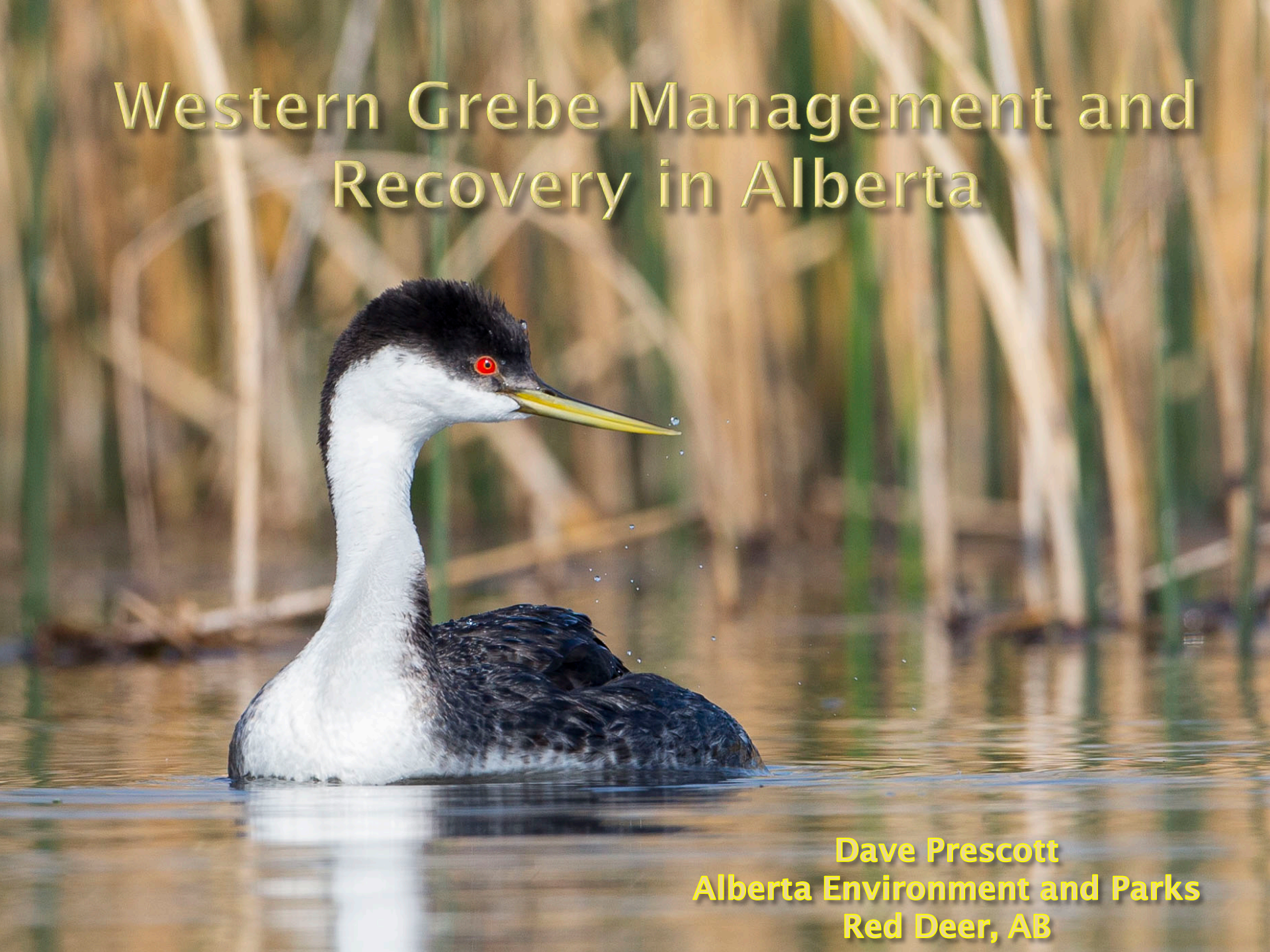
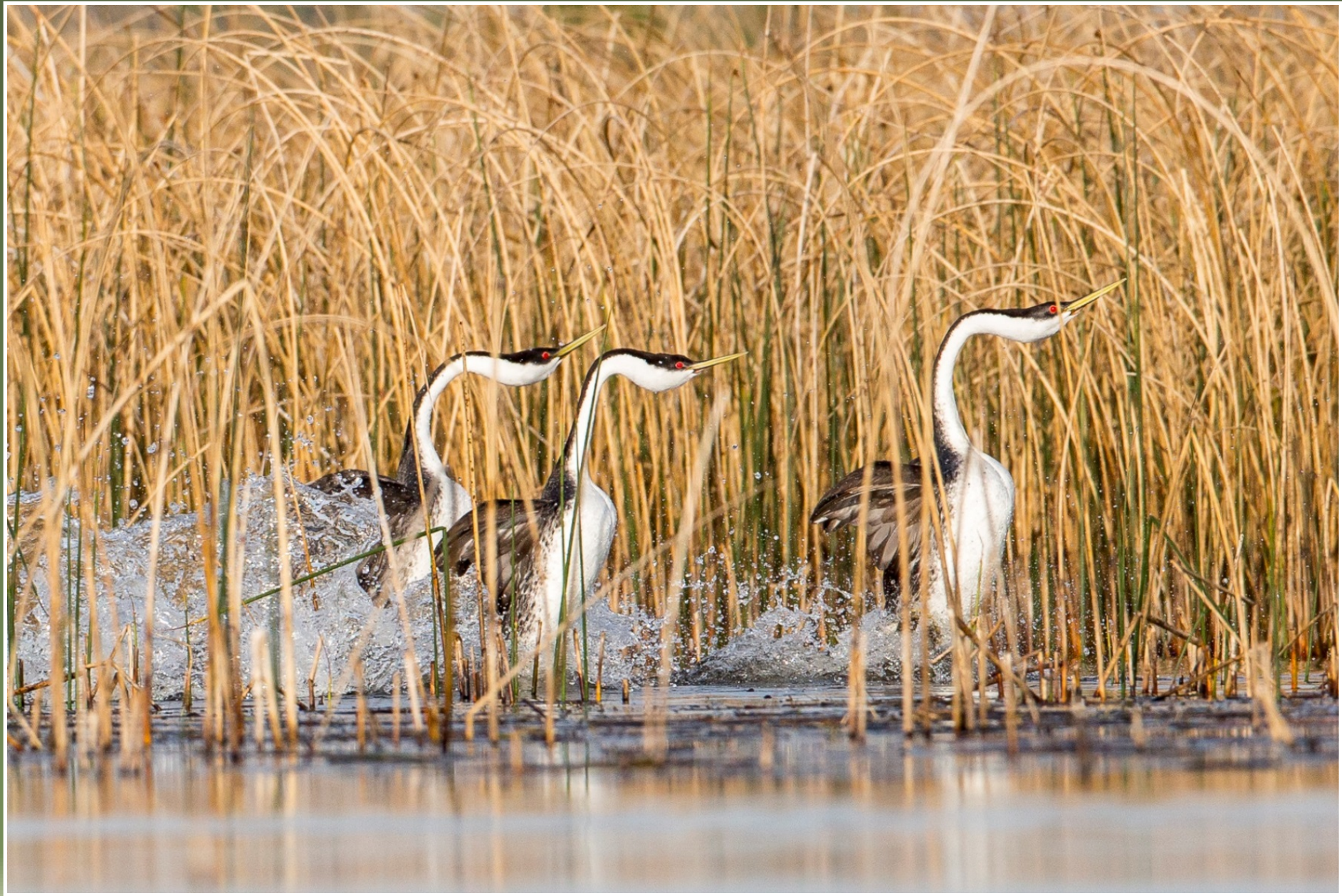
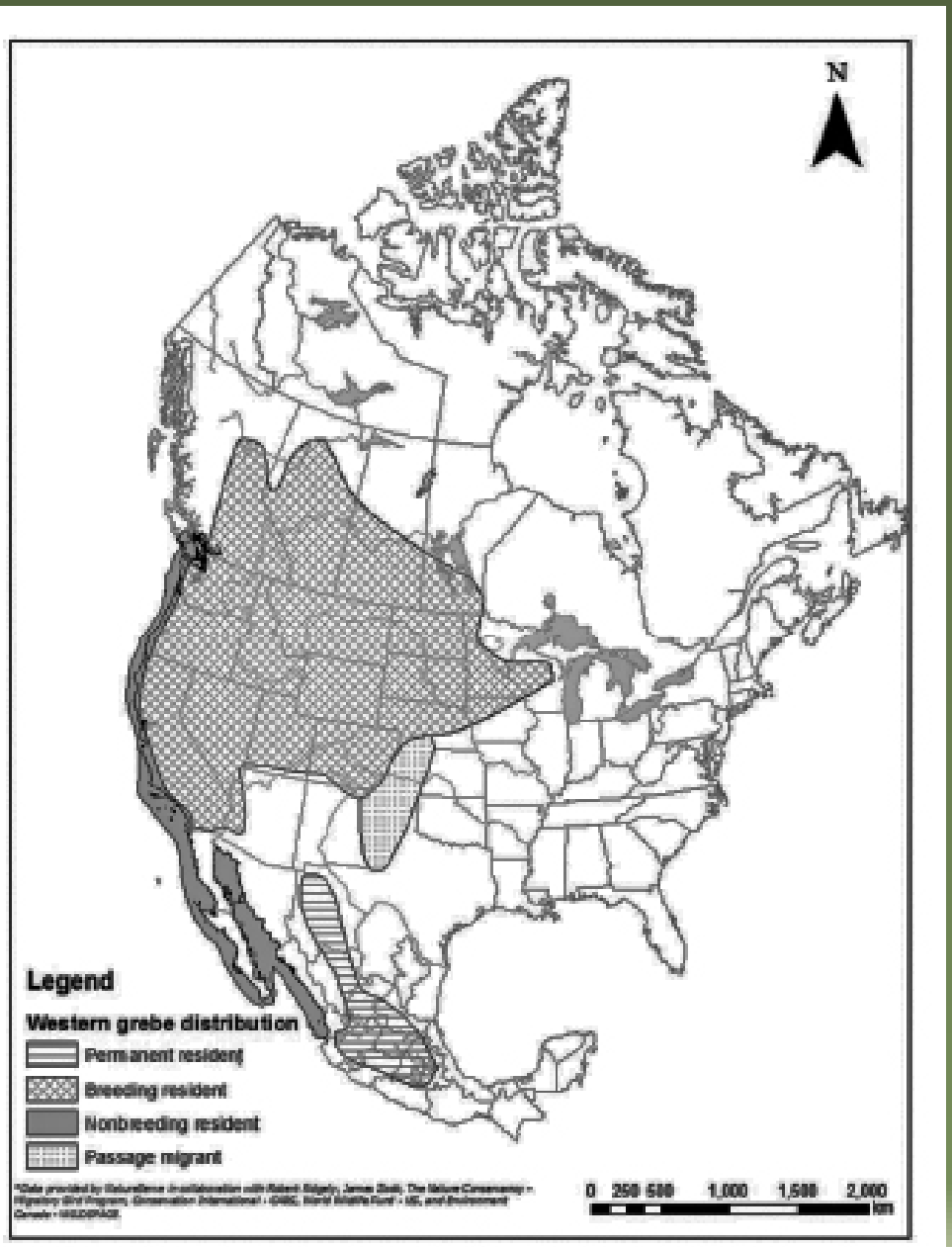
Western Grebe Management and Recovery in Alberta



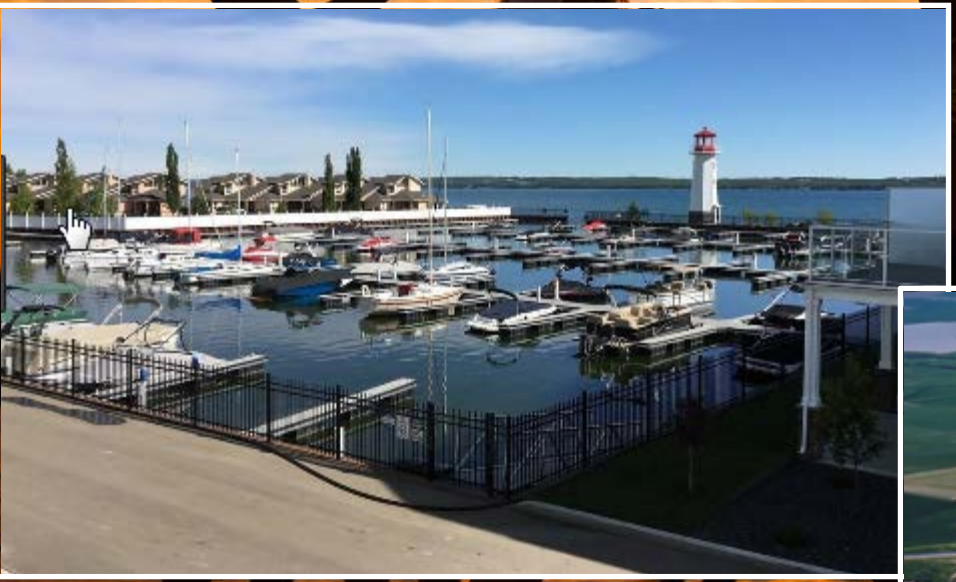
Dave Prescott
Alberta Environment and Parks
Red Deer, AB

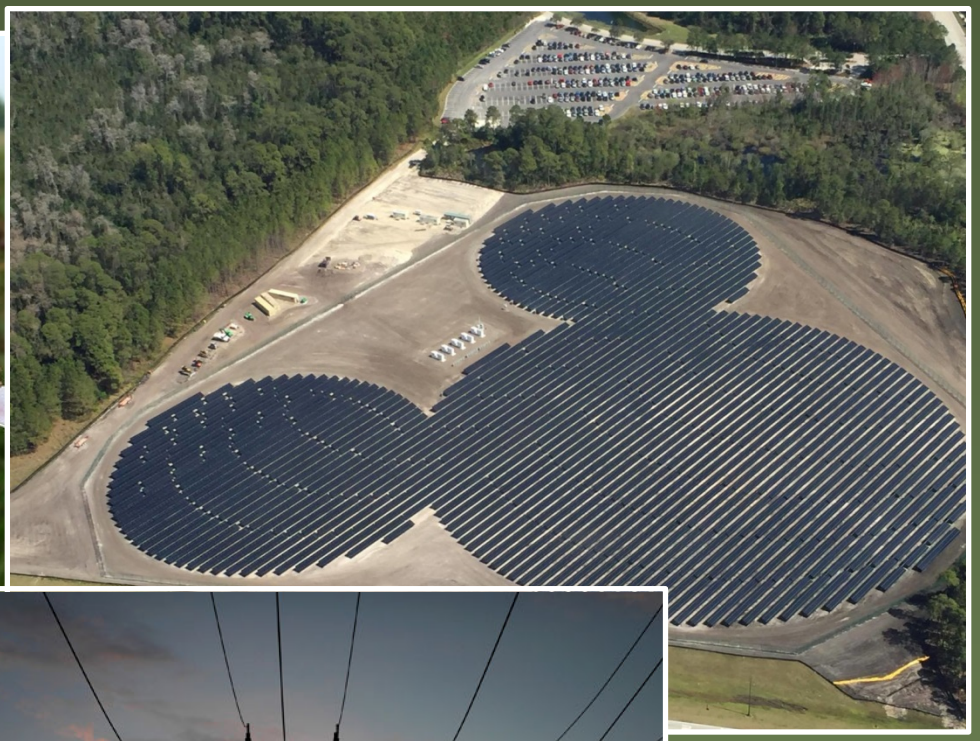



N
Legend
Western grebe distribution
Permanent resident
Breeding resident
Nonbreeding resident
Passage migrant
0 250 500 1,000 1,500 2,000
km


Kawasaki


YAMAHA
Fisher

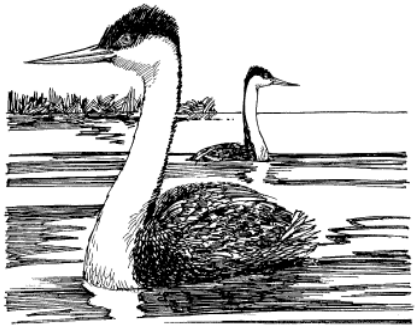




alberta's species at risk program

Status of the Western Grebe (*Aechmophorus occidentalis*) in Alberta:

Update 2012



Alberta Wildlife Status Report No. 60 (Update 2012)

Alberta Conservation Association

Alberta Government

COSEWIC
Assessment and Status Report

on the

Western Grebe
Aechmophorus occidentalis

in Canada

SPECIAL CONCERN
2014

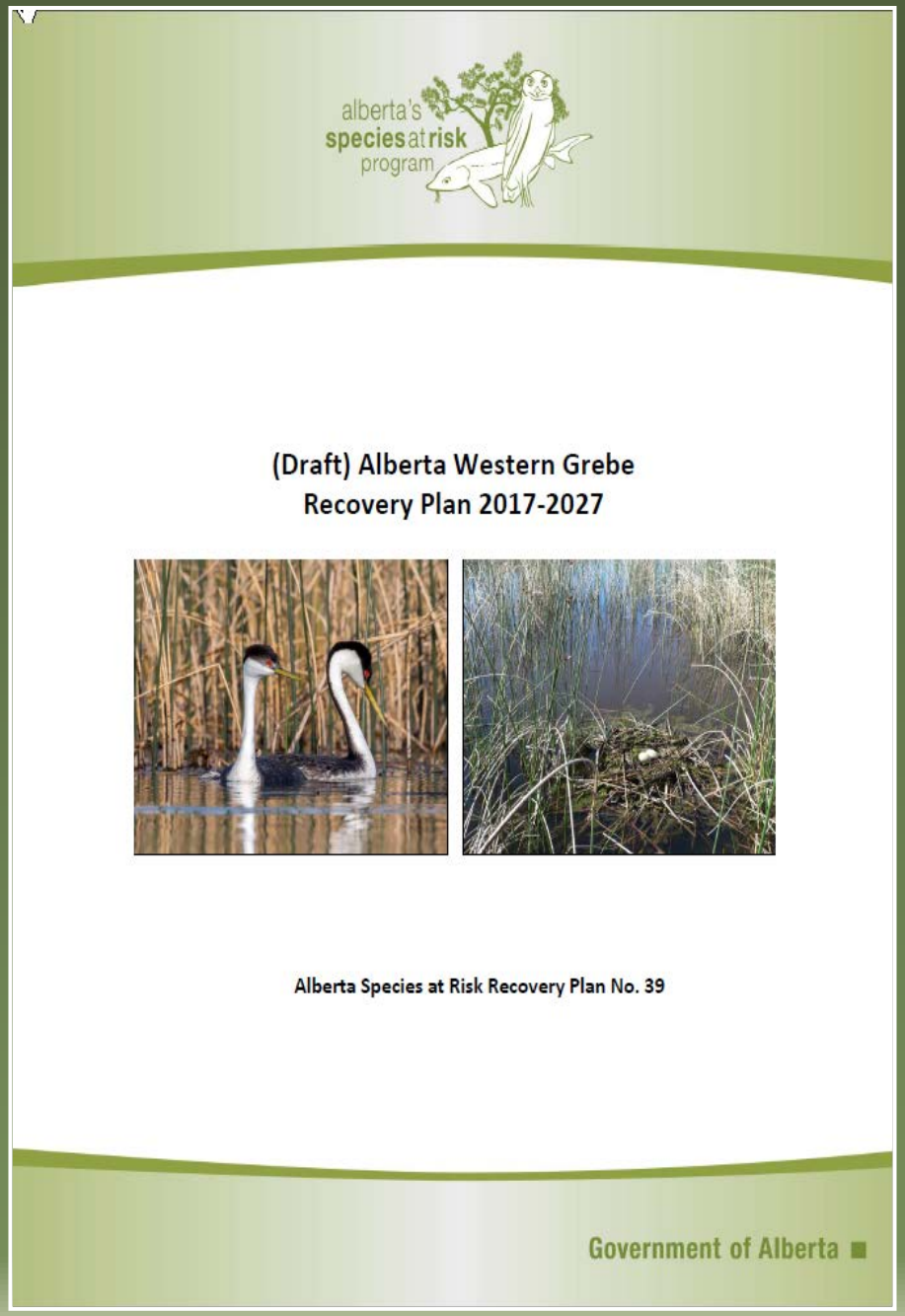
COSEWIC
Committee on the Status of Endangered Wildlife in Canada

COSEPAC
Comité sur la situation des espèces en péril au Canada

2012 Status

- 63 known lakes occupied, 33 with breeding
- 23 occupied since 2001
- Population dropped from 13000 to <10,000 in five years
- 13 of 26 lakes that supported large colonies no longer do so, and no new ones found
- Numerous threats present

Listed as THREATENED April 2014



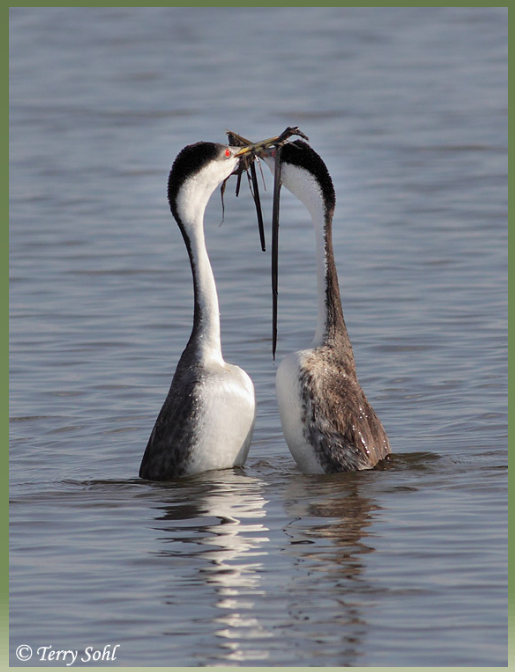
Provincial Recovery Plan drafted and awaiting approval

- FW Biologists Review
- Expert Review
- First Nations Review

- Public Review
- Director's Review
- Endangered Species Conservation Committee
- Minister Approval?

Quantify suitability for occupancy of known grebe lakes in Alberta

- Compilation of existing data, aerial imagery, modelling, field visits and assessments



Protect/improve nesting habitat

- Develop lake-specific management actions and local management groups
- Apply seasonal sanctuary designations to imperiled colonies
- Apply protective notations to current and historical colony locations
- Inclusion in large-scale planning initiatives (e.g. Land Use Framework, watershed plans).
- Review and revise survey/setback guidelines for industry
- Monitor and manage invasive species

Develop/implement standardized survey methods

- Develop survey protocol and monitoring plan for western grebes, and prioritization of lakes
- Conduct province-wide survey every five years to obtain a provincial population estimate
- Survey a subset of major breeding lakes and historical grebe-occupied lakes on an annual basis to monitor populations and colony locations
- Solicit observations from consultants, naturalists, fisherman, resource management staff, etc

Inform lake users, stakeholders, and the public on the conservation of western grebes

- Liaise with education and outreach groups
- Develop and erect signage, other educational products
- Participate in local events, provide talks
- Interact with other jurisdictions and agencies with overlapping responsibility/ interest in western grebes

Increase population size by reducing mortality from anthropogenic sources

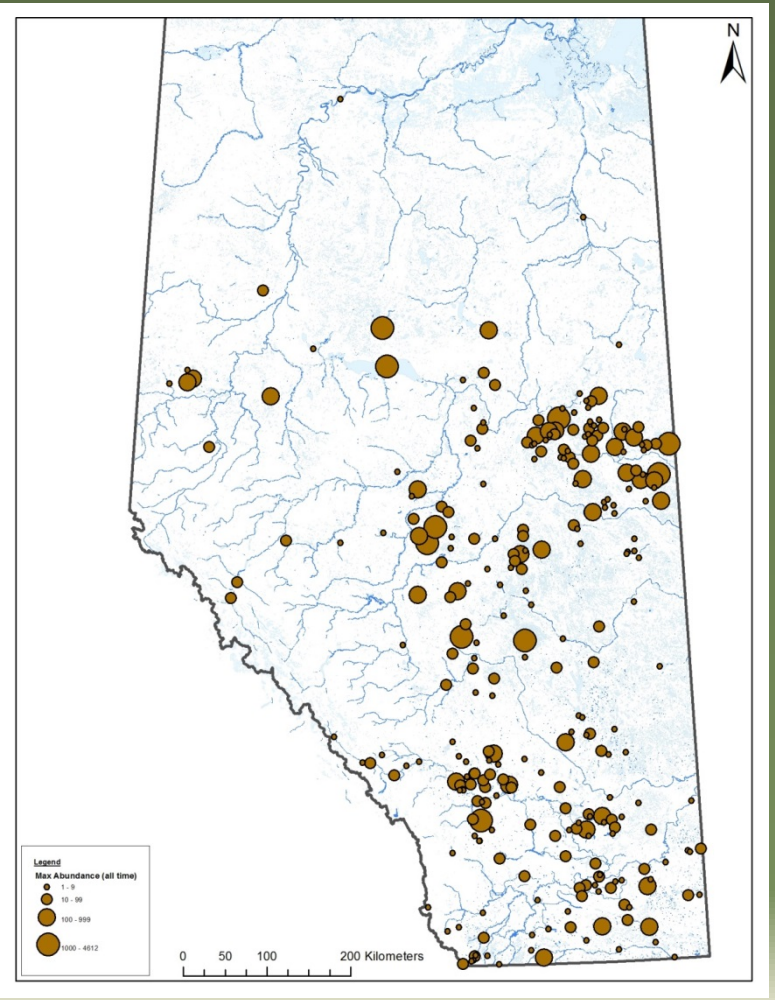
- Request voluntary reporting of incidental mortality from electric utility companies, solar power operators, and Indigenous communities.
- Work with utility companies to mark utility lines near colonies, and consider location of grebes in project planning.
- Support development of wildlife guidelines for industrial solar power projects.
- Liaise with the Alberta Energy Regulator to increase preventative and response measures following oil spills near grebe-inhabited lakes.

Support research to better understand western grebe biology, monitoring and management

- Internal research, graduate students

Updated Data Compilation (to 2016) + Field Work (2015-16)

- # of occupied lakes increased from 63 to 308
- # lakes known to have had major populations (>100) increased from 26 to 35
- # known breeding lakes increase from 33 to 67

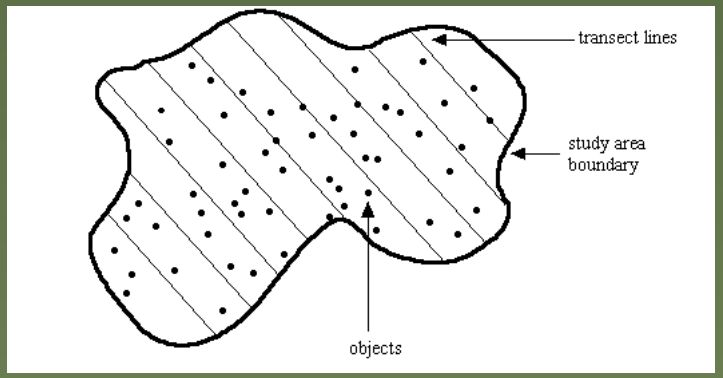


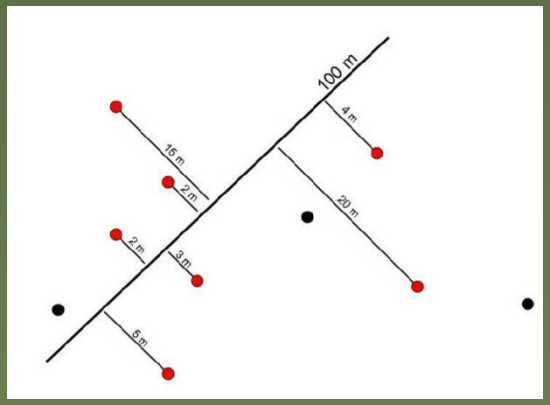
How to Count Western Grebes?

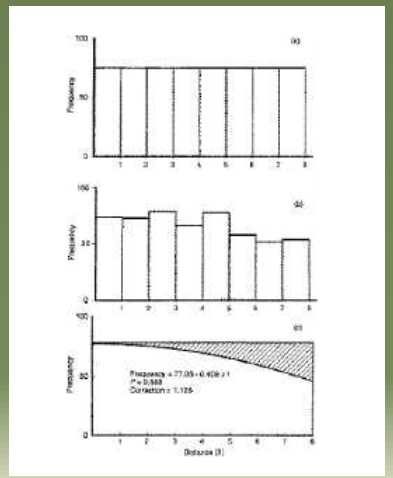
- Shore counts
- Wandering Shoreline Transect
- Counts from aircraft
- Colony counts (x2)
- Wild guesses

Distance Sampling

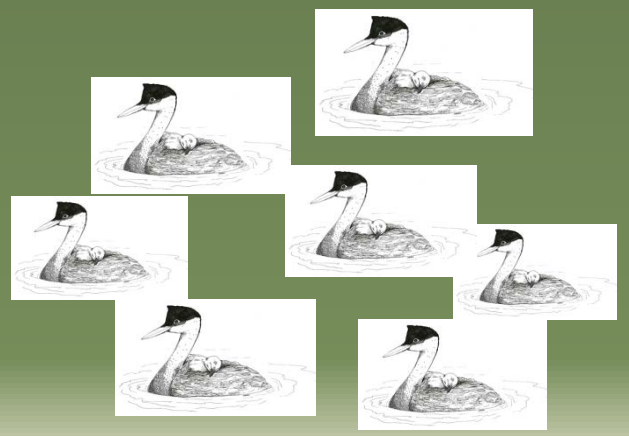
- How to get accurate count when there are many birds over wide area on a lake?





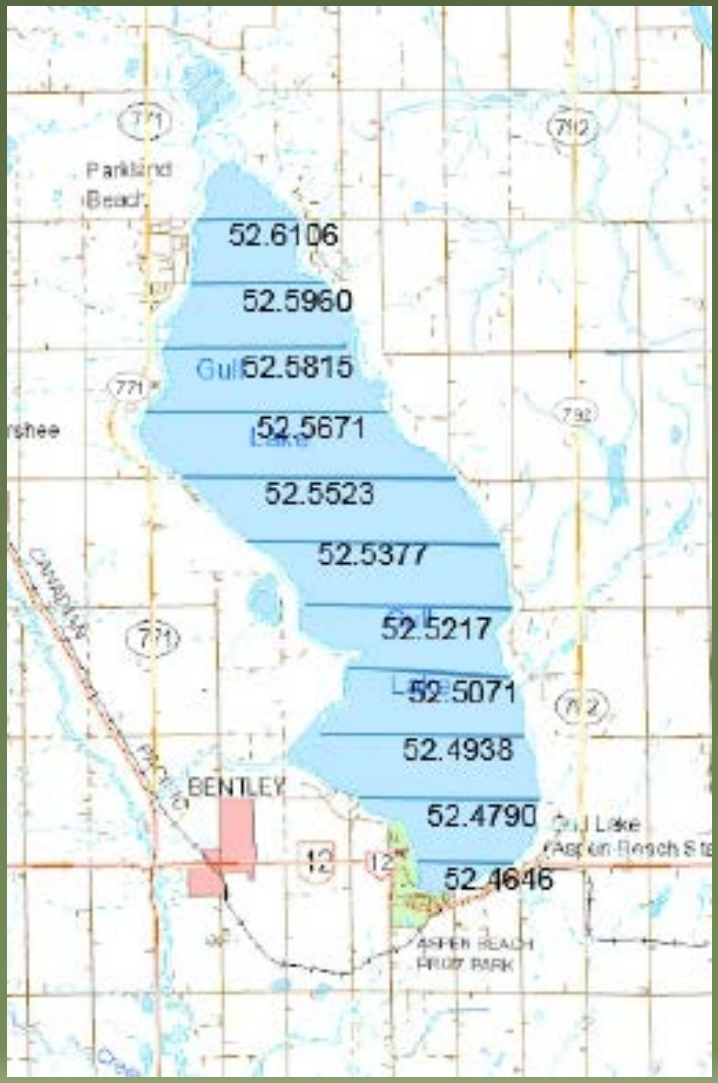


$$\phi_k(w) = \sum_{x=k}^{\infty} x^w f(x) = \frac{p^k w^k (1 - pw)}{1 - w + qp^k w^{k+1}}, \quad |w| \leq 1. \quad (4)$$

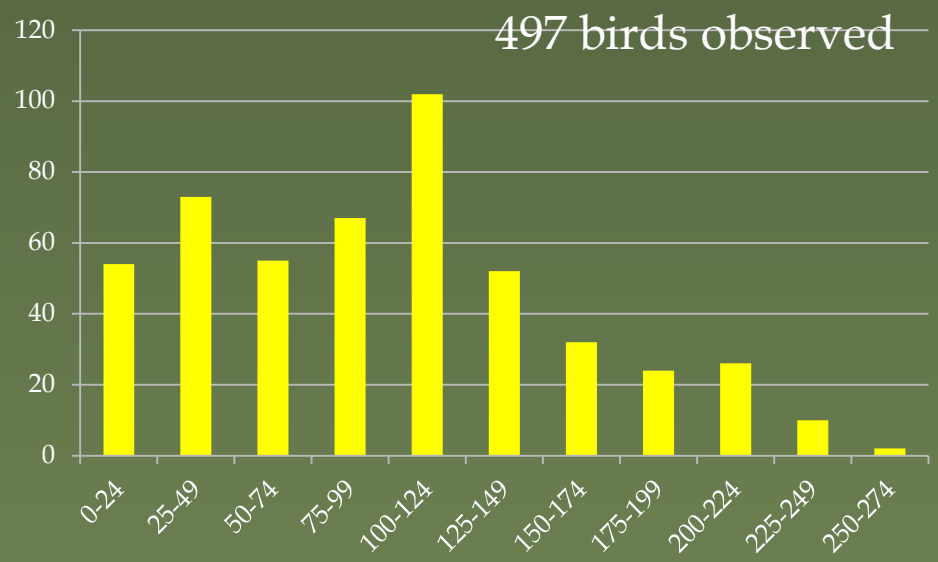


Distance Sampling

Gull Lake 2015

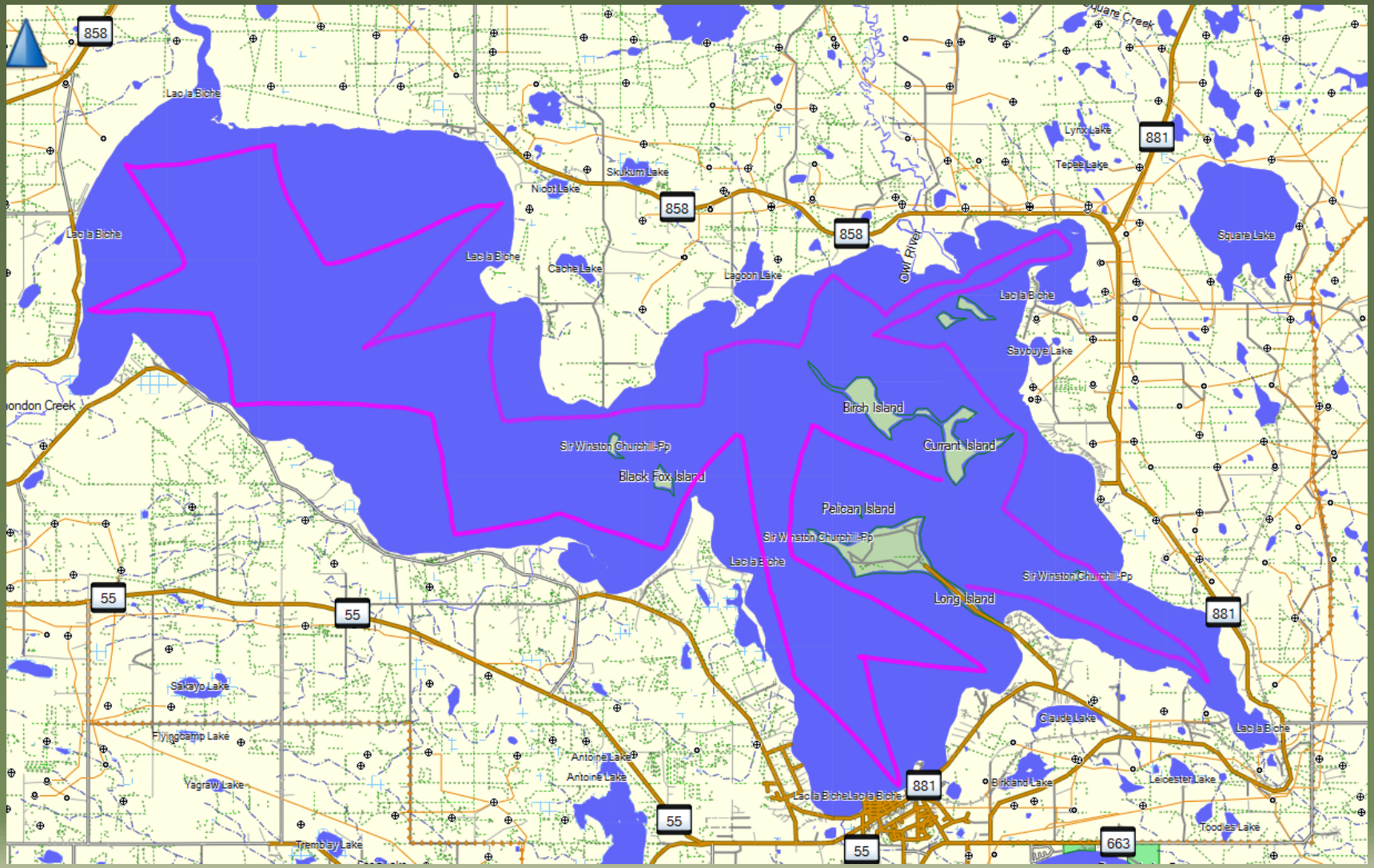


48.47 km, 3.5 hours



2250 ± 600 birds!

Strip Transect Sampling



Western Grebe Counts 2017

LAKE	POPULATION ESTIMATE
Lesser Slave	3778
Cold	3036
Lac la Biche	2663
Buffalo	2263
Moose	1859
Gull	1670
Newell	991
Lac Ste Anne	757
Utikuma	533
Keho	366
Crow Indian	315
Murray	158
Thunder	144
Little Fish	120
Bear	117

Colony Counts with UAVs

Wildlife Sanctuaries

SEASONAL WATERBIRD SANCTUARY

The northwest bay of Lac La Biche contains important habitat for colonial nesting waterbird species including Western Grebe, which are listed as "sensitive" in Alberta. Human activities in and around emergent vegetation where grebes and other birds nest can result in lowered reproductive success, loss of habitat, and a potential decline in local populations.

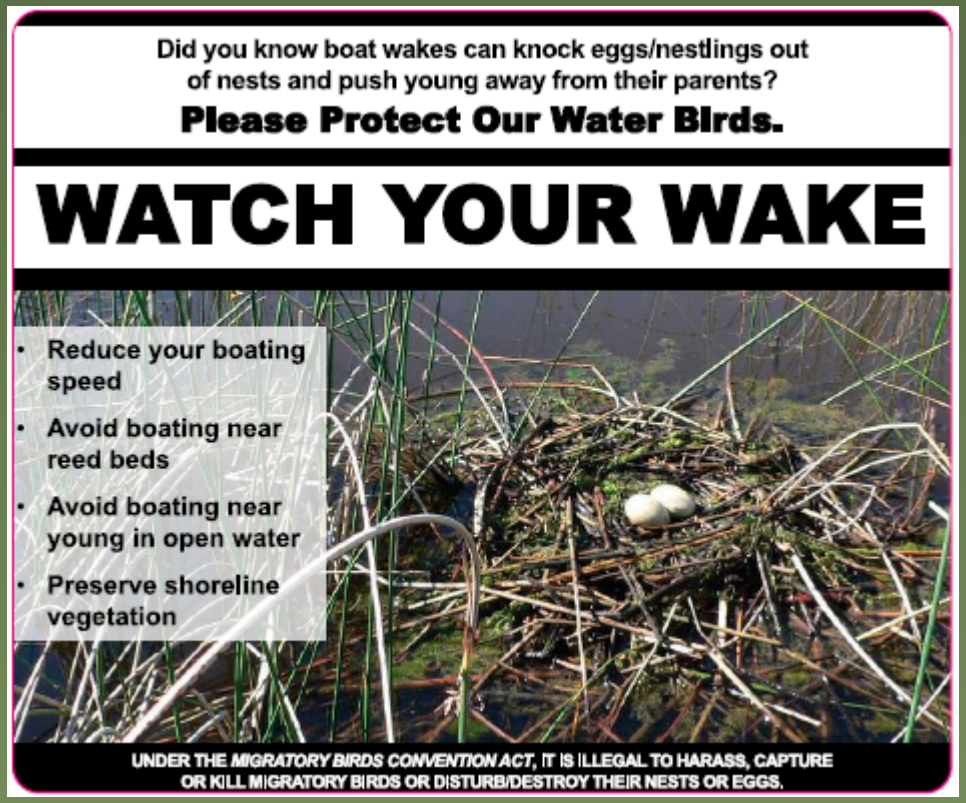
Western Grebe

A seasonal sanctuary is in place to protect waterbird nesting habitat during the breeding season. **From May 1st to August 15th it is illegal to be within the sanctuary boundary depicted in yellow on the photo to the left.** This includes both lands and water.

Staff from Alberta Fish and Wildlife and partner organizations may be seen conducting surveys in the sanctuaries for conservation purposes. For more information, or to report infractions, please contact the Fish and Wildlife office In Lac La Biche (780-623-5247).

Alberta
SUSTAINABLE RESOURCE DEVELOPMENT
Fish & Wildlife

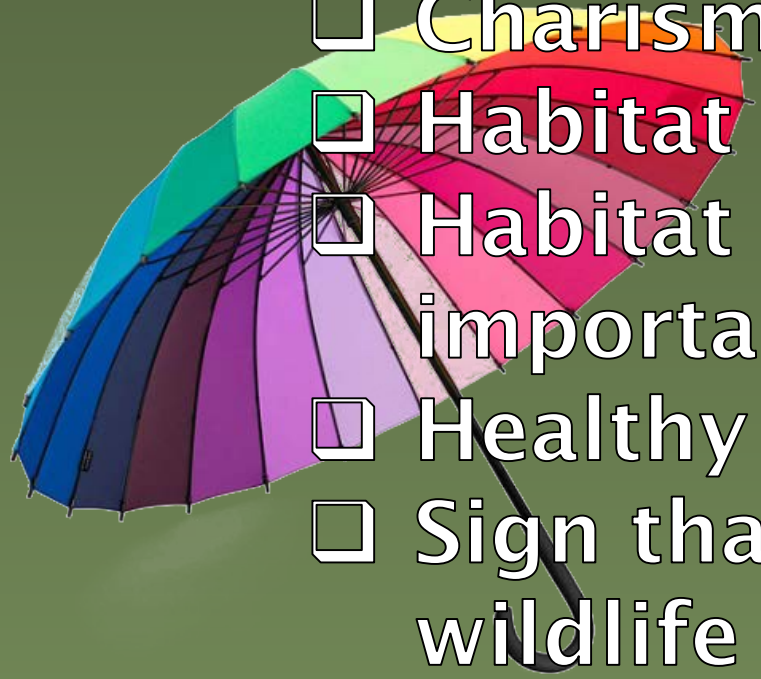
Interpretive Signage



Next Steps

- Finalize recovery plan (status re-assessment?)
- Locate colonies on lakes and monitor position over time
- Quantify threats on each key lake, determine management options and establish local teams if need and opportunity exists
- Determine information/extension needs
- Continue monitoring

Western Grebe as Umbrella Species?



- Charismatic, distinctive
- Habitat for other SAR
- Habitat for commercially important species (fish, ducks)
- Healthy fish populations
- Sign that humans and sensitive wildlife species can coexist if responsible development decisions made

ALMS + Western Grebes?