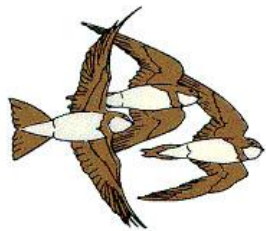
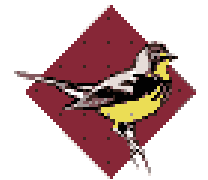




# Bank Swallow colonies on Lake Erie



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Bird Studies Canada



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# Bank Swallows (*Riparia riparia*)

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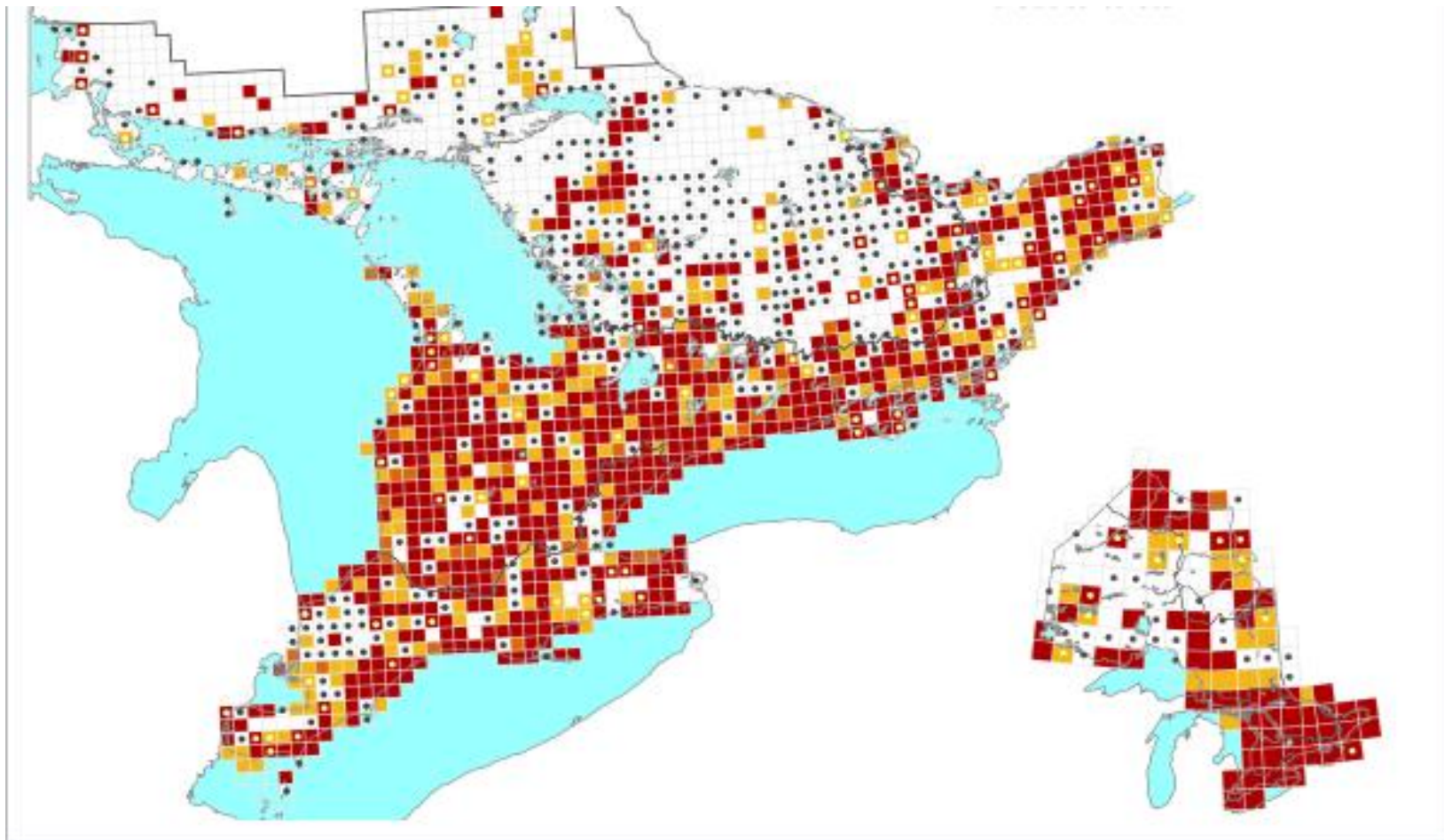
- Aerial insectivore
- Colonial
- Varied nesting habitat (lakes, rivers, streams, soil piles, sand/gravel quarries)
- Population declines





# Decline of Bank Swallows

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# Objectives

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- Determine population size, distribution and density of breeding birds along a section of Lake Erie shoreline
- Determine habitat characteristics important in habitat selection, colony size and burrow occupancy levels



# Study Area

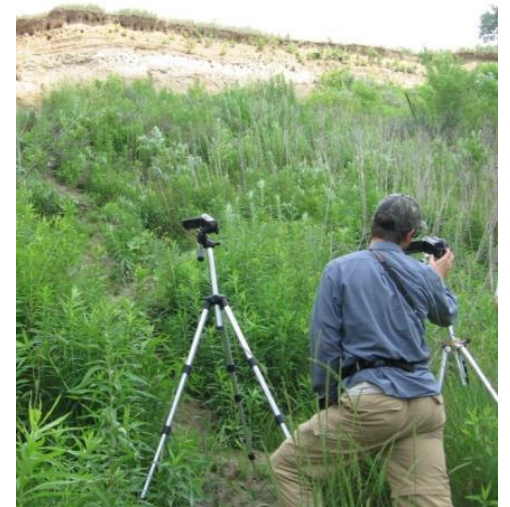
- 120 km of shoreline (Rondeau to Turkey Point)



# Field Methods

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- Survey shoreline by boat
- Colony/Burrow counting
- Selected used (n=33)  
and unused banks (n=33)
- Measured bank  
characteristics
- Determined burrow  
occupancy



# Habitat variables

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- Reduced variables –
  - bank height
  - beach width
  - tree cover (above bank)
  - shrub cover (talus)



# Results – burrow counts

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- 127, 533 burrows from 569 colonies
  - Repeated counts varied by 1.6% on average
  - 93% of burrows situated in upper bluff
  - 7% of burrows situated in lower bluff
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# Upper bluff colonies

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# Lower bluff colonies – sand lenses



# Burrow occupancy

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- 51.1% (95% C.I., 44.4%, 57.8%)
- Error rate (Predicted false negatives) 14.4%
- 65.5% (127,355 burrows)  
= 83,417 active nests



# Distribution and density

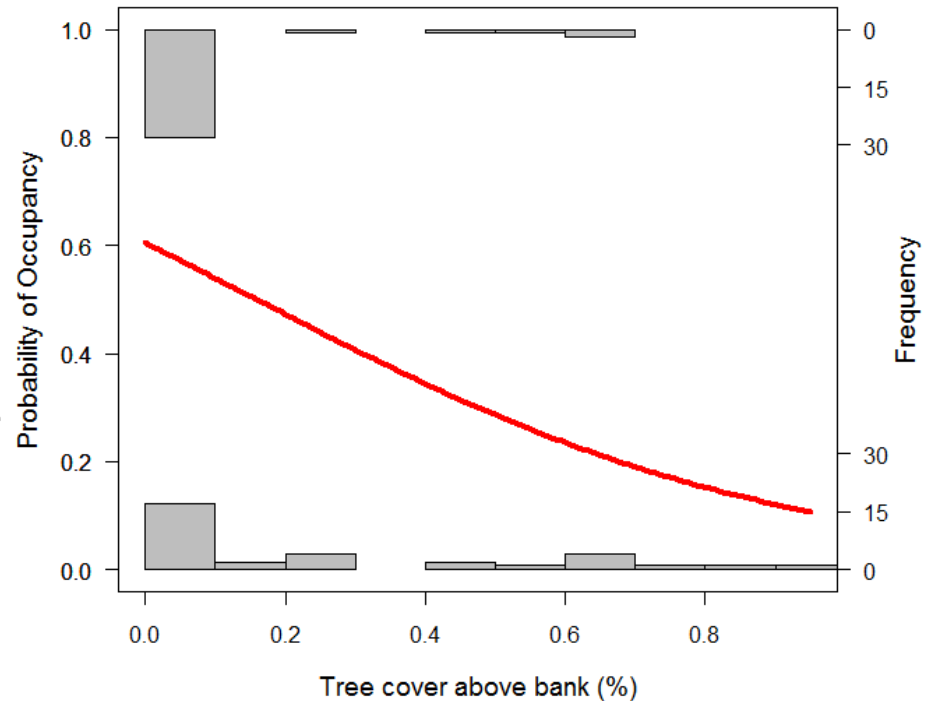


# Surface Geology



# Habitat selection

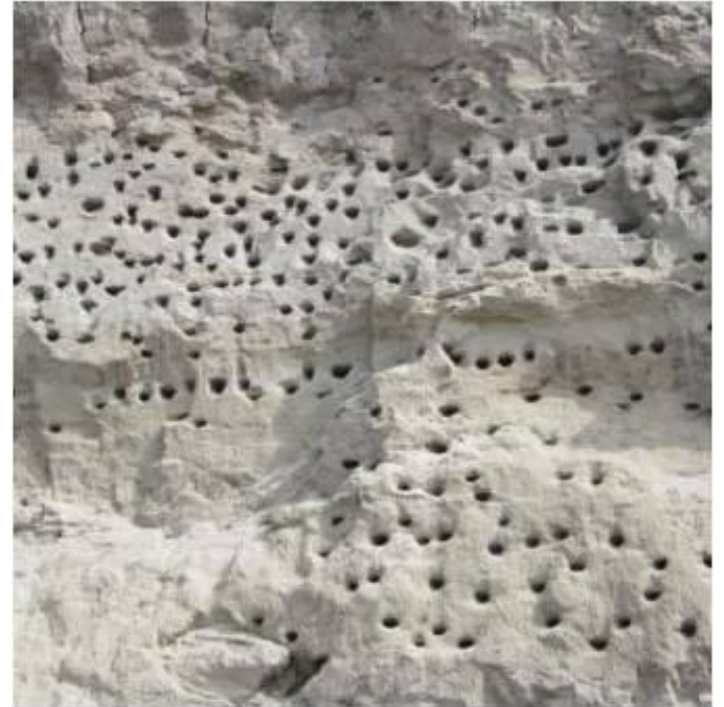
- Tree Cover (%) at bank edge
- 2.6% decrease in odds of a site being occupied given every 1% increase in tree cover



# Colony size – burrow abundance

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- Bank height
- For each 1 metre increase in bank height, colony size increased by 26%



# Burrow occupancy

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- Beach width
- For each 1 m increase in beach width, burrow occupancy levels increase by 6.7%



# Population significance

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- Lake Erie Bank Swallow population is likely the largest concentration of breeding Bank Swallows in the world
- Important habitat – upper sand layer in bluffs – sand plain



# Limitations / Future work

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- Unmeasured variables (e.g. Erosion, soil types)
    - e.g., interacting variables depending on site
  - Lack knowledge of
    - temporal changes in abundance, density, distribution
    - large scale patterns in habitat selection
    - small scale population dynamics
  - Sand and gravel pits – artificial habitats
  - Roadkill mortality
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# Acknowledgements

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