

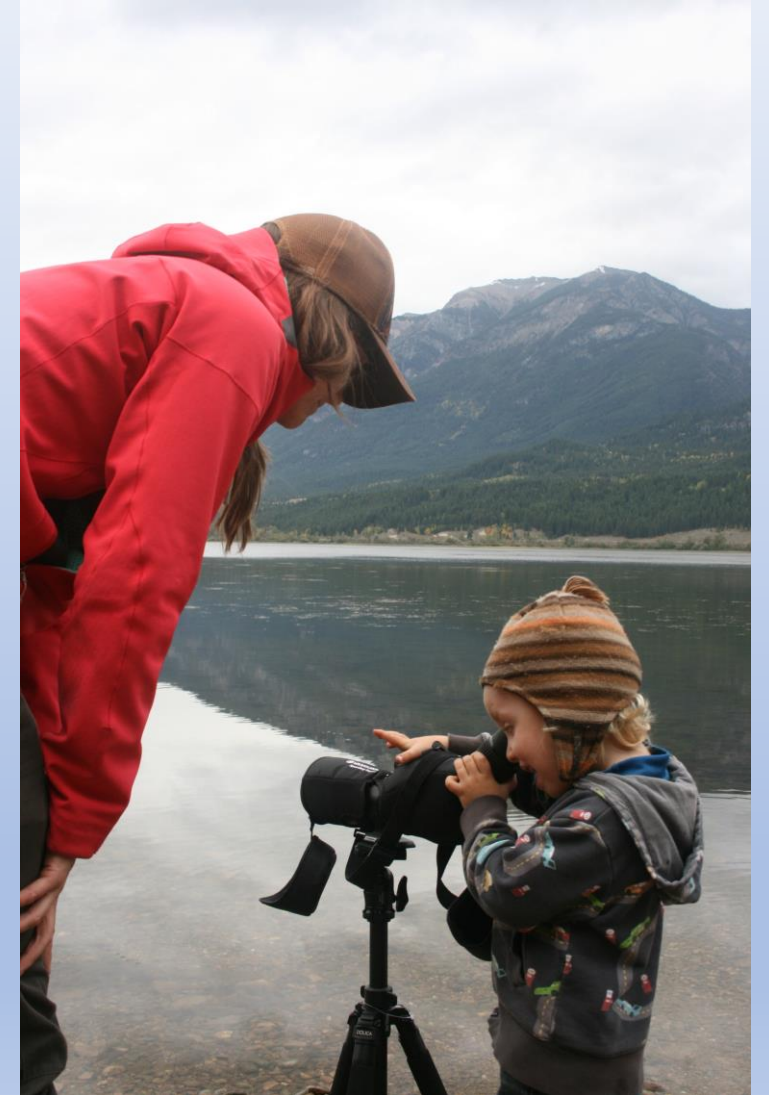
Upper Columbia Swallow Habitat Enhancement Project (2021-2026)



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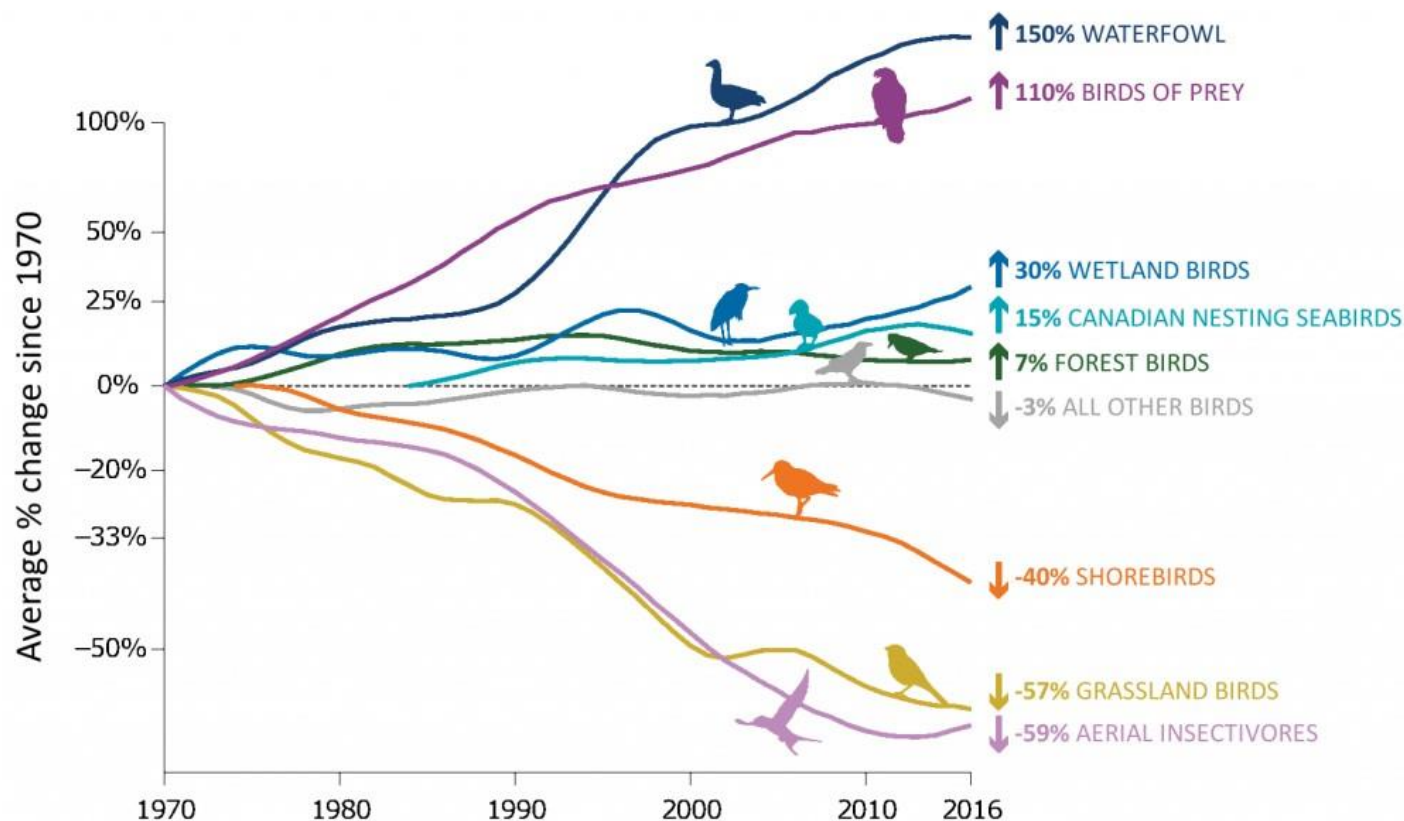
Why Bother With Birds?

- Birds are important!
 - Ecosystem function and services
 - Intrinsic value
- Human interactions with birds – one of the most readily recognized wildlife interactions that most humans experience regularly, linked with benefits to psychological well-being and a sense of connectedness to nature.
- Observing birds can lead to a greater conservation ethic, increased sustainable behaviors.
- Bird values provides rationale for the continued study and conservation of birds.



Birds are in Trouble

- 2.9 billion birds gone in Canada and U.S. since 1970.
- Birdlife International's (2022) State of the World's Birds report: 49% of bird species worldwide have decreasing populations.
- Declines not restricted to rare and threatened species – common species also declining.
- Aerial insectivores facing steepest population declines of any group of birds in Canada.
- Alarming trends call for immediate action, e.g., retaining/restoring habitats and conservation action.



Upper Columbia Swallow Habitat Enhancement Project

- a) Provide volunteer opportunities
- b) Enhancing Barn and Bank Swallow habitat
- c) Outreach and awareness
- d) Provide unprecedented information on the timing and locations of Bank Swallow movements using the Motus Wildlife Tracking System (ECCC CWS).



Barn Swallow

- ID - cobalt blue above on back, wings, and tail; rufous below, long/deeply forked tail.
- Slightly smaller than a bluebird; slightly larger than a Tree Swallow.
- Most abundant and widely distributed swallow species in the world.
- Feed on the wing. Snagging insects with quick wingbeats. 1 individual eats up to 850 insects/day!
- Build their mud nests almost exclusively on human-made structures.
- Commonly reuse nests.



Barn Swallow – status & threats

- Population decline of 76% in Canada in a forty-year period (COSEWIC, 2011); they are blue-listed in B.C. and Threatened on Schedule 1 of SARA (2017).
- Declines not well understood.
- Crash in insect populations. Like other aerial insectivores, BARS has experienced very large declines that began somewhat inexplicably in the mid- to late 1980s in Canada.
- Losses in the amount of some important types of artificial nest sites (e.g., open barns) and in the amount of foraging habitat in open agricultural land.



Bank Swallow



- A warm brown swallow with white underparts & throat, with dark back & thick brown breastband. The head is brown. Underwings are dark.
- They nest in sandy cliffs/gravel or sand piles at construction sites and freight yards (often destroyed).
- Dig the burrows using their feet, wings, and bill.
- Breeding habitat is limiting.
- Very specific breeding conditions, low-elevation (<900m), large near-vertical banks, friable soils exposed to erosional forces.
- Burrows can be 25cm-180cm long!



Bank Swallow – status and threats

- 93%-98% population loss in Canada.
- Threatened species in Schedule 1 of the SARA in 2017.
- Reasons for the significant population decline are not well understood.
- Rationale for declines, cumulative: loss of breeding, foraging and winter habitat, collision with vehicles, widespread pesticide use, population decline of aerial insects, climate change and destruction of nest sites during mining excavation.
- Recovery Strategy released May 2022, includes Critical Habitat.



Citizen-science

- Major coordination/data recording efforts
- BANS 3x/season. BARS weekly monitoring.
- In 2021, 67 volunteers monitored:
 - 55 BANS colonies.
 - 345 BARS nests at 71 structures.
- In 2022, 70 volunteers monitored:
 - 67 BANS colonies
 - 385 BARS nests at 79 structures (including 4 ANS).
- >20 training sessions.
- Effectiveness monitoring.



Bank Swallow Colony Record Form
Please complete one form for each Bank Swallow colony

Observer Details:

Colony ID (Office use only): _____

Name: _____ Phone number: _____ Email address: _____

UTM (NAD83): _____ Zone: _____

Visit Details:

| Visit # | Date (dd-mm-yy) | Start Time /End Time | No birds (check box) | Breeding Evidence | Number of pairs/active nests | Total nests observed | Comments (e.g. bank collapse, predators, # of burrows monitored/occupancy of burrows monitored, location of active burrows within colony) | Duration of survey |
|---------|-----------------|----------------------|--------------------------|-------------------|------------------------------|----------------------|---|--------------------|
| 1 | _____ | _____ | <input type="checkbox"/> | _____ | _____ | _____ | _____ | _____ |
| 2 | _____ | _____ | <input type="checkbox"/> | _____ | _____ | _____ | _____ | _____ |
| 3 | _____ | _____ | <input type="checkbox"/> | _____ | _____ | _____ | _____ | _____ |
| 4 | _____ | _____ | <input type="checkbox"/> | _____ | _____ | _____ | _____ | _____ |

Site and Habitat Details:

Colony history: has this site been used in previous years?
 Yes ☐ No ☐ Don't know ☐ If YES, then for how long? _____ YRS

Photo of colony site (check box) ☐

Distance and direction to next nearest active colony, if known: _____

Description of how site was accessed, land ownership, etc.: _____

Colony Habitat Type (check only one box below):

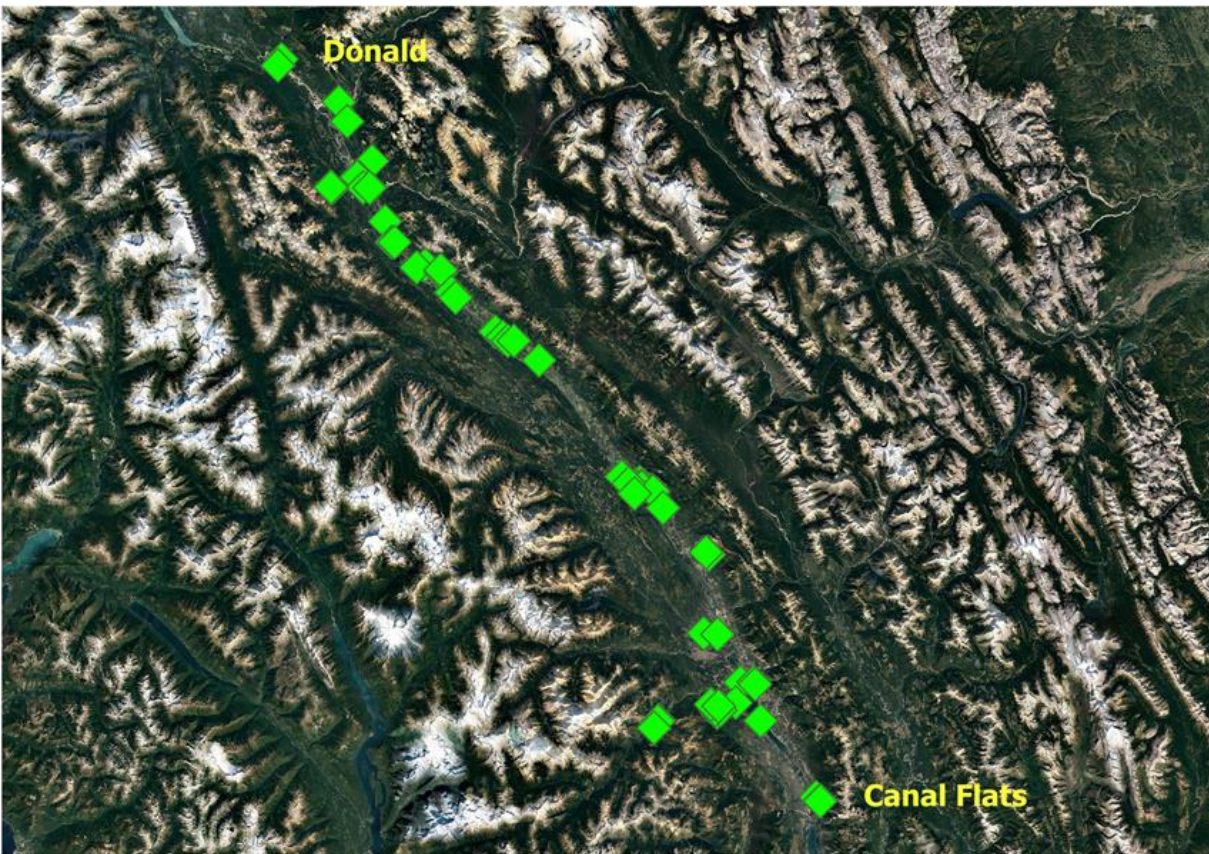
| Natural | Human-made |
|--|---|
| <input type="checkbox"/> Lakeshore Bluff | <input type="checkbox"/> Gravel pit |
| <input type="checkbox"/> River (> 3 m wide) | <input type="checkbox"/> Sand pit |
| <input type="checkbox"/> Stream (< 3 m wide) | <input type="checkbox"/> Road cut |
| <input type="checkbox"/> Pond | <input type="checkbox"/> Soil pile |
| <input type="checkbox"/> Other (list below) | <input type="checkbox"/> Other (list below) |

Description of habitat used by foraging adults (optional): _____

Check up to 3 boxes representing the dominant habitat(s) within a 200 m radius surrounding the colony

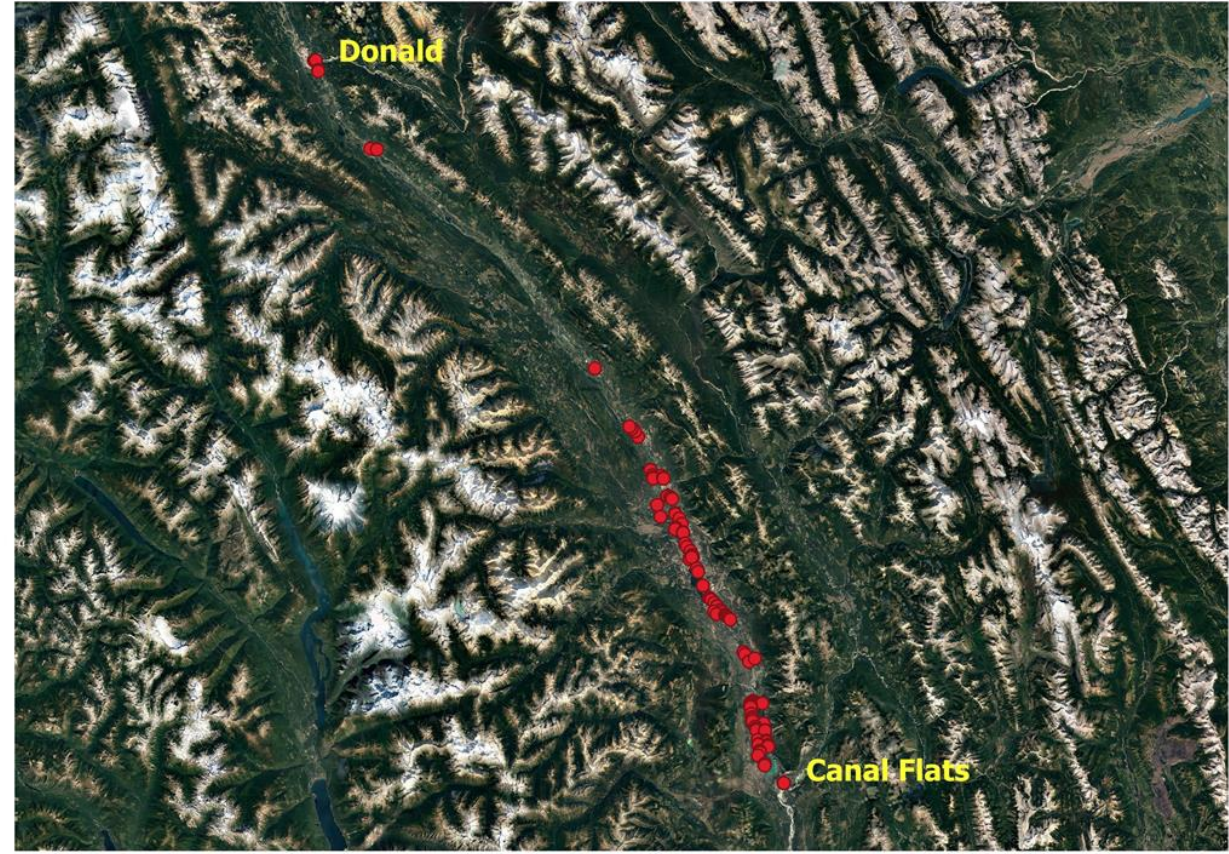
| | | |
|------------|--|--|
| Forested | <input type="checkbox"/> Young, successional | <input type="checkbox"/> Mature |
| Open - Dry | <input type="checkbox"/> Grassland | <input type="checkbox"/> Hayfield |
| | <input type="checkbox"/> Shrubland | <input type="checkbox"/> Pasture / grazing land |
| | <input type="checkbox"/> Cropland | <input type="checkbox"/> Abandoned cropland / fallow field |
| Open - Wet | <input type="checkbox"/> Marsh | <input type="checkbox"/> Fen |
| | <input type="checkbox"/> Bog | |
| Human-made | <input type="checkbox"/> Industrial | <input type="checkbox"/> Railway bank cut |
| | <input type="checkbox"/> Agricultural | <input type="checkbox"/> Road bank cut |
| | <input type="checkbox"/> Residential | <input type="checkbox"/> Commercial |
| Other | <input type="checkbox"/> _____ | <input type="checkbox"/> _____ |

Barn Swallow nest distribution



47 nest locations. Nests on 89 structures.

Bank Swallow nest distribution



114 BANS colonies confirmed active.

Landowner and Public Outreach

In 2022:

- 18 landowner visits
- 8 additional private landowners contacted re land access
- co-existence encouraged (messy nests).
- 3 event tables
- interpretive walk - 12 participants
- field trip to an ANS in Golden – 7 participants
- webinar– 38 participants.
- swallow conservation brochure
- trained LWA staff on how to complete effectiveness monitoring at the restoration site at Windermere Lake Provincial Park.
- Interviews and short video's produced.



Artificial nesting structures

- No national standard for compensation.
- Expand habitat availability for Barn Swallows.
- Testing 3 parameters (size, roof type, openness). 4 designs.
- Also monitoring temp under roof with and without insulation.
- Presence of old nests indicates a higher quality territory; seeding with mud nests when possible.
- Can involve landowner agreements, permits, Indigenous consultation, etc.
- In places where known nesting structures will be taken down and where nests are known to exist – increases habitat availability.
- 5 ANS – one used by BARS.
- Prospect for nests sites previous year.



Nest cups

~70 barn swallow nest cups installed on ANS + on pre-existing buildings to make them more suitable for breeding BARS.



Thank you to the Lake Windermere District Rod & Gun Club for making us nest cups!



Barn roof enhancement

- several nest sites
- provided 13% funding for roof replacement
- weekly monitoring 2023-2025



Vegetation removal

- At Bank Swallow colony
- Open flight path
- Donated services for vegetation removal, on private land.



Windermere Lake Provincial Park (before)

- Negative impacts to colony. Trail leading through colony, sticks jammed in burrows, slumped slope, walking trail, invasive species, etc.



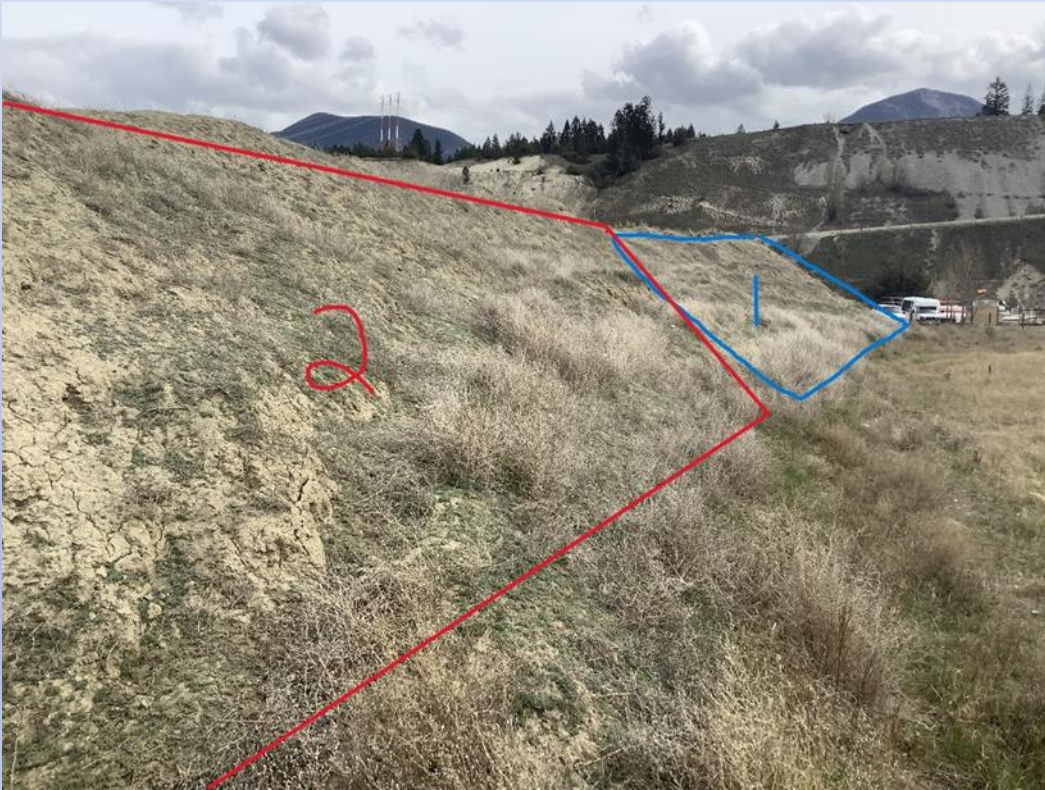
Windermere Lake Provincial Park (after)

- removed trail leading through colony
- resloped slumped area of colony, ropes and interpretive signage at colony.
- LWA assisting with effectiveness monitoring.
- Motus station



Athalmer Neighborhood

- Bank Swallow habitat enhancement with District of Invermere
- enhancing slopes to become suitable nesting habitat for Bank Swallows
- Fencing and interpretive signage



Parson Air B&B

- Partnership with Wildlife Conservation Society.
- Innovative structure to satisfy habitat requirements for both Birds (swallows) and bats.
- Nearby: bat roost eviction, largest CLSW colony, deteriorating building with CLSW and BARS nests.



- incorporated Indigenous perspective (Ktunaxa Nation and Shuswap Band)

Habitat Enhancement for At-risk Swallows

Upper Columbia Swallow Habitat Enhancement Project

Populations of avian aerial insectivores (birds that catch and eat insects on the wing) have been declining for decades. Swallow species provide immense (and natural) mosquito control. Through the Upper Columbia Swallow Habitat Enhancement Project (UCSHEP), over 110 Bank Swallow colonies and 75 barn swallow nest sites were located in the region. Bank Swallows are facing one of the fastest population declines for a species in Canada - an estimated 93-98% population loss in Canada over a 40 year period. Barn Swallows have had an overall population decline of 76% in Canada in a 40 year period.

UCSHEP implemented conservation actions from 2021-2026 to help halt and reverse this trend. As a critical component of recovery efforts, the UCSHEP erected several large barn swallow nesting structures and installed wadon nest cups to enhance previously standing structures making them more attractive as breeding habitat. Additional enhancement and restoration efforts have occurred for Bank Swallows. To learn more about their large and small-scale movements, tracking Bank Swallows occurred using the Motus Wildlife Tracking Network.

Recent estimates state that 2.9 billion birds of various species have disappeared in Canada and the U.S. since 1970. Even once common birds like swallows are facing significant population declines. You can help reverse this decline!

How can you help birds?

- Make windows obvious to reduce bird collisions - various window treatments are available.
- Keep outdoor lights off during migration - lights can disorient birds.
- Leave barn swallow nests intact year round - they often re-use them in subsequent years.
- Do not remove trees during the nesting season.
- Keep your cats indoors.
- Volunteer on a bird conservation initiative in your area.



This restoration/enhancement area is located on the traditional and
unceded territory of the Secwépemc (Shuswap Band), the
ancestral peoples who have lived here since time immemorial.

Barn and Bank Swallows have always represented the coming of soepts (spring) for the Shuswap people. Because they are spyu7 (birds) that migrate south for the s7istk (winter), their songs are a welcome of spring and end to winter. They are known for reducing the Qweniemqll (mosquito) population along with other Pepip7ese (insects). Barn swallows are very skilled at making c7u7seten (nests) using mud pellets to build up the walls. The large open area and the abundance of mosquitos make our wetlands a perfect habitat for swallows.

Other Wetland Wildlife:

- | | |
|---------------------------|---------------|
| -Great Blue Heron Tóllpe7 | -Trout Pisell |
| -Bald Eagle Spelqweqs | -Elk Tnic si |
| -Badger 'Sixleqs | -Deer Ts'í7 |
| -Beaver Sqlu7úwí | -Bear Swieqs |
| -Muskrat Skelécwe7 | -Coyote Sklep |
| -Kingfisher Ts'las | -Otter Lehéts |



The Ktunaxa people have been in this area since Naṭmugḡin fulfilled his prophecy and placed the Ktunaxa people in this area to be the keepers of the land. At that time there was some disturbance caused by a huge water monster known as Yawuʔniḡ, who killed many of the animals. It was decided that Yawuʔniḡ had to be destroyed. A war party was formed. Yawuʔniḡ pled wu-ʔaqṣṣmakniḡ ʔakiniṣituk (Kootenay) and Miḡqaaqas (Columbia) River System. When Yawuʔniḡ was killed, and butchered and distributed among the animals, Yawuʔniḡ's ribs were scattered throughout the region that now form the Hoodoos seen throughout the region.

When the prophecy was fulfilled the spirit animals ascended above and are now the guiding spirits of the Ktunaxa. In all the excitement Nafmuqin rose to his feet and stood upright hitting his head on the ceiling of the sky. He knocked himself dead. His feet went northward and is today known as Ya-kliki, in the Yellowhead Pass vicinity. Nafmuqin's head is near Yellowstone Park in the State of Montana. His body forms the Rocky Mountains. <http://www.ktunaxa.org/who-we-are/creation-story/>

The Ktunaxa knew two types of swallows that came into our area every year, the barn swallow and the cliff swallow. The Ktunaxa found that the swallow either builds nests or burrows in cliffs depending on where you are on the land. In ʔamakʔis Ktunaxa young Ktunaxa boys would know when the swallow was expected to return in ʔamakʔis Ktunaxa. The boys would tie a thin snare of thread attached to a button to a feather, wet the thread and throw the feather up into the air as a parachute that would attract the swallow. The swallow would be attracted to the feather because that is what they use to build their nests. The swallow would become snared in the wet thread and button. It was a catch and release game. It was not only fun, but a skill that demonstrated awareness of habitat and physics.

The Ktunaxa also know that if you follow a swallow, it will lead you to water and it was also said that if a swallow builds their nest on your house, the house would not burn from fire that year.



The Indigenous swallow interpretations are provided by the Secwépemc and Ktunaxa Nations.
Additional content, size design, and photos by M. David.

WANTED

Volunteers to Monitor Bank and Barn Swallow nesting locations

**OR do you know where
these species are nesting?
Do you have barn swallow
nests on your land?
If so, we want to hear from
you!**

You might be interested in attending one of our information and training sessions. On May 30th (4 pm-5:30 pm) at Columbia Lake (near Fairmont), and on June 7th (12 pm-1:30 pm) near the Golden Municipal Campground. Please email us if you would like to register at swallows@wildsight.ca. We will provide you with further location details after you register.

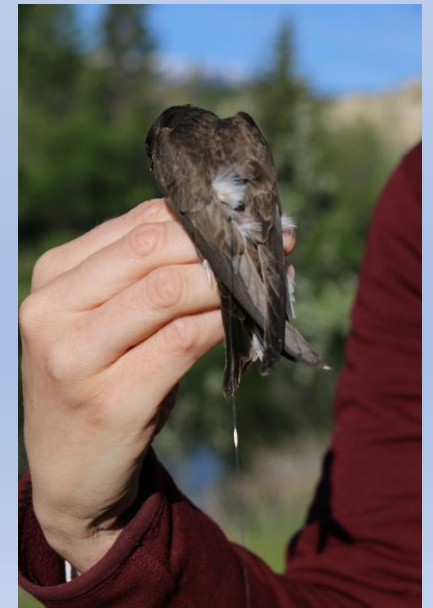
For more information:
<https://wildsight.ca/branches/golden/n-upper-columbia-swallow-habitat-enhancement-project/>

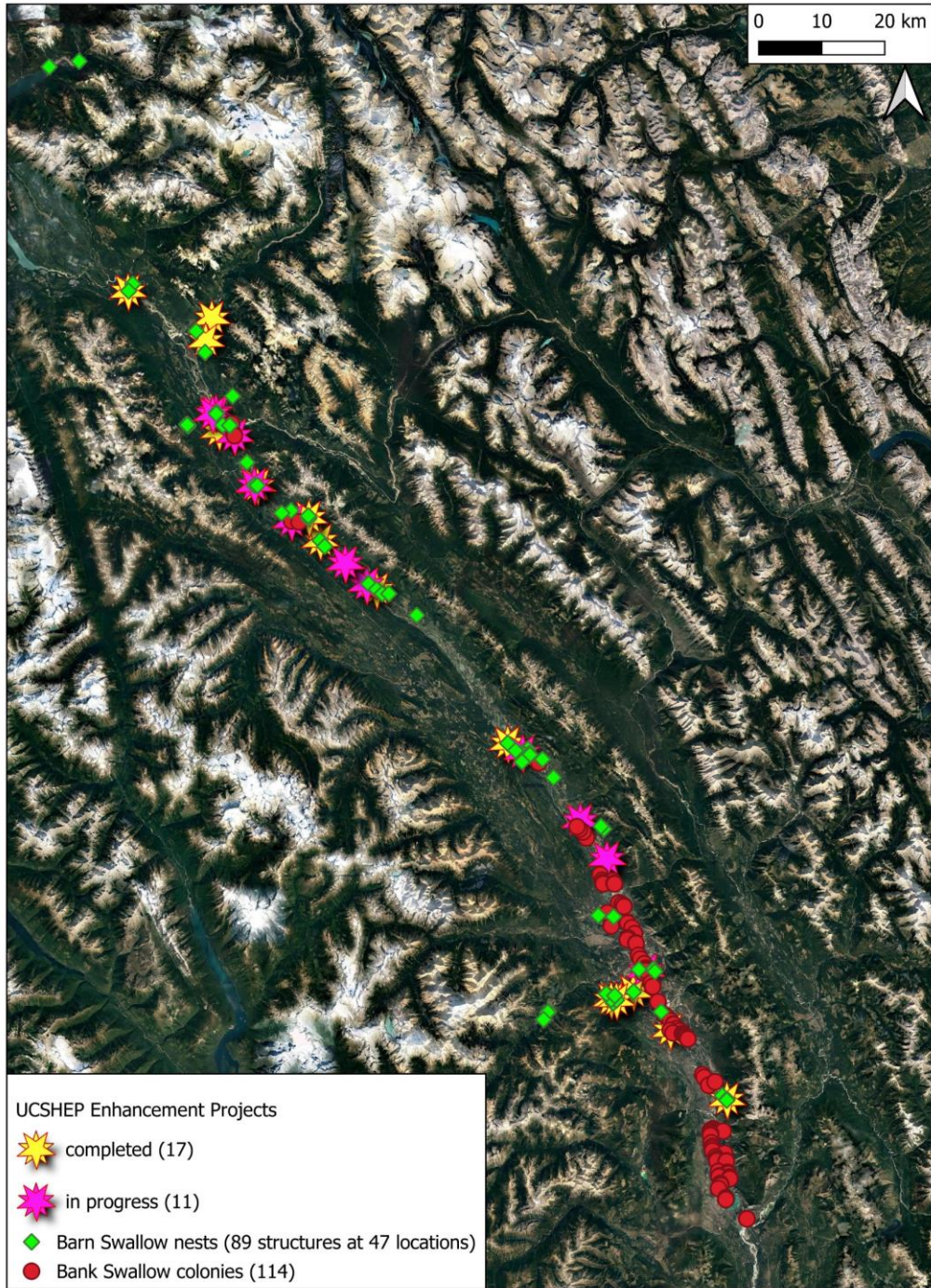
Support for the Upper Columbia Swallow Habitat Enhancement Project is provided by:



Motus Wildlife Tracking System

- No information on migratory pathway used by western Canada's BANS populations.
- Evaluation of BANS migratory connectivity is now a Canada-wide collaboration, through ECCC CWS.
- 4 stations installed in 2022 (assessing locations, landowner permissions, etc).
- In June, 50 BANS tagged.
- Master's student (Cambridge U) working on data analysis to determine the long-distance migratory route taken by BANS, and stable isotope analysis on feathers (wintering habitat).





UCSHEP Enhancement Projects

Completed (17):

- 5 ANS(8 nest cups each)
- Nest cups on nine pre-existing structures
- Vegetation removal at 1 BANS colony
- Restoration work at Wind Lk PP

In progress (11):

- Two swallow/bat condo's
 - Two ANSs
 - # additional pre-existing structures enhanced with nest cups
 - Slope enhancement for BANS (Athalmer, Birchlands)
 - Vegetation removal at 1 additional colony.
-
- Effectiveness monitoring plan in action!

Knowledge Gaps

1. Where else are barn swallows breeding in the study area?
 - We now know this now for BANS, still lacking for BARS.
 - Can help with co-existence strategies, incorporating data into management plans.
2. How effective are the various enhancement measures? Is one type/size ANS better more effective? Should we be insulating all ANS? How high should nest cups be from ceiling?
 - Can help direct future enhancement efforts.
3. Are re-sloping/vegetation removal effective at attracting BANS?
 - Can help direct future enhancement efforts.
4. Where do the BANS go post-breeding? Where is their migratory pathway and where are important habitats outside breeding areas?
 - Helps us focus where to direct international partnerships.





For questions, please contact:
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