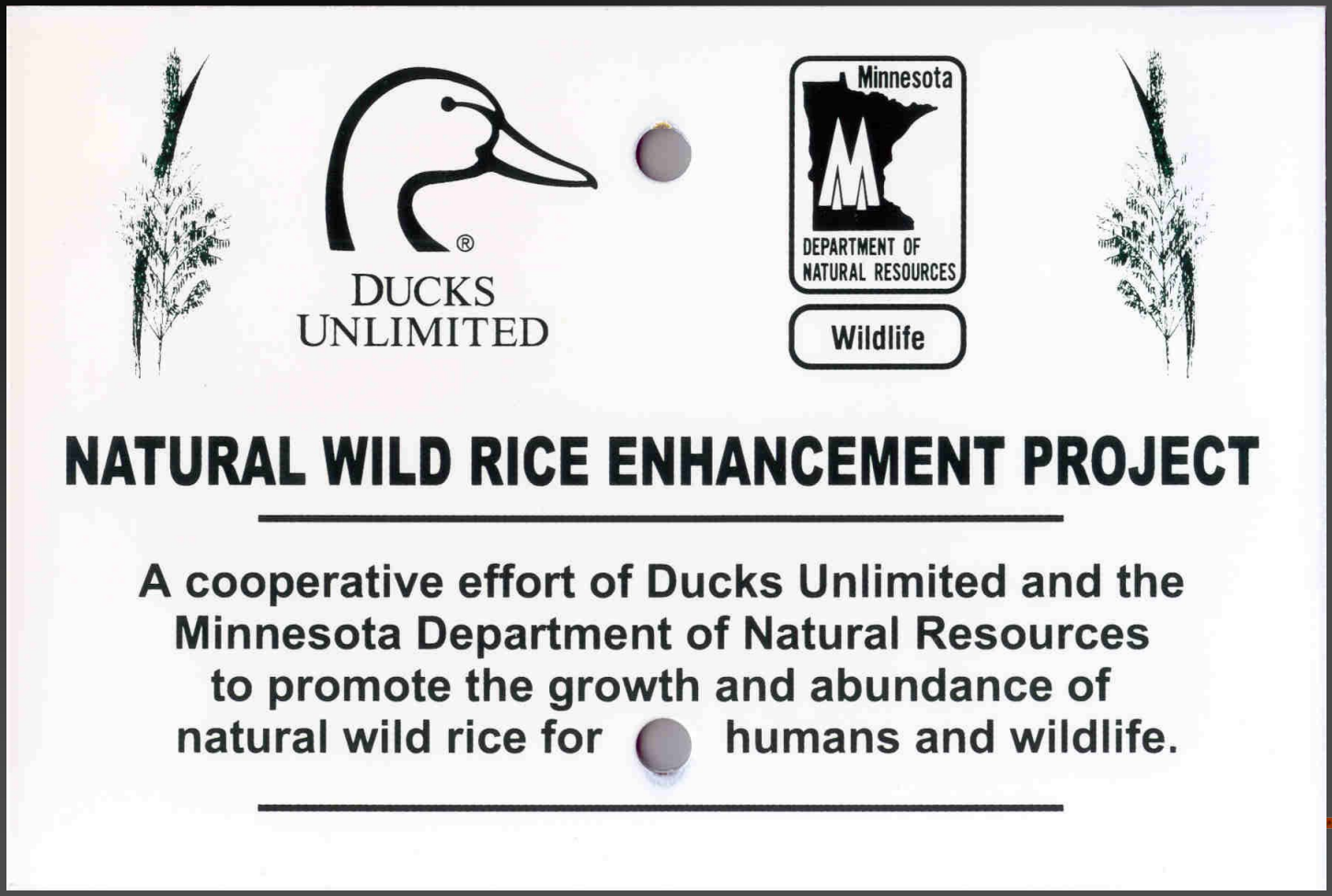
Based on preliminary 1999 data, 618 basins.

Wild Rice Lake Management Types



Based on preliminary 1999 data, 310 managed basins.

MNDNR/DU
Wild Rice Management Project



MNDNR/DU
Wild Rice Management Project

- $51,000 spent on water level management contracts.
- MNDNR responsible for initial assessments, which basins to manage, initial beaver dam removal.
- Contractors responsibility is to maintain a free flowing, unobstructed outlet
- 94 basins managed totaling 18,000 acres, 20 basins assessed totaling 7,000 acres.
- 300+ beavers removed.
- Majority of beaver trapped before end of spring season – May 15th.

Number one problem – roads and culverts