Creston Valley Wildlife Management Area

Annual Report for 2024-2025 (Year 6)

Environment & Climate Change Canada – Canada Nature Fund: Community Nominated Priority Places for Species at Risk

Kootenay Connect: **Creston Valley Focal Area – March 2025**

Barn Swallows and Western Skinks

Kootenay Connect is a project facilitated by the Kootenay Conservation Program

Environment and Climate Change Canada

Environnement et Changement climatique Canada

Creston Valley Wildlife Management Area

KCP Kootenay Conservation Program

Kootenay Connect

Acknowledgements

All activities were conducted on the traditional and unceded land of the yaqan nukiy Peoples (Lower Kootenay) within the Ktunaxa Nation Territory. The construction, wildlife monitoring, and habitat enhancement work was conducted by CVWMA staff and contractors within the boundary of the Creston Valley Wildlife Management Area (CVWMA). The activities were primarily funded by Environment and Climate Change Canada's (ECCC) Community-Nominated Priority Places for Species at Risk Program (CNPP) through the Kootenay Connect Project and facilitated by the Kootenay Conservation Program (KCP). Instructors and students of the Recreation, Fish & Wildlife Program at Selkirk College (Castlegar, BC) participated in reptiles monitoring survey in April 2024.

Cover Page Photo: Common Nighthawk nest on CVWMA – Creston Mountain

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Project Deliverables: Year 6

This document reports on the activities completed by the Creston Valley Wildlife Management Area (CVWMA), representing the Creston Valley Wildlife Management Authority, in Fiscal Year 2024-2025, as part of Kootenay Connect, and as agreed upon in Schedule A and Schedule B of Service Contract No. 2024/25-CV-01 between the Kootenay Centre for Forestry Alternatives (KCFA) and the CVWMA:

The reporting deliverables under Schedule A are outlined in Table 1. These deliverables are either provided as attachments to this report or as content.

Table 1. Service Contract No. 2024/25-CV-01 Project Deliverables

Project Deliverables	Dropbox Location
1. Short 1-2 pages interim updates of how the project has met the measurable outcomes as outlined, due on August 31, November 30, 2024, and January 31, 2025. Longer reports are acceptable.	Provided on respective dates. No report provided on January 31, 2025 as there were no changes from November 2024.
2. Brief 1-page Results Report of key quantifiable results and targets to inform Kootenay Connect's annual report to ECCC due on March 15, 2025. This deliverable could also be met in an Executive Summary within the Summary Report (below)	Table 2 (p.9) in this report.
3. Short 3-5 pages final Summary Report of how the project has met the measurable outcomes as outlined, due on March 15, 2025. Longer reports are acceptable.	Kootenay Connect ECCC/Year 6/Year 6 Final KC Deliverables/Creston Valley – Yr 6: CVWMA_Final Report March 2025_ECCC_CNPP.pdf
4. Report detailing completed restoration activities and monitoring action, conclusions, and any further recommendations for each restoration site.	Same as item 3.
5. Relevant spatial data in an appropriate format such as kml, kmz, or GIS shapefiles.	Kootenay Connect ECCC/Year 6/Year 6 Final KC Deliverables/Creston Valley – Yr 6: shapefiles
6. Minimum of 4 photos per project, including "before and after" photos for on the ground projects.	Photos provided
7. Optional short 3–4-minute video (e.g., video footage, narrated PowerPoint, selfie, etc.) addressing: Why have you done this project(s)? What have you accomplished with this project(s)? What are the benefits to fish, wildlife, and ecosystems? Who have you collaborated with? What lessons can you share? What are the highlights of this achievement?	Provided on February 27th, 2025; Kootenay Connect ECCC/Year 6/Year 6 Videos/CVWMA_ECCC_CNPP_Yr 6 Mar 2025.mp4
8. Completed tracking sheet of all in-kind donations of services and cash matching funding by funder as per "Kootenay Connect CNPP In-Kind and Matching Funding Tracking.xlsx".	Kootenay Connect ECCC/Year 6/Year 6 Final KC Deliverables/Creston Valley – Yr 6: /Creston Valley_Match and In_kind_ECCC_CNPP_2024_2025.xlsx

6CV Barn Swallow

The goal of the first project was to construct an artificial nesting structure for the federally threatened Barn Swallows (*Hirundo rustica*) (SARA – Schedule 1) in the Duck Lake Nesting Area using the design previously used by CVWMA in Corn Creek Marsh near CVWMA's Administration Office building (Figure 1). The main objective was to build a larger nesting structure than the Corn Creek Marsh "Swallow Hotel" and outfit it with 50-60 wooden nest cups to facilitate nesting.

Project Location

A barn-like structure was erected in the southern section of the Duck Lake Nesting Area, along the Duck Lake connectivity corridor where several projects were implemented in the past five years as part of Kootenay Connect in the Creston Valley (Figure 2). The construction project began at the end of October 2024 (Figure 3) and was completed by mid-November.

Construction

The artificial nesting structure was built entirely out of wood and covered by a metal roof (Figure 4) and was modelled after CVWMA's very successful "Barn Swallow Hotel" that was constructed in the fall of 2018 (Figure 5).

The Duck Lake Nesting Area structure is 24 feet wide by 30 feet long or approximately 720 square-feet in size and is 67% larger than the Corn Creek Marsh structure which has a 432 square-feet footprint (18 ft wide X 24 ft long).

This new larger nesting structure has more 1m x 1m nesting compartments on the ceiling and should accommodate a larger number of breeding pairs over time (Figure 6). The interior of the Swallow Hotel in Corn Creek Marsh which contains 40 nesting ceiling compartments accommodated 19 pairs during the 2024 breeding season and we are hoping that the 60+ nesting compartments in the new structure will accommodate upwards of 40 pairs in the future.

The roof on this new structure is insulated to reduce heat transfer to the ceiling nesting compartments as data collected in past years in the Swallow Hotel showed temperatures reaching above 35 degrees Celsius through the summer months.

Wooden nest cups

As in the Swallow Hotel, artificial wooden nest cups (72) were installed within the ceiling nesting compartments of this new structure to compel and facilitate Barn Swallow to nest. Six nest cups were attached to the ceiling compartment on the outside of the structure (roof overhang). Many ledges onto which Barn Swallows can construct natural nests are also available (Figure 7) though the swallows have been truly enjoying the wooden nest in the Corn Creek Marsh Swallow Hotel so far.

Nest site selection

Barn Swallows are known to check potential nesting sites ahead of the next breeding season in late summer before they migrate south so we are not expecting the new structure to be necessarily occupied during the 2025 breeding season.

Long-term goal

The long-term goal of this project is to increase the number of barn swallows to help reduce the overall decline of aerial insectivorous species, locally. While contributing to the overall biodiversity of the Creston Valley and beside the aesthetic and intrinsic value they provide to our environment, Barn Swallows play an important role in controlling insects and cycling nutrients, they can assist in pollination and are key indicators of our ecosystem health.

Conclusion and Proposed Future Activities

The Duck Lake Nesting Area nesting structure was built without setbacks and on budget. As done for the Corn Creek Marsh Swallow Hotel, CVWMA staff will monitor the new structure weekly for nesting activity during the 2025 breeding season and for at least another four years thereafter. Two temperature/humidity data loggers were purchased and will be installed in two of the ceiling compartments to monitor

environmental conditions inside the structure during that period. Trail cams may also be mounted within the structure to document wildlife activity during the breeding season. Finally, signage will be installed on the structure to inform the public about the structure and ask people to refrain from entering the structure between May and August, annually (Figure 8).

6CV Skink

Project Location

The goal the second project was to conduct manual thinning and brushing to reduce encroaching vegetation and ladder fuel (wildfire risk) on dry slope habitat around CVWMA's Administration Office building with a specific objective to apply the treatment to reduce encroaching vegetation and improve habitat for wildlife over a 10-ha area. Species at risk that should benefit from the treatment are primarily western skink (*Plestiodon skiltonianus*) (Special Concern – Schedule 1), northern rubber boa (*Charina bottae)* (Special Concern – Schedule 1), and common nighthawk (*Chordeiles minor*) (Special Concern – Schedule 1). This is the first year of a two-year project.

Habitat succession and fire suppression over the years have led to woody vegetation encroachment and resulted in less suitable reptile habitat on rocky slopes and talus that were historically more open. Images of the area surrounding the CVWMA Administration Building, taken from Highway 3 below on December 10th, 1971, and November 12th, 2024, show the change in forest cover over the past 50 years (Figure 10).

Aerial Imagery

In months prior to the beginning of the brushing and thinning work that started in mid-December 2024, CVWMA hired Harrier Aerial Surveys to fly the project area with a drone and produce a high-resolution geo-referenced image to use as a baseline vegetation cover map (Figure 11).

Archaeological Overview Assessment

An archaeological overview assessment was also completed for the project area by Wayne Choquette, a local independent archaeologist. Rocky mountain junipers are abundant throughout the project site and were identified as important cultural features of the site and it was recommended to keep as many as possible. One was cored and found to be close to 75 years old (Figure 12).

Wildlife Monitoring

CVWMA staff conducted surveys within the project area to gather data about wildlife presence/absence and distribution, especially with respect to reptiles. Five species of reptiles are known to occur in the area: common (*Thamnophis sirtalis*) and western terrestrial (*Thamnophis elegans*) garter snakes (Figure 13), western skink and northern alligator lizard (*Elgaria coerulea*) (Figure 14), and northern rubber boa (*Charina bottae*).

Surveys were conducted every 10-15 days from late April to early October and the first survey was conducted with help from Selkirk College students in the Recreation, Fish & Wildlife Program, on April 24th (Figure 16). Overall, western skinks were detected 19 times, northern alligator lizards 13 times, rubber boas 11 times, and western terrestrial garter snakes 3 times. No common garter snakes were detected in the project area and incidental observations of a single pacific tree frog (*Pseudacris regilla*) and two long-toed salamanders (*Ambystoma macrodactylum*) were made on April 24th. Other significant findings were the discovery of two common nighthawk (*Chordeiles minor*) nests containing one and two eggs, respectively, on June 14th and 20th (Figure 17).

Wildlife Habitat Patches

Using the data collected, CVWMA flagged wildlife habitat or reptile patches to be excluded from the brushing and thinning work. Fourteen patches ranging in size from 30 to 710 m^2 were laid out for a total of 5,075 m^2 (Figure 18).

Treatment: brushing and thinning

Bootleg Contracting Outdoor Services provided a crew of 2-4 workers that began the project in mid-December 2024 (Figure 19) and completed the work in early March 2025. Using chainsaws and brush saws, the crew brushed thick patches of shrubs throughout the project area, removed coniferous tree saplings, and limbed all tree branches 1.5 to 2 meters from the ground. Branches, small trees, and brushing debris were piled for burning (Figure 20). Over 60 piles, approximately 2 m^2 in size, were burnt over three days when the venting index permitted (Figure 21), but many piles remain and will need to be burnt next winter. The remaining piles that contain a lot of green woody vegetation should burn better after a season of drying on the ground and will provide habitat for small mammals in the meantime.

Wildfire Mitigation and Benefits to Wildlife

The limbing and thinning should help a ground wildfire go through the area with lower intensity and without transferring up to the canopy. The limbing will also improves sightlines throughout the project area and should benefit ungulate like white-tailed deer and elk.

Common nighthawks are reported to prefer more open habitat over forested areas for nesting and perching and should benefit from the work (Figure 22).

Finally, though the relationship between habitat use and forest cover is complex for many species of reptiles, western skinks and rubber boas should benefit from the treatment through an increased diversity of micro-habitats and micro-climates that may improve movements, foraging opportunities, and other important portions of their life cycle.

Conclusion and Proposed Future Activities

Due to the shrub density and significant amount of limbing to complete, brushing and thinning was slower than expected and it was not feasible to treat 10 hectares as projected when the project was conceived. Close to 5 hectares were treated and we are hopeful that we will be able to complete the full extent of the treatment in the next fiscal year. More brushing and thinning is required and a number of large dead trees need to be brought down.

CVWMA staff will continue to monitor reptiles and bird activity through regular visual surveys in 2025, 2026 and following number of years to assess success and document findings. If time and resources are available, CVWMA may continue brushing and limbing in the project area in early fall of 2025. It is likely that the area will require a certain amount of maintenance over the years to maintain site openness. CVWMA will also investigate the possibility of conducting ground burn to further reduce accumulated organic matter such as needles, cones, and moss and promote grass growth.

Summary Table of measurables and outcomes for 2024-2025.

Table 2 Measurables and outcomes of 2024-2025 activities.

Project and Activities	Target	Actual	Comments
1) 6CV Barn Swallow			
a. Construct and artificial nesting structure approximately 50-60m^2 in size	1 nesting structure 50-60m^2 in size	1 nesting structure 67m^2 in size.	
b. Install 50-60 wooden nest cups.	50-60 wooden nest cups	72 wooden nest cups	Sixty-six (66) wooden nest cups were installed inside the nesting structure and 6 were installed outside under the roof overhang.
2) 6CV Skink			
a. Hand/mechanical treatment to reduce encroaching vegetation and ladder fuel.	10 ha	5 ha	Due to the shrub/brush density and amount of limbing to implement, brushing, thinning, and limbing was slower than expected and the contractor was able to treat 5 ha.
b. Overall percent canopy cover reduced 10-25% from pre-treatment conditions	10-25% reduction in canopy cover	n/a	Due to WorkSafeBC regulation, the crew was not able to fell trees larger than 15cm in diameter (at 30 cm from the base). We therefore focused on brushing, thinning, and limbing, and will address trees larger than 15cm in diameter in Year 2 of the project. The number of trees smaller than 15cm taken down did not likely reduce the overall canopy cover.
c. Catastrophic fire risk reduced.	n/a	n/a	The treatment conducted will undoubtedly reduce the risk of a catastrophic fire in the area treated if a wildfire were to come through in the coming years.

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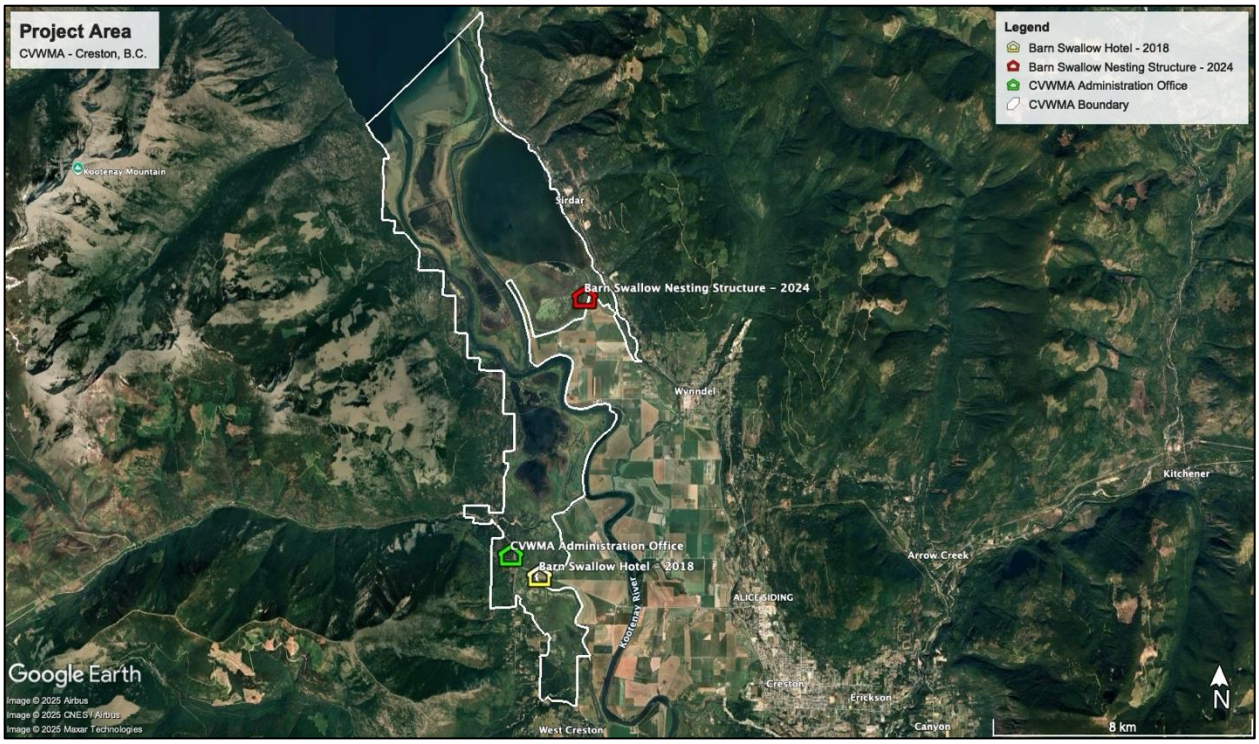

Figure 1 Project area overview with general location of existing and new Barn Swallow nesting structures.

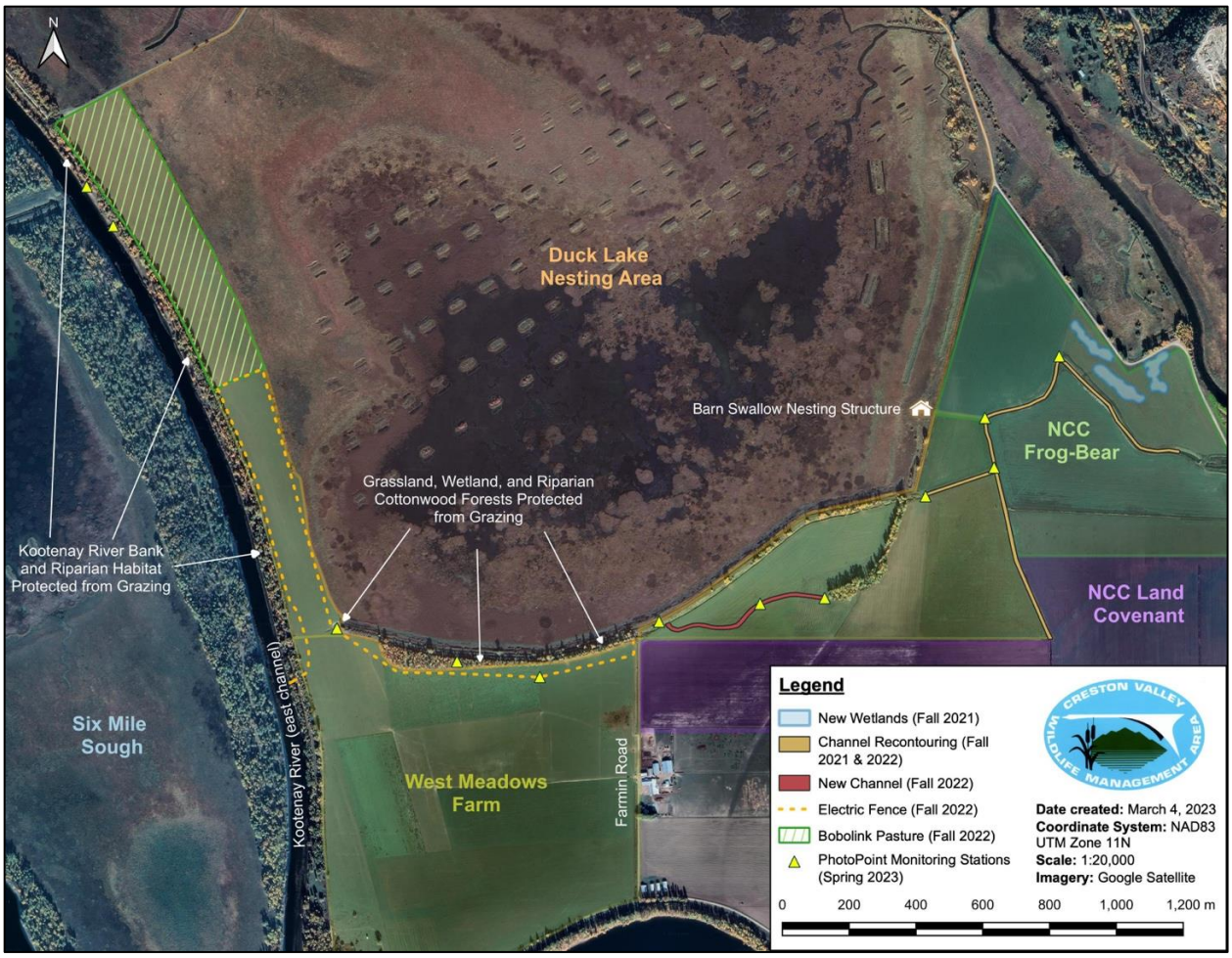

Figure 2. Barn Swallow nesting structure location in the Duck Lake Nesting Area with an overview of the connectivity corridor, from Nature Conservancy of Canada's Frog-bear parcel to Kootenay River east channel, including Bobolink nesting area to the northwest.

Figure 3 Beginning of the Barn Swallow nesting structure construction, October 31, 2024.

Figure 4 Wooden nesting structure with metal roof, February 27, 2025.

Figure 5 Barn Swallow "Hotel" in Corn Creek Marsh, August 25, 2023.

Figure 6 Nesting ceiling compartments (1m x 1m) in new nesting structure.

Figure 7 Internal ledges for natural nest building and wooden nest cups in ceiling compartments.

Figure 8 Interpretive sign installed on Corn Creek Marsh "Swallow "Hotel".

Figure 9 Project area around CVWMA's Administration Office building.

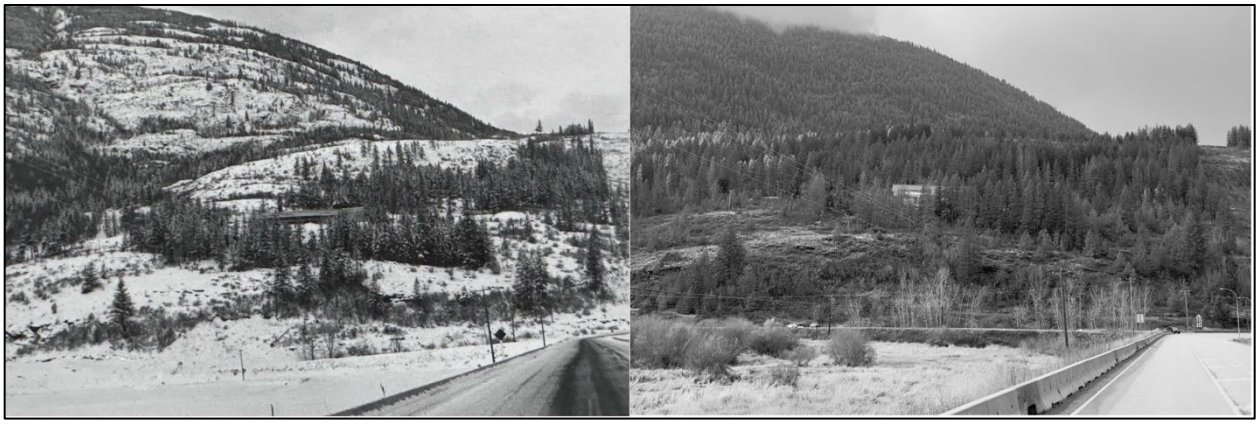

Figure 10 Changes in vegetation cover over 50 years on Creston Mountain by CVWMA's Administration Office, December 10th, 1971 (left), and November 12th, 2024 (right).

Figure 11 High-resolution image of project area derived from drone work conducted on June 21, 2024.

Figure 12 Wood core from an approximately 75-yr old Rocky Mountain juniper in the project area.

Figure 13 Common (left) and western terrestrial (right) garter snakes.

Figure 14 Western skink (left) and northern alligator lizard (right).

Figure 15 Northern rubber boa

Figure 16 Selkirk College's Recreation, Fish and Wildlife Program students surveying for reptiles, April 24, 2024.

Figure 17 Common Nighthawk nests found during surveys on June 14 and 20, 2024.

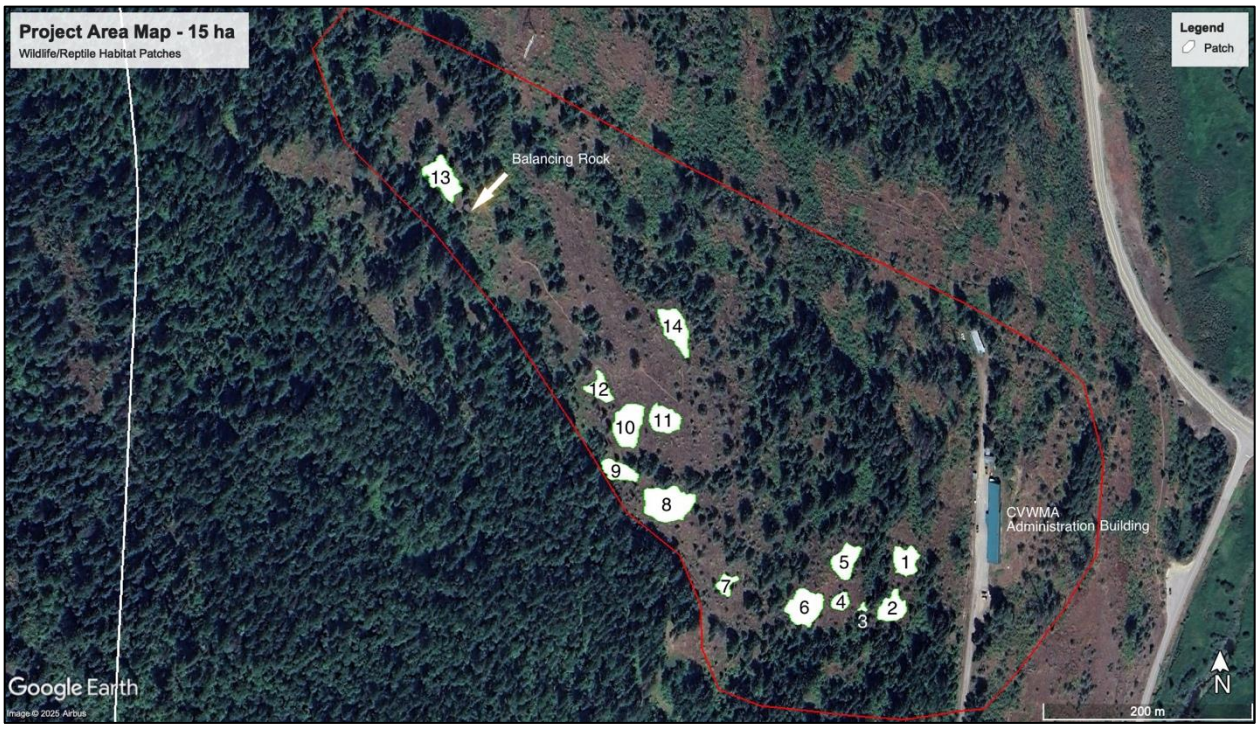

Figure 18 Map of project area with wildlife habitat patches excluded from treatment.

Figure 19 Brushing and thinning getting underway on December 12, 2024.

Figure 20 Brush piles in project area, January 21, 2025.

Figure 21 Burning of brush piles on February 12, 2025.

Figure 22 Adult Common Nighthawk on nest and perched in a tree near nest, June 2024.