

Western Painted Turtle Surveys and
Stewardship Activities on Vancouver Island, April
2017 – March 2018

Annual Summary

Prepared for

Habitat Acquisition Trust, Victoria, B.C.

Prepared by

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1.0 INTRODUCTION

The Pacific Coast population of Western Painted Turtle is listed as endangered in Canada under the *Species At Risk Act* and is on the Red List of species at risk in British Columbia. COSEWIC (2016) reassessed the species as “threatened”, which refers to a “wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction”. The status was downgraded from “endangered”, partly because of new survey information provided by HAT, which documented that the species is more widespread on Vancouver Island than previously thought. However, Western Painted Turtles continue to face many threats within their range that overlaps with populated and modified landscapes, including the Lower Mainland and Capital Regional District (CRD) on Vancouver Island.

Since 2008, we have carried out annual studies on Western Painted Turtles in CRD and Alberni Valley as part of Habitat Acquisition Trust’s “Species At Risk” Program (annual reports by Engelstoft and Ovaska 2008 - 2017). This report presents a summary of activities undertaken during the 2017 – 2018 fiscal year.

2.0 SUMMARY OF ACTIVITIES

The activities carried out during this reporting period consisted of the following:

1. Providing advice on turtle habitat management to existing and new habitat stewards, and conducting outreach activities
2. Restoring and enhancing nesting and basking habitat
3. Monitoring use of previously restored sites

2.1 Providing advice on turtle habitat management to existing and new habitat stewards, and conducting outreach activities

HAT biologists visited four existing habitat stewards with known Western Turtle occurrences on private residential lands and worked on turtle protection with land managers from CRD Regional Parks and Highlands municipal parks and from private forestry lands in the Alberni Valley. HAT biologists also participated in nesting habitat restoration at Buttertubs Marsh, near Nanaimo (Engelstoft 2018). We established contacts with and visited two large properties with potential turtle habitat held by non-governmental organizations within the CRD and hope to work with them on turtle habitat enhancement in the future.

On 25 May 2017, we gave a community presentation in Port Alberni, and on 17 September 2017, we gave a presentation to the Comox Valley Naturalist Society, focusing on conservation and management of turtles and their habitats. Western Painted Turtle continued to be featured in HAT’s outreach projects, neighbourhood visits, and website. A local TV station featured HAT’s nesting habitat restoration project at Eagles Lake in May 2017.

2.2 Nesting Habitat Improvement and monitoring

Warm, sparsely vegetated turtle nesting habitats with suitable substrates near occupied water bodies are in short supply along wetlands on Vancouver Island and appear to be a limiting factor for Western Painted Turtle. Since 2012, HAT has engaged in turtle nesting habitat enhancement and creation at several sites within the CRD (Elk-Beaver Lake Regional Park, Swan Lake – Christmas Hill Nature Sanctuary, private residential lands in Saanich, Highlands, and Metchosin) and on private forestry lands managed by Island Timberlands in the Alberni Valley.

In 2017, the activities consisted of the creation of one new nesting area and site maintenance and monitoring habitat use at four previously established nesting areas. Continued maintenance is required to prevent turf-forming grasses and weeds from forming dense mats and covering bare patches of ground required by nesting turtles.

Nesting area creation at Eagles Lake:

A turtle nesting area was created at Eagles Lake on 11 May 2017 with help from volunteers and support from the Highlands Municipality. Previously, basking logs were installed into the lake to enhance habitat for turtles (Ovaska and Engelstoft 2017). Western Painted Turtles have been noted to move from the lake across a paved road to nest on residential properties. The new nesting area was created on the lake side of the road by removing Scotch Broom and other shrubs and mounding up sand/soil mixture brought to the site (Figure 1). Subsequently, on 30 May, 2017, native plants including tussock-forming grasses were planted at the site. On 16 June, 2017, a low drift fence was erected parallel to the road to direct turtles to the new nesting area and away from the road.

Figure 1. Nesting site creation at Eagles Lake, May 2017.



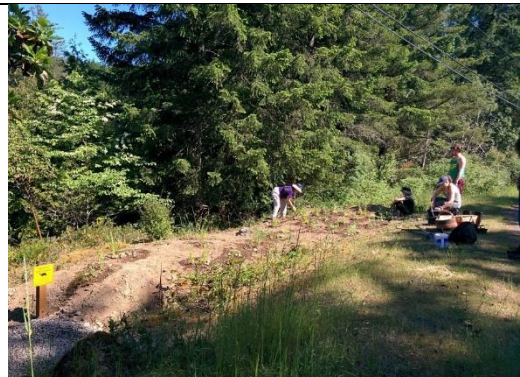
Preparing the site.



Planting native plants to stabilize the substrate.



Adding sand/soil mixture and interview for local TV.



Almost done.



Drift fence to direct turtles away from the road.



Fence with signage.

Elk-Beaver Lake Regional Park:

In Elk-Beaver Lake Regional Park, together with CRD Regional Parks and HAT volunteers, we conducted maintenance activities at two previously enhanced nesting sites (East Beaver Pond and EBLES) and continued monitoring these sites for hatching success and egg-laying.

In March – May 2017, we conducted 12 searches of the two nesting areas and found eight emerged nests (from eggs laid in summer 2016), all within tilled enhanced plots, at the East Beaver Pond site (Table 1). Emergence occurred from 3 April – 4 May. The number of successful nests was similar to that in 2016 but lower than recorded within the ~10 x 10 m nesting area in previous years (Table 2).

Table 1. Summary of emerged nests at the East Pond study site in spring 2017.

Location	Obs. year	Emerged nest ID	Emergence date (when found)	Plot ID
East Pond	2017	2017-E1	3-Apr-2017	2C
East Pond	2017	2017-E2	3-Apr-2017	3C
East Pond	2017	2017-E3	3-Apr-2017	3C
East Pond	2017	2017-E5	3-Apr-2017	3B
East Pond	2017	2017-E6	15-Apr-2017	2A
East Pond	2017	2017-E7	15-Apr-2017	3C
East Pond	2017	2017-E8	4-May-2017	2C
East Pond	2017	2017-E9	4-May-2017	2C

Table 2. Number of emerged nests within the turtle nesting area at the East Beaver Pond study site in Elk-Beaver Lake Regional Park, 2011 - 2017. The counts include nests both within 1m² experimental plots and outside the plots.

YEAR	# emerged nests
2011	12
2012	22
2013	12
2014	14
2015	10
2016	7
2017	8
Total	85

There were no emerged nests at the enhanced nesting area at the EBLES site, but we found an emerged nest hole in the northwest corner of one of the two large

riding rings on 3 April 2017. The nest was probably successful due to its location deep in the corner of the ring where the substrate remains relatively undisturbed by the riding ring activities. We found an additional emergence hole in another area of the park, by the filter beds and weir at the south end of Beaver Lake, following a report forwarded to us of a hatchling Western Painted Turtle seen in the vicinity.

A brief time window exists to carry out site maintenance between the completion of emergence and the start of the egg-laying season. Maintenance activities took place on 23 May 2017 and consisted of the removal of thistles, blackberries, broom, and other invasive plants at both sites, and lightly tilling the substrate at previously established 1 m² experimental plots at the East Beaver Pond site (Figure 2).

Figure 2. Turtle nesting habitat restoration by volunteers at Elk-Beaver Lake Regional Park in May 2017 and a Western Painted Turtle nesting at one of the tilled plots in June 2017.



We used a survey camera set on time-lapse mode to monitoring for egg-laying by turtles at the two restored sites in the park. The cameras were in operation from 12 May – 30 July 2017 and were set to take a picture every 10 min from 5:00 – 9:00 h in morning and from 17:00 – 22:00 h in evening, periods that were deemed optimal for based on experience in previous years. At the East Pond site, the camera showed turtles at the study site on 15 occasions from 22 May – 2 July, including six nesting events and nine brief appearances, when the turtles appeared to be exploring the site.

The nesting events took place in the evening from 18:30 h onwards and lasted 1.3 h on the average (SD=0.36 h, n=6). Hatchling emergence from these nests is expected in spring 2018.

The camera at the EBLES site revealed no turtles during the monitoring period in 2017. We did observe a Western Painted Turtle attempting to nest in the vicinity, in one of the two riding rings on 24 June 2017 (Figure 3). The nest would have been extremely vulnerable to disturbance, but apparently it was not completed. Filling in gaps in the lower portion of the existing fence would prevent turtles from entering the rings in the future and could be carried out relatively easily and inexpensively.

Figure 3. Western Painted Turtle attempting to nest in a riding ring at EBLES site in Elk-Beaver Lake Regional Park.



Residential property near Elk-Beaver Lake Regional Park:

In June 2016, turtle nesting habitat was enhanced on a private property near wetlands occupied by Western Painted Turtle. On 11 May 2017, we added sand/soil mixture to the site to further prepare the substrate and to discourage weeds (Figure 4). There is yet to be evidence of turtles nesting at the new site, although the resident has noted past nesting attempts on the nearby lawns.

Figure 4. Turtle nesting habitat enhancement at a residential property near Elk-Beaver Lake Regional Park, May 2017.



Private forestry lands in Alberni Valley:

With help from local naturalists Libby and Rick Avis in Port Alberni, we continued to monitor turtle nesting activities at a previously enhanced turtle nesting area at “Airport Wetlands”, where two sand dunes were created in an old gravel pit in 2011. We inspected the site on 25 May 2017 and recorded many signs of turtle nesting activity, including diggings, trails, and completed nests, indicating that the egg-laying season had already started. One female Western Painted Turtle was observed along the forest edge immediately adjacent to the site.

We found no emerged nests on the dunes, but the emergence holes could have been obscured by new turtle activity on the soft sandy substrate. On harder gravel mounds at the same site, we recorded four emerged nest holes and new turtle diggings. We also observed signs of nesting attempts along the sides of main logging road and spur road entrance adjacent to the wetland in areas where turtles have nested in previous years. Interestingly, we also found evidence of turtle nesting activity in another old gravel pit ~200 m southwest of the known nesting sites at Airport Wetlands. Portions of the site had tire tracks and evidence of recent human use. However, this site has potential for restoration through removal of coarser material from areas where turtle nesting attempts were seen along edges of the pit.

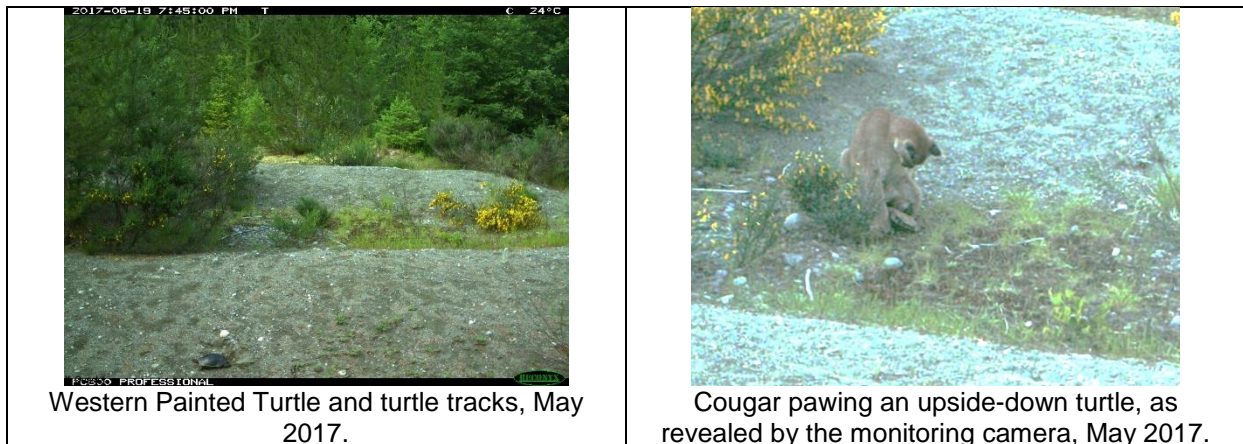
We monitored turtle nesting activity at the restored site at Airport wetlands with two cameras set in time-lapse mode (every 10 min 5:00 – 9:00 h and 17:00 – 22:00) from 25 May to 1 August 2017. One of the cameras was also set on motion sensor for the summer and part of the winter to record possible predator activity. The time-lapse cameras recorded a total of 18 nesting events at the restored site from 25 May (when

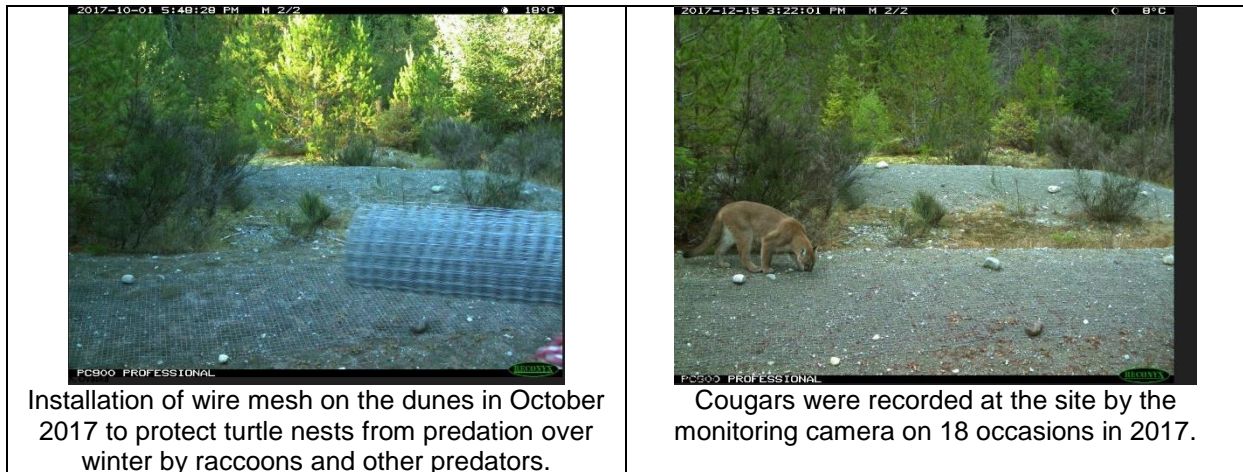
the cameras were set) to 26 June and additional events of turtles digging but not completing nesting (n=4) or walking through the site (n=14) during the same period. The nesting events took place in the evening from 17:40 h onwards and lasted 1.5 h on average (SD=0.65 h, n=18). Hatchling emergence from these nests is expected in spring 2018.

Nest predation rates appeared to be high at the restored site and could have at least partially explained the apparent lack of emerged nests on the dunes in spring 2017; an inspection on 24 October 2016 revealed much disturbance, including evidence of digging and scattered exposed eggs. In an attempt to reduce predation, we covered the dunes with hardware cloth on 1 October 2017 (Figure 5); the protection was removed on 24 April 2018 before the start of the egg-laying season. In 2017, the motion sensor camera captured the following predators at the site: cougar (18 occasions), black bear (8 occasions), and mink (3 occasions). One photo shows a cougar handling an upside down adult turtle. Racoons are common turtle egg predators at other sites and occur at Airport Wetlands but were not caught on camera this year. The pictures showed no evidence of nest predation, and the protective covering appears to be working.

Two hatchlings were found by Rick and Libby Avis in an emerging nest at a nearby site on 6 May 2017, but the decomposed bodies removed from the nest did not appear to have been predated.

Figure 5. Restored turtle nesting area at Airport Wetlands, Alberni Valley.





4.0 RECOMMENDATIONS FOR 2018 – 2019

- Encourage landowners and the public to report observations of Western Painted Turtles, focusing on new areas and nesting occurrences; follow up on the reports with site visits, as deemed necessary.
- Continue working with landowners and volunteers on stewardship activities, including nesting and basking habitat restoration and creation.
- Monitor the use of restored and created habitat by turtles and engage in protection of the sites from predators and other disturbance, as indicated by monitoring results.
- Investigate opportunities for new sites that would benefit from nesting area or basking habitat restoration or creation and help carrying out restoration activities.

5.0 LITERATURE CITED

COSEWIC. 2016. COSEWIC assessment and status report on the Western Painted Turtle *Chrysemys picta bellii*, Pacific Coast population, Intermountain – Rocky Mountain population and Prairie/Western Boreal – Canadian Shield population, in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxi + 95 pp. ([Species at Risk Public Registry website](#)).

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Engelstoft, C. and K. Ovaska. 2008 – 2017. Annual reports on Western Painted Turtle surveys and stewardship activities prepared for Habitat Acquisition Trust, Victoria, BC. Web site: <http://www.hat.bc.ca/focal-species-publications/western-painted-turtle-publications>

Appendix 1. Turtle nesting activity at enhanced nesting areas in Elk-Beaver Lake Regional Park (East Beaver Pond) and in Alberni Valley (Airport Wetlands), as revealed by time-lapse monitoring cameras deployed in 2017.

Site	Camera	Date	Start time (starts digging)	End time or last appearance	Nesting duration (min)
East Beaver Pond	Wingscapes	24-May-2017	18:40	20:10	90
East Beaver Pond	Wingscapes	2-Jun-2017	18:00	19:20	80
East Beaver Pond	Wingscapes	2-Jun-2017	19:40	21:30	110
East Beaver Pond	Wingscapes	16-Jun-2017	17:50	18:40	50
East Beaver Pond	Wingscapes	24-Jun-2017	17:50	18:50	60
East Beaver Pond	Wingscapes	2-Jul-2017	18:30	19:40	70
Airport Wetlands	Reconyx	28-Jun-2017	21:15	22:15	60
Airport Wetlands	Wingscapes	25-May-2017	18:01	18:42	41
Airport Wetlands	Wingscapes	25-May-2017	18:11	20:14	123
Airport Wetlands	Wingscapes	26-May-2017	19:43	21:25	102
Airport Wetlands	Wingscapes	27-May-2017	18:52	20:41	109
Airport Wetlands	Wingscapes	28-May-2017	18:52	20:24	92
Airport Wetlands	Wingscapes	28-May-2017	19:23	20:55	92
Airport Wetlands	Wingscapes	28-May-2017	19:23	21:05	102
Airport Wetlands	Wingscapes	31-May-2017	18:42	20:44	122
Airport Wetlands	Wingscapes	6-Jun-2017	19:23	20:04	41
Airport Wetlands	Wingscapes	6-Jun-2017	20:55	21:36	41
Airport Wetlands	Wingscapes	7-Jun-2017	18:01	19:43	102
Airport Wetlands	Wingscapes	9-Jun-2017	18:21	21:46	205
Airport Wetlands	Wingscapes	16-Jun-2017	17:40	19:02	82
Airport Wetlands	Wingscapes	21-Jun-2017	18:11	19:12	61
Airport Wetlands	Wingscapes	24-Jun-2017	18:52	19:53	61
Airport Wetlands	Wingscapes	25-Jun-2017	20:24	21:46	82
Airport Wetlands	Wingscapes	26-Jun-2017	18:52	20:24	92