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AGRICULTURAL CONFLICTS AND SANDHILL CRANES

CWS Research Update – OSCIA Annual Conference
February 5th, 2020



Canada

SANDHILL CRANES IN EASTERN CANADA

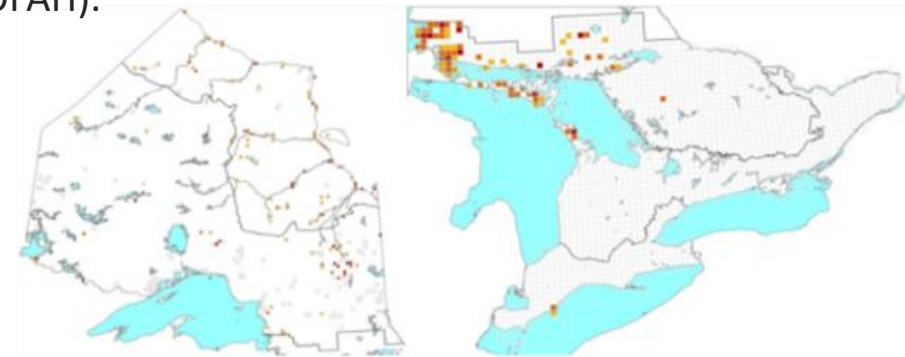
Motivation for focused research in Ontario

- Range expansion and increasing abundance of Eastern Population Sandhill Cranes (SACR) in Ontario and Quebec have resulted in increased conflicts between agricultural producers and Sandhill Cranes.
- SACR can play a significant role in agricultural damage in some areas, often impacting the same farms year after year.
- Requests for hunting season in Ontario to help mitigate conflicts (OFA, OSCIA, OFAH).

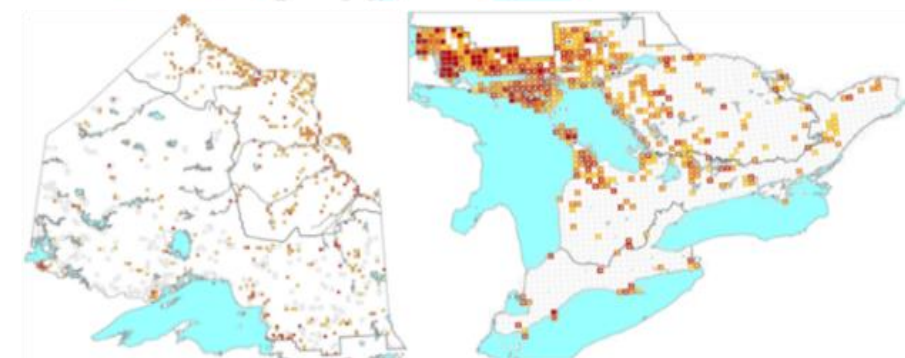
Why research is it needed

- Inform/enhance mitigation strategies and policy related to agricultural conflicts with SACR.
- Enhance understanding of SACR in eastern Canada and improve population monitoring efforts to better inform management decisions.

1st Atlas
(1980s)



2nd Atlas
(2000s)



WHAT WE KNOW SO FAR

- 1) 14,000+ SACR migrating through agricultural areas of central and northern Ontario each year.
- 2) Majority of damage in agricultural areas that on the fringe of the boreal forest.
- 3) Manitoulin/North Shore - corn is most vulnerable post seeding and early emergence. Claybelt - most damage is pre-harvest cereals.
- 4) Potato crops are vulnerable immediately pre-harvest, can result in significant economic losses.
- 5) In Ontario, majority of damage occurs before September 1st in most years.
- 6) Alternative mitigation options can be effective and are being applied elsewhere.

These findings suggest that a hunting season would not be a practical tool to mitigate SACR conflicts in Ontario.

On-Farm Mitigation remains the most effective means of mitigating conflicts.

ON-FARM MITIGATION

Components of On-Farm Mitigation:

- Hazing/scaring without use of firearms/aircraft.
- Damage or Danger Permit – Scaring/killing of SACR damaging crops with firearms/aircraft.
- Modify/enhance farm practices to reduce exposure/severity of conflicts.
- Remove/limit attractants or reduce access to attractants.
- Use of lure crops/fields.
- Non-lethal seed treatments (not currently approved).



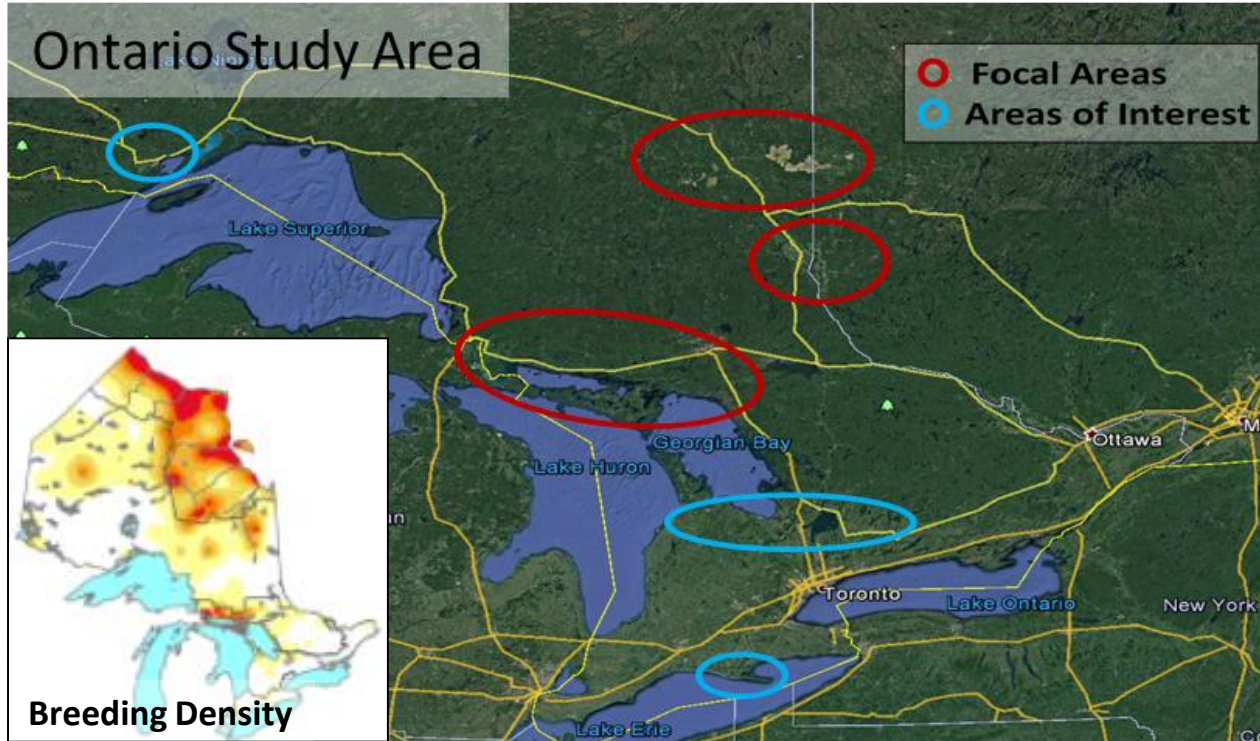
NEW RESEARCH TO INFORM CONFLICT MITIGATION

Objectives:

- 1) Collect fine-scale movement data to quantify habitat use by SACR relative to agricultural land use and the risk of conflicts
 - Identify risk factors for damage – crop type, field location/characteristics, etc.
 - Inform on-farm mitigation strategies – crop selection/placement, deterrents, etc.
- 2) Collect large-scale movement data to determine breeding, staging and wintering affiliations as well as migration phenology and how it relates to areas with conflicts.
 - Timing of movements in relation to vulnerable crops.
 - Origins and status of cranes involved in damage.

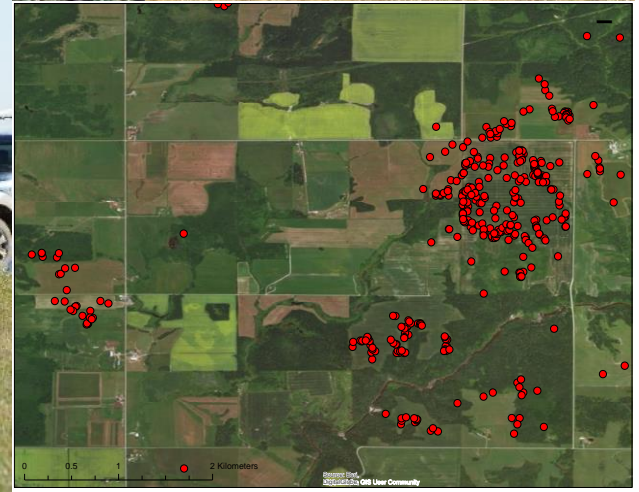


TRANSMITTER STUDY DESIGN

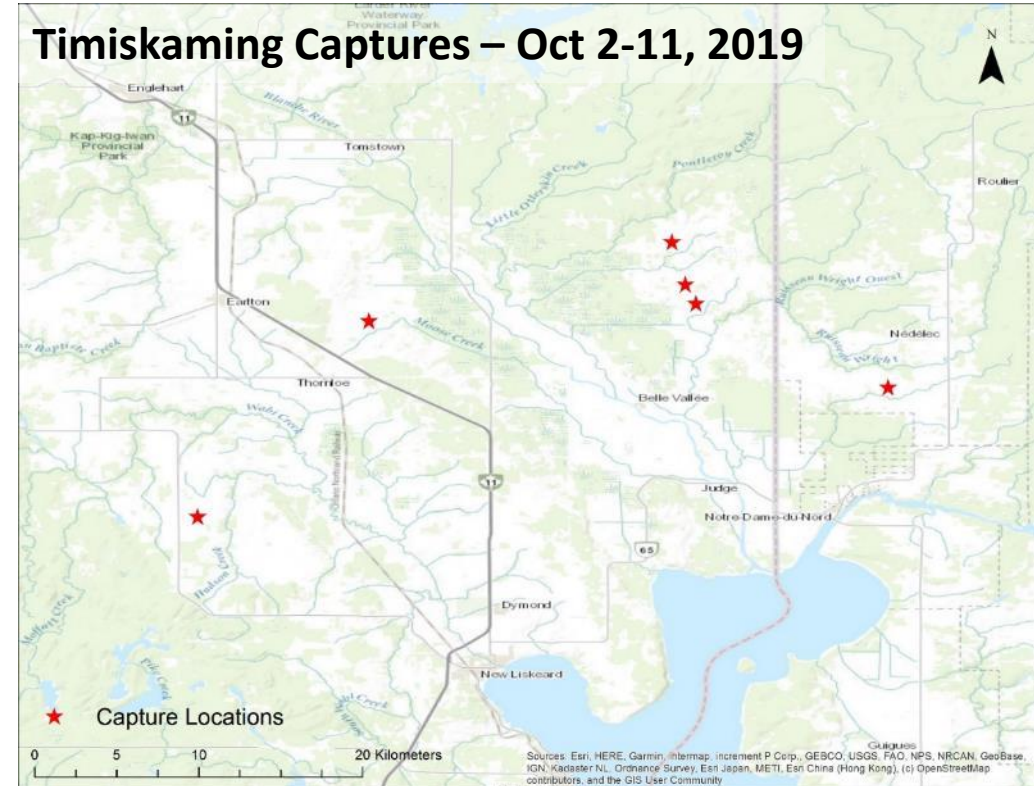
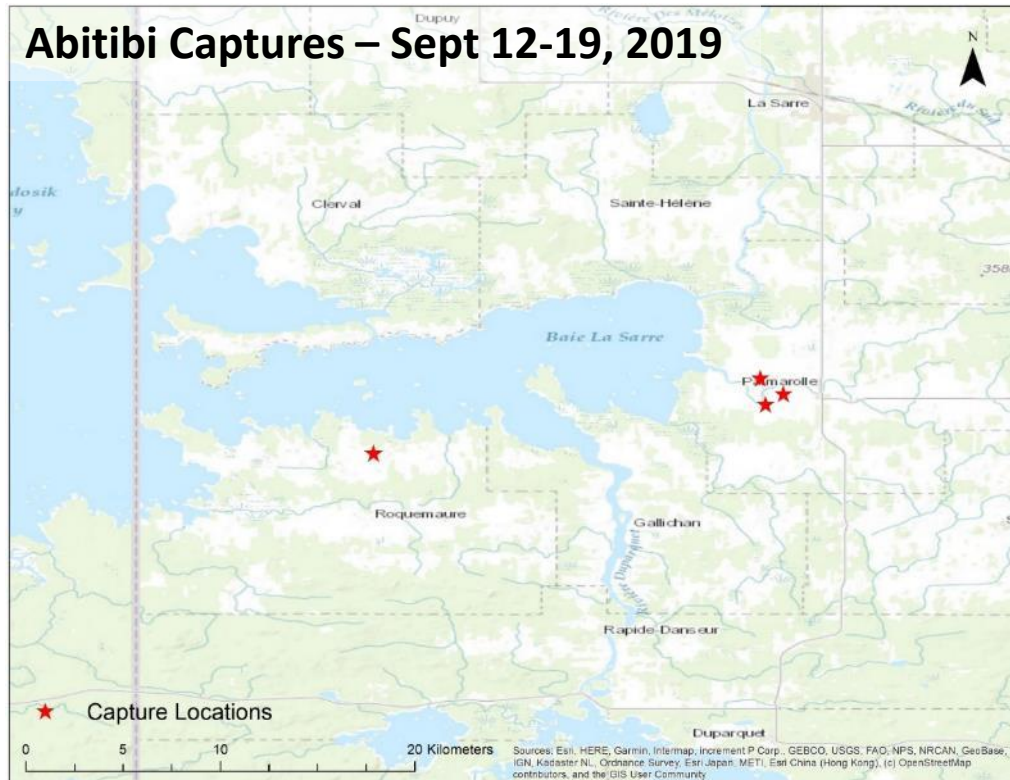


- Lead Organizations: Canadian Wildlife Service (ON, QC and HQ), University of Waterloo.
- ≈80 GPS-GSM transmitters deployed on cranes in agricultural areas over a 3-4 year period.
- Capture using rocket-propelled net in agricultural fields.

METHODS

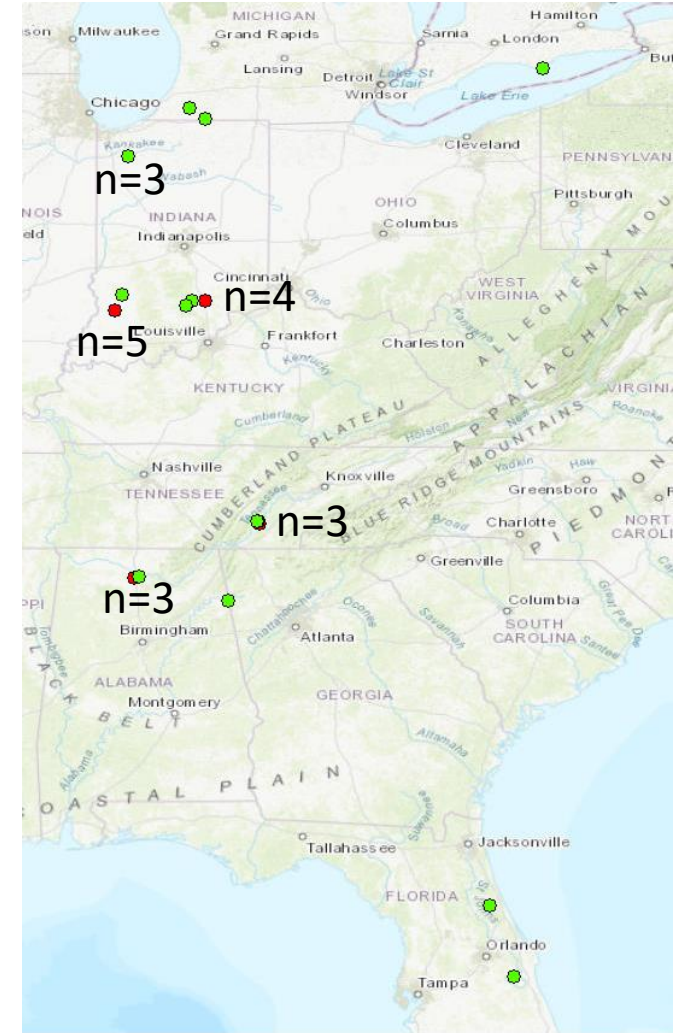
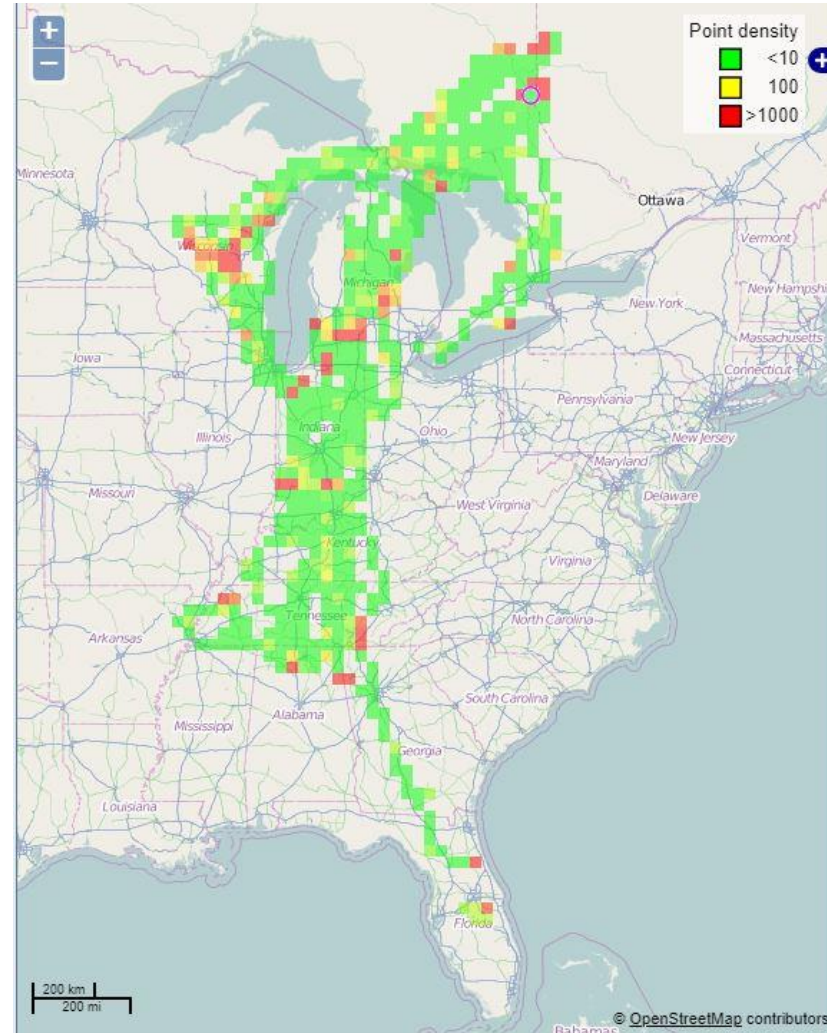


2019 RESULTS



- 2 focal areas in 2019: Abitibi Region (QC), Timiskaming Area (ON & QC)
- ≈70 Cranes captured, 24 Transmitters deployed Abitibi = 10, Timiskaming = 14.

2019 RESULTS



QUESTIONS AT DIFFERENT SCALES



TYPES OF QUESTIONS TO INFORM MITIGATION

- 1) What fields are most vulnerable and why?
- 2) What factors influence where damage is most likely to occur within fields?
- 3) Impact of farm practices on crane movements - are there practices that increase/decrease damage risk?
- 4) What population is involved in conflicts (Who, What, Where, When)?
- 5) Other ideas?

Need a strong partnership with the agricultural community to be successful:

- Access to land to capture cranes.
- Crop information → Crop type, planting/harvest dates, yield/damage information.
- Overall Support - experience/knowledge, agricultural context, financial (OSCIA - \$5K in 2019).

PROJECT INVESTMENT

Investments/commitments so far (January 2020):

- Capital equipment purchasing/training (complete)
- ≈60 transmitters purchased by April 2020 (3 purchased by OSCIA); 24 deployed in 2019.
- Brad Fedy (U of Waterloo) commitment for PhD student and project support (4 year).
- 2019 field expenses – 24 units deployed.
- 1/2 of 2020 projected field expenses.

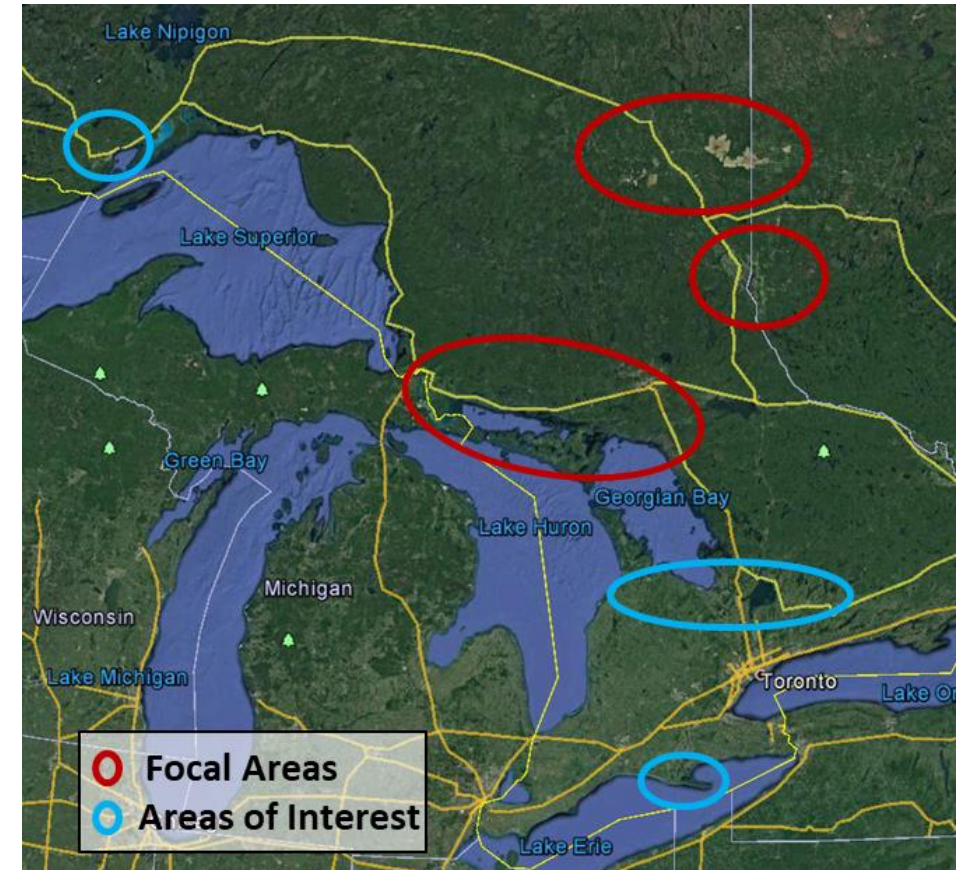
Investments/commitments still required:

- ≈20 additional transmitters.
- Data acquisition costs (\$120 USD/year/unit).
- Remainder of 2020 field expenses; 2021-2022 (TBD) field expenses.
- Analytical expenses (genetics, isotope, etc.).
- PhD student stipend supplement (up to \$8K annually).

Current Partners - Canadian Wildlife Service (ON, QC, HQ); University of Waterloo; USFWS; OSCIA.

NEXT STEPS FOR 2020

- Finalize research questions and study design.
- Data exploration and preliminary analysis of 2019 data.
- Transmitter deployments - Ontario
 - Summer/Fall 2020 - effort similar to 2019.
 - Hwy 17 corridor- Sudbury to Echo Bay (≈ 22 units).
 - Hwy 11 corridor (tentative) - Matheson to Kapuskasing (≈ 8 units).
- Other potential deployment areas in Ontario:
 - Southern Ontario – Kawartha Lakes, Minesing area, Long Point
 - Some interest in Thunder Bay and Emo/Fort Francis areas.



ACKNOWLEDGEMENTS

- 2019 Crane Crews
- CWS – Christine Lepage, Christian Roy, Brigitte Collins, François Bolduc, Shawn Meyer, Barb Campbell.
- U of Waterloo - Kelly McLean & Dr. Brad Fedy
- USFWS - Dave Fronczak
- OSCIA - Andy Graham
- Numerous producers in ON & QC that have provided access and insight.



QUESTIONS???

