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Kootenay Connect: Columbia Wetlands

Restoration of Habitats and Species at Risk in the Columbia Valley

Year 6 (2024-2025)

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KCP Kootenay Conservation Program

Kootenay Connect

The Columbia Wetlands Stewardship Partners

Executive Summary

For the sixth year in a row, the Columbia Wetlands Stewardship Partners continued to advance conservation action in the Columbia Valley through the Kootenay Connect initiative. Four species-at-risk (SAR) sub-projects focused on Western Painted Turtle – Intermountain – Rocky Mountain population (*Chrysemys picta* pop. 2), American badger (*Taxidea taxus jeffersonii*, eastern population), Osprey (*Pandion haliaetus*) and Lewis's woodpecker (*Melanerpes lewis*).

Western painted turtle nesting habitat enhancement continued on the private land at Zehnder farm. Successful hatchlings were observed adjacent to the fenced nesting bed every year from 2021-2024, after the predator exclusion fence was installed in 2020. Mortality outside of the enclosure continued. Each year more hatchlings have been observed so in 2024 the nesting habitat was enlarged and expanded. We spread 32 yards of substrate to create and enhance a 9' x 30' x 1' nesting bed and an 8' x 25' x 1' nesting bed inside the fenced enclosure. In the Spillimacheen area, nesting beds created between 2022-2024 are working to attract turtles, but its likely that more time is needed before increased use is observed. A new nesting bed was created on the MOTI roadside at Spillimacheen in 2024. In May 2024, remote wildlife cameras detected 42 turtles using the historic roadside nesting bed, but technical camera issues produced limited observations and it's probable that many more turtles are still crossing the road to reach their historic nesting bed. Four turtles were observed on the nesting bed created in 2022-23 and one nest was laid. Two turtles and no nests were observed in the bed created in 2023-24, however the remote camera's functionality was limited.

Inventories for American badger burrows were done in four areas in 2024. At Stoddart Creek, no badger activity or burrows were observed. Inventory work at Lake Lillian West recorded 22 burrows, 8 of which were functional. At Jubilee, 25 badger burrows in functional condition were recorded at 8 sites. At Findlay Creek, 1,768 badger burrows were in functional condition. The number and extent of badger burrow activity was so large at Findlay, we could not complete the inventory of the area in 2024 and will continue in 2025. When inventory is complete, a WHA application will be made for Findlay Creek. All functional burrows will be submitted to the provincial government to become WHFs after completion of the further inventory work in 2025.

Inventory of osprey at 75 nesting sites found that one nest was no longer there and two nests missing last year were not rebuilt. Ten poles/platforms had never seen use since monitoring began in 2019 and eight of those were in non-functional condition due to inadequate placement (e.g., too close to ground, tall surrounding trees). Three poles/platforms were reported to BC Hydro for repair and two were repaired in March 2024 due to our request. There were 62 viable osprey nests, three were tree nests and 59 were poles/platforms. Of those 62 nests the osprey nesting success rate was 45.2% - 64.5%, depending on how many 'unknown' nests produced viable fledglings. 95.8% of the known osprey nests in the study area are built on hydro pole platforms.

Thirteen active Lewis's woodpecker nests were identified between Invermere and Canal Flats in 2024; eight of those were within a concentrated area on private land near Fairmont Hot Springs, including on the golf course (figure 23). Eleven of the 13 nest locations are on private land, and two are on BC Hydro right of way (nest cavities in hydro poles). Eight nests were located in Critical Habitat (CH) as identified in

the federal government's recovery strategy, and five of the nest locations were not in CH. None of the active nests were within an established Lewis's woodpecker WHA.

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Cover photo: Lewis's woodpecker perched close to its nesting cavity with a bill full of food for its chicks in Fairmont. Photo credit: Rachel Darvill.

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1.0 Introduction

Since 2019, the Kootenay Conservation Program (KCP) has been spearheading Kootenay Connect, a long-term initiative focused on implementing conservation efforts to protect at-risk species in critical areas (Proctor & Mahr, 2019). The Columbia Wetlands is a key priority area for Kootenay Connect, with the Columbia Wetlands Stewardship Partners (CWSP) playing a central role in the region. Formed in 2006, the CWSP leads conservation and stewardship initiatives throughout the Columbia Valley. With over 30 diverse groups—including community organizations, Indigenous communities, and government bodies—the CWSP collaborates to create and execute effective habitat stewardship activities for the Columbia Wetlands and Upper Columbia River. The CWSP also works to raise public awareness, and partners with various levels of government to establish a shared approach to managing and protecting the Columbia River and its wetlands.

The CWSP through Kootenay Connect has been working on species at risk conservation initiatives since 2019 (Darvill, 2020a; Darvill, 2021; Darvill, 2022; Darvill, 2023, Darvill, 2024), with accompanying videos that summarize conservation actions available on the Kootenay Connect website. Additional work has been completed in the Columbia Wetlands for Kootenay Connect (e.g., Durand, 2020; Lausen, Gates, Low & Rae, 2023; Remmer, Rooney, Bayley & Leven, 2024). This report describes conservation actions accomplished in Year 6 (2024-2025) of the species-at-risk component of the CWSP Kootenay Connect project. This included multi-species (Lewis's woodpecker, American badger, Western Painted Turtle, Osprey) inventories; installation, monitoring and repair of enhancement structures for Western Painted Turtle; Wildlife Habitat Feature (WHF) designations at badger burrows and progress made towards previously submitted and future Wildlife Habitat Area (WHA) submissions for American badger, and; submitting data to support a Key Biodiversity Area proposal.

2.0 Study Area

The Columbia Valley (UTM: 535767; 5649168) is located within the Rocky Mountain Trench in southeastern British Columbia, Canada (see Figure 1). Spanning nearly 55,000 hectares, this region is recognized for its unique ecological attributes, encompassing a wide array of habitat types, including riparian areas, wetlands, grasslands, alpine and subalpine forests, as well as freshwater rivers and lakes. The diverse ecosystems in this region provide critical habitat for a range of species, including at least 65 species at risk (SAR) and 21 ecological communities at risk, as documented in a 2020 literature review (Darvill, 2020a). The valley's varied landscapes and ecological significance make it a key area for biodiversity conservation in Canada. The southern portion of the Columbia Valley is currently a proposed Key Biodiversity Area site.

A particularly noteworthy feature of the Columbia Valley is the valley-bottom wetlands known as the Columbia Wetlands, one of the largest wetland complexes in North America. Stretching over 180 kilometers, the Columbia Wetlands are a vital ecological system that includes diverse habitats such as marshes, swamps, and floodplain forests. This extensive wetland complex serves as an important stopover for migratory birds along the Pacific Flyway and provides critical habitat for species such as waterfowl, amphibians, and fish (Darvill, 2020a, Darvill, 2020b). In 2005, after an application made by Wildsight in 2004, the Columbia Wetlands were officially designated as a Ramsar site under the Ramsar Convention,

recognizing the wetlands as a site of international ecological significance (Darvill, 2020b). The Ramsar designation acknowledges the area's importance for its biodiversity, especially its role in supporting migratory bird populations and wetland-dependent species.

The Columbia Valley is primarily situated within the Regional District of East Kootenay (RDEK), specifically in Areas F and G, which cover approximately two-thirds of the study area. The remaining one-third lies within the Columbia Shuswap Regional District (CSRD) Area A. Numerous communities, such as Fairmont, Invermere, Radium, Edgewater, Brisco, Spillimacheen, Parson, Nicholson, and Golden, are found within the study area. The Columbia Valley's unique geographical and ecological features make it a critical area for conservation efforts.

The author acknowledges that this work is being conducted within the unceded traditional territories of the Ktunaxa Nation, which includes the ?Aqam and Akisqnuk bands, the Secwépemc Nation (including the Shuswap Band), and the current home of the Métis Nation Columbia River. The ongoing preservation and management of the Columbia Valley's natural resources are guided by a combination of Indigenous knowledge and scientific conservation practices, underscoring the importance of collaborative approaches to environmental stewardship.

Figure 1. The study area depicted in the Columbia Valley within British Columbia, Canada.

3.0 Western Painted Turtle

3.1. Introduction

The Western Painted Turtle (WPT)– Intermountain – Rocky Mountain population (*Chrysemys picta* pop. 2), is blue-listed in the province of British Columbia (B.C.) and categorized as a "species of special concern" by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). It is also recognized under the federal Species at Risk Act (SARA) due to its vulnerable status (COSEWIC, 2016; B.C. Ministry of Environment, 2017). The WPT is the only native freshwater turtle species in B.C., and its population has been steadily declining in the region (B.C. Ministry of Environment, 2017). Several factors contribute to the decline of the WPT, with habitat loss being a primary concern. The destruction of wetlands, urbanization, agricultural development, and road construction have significantly reduced the turtle's suitable habitat (B.C. Ministry of Environment, 2017). Additionally, road mortality is a major threat, as turtles are often killed when crossing roads to reach nesting sites. Habitat fragmentation further isolates populations, reducing genetic diversity and increasing the risk of inbreeding.

The Intermountain – Rocky Mountain population of the WPT is estimated to contain between 5,000 and 10,000 adults, though precise population numbers remain uncertain (COSEWIC, 2016). The population in the Columbia Valley, a peripheral area for the species, is particularly important as it may hold unique genetic traits critical for the long-term survival and evolutionary potential of the species (Fraser, 1999). Species that inhabit the edges of their geographic range, such as the WPT in the Columbia Valley, are highly vulnerable to environmental disturbances and population declines.

To aid in the conservation of the WPT, the Columbia Wetlands Stewardship Partnership (CWSP) has been actively involved in identifying critical nesting sites in the Columbia Valley. Since 2020, CWSP has implemented annual conservation initiatives aimed at mitigating threats to those sites, including road mortality, habitat degradation, and disturbance from human activities (Darvill, 2020a; Darvill, 2021; Darvill, 2022; Darvill, 2023). These efforts have focused on enhancing basking and nesting habitat and implementing measures to reduce road-related turtle fatalities, such as installing fencing and road signage.

The WPT is a species that relies on both aquatic and terrestrial habitats for survival. It is often found in slow-moving water bodies, such as ponds, lakes, and marshes, where it can bask in the sun and forage for food. The WPT is known for its vibrant red and yellow markings, particularly on the undersides of its limbs, neck, and shell. These turtles are omnivorous, feeding on a variety of plants, invertebrates, and small fish. Their life cycle is closely linked to seasonal changes, with nesting occurring in late spring and early summer, and hatchlings emerging in the fall or following spring after overwintering in substrate. However, the long maturation period of WPT—females typically reach sexual maturity around 10–15 years—means that population recovery is slow and requires long-term conservation action. In 2024, the CWSP continued its important work in the Columbia Valley, ensuring that efforts to monitor and protect the WPT's critical habitats were expanded. This report will detail the specific conservation actions taken in the region during this year.

3.2 Nesting Bed Enhancement

3.2.1 Zehnder Farm (Invermere)

The WPT project at Zehnder Farm started in 2021 (Darvill, 2022), where project biologist R.Darvill has been working with a farm landowner (J.Zehnder) to enhance turtle habitat. In 2021, a fence was installed around the main WPT nesting area located on a small dam to prevent predators from digging up the nests, an issue that had been happening for years. During the 2022 field season, the landowner regularly monitored the site noting the presence of nest laying inside the enclosure. The first sightings of small turtles in many years was made outside of the enclosure, suggesting successful hatchlings had emerged from inside the enclosure during the 2021 breeding season (Darvill, 2023). Hatchlings or small turtles had not been seen at this site in several years prior to the enhancement work here and emergence holes were detected inside the enclosure indicate observed hatchlings came from inside the enclosure.

In June 2023, the landowner spotted six WPT hatchlings in a small pond adjacent to the nesting bed enclosure (Darvill, 2024). This marked the second consecutive year small turtles had been observed, a notable occurrence as they hadn't been seen there in nearly a decade and again indicating that nests within the enclosure had successfully hatched. Additional landowner observations in 2022 and 2023 included the predation of turtle nests laid outside the fenced nesting area, and successful nest emergence holes inside the enclosure (Darvill, 2023; Darvill 2024). The shows that the fence is working to exclude predators from digging up nests.

On May 23, 2024 we built upon successes by spreading 32 yards of substrate at the turtle nesting bed to enhance and expand the amount of available nesting habitat. Darvill, a landowner (John Zehnder), and two volunteers created two nesting beds inside of the fenced enclosure (Figures 2-5). One bed was 9' x 30' x 1', the other was 8' x 25' x 1', which expanded and enhanced the nesting beds already in place. Substrate spreading was done just after hatchling emergence and ahead of 2024 WPT nesting activities. Ahead of spreading substrate, weeds were removed from the area and four hatchling emergence holes were noted inside of the enclosure (Figure 6). Throughout the 2024 nesting season, many signs of turtle use on the new beds was observed, but continuous monitoring was not possible. One turtle was seen laying a nest inside the enclosure, and that nest had a nest box cover put on top of it. We will look for hatchling emergence holes in spring 2025 to provide a good estimate of how many nests were laid in 2024. Hatchlings were again seen in a nearby pond in summer 2024, and nests laid outside of the enclosure were dug up. All of these observations prove that nesting bed enhancements at Zehnder Farm have and continue to be successful for Western Painted Turtles.

There was a lack of basking habitat available for the turtle population at Zehnder Farm. In a response, the basking habitat was enhanced. Four basking logs were installed near the nesting bed on January 4, 2025 and they were installed by the Lake Windermere District Rod and Gun Club with help from a landowner (Figure 7).

Figure 2. Turtle nesting bed enclosure before spreading additional substrate, expanding available nesting habitat.

Figure 3. Turtle nesting bed after spreading substrate, creating additional nesting opportunities.

Figure 4. Nesting bed before weed removal and expansion.

Figure 5. Nesting bed after weed removal and expansion through adding suitable substrate.

a) 

b) 

c) 

d) 

Figure 6 a-d. Photos of fresh turtle hatchling emergence holes discovered on April 2 and May 1, 2024.

Photos: John Zehnder.

a) 

b) 

c) 

Figure 7a-c. Basking log installment at the Zehnder Farm, January 2025.

Photos: Rick Hoar.

3.2.2 Stewart's Farm (Spillimacheen) - Actions and Results

Since 2021, the CWSP has been working on WPT enhancement projects at the Stewart Farm in Spillimacheen (Figure 8). All conservation actions and results from each year are detailed in final reports (Darvill 2023; Darvill, 2024). Through effectiveness monitoring, which included use of wildlife camera's, continued improvements to turtle nesting habitat at the site occurred in 2024. The following were completed at the Stewart Farm site in 2024:

- Expanded the linear roadside bed on Westside Road in front of the traditional nesting area at Stewart's Farm. Nesting substrate was brought from Athalmer and a 15m x 4m nesting bed was created (Figure 9). A permit was obtained from the Ministry of Transportation and Infrastructure (MOTI) for this work, as well as permission from BC Hydro.
- A 20m long, 1-meter-high mesh fence was installed around the new linear nesting bed using t-posts pounded into the roadside (Figure 10). By not fencing-off the entire roadside, this allowed some turtles to nest in their traditional nesting area.(Reasons for not fencing off entire road are explained in Section 3.2.3).
- Animex wildlife fencing was cut in half and attached to the new portion of mesh fence that encloses the linear roadside bed. Cutting was done because the Animex plastic black fencing only needs to be tall enough for turtles to use and not see through. It was 1 m tall.
- Reinforced all plastic fencing to mesh fence with Animex washers and UV resistant zip-ties.
- Closed off one-way escape doors after the nesting season to avoid predators accessing the nesting beds.
- Improved ramps leading to the one-way escape doors by adding more gravel in front of them with landscape fabric under the gravel to reduce growth of vegetation around the doors (Figure 11).
- Added nesting substrate along the south facing bottom edge of the nest mound in the field where turtles were prospecting in Year 5.
- Effectiveness monitoring utilizing five wildlife cameras: 1) at one-way escapes (to determine if they are being used by turtles and/or predators; 2) at natural nesting site (to learn about population numbers using that nesting bed and level of skunk predation; 3) at the new nesting bed along MOTI roadside right-of-way on Westside Road; and 4-5) at the nesting bed created in Year 4. (Locations of cameras are shown in Figure 8).
    - Regular site visits (12 in total) were made to cameras to replace memory cards and batteries.
    - All wildlife camera data was reviewed and summarized.
- Vegetation maintenance at enhanced nesting areas is important since plant roots can grow through eggs, killing hatchlings, or preventing emergence. Light clearing of the enhanced nesting areas of vegetation occurred in the spring, and during regular site visits.
- To prevent turtle road mortality 'Slow Down Turtle Crossing' signs (sandwich boards) were created in 2023 and placed at both ends of the nesting area, as well as on two other roads (Brisco Crossing, Forester's Landing Road) that bisect the Columbia Wetlands and where nesting turtles have been observed crossing the road. To avoid sign fatigue, signs were put out seasonally; only during the breeding season when turtles are actively crossing the road (mid-May to mid-July). These temporary signs were put out again in Spillimacheen in 2024.

Figure 8. Stewart's Farm nesting area with camera locations (1-5) used to monitor effectiveness of enhancements.

Note - Camera 1 = North Bank, Camera 2 = Lower Road, Camera 3 = North Structure, Camera 4 = Southwest (SW) Structure, Camera 5 = West Door.

Figure 9. Roadside nesting bed expansion; spreading nesting substrate with volunteers.

Figure 10. Linear roadside bed completed with fencing in place.

Figure 11. Improved ramps with landscape fabric under substrate to prevent weed growth at one-way escape doors.

3.2.2.1 Results – wildlife cameras

Five wildlife cameras were installed at enhancement features to determine their effectiveness. Camera locations are shown in figure 8. Two 'Reconyx HyperFire 2' cameras were deployed on May 14, 2024 at the North Bank and SW Structure. Cameras were set to go off in intervals rather than detect motion because turtles can be too slow to be detected through motion. Photos were taken every minute, 24 hours a day. Three photos were also taken when motion was detected; useful for predator detection. Three 'Muddy' cameras were deployed on May 27, 2024 at the other three locations (figure 8), and took photos every 30 seconds from 0600 to 2200. Camera's were visited 13 times between May 14, 2024 - September 6, 2024 for installation, battery and memory card changes. There were some technical issues with cameras and SD cards, producing an incomplete dataset for all cameras (see camera details below). Also, some cameras were not able to cover the entirety of each feature. For instance, the historic nesting bed (North Bank) and the 'nesting mound in field' needed two cameras yet the entire nesting area was still not covered by cameras.

3.2.2.2 Details from each camera

1. North Bank Camera – a Reconyx camera was mounted on a tree above the road, and directed at the historic nesting area and road crossing. The dates of camera footage for North Bank were May 14 to October 3 and the following dates had nothing to report: May 16, 18, 19, 24, 26, 27, 29, June 25, 26, July 17, 26, 28, 31, Aug 2, 4, 12 Aug 23-24, 26, 27, Aug 29, 30, Sept 3, 5, 8, 10-11, 16, 19, Sept 30, Oct 1, Oct 2. The camera was not operational (no footage) from: June 11 to June 24, Aug 5-11, Aug 12-22, Sept 20 to Sept 26. Unfortunately, the camera angle changed on June 25 and didn't show much of the nesting area during part of the peak turtle nesting period from June 25 to July 15. There was also no footage between June 11 and June 25 (also peak nesting period). Still, turtles were seen 33 times with a total number of 42 turtles since some camera footage had multiple turtles in view at the same time. Details about each turtle observation caught on camera is summarized in Appendix 1. Comparatively, in 2023 there were 87 turtles seen from this same camera location between May 24 to June 26. Peak dates when turtles were observed in 2024 was between June 4 – 10, but again much of the peak nesting period was not captured by the camera (from June 11-24). Turtles were observed crossing the road from 16:58 to 06:32, but and the average crossing time was 18:43.

Vehicles were captured on camera from June 9 – 10, and then again from June 25 to July 8, with missing footage dates between June 11 and June 25. Seven vehicles were seen driving by turtles when they were on the road (figures 12 and 13), but no turtles were struck. One vehicle drove by a turtle, then stopped and reversed and a person got out of the vehicle, walked close to the turtle and took a photograph. The daily numbers of vehicles ranged from 34 on June 27, to 145 vehicles on June 29. These dates were during peak nesting season. The vehicle numbers captured on our cameras from 2023 were similar to 2024's numbers. Several species beyond turtles were observed on the historic nesting slope including dogs, domestic cows, goats and sheep (figures 14 a-d).

2. Southwest (SW) Structure – a Reconyx camera was mounted on a post outside the fenced in nesting area build in the field; the camera faced the SW side of nesting mound. Dates of camera footage for SW Structure were May 16 to September 30, but the following dates had nothing to report: May 16, 18, 19, 21, 25-31, June 1, 6, 12, 13, 15, 16, 19, 20, 27-29, July 2-5, July 7, 8, 10, 12, 14, 17, 18, 20-24, 26, 30, Aug 1, 3, 5, 7, Aug 12-Aug 16, 18, Aug 20-Aug 31, Sept 17-21, 23-27, 29, 30. There was no footage available from: June 22-June 24, Aug 8-Aug 11, Sept 1-Sept 17, due to camera malfunction. Turtles were seen on the nesting mound four times: on June 17, evening June 25 and going into night of June 26. Details on

those turtle observations are listed in Appendix 1 and includes one turtle observed nesting on the substrate mound the night of June 25/26 (Figure 15).

3. North Structure - a Muddy camera was mounted on post inside of nesting area fence, facing the north side of nesting mound. Given the large amount of time required for image review, footage from mid May until May 27th was not reviewed. Due to camera malfunctions, there was no footage between July 3 at 12:50 to July 14th; the last review date was July 3rd. There were no turtles captured by the camera at this location.

4. West Door - a Muddy camera was mounted on post outside of nesting area fenced encloser, facing north at two of the one-way doors. Camera footage was reviewed from May 27 to July 3. From June 25 to July 3 (end of camera review), the camera was set up such that very little of the one-way door was seen and the rest of the landscape was tall grass, which would be very hard to see a turtle in. There were no turtles seen at this location; no use observed at the one-way doors. Turtles could have been missed; one turtle was seen using a one-way gate in 2023 (Darvill, 2024).

5. Lower Road - a Muddy camera was mounted on a post at the roadside nesting bed, facing west across the nesting substrate. Footage was reviewed from May 27 to July 2 at 12:24; due to camera malfunction there was no footage between July 2- July 15. On June 6 at 08:04 the camera moved in such a way that only a bit of grass, the cattail marsh, and the forest was seen. Unfortunately, this was the case until June 14, when it was moved to its proper location again. Nothing to report: May 27-31, June 1, June 3-5, June 8-11, June 14, June 19-22, June 25, 26, July 1, 2. There was no footage between June 12-13, June 23-24, or July 2 from 12:40 onwards. There were two turtles seen on the nesting bed on June 17 (figure 16) and June 29, but no nesting attempts were observed on camera (Appendix 1).

Figure 12. Vehicle passing turtle on the road.

Figure 13. Vehicle passing a turtle that was crossing road to reach historical nesting area.

a) 

b) 

c) 

d) 

Figure 14 (a-d). Cows, a horse, and domestic goats observed on the traditional turtle nesting area.

Figure 15. Turtle observed digging a nest in the nesting bed created in 2022.

Figure 16. Turtle prospecting on the newly created roadside nesting bed.

3.2.3 Discussion and conclusion

Despite technical issues with cameras, insight was provided into the effectiveness of enhancement features for Western Painted Turtles in Spillimacheen. Information gathered included the amount of use at each feature by turtles, feature use by additional species (Table 1), and behavioural data on turtles crossing the road to reach their historical nesting area, including data on passing vehicles (Appendix 1). One turtle laid a nest in the nesting mound in the field, which was created by CWSP in 2022 and 2023. Two turtles were prospecting at the new roadside nesting area created in May 2024. It is possible that more nests were laid when camera's were not operational (see section 3.2.4.1).

Forty-two turtles were observed crossing the road from the marsh to reach their 'historical' nesting area, but about half of the peak nesting season was not capturing with wildlife camera's. A higher number of turtles would have been seen crossing the road if cameras hadn't malfunctioned. Turtles continued to cross the road because it was not possible to fence off the entirety of the road where they cross**.** The south slope of the road into the wetlands is too steep to create a nesting area without infilling wetland. A flat area is needed (rather than steep roadside) to hold substrate to create a nesting bed. A permit from the Ministry of Transportation and Infrastructure was obtained to add nesting substrate to the side of the road, but additional permits would be needed for infilling. Unfortunately, the road mortality issue is still of concern at this area, but the temporary 'slow down turtle' signs seem to help. Several vehicles slowed down. The temporary signage created in 2023 should be put up again in late May 2025 and be left in place until mid-July.

The daily numbers of vehicles ranged from 34 on June 27, to 145 vehicles on June 29. The time-of-day vehicles drove by was not recorded during camera image review and traffic patterns in British Columbia vary by location. Since the road (Westside Road) is a dirt road in a rural area, many of the vehicles going by during summer likely involve summer outdoor pursuits like camping and other forms of recreation. Fortunately, peak vehicle traffic probably does not coincide with peak turtle nesting times observed. Turtles were observed crossing the road from 16:58 to 06:32, but and the average turtle crossing time was 18:43.

In addition to ongoing road mortality concerns, the historic nesting bed suffers from being trampled (goats, cows, dogs) and has seen predation events by skunks in the past (Darvill, 2023). Given the high number of turtles that continue to nest in their historical nesting area, it likely still produces successful hatchlings. There is some unknown amount of population loss due to potential predation, road mortality, and trampling. Only one turtle has been observed to use a one-way escape door to/from the enclosure around the nesting bed. It is recommended to close the doors and not install any additional ones; maintenance to ensure they are free of vegetation needed to function properly is too labour intensive.

Nesting beds created from 2022-2024 are working to attract turtles, but its likely that more time is needed before increased use is observed. Maintaining adequate nesting opportunities at beds requires ongoing weed maintenance at substrate; the quality of nesting sites can be compromised by invasive plant species. The roots can penetrate nests, leading to direct mortality or hindering hatchling emergence. Additionally, dense vegetation from such invasives can reduce solar exposure and make nest excavation more challenging (Government of Canada, 2016). Since the nesting mound is on private land, weed maintenance requires ongoing landowner cooperation. It is recommended to continue dialogue with landowners and work towards long-term weed maintenance; however, there is indication there may be a change in land ownership coming.

Turtles will continue to cross the road unless access to their traditional nesting area is cut off entirely. This is not advisable until much more adequate nesting habitat is created in the general area. This could be done by working with landowners to create more nesting beds in their field at various locations. Establishing multiple nesting sites for Western Painted Turtles is crucial to prevent the creation of ecological traps—areas where nesting attempts result in high mortality due to predation or unsuitable conditions. Ideally multiple, well-distributed nesting sites that are regularly monitored and well-maintained could be established on private land and along the roadside of Westside Road. This approach would reduce the likelihood of ecological traps and would support the overall health of Western Painted Turtle populations by reducing road mortality; predation could still be an issue with this approach. There are inherent issues with developing a dedicated and long-term turtle monitoring program, such as on-going funding requirements and long-term landowners agreements.

Beyond weed management in 2025, it is recommended that ongoing dialogue with landowners continue in 2025. Additionally, consultation should occur with provincial government and other specialists that work on WPT conservation regarding how to best resolve ongoing road mortality threats. If landowners agree, wildlife monitoring cameras should be installed again at the two turtle nesting areas that have been established.

Table 1. Number and type of species recorded on wildlife cameras at various enhancement features.

Species	Lower Road	N Structure	North Bank	SW Structure	West Door	Grand Total
Bear			1			1
Bird	20	50	1	62	3	136
Bird (x2)	1	4		2		7
Cow			1			1
Cow (x8)			1			1
Cow (x9)			1			1
Coyote			6			6
Deer			1			1
Dog			16			16
Dog, human (x2)			1			1
Duck			4			4
Duck (x2)			2			2
Goat					1	1
Goat (x2)					1	1
Goat (x4)					3	3
Goat (x5)					1	1
Goat (x6)					2	2
Goat (x7)					1	1
Goat (x8)					1	1
Ground squirrel			19			19
Horse			46			46
Human		1	41	1		43
Human (x2)			27			27
Human (x2), dog			5			5
Human (x3)			2			2
Human (x4)			3			3
Human (x4)			1			1
Human (x4), dog			2			2
Human (x6)			2			2
Human (x8)			1			1
Mammal			1			1
Sheep (15)			1			1
Sheep (x3)			6			6
Sheep (x4)			1			1
Sheep (x5), Human			1			1
Sheep (x6)			1			1
Sheep(x28)			1			1
Sheep(x3)			1			1
Skunk				1		1
Snake				1		1
Turtle	2		27	4		33
Turtle (x2)			3			3
Turtle (x3)			2			2
Turtle (x3), human			1			1
Unknown	1	1				2
Grand Total	24	56	230	71	13	394

4.0 American Badger

4.1 Introduction

The American badger (*Taxidea taxus jeffersonii*, eastern population) is classified as a red-listed species in British Columbia and is recognized as Endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as of 2012. Under the Species at Risk Act (SARA), it has been identified as a species requiring urgent conservation efforts (SARA, 2018). Several key threats contribute to the declining population of this species, including habitat loss due to forest succession and urban development, along with direct mortality from trapping, highway accidents, and persecution. Additionally, habitat degradation is exacerbated by practices such as flooding from reservoirs, gravel extraction, agricultural expansion, and the decline of prey species (Adams & Kinley, 2004). A critical population in the East Kootenay region, which has been estimated to consist of fewer than 100 mature individuals, faces an increasing vulnerability to roadkill as a major source of mortality (COSEWIC, 2012).

Badgers exhibit low population densities and occupy extensive home ranges that often encompass numerous burrows. These burrows can be reused over multiple years, making it essential to protect these areas from destruction, including those that are unoccupied at any given time (Newhouse, 2001). Habitat suitability for the American badger is largely determined by soil quality and the availability of prey, with the Columbian ground squirrel (*Urocitellus columbianus*) being a primary food source in many regions (Kinley & Newhouse, 2008). Badgers typically prefer soils that allow for stable tunneling, avoiding those that collapse easily (COSEWIC, 2012). Furthermore, the connectivity of habitats, particularly in the Upper Columbia, is vital for maintaining viable badger populations. Badger habitats are often concentrated at lower elevations, where badgers are more commonly found (Adams, 2011).

The American badger is recognized as a species at risk under the Forests and Range Practices Act (FRPA). Special provisions under FRPA can be used to manage badgers, e.g., Wildlife Habitat Areas (WHAs) and Wildlife Habitat Features (WHFs). Once burrow locations are identified and submitted to the provincial Wildlife Species Inventory (WSI) database, in theory they automatically become designated as WHFs, thereby ensuring their protection under the FRPA. Range Act tenure holders in areas with these burrows are legally required to take steps to avoid damaging or disturbing these habitats, including potential measures like excluding livestock or relocating attractants (K. Stark, personal communication, March 2023).

Establishing a WHA provides further protection (beyond a WHF) by preserving larger, contiguous habitats that support not only the badgers' burrowing and denning needs but also the availability of prey and suitable soil conditions (Adams & Kinley, 2004). WHAs are subject to general wildlife measures (GWMs) that are designed to protect crucial habitats on provincial Crown lands, with special regulations to prevent damaging activities around known badger burrows. GWMs offer tailored conservation strategies based on local conditions and may include restrictions on road building, silviculture, and pesticide use to mitigate human impacts (Kinley, 2009). While the specific criteria for WHAs—such as the required number of burrows—remain flexible, the goal is to secure critical habitats for the long-term survival of the species (Kinley, 2009).

By 2019, when the Columbia Wetlands Stewardship Partners (CWSP) initiated collaboration with Kootenay Connect, there was only one established WHA for American badgers near Canal Flats. The primary objective of the badger portion of the CWSP/Kootenay Connect species-at-risk projects has been to identify additional important badger habitats, gather necessary data, and submit applications for new WHF and WHA designations to further safeguard these areas and enhance conservation efforts.

4.2 Methods

In 2024, the Columbia Wetlands Stewardship Partners (CWSP) continued with badger conservation efforts from the previous years (Darvill, 2023; Darvill, 2024). In 2024, biologist Rachel Darvill, along with assistant Verena Shaw, conducted thorough surveys for badger burrows on four parcels of provincial Crown land. Since Wildlife Habitat Areas (WHAs) and WHF designations apply exclusively to Crown land, only Crown areas were surveyed. Three of the areas surveyed (Lake Willian West, Stoddart Creek and Findlay Creek) were visited because burrows had been identified through work led by Trevor Kinley from 2004-2009 (T.Kinley unpubl. Data.), but no WHA or WHFs were established. Surveys were done determine whether or not badger burrows were still present, and if so to what extent. Badger activity at the fourth area surveyed (Jubilee) had been reported to Darvill by a famer with cattle range tenure in the area.

During fieldwork, a variety of parameters were recorded for each burrow, including Universal Transverse Mercator (UTM) coordinates, whether the burrow was old or new, its condition (functioning or not), evidence of use, any habitat threats, whether it was a potential maternal denning area, and additional relevant details. In cases where burrows were clustered in close proximity to one another, a central UTM point was recorded, along with the number of burrows surrounding it. Only burrows that were deemed to be in 'functioning condition' were included in the survey data. A burrow is considered in 'functioning condition' if it remains capable of providing essential habitat and ecological functions for badgers. For example, if there is visible vegetation or slight soil sloughing around the burrow entrance, it is still considered functional, as badgers could potentially reoccupy it. Conversely, collapsed burrows are not considered to be in functioning condition (K. Stark, personal communication, September 2022). Burrows in functioning condition, regardless of their current use status, are eligible for documentation as features and can subsequently be designated as WHFs.

4.3 Results and Outcomes

Burrow inventory work at Stoddart Creek occurred on August 30, 2004. No badger activity or burrows were observed. Inventory work continued at Lake Lillian West on August 30, 2024. There were 22 old burrows recorded at Lake Lillian west, none considered ‘new’ (used in the current year), but eight were in functioning condition (table 2). Those eight burrows were clustered at nine centroid locations and are being submitted to the provincial government to become WHFs. On September 2, 2024, a cattle rancher went with Darvill to look for badger burrows on his cattle tenure at Jubilee. Twenty-one newly dug burrows were recorded along with seven old burrows (table 2). Twenty-five of those burrows were in functioning condition and will be submitted to the provincial government to become WHFs.

Significant levels of badger activity (new and old) were observed and recorded at the Findlay Creek location (figure 17), which was inventoried for burrows on September 17, 19, 20 and October 29th. There were 756 new badger burrows recorded and 1,586 old; 1,768 of the burrows recorded were in functional condition. Functional burrows were recorded at 515 central sites, most of which had multiple (2-25) burrows clustered around those centroid locations. Many new burrows had very fresh dirt mounds, indicating recent badger use. Scat and claw marks were also observed ay many entrances. Nine centroid locations were recorded as possible maternal denning areas due to specific attributes at those sites including: large piles of soil, showed signs of longer-term use (i.e., multiple tracks, trampling), and multiple entrances.

Table 2. Number of badger burrows recorded in various condition (old, new, functional, non-functional) at three areas.

Name of survey area	# New burrows (current year)	# Old burrows (previous years)	Functioning burrows	Non-functional burrows	Centroid locations (WHFs)
Lk Lillian W	0	22	8	14	9
Jubilee	21	7	25	3	8
Findlay Creek	756	1586	1768	574	515

4.4 Discussion and Recommendations

Historical badger telemetry and observational data points from 2004-2009 in the Findlay Creek area (T.Kinley unpubl. Data.) indicated the established WHA polygon (4-102) at Findlay Creek could potentially expand; many points fell outside of the WHA boundary (figure 17). This is why we conducted badger inventories at Findlay Creek in 2024. A larger number of functional burrows (n=1,768) were located than anticipated at Findlay Creek, and all were outside of the established WHA (figure 17). With the high level of badger activity, a complete inventory of the area was not completed. It is recommended to complete the inventory in that area in 2025. An ecosystems biologist with Ministry of Water, Land and Resource Stewardship stated it would be more efficient on their end if we wait and submit the full package of WHF points and Findlay WHA proposal at the same time, once the inventory work at Findlay is complete. Given the high number of functional burrows found in 2024, the boundary of the WHA should significantly expand the size of formally established WHA. Data points from 2024 badger surveys were not submitted to the Wildlife Species Information (SPI) SharePoint site (which uploads data to the BC CDC), but will be after surveys at Findlay are completed in 2025.

Significant ecological disturbance from cattle use was noted on several occasions in the grasslands and associated water features at Findlay Creek (Figure 18-21). In addition to collecting requisite data for proposing Findlay Creek WHA, it is recommended to continue getting previously proposed WHA's (Darvill 2023; Darvill 2024) formally established with General Wildlife Measures (GWMs) in place. Those measures, if appropriate and adhered to, could help improve the ecological condition observed at the Findlay Creek and other critical habitat areas (e.g., Rushmere, Red Rock) for badgers, the water there, and the endangered grassland ecosystem. The government has been slow to act on WHA establishment in proposed areas.

As mentioned previously, roadkill is a major source of badger mortality (COSEWIC, 2012). To build upon our badger conservation work and address this large threat, culverts will be assessed for their permeability for badgers between Kimberley and Brisco in 2025/26. Culvert assessment will support us knowing where additional WHAs might be most needed on the landscape. This initiative will also help better interpret the Badger Resource Selection in the Rocky Mountain Trench (Kinley, Whittington, Dibb & Newhouse, 2013), and it will improve culvert permeability (effectively functioning as highway wildlife underpasses) for badgers to increase corridor connectivity across the highway. We will continue dialogue with the Shuswap Band and MWLRS to get a collaborative established that can work effectivity on road mortality mitigation.

A Key Biodiversity Area (KBA) has been proposed by Darvill for the Upper Columbia. The Upper Columbia KBA is currently in the technical review phase. Its proposal is based on triggering the national criteria for reproductive units for Bank Swallows (Darvill, 2024) and also for Lewis's woodpecker (see Section 6). The 2024 badger data expanded the KBA boundary up Findlay Creek to include this area surveyed because the estimated number of reproductive units meets the KBA 'trigger,' which is at least 10 adult females and 5 adult males. Southern Maidenhair Fern (*Adiantum capillus-veneris*) is also a 'trigger species,' which is listed in the 2020 literature review for species at risk in the Columbia Valley (Darvill, 2020a).

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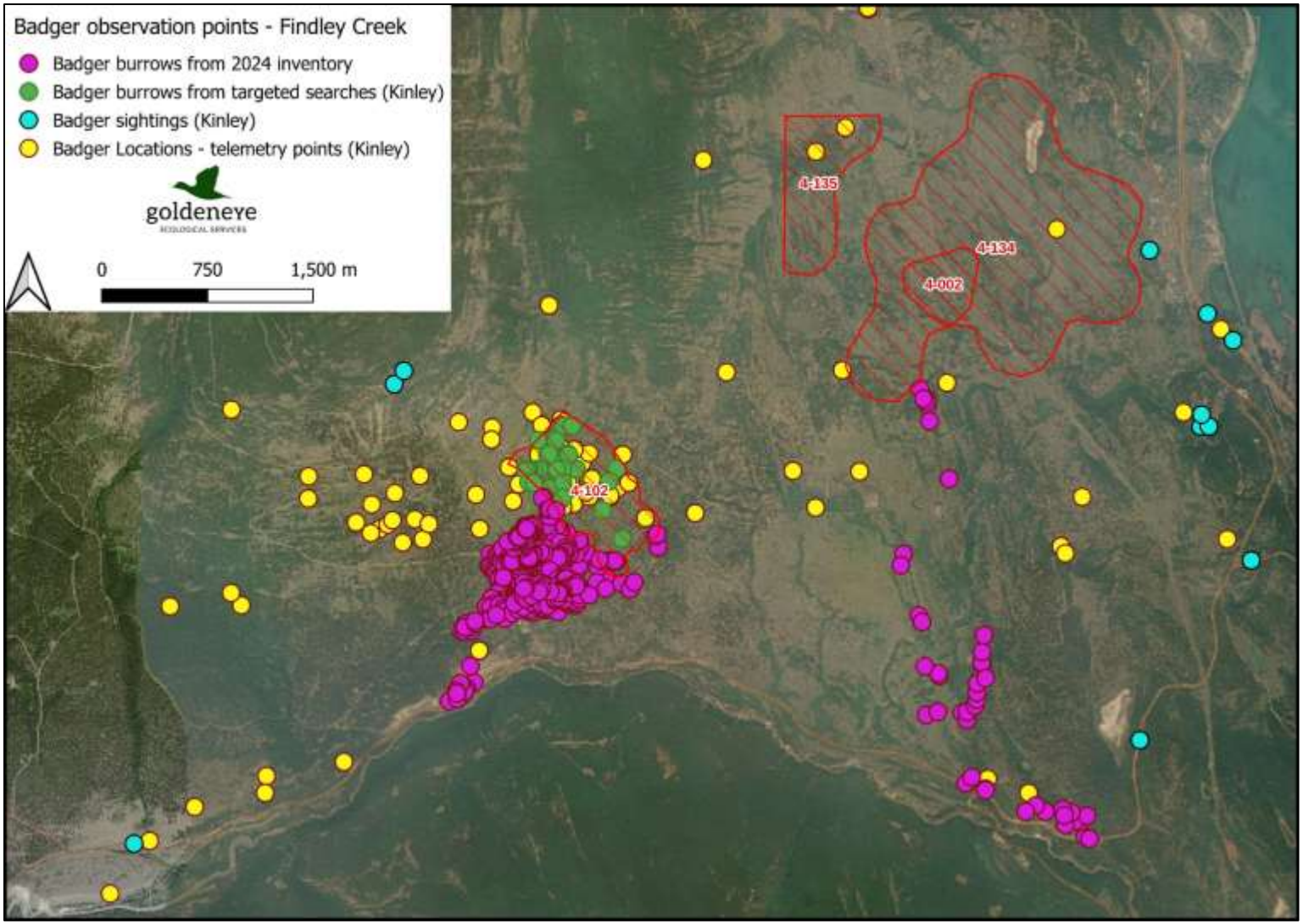

Figure 17. Map displays the burrow activity seen at Findlay Creek during historical surveys and during 2024 surveys.

*Note - Areas with red-hatch marks indicate established WHAs. 4-102 is for American badger, 4-135, 4-134, 4-002 are for Lewis's woodpecker.

Figure 18. Stream highly degraded by cattle in the Findlay Creek area.

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Figure 19. Close up look at the stream degradation.

Figure 20. Degraded wet area in grasslands.

Figure 21. Close-up look at degraded wet area in grasslands.

5.0 Osprey

5.1 Introduction

Osprey (*Pandion haliaetus*) are culturally significant and serve as valuable bioindicators of ecosystem health due to their sensitivity to environmental pollutants. As apex predators in aquatic ecosystems, they are particularly vulnerable to toxins like pesticides, heavy metals, and persistent organic pollutants, which accumulate through the food chain. Studies have demonstrated that the health and reproductive success of ospreys can reflect the broader health of their habitats, making them effective indicators of environmental changes (Poole, 2002; Toschik, 2005). These birds are also sensitive to human activities, including land development, water management practices, and recreational disturbances, which can impact their nesting success and overall populations (Poole, 1981). Furthermore, they face threats from predation, competition with other bird species, and climate change, which may alter their migratory patterns and food availability.

Monitoring osprey nests is crucial for understanding the impacts of these threats and ensuring their conservation. By tracking nest locations, monitoring reproductive success, and assessing environmental conditions, researchers can gain valuable insights into the health of the surrounding ecosystem. Osprey monitoring programs provide important data that informs habitat protection efforts and contributes to the management of human-induced threats. In the Columbia Valley, monitoring of osprey nests has been an ongoing effort since 2020, and six years of continuous data have now been collected (Darvill 2020b, Darvill, 2021; Darvill, 2022; Darvill 2023; Darvill 2024). Prior to these efforts, osprey nests in the Columbia Valley (from Canal Flats to Donald) had not been systematically monitored, highlighting the significance of this work. This monitoring was started in 2019 by Rachel Darvill as part of the Columbia Wetlands Waterbird Survey, administered by Wildsight Golden, with the goal of establishing baseline data for osprey populations in the region (Darvill, 2020b). Continued monitoring is vital for understanding whether osprey populations are changes and if so, identifying the threats and the best way to respond.

5.2 Methods

Most nest monitoring occurred on May 9 and August 8, 2025; these dates are consistent across survey dates since monitoring started in 2019. Due to limited resources, nest monitoring dates differed at nests that were farther away and could be visited while accomplishing other work objectives. For instance, the osprey nest checks in Donald took place when work on another SAR project was done in that area. Also, some volunteers were involved with monitoring nests at the south end of the study area. Survey dates at some nest sites were variable to accommodate a few volunteers that participated in monitoring. Not all nests could be visited due to logistical constraints (e.g., boat needed to visit Columbia Lake site), nor were all nests visited twice during the breeding season due to logistical constraints. Nest checks lasted at least five minutes at each nest. This is the amount of time between rest periods that chicks generally move in the nest, with detection of movement being the most useful parameter to determine nest occupancy (Moore & Arndt, 2016). At each site the following parameters were recorded: observation date, UTMs (only if the nest was new), time of day, number of chicks in the nest (if known), other general observations at the nest (e.g., one adult at nest, one adult calling nearby, two chicks seen in nest).

5.3 Results

Inventory for breeding osprey at 75 nesting sites found that one nest was no longer present from 2024, and two nests missing last year were not rebuilt from going missing in 2023. Ten poles/platforms had never seen use since monitoring began in 2019 and eight of those were in non-functional condition due

to inadequate placement (e.g., too close to ground, tall surrounding trees). One of the nests was newly recorded in 2025. The missing nest had been built on a hydro line in the Thunderwater area, but that nest was gone during the 2024 survey. Of the 72 remaining nests, only three of those were tree nests with the remaining 69 being poles with nesting platforms. Ten of those pole/nesting platforms have never been occupied and eight of those are not suitable osprey nesting habitat, i.e., most have been put up by private landowners and are too low to the ground or surrounded by taller vegetation which osprey do not like as it limits their sight lines. It is uncertain why two of ten poles have never been used as they spear to be suitable nesting habitat.

Of the 62 viable platforms and trees that have seen at least some use since 2019, 28 were successful in 2024. This is similar to the number of successful nests observed in previous years (19 successful nests in 2020; 27 in 2021; 27 in 2022; 30 in 2023) (Darvill, 2024). Nests were deemed successful when large chicks were seen in the nest, or fledglings were observed close to the nest. Fledglings close by a nest indicate nest success because after their first flight a fledgling generally remains at the nest or nearby; parents bring fish back to young and some fledglings persist in being fed by adults well into the fledgling period (Bierregaard et al., 2020). Fledglings may stay near the nest and take food from their parents for 8–10 weeks (Edwards, 1989).

Eighteen viable nests or platforms were not used in 2024. Twelve nests had unknown success (surveys may have missed fledgling; it could have been away from nest, foraging) and four platforms had osprey use during the first survey, but later failed. When only viable platforms are included in the total number of nests (62), the osprey nesting success rate was 45.2% - 64.5%, depending on how many of the 'unknown' nests produced viable fledglings. Three of the viable nesting platforms on poles were in need of repair because the platform was either tilting or had significantly deteriorated (Figures 22a-b).

5.4 Discussion and Recommendations

In February 2025, a request was sent to BC Hydro to repair the three platforms in disrepair (Figures 22 a-b). On March 7, 2025, BC Hydro staff responded to say that design requests were put in for platform repair work to be distributed to work crews. The crews will get issued the work order and they will schedule the work to begin ahead of the spring return of ospreys. BC Hydro was notified of the approaching nesting season. In the past couple years of this subproject, BC Hydro staff is taking more notice of the poles. This project only submits requests to change out platforms that no longer function as nesting habitat, but a staff member recently suggested that BC Hydro may do a lump maintenance project this fall to try and get these upgraded vs. picking away at them one by one. Getting the habitat secured for osprey in this way would be a huge accomplishment, especially since 95.8% of the known osprey nests in the study area are on built on hydro pole platforms.

The continuation of annual monitoring is recommended since ospreys are an indicator species for wetland health; they respond quickly to negative environmental change. Also, as seen during each year of CWSP/KC osprey monitoring, nest poles/platforms require maintenance and ospreys also build nests in unsafe locations (Darvill, 2021; Darvill, 2022; Darvill, 2023; Darvill, 2024). Our recommendations made to BC Hydro are able to keep the number of nesting platforms maximized. In 2025 we should keep track of all old pallet platforms since BC Hydro is interested to replace all of those this fall. Some nest poles erected by private landowners have never been occupied by osprey, potentially owing to improper placement, e.g., poles too low to the ground or reduced sightlines due to close proximity of trees. Landowners could

be contacted to see if the nest poles/platforms could be modified to provide suitable nesting habitat for osprey.

a)  b) 

Figure 22 (a-b). Osprey nesting platforms in need of repair in a) Radium, and b) Parson.

6.0 Lewis's Woodpecker

6.1 Introduction

Lewis's woodpecker (*Melanerpes lewis*) is a species of conservation concern in British Columbia and Canada. It is blue-listed in British Columbia and was designated as Threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in 2010. Following this, it was listed as Threatened on Schedule 1 of the Species at Risk Act (SARA) in 2012. Additionally, the species is included under the B.C. Forest and Range Practices Act's identified Wildlife Management Strategy, which necessitates special management actions aimed at protecting its critical habitat. These actions include establishing Wildlife Habitat Areas (WHA) with General Wildlife Measures (GWM), and Higher-Level Plans. In 2010, the B.C. Ministry of Environment established three WHAs for *M. lewis* in the southern part of the study area, near Canal Flats (Darvill, 2020a; Darvill, 2021; Environment Canada, 2014).

Threats to *M. lewis* include urban and agricultural development, firewood cutting, snag removal, mountain and pine beetle outbreaks, fire suppression, and competition for sites with European Starlings (*Sturnus vulgaris*) (Environment Canada, 2014). The breeding range of Lewis's woodpecker in Canada is confined to five geographic regions (with possibly one more on occasion) in southern British Columbia, with the most northerly breeding population occurring within the East Kootenay Trench (B.C. CDC, 2022; Cooper et al., 1998). In 2017, as part of the Recovery Strategy for the Lewis's woodpecker, three critical habitat areas were designated within the study area: Dutch Creek, Findlay Creek, and the Wilmer area (Environment and Climate Change Canada, 2017) (figure 23). These areas were selected based on habitat suitability models and nesting occurrence data, ensuring the protection of critical resources for the species' survival (Environment and Climate Change Canada, 2017).

Surveys in the East Kootenay region, conducted in 1997-1998, revealed that a significant portion of the Canadian population of *M. lewis* bred in this area. Cooper and Beauchesne (2000) found that up to one-fifth of the Canadian population resided in this region, with notable breeding occurrences in the Dutch Creek area. However, a subsequent survey in 2007 found no nests in the Dutch Creek area, likely due to the decay of fallen wildlife trees, which had previously provided suitable nesting sites (Beauchesne & Cooper, 2007). In contrast, the Findlay Creek burn area, which is located west of the south end of Columbia Lake and Canal Flats, showed more stable nesting patterns. In this area, three nests were found during an incomplete survey in 1997, 31 nests in 1998, and 26 nests in 2007 (Beauchesne & Cooper, 2007). In 2021, nine point-count surveys were completed on Findlay Creek Forest Service Road (FSR) detecting no nests (Darvill, 2022). However, the 2022 survey occurred at the end of the survey window and only along the FSR. Additional Lewis's woodpecker nesting locations were identified through surveys conducted in 2020, 2021 and 2022 (Darvill; 2021; Darvill, 2022; Darvill 2023). In 2024, additional surveys were done and located more active nest locations.

6.2 Methods

In 2024, point counts revisited nesting locations that were previously known or suspected. Most surveys were conducted on July 4, 2024, but singular point counts were also conducted on both July 10 and July 13, 2024. Maps and UTM coordinates were used to navigate to the pre-defined survey points. Weather conditions were recorded, date, time, nest tree species, nest cavity content, as well as the general habitat type (ponderosa pine, burn, riparian cottonwood, or other, % shrub cover, % grass cover). Point counts lasted 15 minutes at each suspected nest location. The Fairmont Riverside Golf course provided a golf cart to use to inventory the golf course for Lewis's woodpecker nests.

6.3 Results

Thirteen active Lewis's woodpecker nests were identified between Invermere and Canal Flats in 2024; eight of those were within a concentrated area near Fairmont Hot Springs, including on the golf course (figure 23). Eleven of these nest locations are on private land, and two are on BC Hydro right of way (nest cavities in hydro poles). Eight nests were located in Critical Habitat (CH) as identified in the recovery strategy, and five of those locations are not in CH. None of the active nests were within an established Lewis's woodpecker WHA.

6.4 Discussion and recommendations

Monitoring results over the past few years highlight some challenges with the management of Lewis's woodpecker populations, underscoring the importance of ongoing habitat protection efforts and the need for continued monitoring to help ensure the survival of this species. The species' reliance on habitat features such as mature trees and burned forest stands, and the change in the locations of these habitats over time, underscores the necessity for careful habitat management to maintain suitable conditions for breeding. As research continues to evolve, it is critical to adapt management strategies based on the latest scientific data to safeguard the species' long-term viability in the region, i.e., nest boxes haven't been effective (Darvill, 2021), new WHA locations needed to protect appropriate habitat, Critical Habitat expansion should occur along with continued landowner outreach. Since the majority of active nest locations in 2024 are on private land, landowner knowledge and stewardship along with RDEK council bylaws and their understanding regarding species at risk, can lead to more effective protection of nest sites on private land. Some public outreach occurred with private landowners and a golf course in Fairmont in 2021 (Darvill, 2022), but it should be ongoing.

Nest locations (n=5) outside of Critical Habitat were provided to Environment and Climate Change Canada's Canadian Wildlife Service (CWS) to ensure all locations are included in an update to the Lewis's woodpecker Recovery Strategy. Critical Habitat expansion would occur in either amendment to the recovery strategy or when an action plan is written. Neither is likely to happen in the short-term as documents are prioritized, cycles are lengthy, and review/posting process can be slow. However, submitting records to CWS and the BC Conservation Data Centre (CDC) is important as that information will be used when there is an update. The inventory data is awaiting upload into the provincial database (CDC). The provincial government has a new SharePoint site, and the CDC needs to move over R. Darvill 'historic projects' before any 2024 data can be added to those previously created projects. The request to move projects over to the new SharePoint site was made in February 2025.

To determine if Lewis's woodpecker are still nesting in the Findlay Creek Critical Habitat and WHA areas, it is recommended that surveys occur in both types of designated areas. This will help assess if the boundaries for those two conservation areas are adequate or should be adjusted. A local public stewardship group may be best positioned to continue with annual education about the Lewis's woodpecker, but the CWSP could play a role in distributing more Lewis's woodpecker brochures that were created in 2021 (Darvill, 2022). Especially to businesses, landowners and the golf club in Fairmont where this a cluster of active nests have been located since inventory work began in 2020.

A success of this inventory work is that Lewis's woodpecker is a 'trigger species' being used for the proposed Upper Columbia Key Biodiversity Area (KBA). The composition of 10 Reproductive Units (RUs) is needed for Lewis's woodpecker, which are assumed to be at least seasonally monogamous. Thirteen 13 nests were documented in the proposed KBA in both 2020 and 2024. This information has been provided

to the Wildlife Conservation Society Key Biodiversity Area staff and is included in the proposed Upper Columbia KBA, which is at the technical review stage at time of this report.

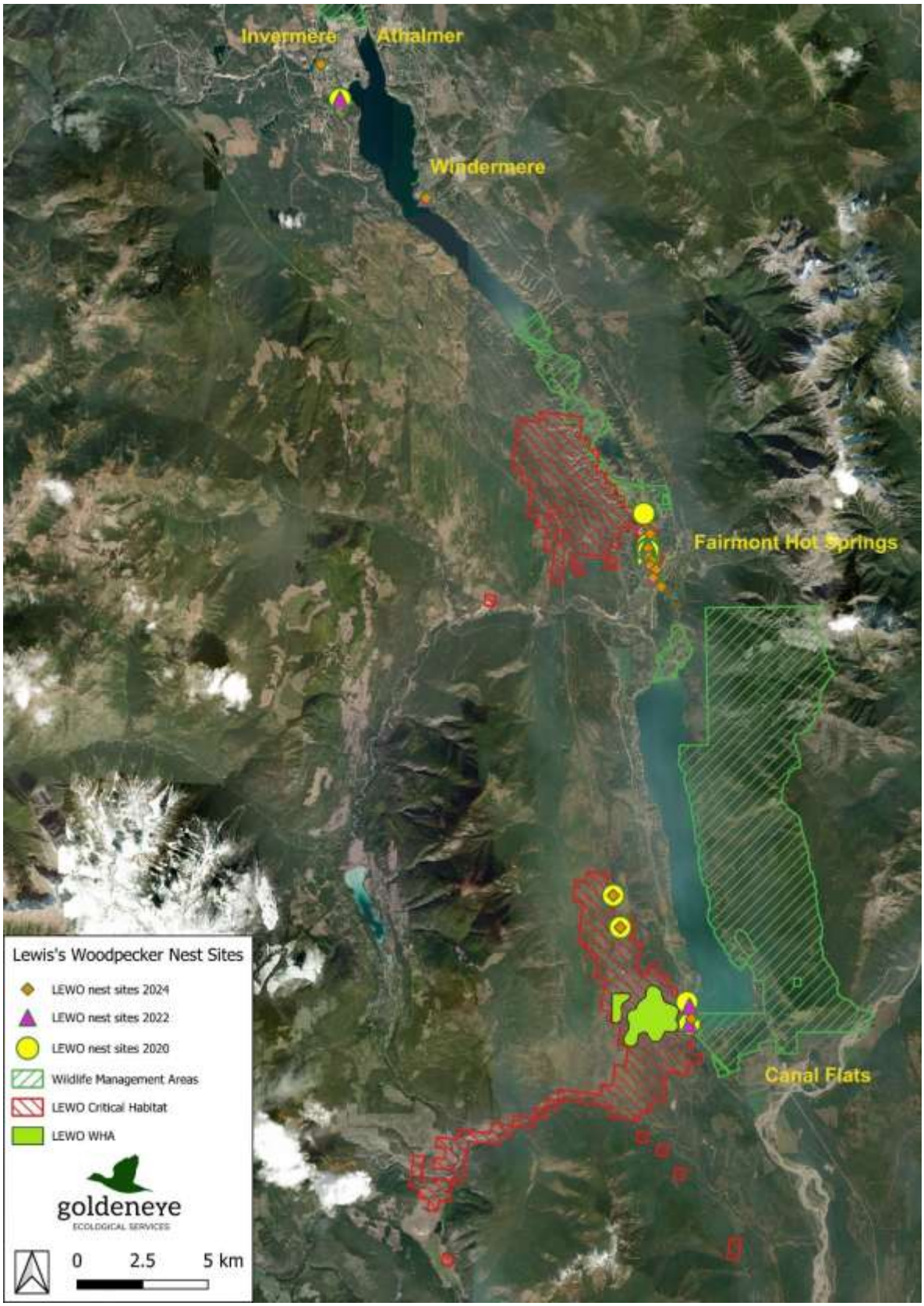

Figure 23. Lewis's woodpecker nest sites discovered in 2020, 2022 and 2024.

7.0 Acknowledgements

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9.0 Appendices

9.1 Appendix 1. Description of all turtle observations from wildlife cameras.

Feature Name	Date	Time range	Total time captured on camera (minutes)	Species	Observed Behavior (e.g., laid nest, prospecting, predating nest, etc.)	Observed turtle behaviour
SW Structure	June 25, 26, 2024	21:18-01:43	205	Turtle	Laid nest	Dug hole at left part of camera view at 21:20 and stayed there until 01:36 and then walked up and over nesting area.
SW Structure	June 17, 2024	16:58	1	Turtle	Sitting	Part of a turtle seen at the left most side of the photo moving from left to right.
North Bank	July 4, 2024	18:24	1	Turtle	Standing	Turtle at bottom center of photo.
Lower Road	June 17, 2024	18:04-18:20	16	Turtle	Walking	Walked along fence and in middle of the ground. Looked like it was looking for a way out of enclosure, walked from east to west and last seen was at the northwest end close to wetland. It was 12 C and raining.
Lower Road	June 29, 2024	20:23-20:36	3	Turtle	Walking	At northwest end of fence then moving back and forth, eventually going back into wetland.
North Bank	June 4, 2024	23:18-23:21	3	Turtle	Walking	Turtle moving to the road and along it until it was no longer able to be seen due to the darkness.
North Bank	June 5, 2024	00:07-00:13	6	Turtle	Walking	The turtle still on the nesting bed area walked across the road. Once it was in the middle of the road it could no longer be seen. There were no vehicles at this time, not until 3:20 am.
North Bank	June 5, 2024	19:33-19:39	6	Turtle	Walking	The turtle walked from the wetland side to the hill out of camera view.
North Bank	June 7, 2024	18:03-18:04	1	Turtle	Walking	A turtle was starting to cross the road from the wetland side when a truck came along, saw the turtle and slowed right down. Turtle went back to wetland.
North Bank	June 7, 2024	18:36-18:37	1	Turtle	Walking	Turtle crossed road from wetland to nesting bed side.
North Bank	June 7, 2024	18:44-18:48	1	Turtle	Walking	Same turtle (?) seen walking along side of the road. While it was seen walking, 1 vehicle drove by.

North Bank	June 8, 2024	20:33-20:39	6	Turtle	Walking	Walked right along edge of nesting bed area of road. A vehicle drove by once.
North Bank	June 9, 2024	22:04-22:07	3	Turtle	Walking	Turtle walked from nesting bed to wetland across the road.
North Bank	June 9, 2024	22:24-22:25	1	Turtle	Walking	Turtle walked from nesting bed to wetland across the road.
North Bank	June 10, 2024	17:33-17:35	2	Turtle	Walking	Turtle seen walking from edge of nesting bed area partway across the road.
North Bank	June 10, 2024	18:54	1	Turtle	Walking	Walked partway out onto the road and then back to the nesting bed area.
North Bank	June 10, 2024	19:01-19:03	2	Turtle	Walking	Walked from wetland to nesting bed area across road.
North Bank	June 10, 2024	19:24-19:26	2	Turtle	Walking	Turtle walked along nesting bed area.
North Bank	June 10, 2024	21:30-22:08	38	Turtle	Walking	Walked from nesting bed area onto road and then back up nesting bed area hill again.
North Bank	June 10, 2024	22:14-22:15	1	Turtle	Walking	Walked along side of road by wetland.
North Bank	June 27, 2024	6:32-6:42	10	Turtle	Walking	Walked from outside of camera area, (but assumed to be in the nesting bed area) across the road to the wetland and walked along the road on the other side.
North Bank	June 27, 2024	20:56-20:59	3	Turtle	Walking	Walked from outside of camera area, (but assumed to be in the nesting bed area) across the road to the wetland. The road was wet, it had rained.
North Bank	June 28, 2024	21:16-21:18	2	Turtle	Walking	Walked from outside of camera area, (but assumed to be in the nesting bed area) across the road to the wetland.
North Bank	June 29, 2024	18:24-18:37	13	Turtle	Walking	Walked from wetland to nesting bed area across road. One vehicle drove by while it was crossing the road, although the turtle had already crossed the part where the vehicle was. It was driving slowly. When the turtle got to the other side of the road 2 more vehicles went by.
North Bank	July 1, 2024	21:00	1	Turtle	Walking	Crossed road to wetland. Car drove by turtle slowly.

North Bank	July 4, 2024	17:46-17:48	2	Turtle	Walking	Turtle crossed from wetland to nesting bed area.
North Bank	July 11, 2024	21:59-22:01	2	Turtle	Walking	Walked from wetland to nesting bed area side of road and then partway back to wetland again
North Bank	July 13, 2024	22:00-22:05	5	Turtle	Walking	Walked across road to wetland and then walked along side of road.
SW Structure	June 26, 2024	02:06-02:10	4	Turtle	Walking	Walked from the area where the last turtle disappeared from camera view, and down the nesting area.
North Bank	June 8, 2024	20:46-22:17	91	Turtle	Walking, laid nest/prospecting	Walked back along nesting bed side of road, partway across the road and then a little ways back along the road. Stopped and stayed on the side of the road right on the nesting bed, laying eggs/prospecting. Was no longer able to see it once it got dark.
North Bank	June 5, 2024	20:01-20:12	11	Turtle	Walking, Prospecting	The turtle walked into camera view from the area where it was last seen and stopped close to the road on the hill. May have been nest laying at this point, could no longer see it
SW Structure	June 25, 2024	21:09-21:12	3	Turtle	Walking/laid nest/prospecting	Walked up nesting area to top in the back, appeared to lay down and then disappeared.
North Bank	June 4, 2024	20:15-20:43	28	Turtle	Laid nest, walking	One of two turtles started crossing the road, then retreated to wetlands, then back to the nesting bed/hill farther east, laying a nest close to the road. Could no longer see the turtle as it had stopped moving and it was fairly dark.
North Bank	June 4, 2024	19:52-20:10	18	Turtle (x2)	Laid nest, walking	One turtle was seen nest laying near the road, the other turtle was seen walking on the nesting bed area and on the side of the road before going back on the nesting bed area and laying nest close to first turtle. It was 12 C. Once it got dark, the 2 nesting turtles could no longer be seen.
North Bank	June 9, 2024	20:43-20:49	6	Turtle (x2)	Walking	Two turtles walked across the road: one to the wetland and one to and up the nesting hill.
North Bank	June 10, 2024	19:09-19:20	11	Turtle (x2)	Walking	Two turtles passed each other on the road, one going from nesting bed area to wetland, other from wetland to nesting bed. The one on the nesting bed area moved across the hill near the road, likely prospecting.

North Bank	June 7, 2024	20:13-22:41	148	Turtle (x3)	Walking, laid nest	One turtle crossed road from nesting bed side of road to wetland side. It was on the nesting bed side when a truck drove by and the passenger looked at the turtle from the truck. At 19:13 there were two turtles seen, the one at the nesting bed side of the road and another one just above it that could have been nesting. At 19:18, one turtle crossed the road to the wetland, the other one still appeared to be nesting. At 19:21 the nesting turtle was still present, but there was now another turtle just above it. They both stayed there until 20:15, when the first of the two nesting turtles walked across the road to the wetland. The other turtle still appeared to be nesting until 20:39 when it too crossed the road.
North Bank	June 9, 2024	19:33-20:35	62	Turtle (x3)	Walking, prospecting, laid nest	First turtle crossed road from wetland to nesting bed area and was still. Then another turtle walked across the road and up the nesting bed hill. A third turtle appeared at the end of the road and walked along road edge, then to the middle of the road and back to the road edge before finally crossing the road to the wetland. Eventually one of the two remaining turtles walked across the road to the wetland.
North Bank	June 10, 2024	19:31-20:36	65	Turtle (x3), human	Walking, laid nest	3 turtles were walking around the nesting bed, one eventually crossed the road back to the wetland, one stayed in one spot for several mins. One was walking along the road when a van drove by. It then backed up to the turtle, a passenger got out, went up to the turtle, took a photo, got into the van and left.

9.2 Appendix 2. Observations from 2024 osprey nest monitoring.

Nest #	Location	Easting	Northing	Observation Date (DD-MM-YY)	Time (0:00)	Nest occupancy	Nest successful (large chicks observed)	Nest type	Observer	Notes/Comments
1	Old Mill in Donald	487568	5704145	22/05/2024	1317	1 OSPR	Y	pole	RD	Incubating
1	Old Mill in Donald			06/08/2024	1330	1 OSPR				Large chick in nest
2	Golden CVSE Inspection Station	489583	5703175	22/05/2024	1250	1 OSPR	unknown	pole	RD	Incubating
2	Golden CVSE Inspection Station			06/08/2024	1351	no OSPR				No Osprey. Large stick nest. Could have fledged early.
3	Golden - LP Mill north end	501285	5684941	na	na	na	N	pole	RD	Cannot view from road.
3	Golden - LP Mill south end	501264	5684484	22/05/2024	1215	no OSPR	N	n/a	n/a	No sticks on platform.
4	13th Street S and 7th Ave in Town of Golden	502028	5682396	22/05/2024	1000	no OSPR	N	pole	RD	No sticks on platform.
5	Hwy 95 S, at CP Railway Pond across from Day Road	504896	5679931	13/05/2024	1205	1 OSPR	Y	pole	RD	Incubating
5	Hwy 95 S, at CP Railway Pond across from Day Road	504896	5679931	06/08/2024	1445	no OSPR)		pole	RD	Two chicks fledged from nest on July 31
6	Hwy 95 S, Champagne Road off Hwy 95S	505039	5679727	13/05/2024	1206	no OSPR	N	pole	RD	private landowner pole. No sticks on nest. Nest has never been seen occupied.
7	Hwy 95 S, near Lou's Feed Store	506900	5676032	ongoing dates	na	no OSPR	N, but use earlier	pole	DD	nearby landowner watches the nest. There was an osprey at beginning of nesting season (April) but no young produced.
8	Hwy 95 S at Horse Creek North end, Austin Rd	507395	5673513	13/05/2024	1210	no OSPR	N	pole	RD	Pole has never been used. Too low, below surrounding trees that are growing close to platform. Private land.
8	Hwy 95 S at Horse Creek North end, Austin Rd	507395	5673513	06/08/2024	1525	no OSPR		pole	RD	
9	Horse Creek rock quarry site	507213	5673280	13/05/2024	1214	no OSPR	N	pole	RD	
9	Horse Creek rock quarry site	507213	5673280	06/08/2024	1528	no OSPR		pole	RD	No sticks on platform.
10	Hwy 95 S at Horse Creek South end	508317	5672306	13/05/2024	1216	2 OSPR	Y	pole	RD	One incubating and one perched on nearby Hydro pole.

10	Hwy 95 S at Horse Creek South end	508317	5672306	06/08/2024	1535	1 OSPR		pole	RD	1 large chick in nest.
11	Hwy 95 S, South of Nine Mile Slough	509511	5671022	13/05/2024	1217	no OSPR	N	pole	RD	
11	Hwy 95 S, South of Nine Mile Slough	509511	5671022	06/08/2024	1533	no OSPR		pole	RD	
12	Hwy 95 S North of Judy's house; Hydro pole near VGSW colony at about 16kms	510210	5670318	13/05/2024	1219	2 OSPR	Y	pole	RD	Two adults perched in nest
12	Hwy 95 S North of Judy's house; Hydro pole near VGSW colony at about 16kms	510210	5670318	06/08/2024	1539	2 OSPR		pole	RD	2 large chicks in nest
13	Dickson Downs Rd at Judy Malones home	510846	5669517	13/05/2024	1222	No OSPR	N	pole	RD	No sticks on platform.
13	Dickson Downs Rd at Judy Malones home	510846	5669517	06/08/2024	1442	No OSPR		pole	RD	No sticks on platform.
14	Canadian Timberframes	513969	5667201	13/05/2024	1223	No OSPR	N	pole	RD	No sticks on platform; platform has never been used.
15	Hwy 95 S at McMurdo Slough	515333	5666384	13/05/2024	1224	2 OSPR	Y	pole	RD	One incubating and one perched on nearby Hydro pole.
15	Hwy 95 S at McMurdo Slough	515333	5666384	06/08/2024	1448	1 OSPR		pole	RD	1 large chick in nest.
16	Hwy 95 S, on east side of McMurdo Slough	515360	5666382	13/05/2024	1225	No OSPR	N	pole	RD	No sticks on platform.
16	Hwy 95 S, on east side of McMurdo Slough	515360	5666382	06/08/2024	1450	No OSPR		pole	RD	
17	Columbia Valley B&B	515760	5665939	13/05/2024	1225	No OSPR	N	pole	RD	No sticks on platform. Platform has never been used
18	Hwy 95 S, 1km south of Mons Road (25kms south of Golden)	517394	5664998	13/05/2024	1230	2 OSPR	N, but use earlier	pole	RD	One incubating and one perched on nearby Hydro pole.
18	Hwy 95 S, 1km south of Mons Road (25kms south of Golden)	517394	5664998	06/08/2024	1452	No OSPR		pole	RD	Osprey abandoned this platform not long after the first survey. New road development under pole last years, has increased amount of human activity there.

19	Hwy 95S, ~26kms south of Golden (2677 Hwy95)	518702	5663866	08-05-24	722	no OSPR	N	pole	RD	Only a few sticks in this platform along Hydro ROW, behind house.
19	Hwy 95S, ~26kms south of Golden (2677 Hwy95)	518702	5663866	07-08-24	907	no OSPR		pole	RD	
20	Hwy 95 S, ~28kms south of Golden	520568	5661842	08-05-24	725	1 OSPR	Y	pole	RD	incubating
20	Hwy 95 S, ~28kms south of Golden	520568	5661842	07-08-24	908	no OSPR		pole	RD	No Osprey in area, but this pole was seen occupied with chicks throughout the season. Likely chick(s) fledged. Platform is tilted; request was made to BC Hydro on February 11, 2025.
21	Hwy 95 S, just north of Parson Store	522450	5659924	08-05-24	727	1 OSPR	unknown	pole	RD	incubating
21	Hwy 95 S, just north of Parson Store	522450	5659924	07-08-24	915	No Osprey		pole	RD	no osprey in area but osprey could have fledged early.
22	Hwy 95 S, Timber Inn, Parson (MRC Lodge)	524531	5658477	08-05-24	730	1 OSPR	N, but use earlier	pole	RD	Large stick nest that has standing Osprey in it. Not incubating.
22	Hwy 95 S, Timber Inn, Parson (MRC Lodge)	524531	5658477	07-08-24	915	No Osprey		pole	RD	Osprey abandoned nest not long after previous survey.
23	Hwy 95 S, south of Timber Inn, beside Wilfred's place	524988	5658171	08-05-24	733	1 OSPR	Y	pole	RD	incubating
23	Hwy 95 S, south of Timber Inn, beside Wilfred's place	524988	5658171	07-08-24	917	1 OSPR		pole	RD	Chick in nest
24	Hwy 95 S, South of Parson School	526207	5657242	09-05-24	913	1 OSPR	Y	pole	RD	incubating
24	Hwy 95 S, South of Parson School	526207	5657242	07-08-24	920	2 OSPR		pole	RD	1 adult and 1 fledging in nest. Fledgling seen taking a flight from nest.
25	Hwy 95 S near Hildeguards house, about 250m above Hwy in field.	527816	5655758	09-05-24	917	1 OSPR	Y	pole	RD	incubating
25	Hwy 95 S near Hildeguards house, about 250m above Hwy in field.	527816	5655758	07-08-24	919	2 OSPR		pole	RD	1 adult and 1 chick in nest.

26	Hwy 95 S - 1	530941	5653663	09-05-24	922	no OSPR	N	pole	RD	No sticks on nest. Nest has never been seen occupied.
26	Hwy 95 S - 1	530941	5653663	07-08-24	920	no OSPR		pole	RD	No sticks on nest. Nest has never been seen occupied.
27	Hwy 95 S, Quinn Creek Campground	531948	5653113	09-05-24	925	1 OSPR	Y	pole	RD	incubating
27	Hwy 95 S, Quinn Creek Campground	531948	5653113	07-08-24	1612	1 OSPR		pole	RD	1 chick in nest. Only adult in. Eat earlier so this is a fledgling.
28	Hwy 95 S, McKeeman's	534149	5651579	09-05-24	929	1 OSPR	unknown	pole	RD	Deep stick nest, unable to see inside nest but adult perched on pole beside nest. Nest is leaning to one side and platform should be replaced.
28	Hwy 95 S, McKeeman's	534149	5651579	07-08-24	940	No OSPR		pole	RD	(51.0150061, -116.5130588) platform is large and learning and should be replaced; request made to BC Hydro on February 11, 2025. Heavy nest on top of platform.
29	Hwy 95 S - 2	536073	5650604	09-05-24	923	1 OSPR	Y	pole	RD	
29	Hwy 95 S - 2	536073	5650604	07-08-24	947	1 OSPR		pole	RD	1 large chick in nest
30	Hwy 95 S, Ben Hynes Loop Rd	537904	5648337	09-05-24	928	1 OSPR	Y	pole	RD	incubating ? Heard and saw adult in nest and another nearby.
30	Hwy 95 S, Ben Hynes Loop Rd	537904	5648337	07-08-24	951	1 OSPR		pole	RD	1 large chick in nest. Possibly two chicks earlier in season, but 1 could have fledged.
31	Near Westside Rd xing in Spilli - up hill off Hwy 95 S ~400m	544800	5639788	09-05-24	940	no OSPR	N	active hydro pole	RD	Osprey flew away from nest upon arrival. Stayed for 10 mins and didn't see it again.
31	Near Westside Rd xing in Spilli - up hill off Hwy 95 S ~400m	544800	5639788	07-08-24	1002	no OSPR		active hydro pole	RD	
32	Spill xing east end	544566	5639534	09-05-24	957	no OSPR	N	pole	RD	
32	Spill xing east end	544566	5639534	07-08-24	1004	no OSPR		pole	RD	Pole never seen in use by osprey, only geese.
33	Brisco Pole Treatment Facility	550969	5630693	09-05-24	1003	1 OSPR	Y	pole	RD	Incubating
33	Brisco Pole Treatment Facility	550969	5630693	07-08-24	1023	1 OSPR		pole	RD	1 chick in nest
34	Trescher's field near barn	549912	5630945	09-05-24	1015	2 OSPR	Y	pole	RD	Both in nest

34	Trescher's field near barn	549912	5630945	07-08-24	1027	1 OSPR		pole	RD	1 large chick in nest, 1 more chick nearby perched in tree
35	Trescher's field west, on hydro line	549749	5630689	09-05-24	1015	1 OSPR	unknown	pole	RD	Incubating
35	Trescher's field west, on hydro line	549749	5630689	07-08-24	1030	no ospr		pole	RD	No Osprey seen near platform nest.
35	Trescher's field west, on hydro line	549749	5630689	2024	NA	NA		pole	JB	There were chicks, but one dead chick was found in the pasture.
36	Edgewater	561204	5615921	09-05-24	1033	1 OSPR	Y	pole	RD	Incubating
36	Edgewater	561204	5615921	07-08-24	1058	3 OSPR		pole	RD	2 chicks and 1 adult on platform.
37	Edgewater - across Sewage Treatment Plant	559515	5616360	09-05-24	1040	No OSPR	N	pole	RD	Nest about 1km away on west side of river. Did not see any OSPR on nest pole.
37	Edgewater - across Sewage Treatment Plant	559515	5616360	07-08-24	1103	No OSPR		pole	RD	
38	Radium xing	563761	5608098	09-05-24	1058	2 OSPR	N, but use earlier	pole	RD	2 OSPR perched on nest platform. Not incubating. No new sticks on nest, they look old. Checked on nest later in July, no OSPR on nest.
38	Radium xing	563761	5608098	07-08-24	na	No OSPR		pole	RD	no sticks on nest, platform is old and deteriorated. Made platform replacement request to BC Hydro on February 11, 2025.
39	Shuswap Band - Eagle Ridge (new nest)	569234	5598417	09-05-24	1507	No OSPR	N	pole	RD	
39	Shuswap Band - Eagle Ridge (new nest)	569234	5598417	07-08-24	1511	No OSPR		Pole	RD	Few sticks on platform.
40	Athalmer - Pete's marina	569469	5596354	09-05-24	1155	No OSPR	N	pole	RD	No sticks on nest platform, never seen used.
40	Athalmer - Pete's marina	569469	5596354	07-08-24	1235	No OSPR		pole	RD	No sticks on nest. Nest has never been seen occupied.
41	James Chabot Provincial Park	569268	5596096	09-05-24	1156	No OSPR	N	pole	RD	No sticks on nest platform.
41	James Chabot Provincial Park	569268	5596096	07-08-24	1236	No OSPR		pole	RD	No sticks on nest platform.
42	Between Rona and wetlands	569192	5596455	09-05-24	1204	1 OSPR	Y	pole	RD	Incubating
42	Between Rona and wetlands	569192	5596455	07-08-24	1242	1 OSPR		pole	RD	1 chick in nest

43	Panorama Drive (new nest)	568306	5596632	09-05-24	1207	1 OSPR	unknown	Pole	RD	
43	Panorama Drive (new nest)	568306	5596632	07-08-24	1247	1 OSPR		Pole	RD	1 adult eating a fish on platform. No chicks around.
44	Near Rona in Invermere - off 7th Ave	568847	5596040	09-05-24	1200	No OSPR	N	pole	RD	Very few sticks on platform.
44	Near Rona in Invermere - off 7th Ave	568847	5596040	07-08-24	1240	No OSPR		pole	RD	Very few sticks on platform.
45	Nest pole near LWA office/prov gov't offices	568907	5595772	09-05-24	1211	2 OSPR	Unknown	pole	RD	1 incubating and one perched on adjacent pole
45	Nest pole near LWA office/prov gov't offices	568907	5595772	07-08-24	1256	No OSPR		pole	RD	Possibly chicks fledged early
46	Nest pole south of LWA office/prov gov't offices	569014	5595633	09-05-24	1211	No OSPR	N	pole	RD	No sticks on nest. No use on this platform since fisrt saw it installed in 2021.
46	Nest pole south of LWA office/prov gov't offices	569014	5595633	07-08-24	1256	No OSPR		pole	RD	
47	Downtown Invermere, behind arena	569141	5595225	09-05-24	1254	1 OSPR	Y	pole	RD	Incubating
47	Downtown Invermere, behind arena	569141	5595225	07-08-24	1303	1 OSPR		pole	RD	1 fledgling in nest, flying from nest.
48	Dorothy Lake	569084	5594499	09-05-24	1237	No OSPR	N	pole	RD	Platform is slightly tilted now. No sticks on platform.
48	Dorothy Lake	569084	5594499	07-08-24	1315	No OSPR		pole	RD	No sticks on nest platform.
49	Dorothy Lake - NE end	569135	5594673	09-05-24	1237	1 OSPR	Y	pole	RD	Incubating
49	Dorothy Lake - NE end	569135	5594673	07-08-24	1320	3 OSPR		pole	RD	2 chicks and 1 adult. Adult feeding one of the chicks.
50	Invermere - 15th Ave(new nest)	568000	5594151	09-05-24	1226	1 OSPR	Y	pole	RD	incubating
50	Invermere - 15th Ave(new nest)	568000	5594151	07-08-24	1344	2 OSPR				2 chicks in nest
51	Invermere Community Gardens	567859	5595055	09-05-24	1231	No OSPR	N	pole		
51	Invermere Community Gardens			07-08-24	1337	No OSPR		pole		No Osprey in area.
52	RDEK offices - Windermere Loop Rd	572650	5593879	09-05-24	1117	No OSPR	N	pole	RD	

52	RDEK offices - Windermere Loop Rd	572650	5593879	07-08-24	1140	No OSPR		pole	RD	
53	North of Winderberry Nursery	572182	5591459	09-05-24	1120	No OSPR	Y	pole	RD	
53	North of Winderberry Nursery	572182	5591459	07-08-24	1222	4 OSPR		pole	RD	1 adult, 3 chicks
54	Behind Winderberry Nursery	572223	5590766	09-05-24	1148	2 OSPR	Y	pole	RD	1 incubating and one perched on nest platform
54	Behind Winderberry Nursery	572223	5590766	07-08-24		1 OSPR		pole	RD	1 adult on platform on large deep nest, no chicks seen, but nearby landowner reported that 2 chicks hatched and fledged successfully in 2024.
55	Akisqnuk Offices - across the street	573056	5590459	09-05-24	1127	1 OSPR	Y	pole	RD	1 incubating
55	Akisqnuk Offices - across the street	573056	5590459	07-08-24	1203	2 OSPR		pole	RD	1 chick and 1 adult in nest
56	1858 Victoria Avenue	572131	5589834	09-05-24	1129	No OSPR	N	pole	RD	
56	1858 Victoria Avenue	572131	5589834	07-08-24	1205	No OSPR		pole	RD	Never been occupied. Pole is too low and surrounded by taller trees.
57	Wilmai Place	572387	5589995	09-05-24	1130	No OSPR	N	pole	RD	No sticks on platform. Never been in use. Too low to the ground
57	Wilmai Place	572387	5589995	07-08-24	1205	No OSPR		pole	RD	
58	Windermere Creek mouth	571559	5589936	09-05-24	1140	2 OSPR	Y	pole	RD	1 incubating and one perched on nest pole
58	Windermere Creek mouth	571559	5589936	07-08-24	1210	2 OSPR		pole	RD	1 chick and 1 adult on platform
59	Akisqnuk Lakeshore Resort	575280	5587220	09-05-24	1129	1 OSPR	Y	tree	RD	incubating. About 2km N saw an OSPR get a stick from edge of Hwy and flew towards lake. Likely another nest there.
59	Akisqnuk Lakeshore Resort	575280	5587220	07-08-24	1155	1 OSPR		tree	RD	1 chick in nest
60	#3 Rd on east side of Hwy 95 - Akisqnuk lands	577147	5585838	27-04-24	12:00	2 OSPR	unknown	tree	BS, KS	There were 2 adults on the nest.
60	#3 Rd on east side of Hwy 95 - Akisqnuk lands	577147	5585838	11-05-24	11:10	1 OSPR		tree	BS, KS	1 Adult brooding, 2 adults flying over, nest and tree in good condition
60	#3 Rd on east side of Hwy 95	577147	5585838	11-08-24	13:46	No OSPR		tree	BS, KS	There was no activity in the area. Chicks

	- Akisqnuk lands									could have already fledged.
61	North of Funtasia, west side of Hwy 95	578167	5583967	27-04-24	12:20	1 OSPR		tree	BS, KS	1 adult on nest, adult flying.
61	North of Funtasia, west side of Hwy 95	578167	5583967	11-05-24	11:20	No OSPR	Y	tree	BS, KS	No birds were observed. This nest and the one on #3 road are very close. Dead tree is leaning.
61	North of Funtasia, west side of Hwy 95	578167	5583967	11-08-24	13:52	2 OSPR		tree	BS, KS	2 fledglings on nest, flew away after 30 seconds
62	Funtasia mini golf course	581331	5577284	27-04-24	11:50	2 OSPR		pole	BS, KS	The osprey arrived April 17th according to land owners. 2 adults on nest, rearranging nest
62	Funtasia mini golf course	581331	5577284	11-05-24	11:00	1 OSPR	Y	pole	BS, KS	1 adult brooding , 1 adult perched on tree beside , platform and pole in good condition
62	Funtasia mini golf course	581331	5577284	11-08-24	13:30	No OSPR		pole	BS, KS	No activity was observed.
62	Funtasia mini golf course	581331	5577284	17-08-2024	n/a	2 OSPR		pole	BS, KS	The fledglings are learning to fish and fly. They are out of the nest a lot now, but still there
63	Across from Fairmont Resort Sign	581343	5576494	27-04-24	11:45	No OSPR		tree	BS, KS	empty
63	Across from Fairmont Resort Sign	581343	5576494	11-05-24	10:50	No OSPR	N	tree	BS, KS	2 BAEA in nest
63	Across from Fairmont Resort Sign	581343	5576494	11-08-24	13:25	No OSPR		tree	BS, KS	Nest is tilting
64	Fairmont Airport 1	580121	5574869	27-04-24	11:30	No OSPR		pole	BS, KS	Empty
64	Fairmont Airport 1	580121	5574869	11-05-24	10:45	No OSPR	N	pole	BS, KS	no nest , one adult perched on power pole beside
64	Fairmont Airport 1	580121	5574869	11-08-24	14:02	No OSPR		pole	BS, KS	No activity was observed.
65	Fairmont Airport 2	580100	5575164	27-04-24	11:30	No OSPR		pole	BS, KS	Empty
65	Fairmont Airport 2	580100	5575164	11-05-24	10:45	No OSPR	N	pole	BS, KS	No nest, platform has quite the tilt
65	Fairmont Airport 2	580100	5575164	11-08-24	14:02	No OSPR		pole	BS, KS	No activity was observed.
66	Downey Farm (new nest)	580126	5574294	27-04-24	11:35	1 OSPR		pole	BS, KS	1 adult seen
66	Downey Farm (new nest)	580126	5574294	11-05-24	10:35	1 OSPR	unknown	pole	BS, KS	1 adult brooding , 1 adult on road sign, pole in good condition
66	Downey Farm (new nest)	580126	5574294	11-08-24	14:10	No OSPR		pole	BS, KS	No activity was observed.

67	Columere marina - Columbia Lake	580325	5571480	27-04-24	10:50	No OSPR	unknown	pole	BS, KS	Empty but nest is built
67	Columere marina - Columbia Lake	580325	5571480	11-05-24	10:25	1 OSPR		pole	BS, KS	1 adult brooding , 1 adult perched beside, nest in good condition
67	Columere marina - Columbia Lake	580325	5571480	11-08-24	13:10	No OSPR		pole	BS, KS	Empty but nest is built
68	Lot 48 Nest 1	582034	5570095				unknown	tree		
68	Lot 48 Nest 1	582034	5570095					tree		
69	Private property - SW end Columbia Lk - boat access only for viewing	581153	5563175	na	na	na	unknown	pole	na	
70	Pole 53-02 Hydro Line above west side of Columbia Lk	580828	5565189	04-07-24	1222	1 OSPR and 1 chick	Y	pole	RD	
71	Pole 54-04 Hydro Line above west side of Columbia Lk	580912	5559630	04-07-24	1242	1 OSPR	unknown	pole	RD	
72	Canal Flats	585723	5555701	27-04-24	10:30	2 OSPR	Y	pole	BS, KS	2 adults on nest
72	Canal Flats	585723	5555701	11-05-24	10:10	1 OSPR		pole	BS, KS	1 adult brooding, 1 adult perched in tree, pole in good condition
72	Canal Flats	585723	5555701	11-08-24	12:54	3 OSPR		pole	BS, KS	3 fledglings in nest , confirmed with scope