

# Western Painted Turtle Monitoring and Habitat Restoration at Buttertubs Marsh, Nanaimo, BC

*Prepared for:*

The Nature Trust and the  
BC Ministry of Natural Resource and Forest Operations  
City of Nanaimo  
Buttertubs Marsh Liaison Committee

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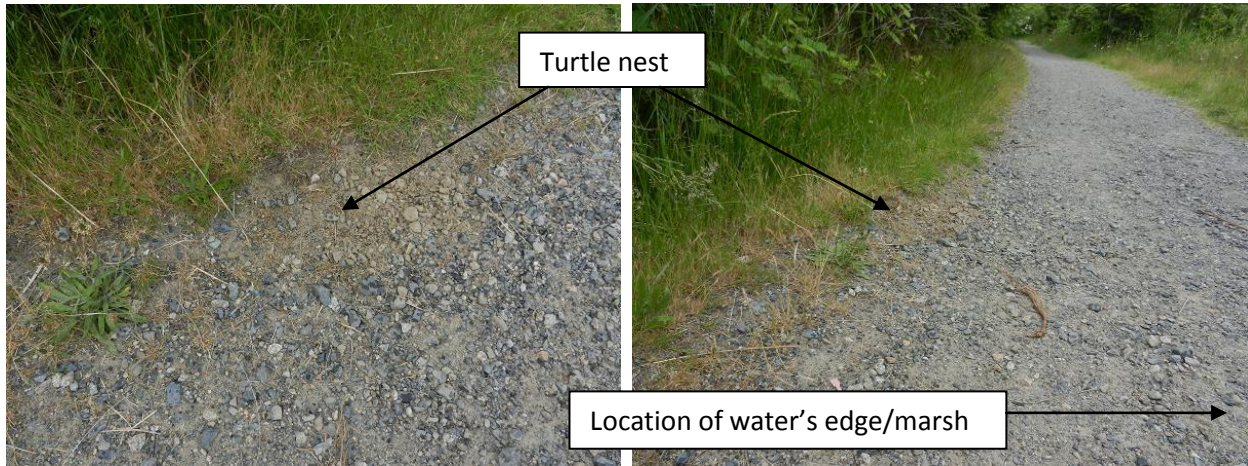
## BACKGROUND

- The Pacific Coast Populations of the Western Painted Turtle (*Chrysemys picta*) are *Red* listed provincially and listed as *Endangered* federally by COSEWIC. The P.C. Populations are found on Vancouver Island and on the Sunshine Coast.
- Western Painted Turtle (endangered) and Red-eared Slider (non-native) are known to occur in Buttertubs Marsh, Nanaimo, BC. For example 3 Western Painted Turtle and 7 Red-eared Sliders were observed on 28-Jul-08 (Engelstoft and Ovaska 2009).
- A female Western Painted Turtle was observed digging a nest and laying eggs along the edge of a trail adjacent to Buttertubs Marsh on June 24, 2011 by Suzanne Gregory. The nest was located along the northeast shore on the opposite side of the trail from the marsh (Figure 1). The nest location was recorded as: 10U 0429482, 5447179.
- Attempts to construct turtle nesting habitat was undertaken in 2008? spearheaded by Bill Merillees (Figure 1)
- Nesting attempts in the south east corner were previously to 2011 been observed by Reg Miller (Figure 3)

A site visit to assess potential nesting habitat and basking log locations occurred on 17 Nov 2011, present were:

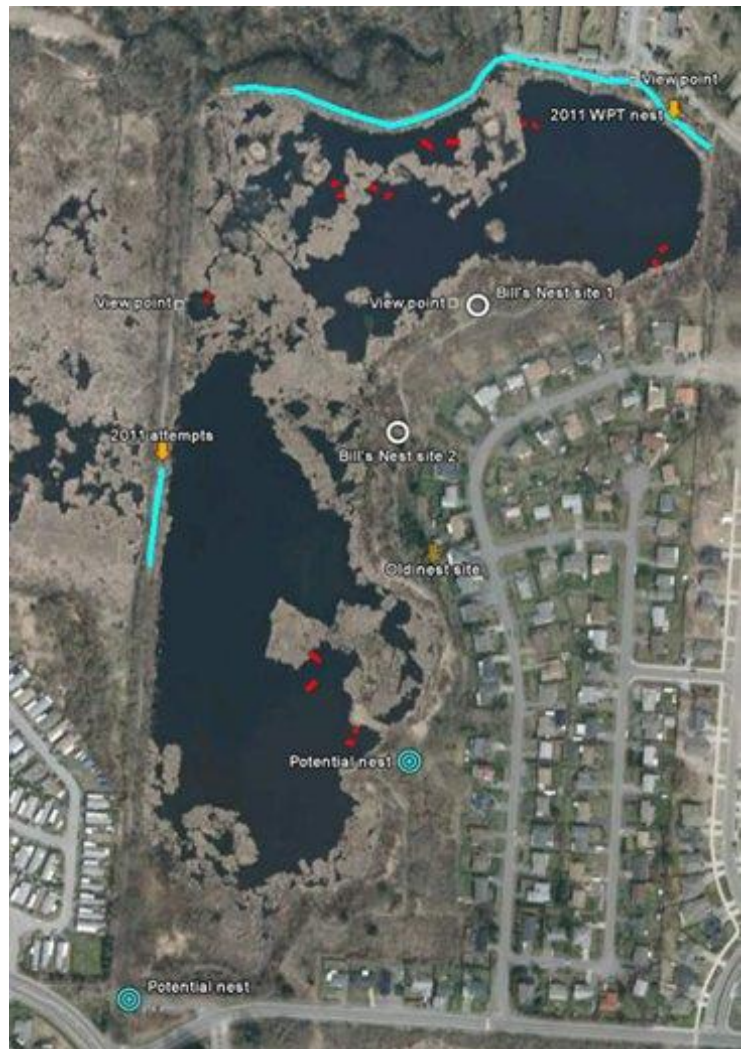
- Trudy Chatwin (MNRFO)
- Rob Lawrance (City of Nanaimo)
- Suzanne Gregory (local resident – found laying female/turtle nest last spring)
- Carol Davies, Don Blood, Reg Miller (members of Buttertubs Marsh Society)
- Tom Reid (The Nature Trust)
- Elke Wind
- Christian Engelstoft (Habitat Acquisition Trust, Victoria)

**Figure 1. Nest location along trail within Buttertubs Marsh**



**Figure 2. Overview map**

*Blue line and symbol* –potential nesting habitat  
*Yellow arrows* –attempts or observed nesting  
*White rings* –previous nesting habitat restoration  
*Red lines* - suggested location of basking logs  
(base on Google Earth map)



## RECOMMENDATIONS FOR MONITORING AND HABITAT RESTORATION

### OVERALL STRATEGY AND SUGGESTED TIME LINE

2012:

- Turtle identification workshop
- Conduct turtle counts, turtle size and distribution surveys in Buttertubs Marsh and surrounding lakes and wetlands (March – June)
- Monitoring emergence of 1 known nest by trail in north end of marsh (Late April – May)
- Survey egg-laying activities (mid May – July)
- Installation (February) and monitoring (March – September) of basking logs in Buttertubs Marsh
- Create Google Document or other easily accessible data spreadsheet for survey results and data management. Create data sheet for down loading (Christian can help)
- Develop nesting site restoration plan after nesting season (September)
- Execute nesting site restoration plan
- Summarize count and basking log survey data in report and develop recommendation for future activities (Adaptive Management Approach)

2013 – 2015 and beyond

- Monitor and maintain restored nesting sites
- Monitor turtle populations and its size distribution

### Turtle Population Monitoring

#### **Survey the marsh; March - September**

- Identify species (take pictures whenever possible), size class (Small < 10 cm, Medium, Large >15 cm), and location (e.g on map or GPS), and note activity (swimming, basking, other) and when observed basking type of substrate (vegetation, logs)
- Record the date, survey start and end time, name of observer(s), survey conditions (Cloud cover, temperature, wind speed and direction at the time of the survey), species and number observed basking where possible (i.e., slider versus W. Painted Turtle), location of basking area (using GPS and/ or marked on map), basking substrate (e.g., log, vegetation mound, shoreline).
- In colder periods survey on sunny days (spring); later weather is not so crucial; during summer turtles often bask by sitting at the surface of the water so you are looking for bumps in the vegetation.
- Use binoculars and spotting scope, survey from vantage points and/or by slowly walk the trail; pay particular attention to the areas close to the edge of vegetation.

### ***Monitor known nest in May***

- Western Painted turtle hatchlings generally emerge in the May (varies a bit depending on the severity of the winter and spring)
- Look for small square holes about 2 by 5 cm in the area with known turtle nest. The hatchlings can sit in the exit hole for days, so do not disturb the nest by poking fingers or sticks into it. Look also in surrounding vegetation for hatchlings because often they do not know the way to the water and will explore the area presumably to find the water.
- Record the date, time of the survey, survey conditions (weather at the time of the survey), condition of the nest(s), and any hatchlings or egg shells observed.
- Take pictures. Have a digital camera on hand at all times to photograph and video any chance encounters with hatchlings or changes to the nest condition.

### ***Monitor trail throughout June, July, and early August to identify nest sites.***

- Look for female Western Painted Turtles that tend to deposit eggs in the evening (8-9 pm) on warm days during June and July.
- Look for wet patches with an approximate diameter of 10-15 cm in the morning before 10 am. Female turtles wet the area where they dig their nest and this can often be seen the next morning before the sun dries it.
- Walk the trail in the evening (e.g., 8-10 pm) throughout July to locate females digging nests and/or laying eggs or to locate what appear to be possible nest sites.
- Record the date, time of the survey, survey conditions (weather at the time of the survey), species (i.e., slider versus W. Painted Turtle), location of nest (using GPS and/ or marked on map), nest substrate (e.g., in coarse sand on trail).
- Mark and give a unique identifier to each nest found.
- Have a digital camera on hand at all times to photograph and video any chance encounters with nesting females.

### **Habitat Restoration**

#### ***Install basking logs***

- See the suggested 8 locations for installation of basking logs (Figure 2)
- Locations chosen for easy visibility from view points (trail or watch towers) and in areas with some protection from wind and wave action.
- Use available logs on site and from Westwood Lake, the latter provided by City of Nanaimo (Figure 3).
- To investigate turtle preference a site will consist of two equal sized logs (approximate same length and diameter) installed within 10 m of each others. One log should be installed perpendicular to the shoreline and anchored to shoreline areas touching the vegetation and the other should be free floating in open water and anchored to the bottom.
- The free floating log should be anchored from one point in the middle, and the other should be anchored to the vegetation in one end and with one large or two smaller anchors in the other end. Two litre pop bottles have been successfully used to anchor smaller logs at Swan Lake,

Victoria. If they are installed with two anchors they should be installed with about 45 deg from the azimuth of the log.

- Each installed basking area should have a unique and visible identifier for example a stake with a colour code (remember that 10% of men are red-green colour blind)
- Each log should be mapped with GPS
- Monitor use: record the date, time of the survey, survey conditions (weather at the time of the survey), basking platform i.d., and species (Western Painted Turtle, Red-eared Slider, ducks, snakes, herons etc) and number observed log visitors.



Figure 3. Logs available for basking logs at Westwood Lake (pictures by Rob Lawrance)

**Restoring nesting habitat:**

2012

- Conduct surveys for egg-laying turtles (May-August)
  - In the potential nesting site shown in Figure 2
  - Solicit current and historical information from upland neighbourhoods
    - door to door surveys/interviews
    - Erect posters that solicit information (eg. create a [Buttertubsturtles@ gmail.com](mailto:Buttertubsturtles@gmail.com) email account) and provide a phone number
  - Collate data in the database
- Develop plan (September)
  - Based on survey results determine restoration location(s)
  - Determine design(s)

2013-2015 and beyond

- Monitor the use of the restored sites (May-August) (see above)
- Adjust design pending findings from monitoring efforts

*Photos from visit on 17 Nov 2011 taken by Trudy Chatwin:*



**Figure 4. Top: east ward look of potential basking log site; Bottom: left & middle- potential basking logs right- Known breeding ground along dike**



**Figure 5. Top left –Turtle nest attempt on dike, middle – cut windfalls in north end, right- previous nest site enhancement site; Bottom – potential basking log site in north end of marsh.**