

**BC's Coast Region: Species & Ecosystems of Conservation Concern**  
**Western Painted Turtle - Pacific Coast Population (*Chrysemys picta* pop. 1)** Global: G5TNR Provincial S2: COSEWIC: SC E, BC List: Red

Dorsal area (carapace, no evident keel)



Ventral area (plastron, with distinct patterning)



**Notes on *Chrysemys picta*:** A member of the family Emydidae (“pond or marsh turtles”), the *Chrysemys* genus is restricted to North America. In 2003, DNA studies suggested that the Eastern, Midland and Western North American subspecies of Painted Turtle should be merged to just a single species (*C. picta*), leaving only one other separate species in the southern US. In BC, *C. picta* occurs as two populations (Pacific Coast and Intermountain - Rocky Mountain). Populations that hibernate have the ability to survive for several months in highly anoxic (low or no oxygen) environments.

**Description**

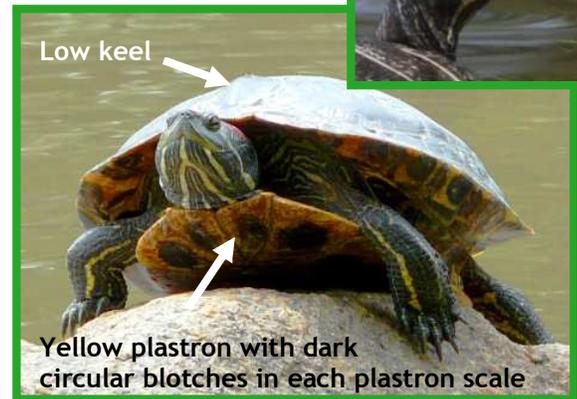
**Size (shell diameter):** Hatchlings 2-2.5 cm, Juveniles 10cm, Mature adults 25 cm (females larger than males). The carapace (upper shell) of adults is smooth, olive-green to dark brown. Outer edges can be patterned with red lines. The head, neck and tail are olive to greenish-black and striped with yellow. The intricate black and yellow branching pattern on the plastron (lower shell) is not present on all individuals, though the plastron is always red or orange. Colour patterning can be variable between individuals and between populations. The upper jaw has a notch located just under the nostrils. Males have very long front claws and thicker tails with a cloacal (tail vent) opening that is closer to the end of the tail than to the carapace. Females have shorter front claws, and thinner tails with cloacal openings closer to the carapace than to the end of the tail. Hatchlings have rounder carapaces that are slightly keeled along the length and similar but more vibrant colouration than adults.

**Diet**

An opportunistic omnivore, this species consumes various aquatic plants, invertebrates (zooplankton, worms, aquatic insects, crayfish) and vertebrates (tadpoles, small fish), as well as carrion. Prey items are taken from the surface, mid-column or bottom of aquatic foraging areas as well as adjacent terrestrial and foreshore zones. Western Painted Turtle have a fixed tongue and consume food underwater to keep it saturated to assist in swallowing. Young turtles are more carnivorous, switching to a more vegetation based diet as they age.

**Look's Like?**

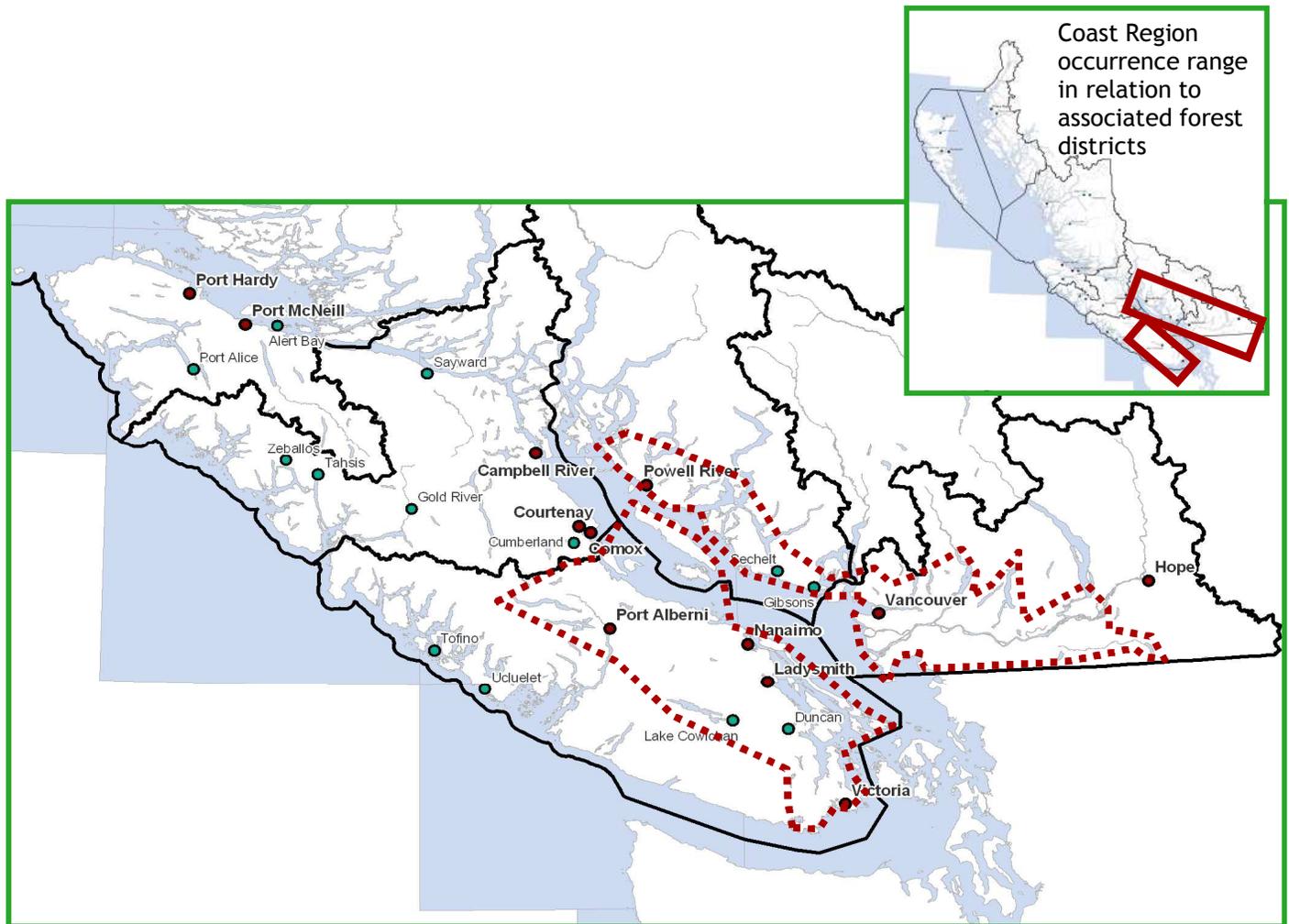
The non-native, introduced Slider (also known as “Red-eared Slider”), is the most common turtle to be misidentified as Western Painted Turtle. Both have similar physiology, colouration, size and lifecycle habits. The red “ear” patch located just behind the eye, is absent on Western Painted Turtle. However this patch can fade on older Slider’s, making identification more difficult as they mature. Carapace and plastron colouration are better diagnostic indicators. Slider turtles have a yellow plastron (versus red on Western Painted Turtle). Each plastron scale has an individual dark circular blotch. The carapace on Slider turtles can have more visible colour patterning and splashes of colour. The carapace is slightly more dome-shaped with a low ridge or keel (lacking in carapaces of mature Western Painted Turtle).



**Slider**

**Distribution**

*Elevation: 0-500 m (some US populations have been documented at 2100 m) on the South Coast populations are generally known from 0-200m.* The most widespread and northern ranging turtle in North America, Western Painted Turtle represents the primary remaining native freshwater turtle species on the Coast Region. Historical accounts indicate Western Pond turtle populations in the Fraser Lowlands, but the species is believed functionally extirpated in BC. Of the two populations of Western Painted Turtle occurring in BC, the Pacific Coast Population of the Coast Region occurs on the South Coast including the Fraser Lowlands and Sunshine Coast and on southeast Vancouver Island. A number of populations are known to occur in urban areas on the Lower Mainland including the Brunette watershed in Burnaby, several watersheds in southwest Coquitlam and the Langley, Surrey and Delta areas. Known South Coast populations range as far east as the Chilliwack watershed. On Vancouver Island, populations occur in the Greater Victoria area to the Alberni Valley, Courtenay and Comox area. Saltspring Island appears to be the only Gulf Island with populations, however surveys on Galliano and North Pender Island were inconclusive and the species could be more widely distributed where suitable habitat occurs.



Western Painted Turtle Pacific Coast Population (*Chrysemys picta pop. 1*), potential occurrence range (based on present and historical records), for the Coast Region.

## Habitat Preferences

Water depth and duration and thickness of ice over periods appear more important than oxygen levels. Populations on the Sunshine Coast overwintered at depths >1 m. Deeper sites have lower probability of freezing and lower predation risk, but higher probability of oxygen depletion. While Painted Turtles do display very high tolerance to hypoxic and anoxic (oxygen depleted) conditions while overwintering, they do not resist freezing and are susceptible to predation. Turtles emerge from their overwintering sites when water temperatures become warmer than sediment temperatures, usually at about 6 °C. Some individuals from South Coast populations may be active during temperate winters. Where optimal nesting features are replaced by development around core habitat, Western Painted Turtles may seek out surrogate nest sites such as beaches, grassy, sandy or loose gravel areas near buildings, fences or road verges. Unfortunately these sites are often continually disturbed, more vulnerable to predation, vehicular mortality, illegal collection and overall reduction in nesting and hatchling success.



Western Painted Turtle are associated with slow-moving, permanent waterbodies with soft bottom substrates, ample aquatic vegetation and adjacent areas of exposed sand or gravel soils suitable for nesting.



Nest cavity dug up by predator

## Critical Features

Basking sites (exposed logs or protected foreshore haul-outs), are necessary for this species. Absorption of solar radiation is required to maintain metabolic rates and absorb vitamin D<sub>3</sub>, needed for calcium uptake for shell and skeletal maintenance. Adjacent upland areas with good sun exposure (e.g. south aspects), and loose sandy soils for nesting are equally critical. Vancouver Island populations are known to utilize loose soil deposits on rocky shorelines and bedrock outcroppings. Sex determination is dependent upon temperature. Sex ratio imbalances can be induced if optimal sites are destroyed or made inaccessible with mostly females being born at temperatures of 84° f and up and mostly males below that. Females can be observed seeking out nesting sites which may vary considerably in distance from the water (up to 150 m away). Seasonal dispersal (spring/fall) between overwintering and breeding sites may be several hundred meters. Home range varies between .7 and 1.8 ha (in US populations). There is a strong relationship between population viability, adequate riparian buffers and non-fragmented dispersal corridors (i.e. between aquatic habitats).

## Seasonal Life Cycle

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
		Courtship (may occur again in fall in some populations). Nest construction June / July. Incubation 60-80 days.							Hatchlings emerge from eggs in fall and spend first winter within nest cavity			

Western Painted Turtle can sustain water temperatures as low as 2°C with 50 cm ice cover. During prolonged periods of low temperatures adults and 2nd winter juveniles of the Pacific Coast Population likely remain semi-dormant in soft substrate of ponds, lakes and marshes. Some local populations (e.g. Brunette Basin on the Mainland), may remain active throughout the winter if temperatures remain mild, or freezing periods are infrequent.

Sexual maturity has been estimated at 4-5 years in males and 7-9 years in females. Females lay 6-18 oval eggs, about 3 cm long. Nests are shallow (7-10 cm in depth), constructed between dusk and dawn on open, south-facing sites with loose soil, relatively free of plants, roots, and rocks. Eggs are covered with soil, compacted by the females' feet and plastron and camouflaged with vegetation and debris. Hatchlings emerge from eggs around September, generally staying within the nest cavity until the following spring. Survival is quite low due to freezing and predation of eggs and hatchlings. Females reproduce approximately every second year, sometimes with multiple males per clutch and can store sperm for up to 3 years. Coast Region populations are similar to other coastal populations and can have multiple clutches. Juveniles that survive to maturity experience much higher survival rates. This one of the longest lived North American reptiles (30+ years).

## Threats

- ◆ Distribution coincides with areas undergoing significant urbanization and natural habitat loss including draining and infilling of wetlands and hydrological disruption to surface and groundwater from adjacent development and land use.
- ◆ Natural reproductive and hatchling-to-adult survival rates are low as are dispersal capabilities, reducing capacity to recover from local extirpation events.
- ◆ The wetland habitats preferred by this species may be subject to vegetation and hydrology shifts from climate change.
- ◆ Roadways that cut through core habitat areas or migration corridors and lack appropriately sighted or well monitored exclusion fencing and amphibian or wildlife passage structures increase vehicle mortality impacts (10% annual mortality in adult turtles in eastern U.S), and population fragmentation.
- ◆ Disturbance to nesting and basking sites from recreational activities and off-road vehicles.
- ◆ Inter-species competition, predation and potentially disease transmission from introduced Slider turtle as well as Bullfrog.
- ◆ Invasive plant species (e.g. introduced grass and legume species), can degrade nesting beds and result in direct mortality to developing hatchlings through root penetration into eggs and hatchling entanglement.
- ◆ Hooking mortality from angling.
- ◆ Harvesting, collection and non-permitted trapping by the public.
- ◆ Predation risk is markedly increased with increase in human settlement near core habitat, including that through free ranging or feral domestic pets.
- ◆ Cumulative impacts and direct mortality from contaminated runoff and non-point source pollution through all life history phases.

## Conservation & Management Objectives

- ◆ Apply conservation and management objectives as set out in “COSEWIC Recovery Strategy for Western Painted Turtle (Pacific Coast population) (*Chrysemys picta bellii*) in British Columbia (in draft) and the “BMP for Amphibians and Reptiles in Urban and Rural Environments in British Columbia.”. Integrate complimentary objectives found in “Conservation Assessment For The Western Painted Turtle In Oregon (*Chrysemys picta bellii*) and “Western Painted Turtle Surveys on Galiano, Pender, and Vancouver Island, 2008 Including Surveys in Selected CRD Regional Parks.
- ◆ Inventory and monitor using standardized methods (Resource Information Standards Committee) # 37 Inventory Methods for Pond-breeding Amphibians and Painted Turtle (Version 2.0)<sup>1</sup>.

### Specific activities should include:

- ◆ Protect existing native emergent marsh vegetation complexes and deep open water areas in presently occupied sites and restore plant communities impacted by non-native plant species.
- ◆ Monitor population responses to various management regimes as well as changes to land use and land cover in areas adjacent to occupied sites.
- ◆ Monitor and manage for impacts from Slider turtle and Bullfrog and assess potential long-term competitive interactions.
- ◆ Maintain necessary habitat features and habitat types needed to provide optimal connectivity and reduce isolation between breeding sites and other seasonal uses.
- ◆ Collect information on population trends, including a monitoring plan for individual sites and watersheds and studies to monitor population responses to habitat restoration, potential reintroductions or translocations and their effects<sup>2</sup>.
- ◆ Encourage landowners to create conservation covenants to buffer wetlands of all types and protect critical features on their property.
- ◆ Maintain permanent buffers of intact, mature forested communities in riparian and upland areas around occupied sites (a minimum of 30 meters wide from the outer highest seasonal wetted perimeter of small wetlands). Riparian buffers used to protect fisheries values will likely be inadequate. Additional buffers, potentially greater than 300 m and up to several kilometres may be needed to adequately protect wetland hydrology and maintain adequate connectivity and dispersal needs for this species.
- ◆ Urban and agricultural runoff should be appropriately managed to reduce contaminants enter receiving waters. Maintain septic fields and any other potential sources of contamination to surface and ground water that may be sustaining local wetland systems.
- ◆ Employ integrated pest management approaches that reduce the need for chemical applications in urban, agricultural and silviculture practices.

<sup>1</sup> Other approaches to inventorying and monitoring such as those found in “Measuring and Monitoring Biological Diversity - Standard Methods for Amphibians”, “Suitability of Amphibians and Reptiles for Translocation” and amphibian survey methodologies developed for the “Wetlandkeepers Handbook” are recommended.

<sup>2</sup> Relocation and translocation should not be a first choice mitigation or compensation option to avoid land use impacts.

This species and its regional populations are listed under the Federal Species At Risk Act (SARA) and may be subject to protections and prohibitions under the BC Wildlife Act. Habitat for this species may also be governed under provincial and federal regulations including the Fish Protection Act and Federal Fisheries Act as well as Regional and local municipal bylaws.

#### Content for this Factsheet has been derived from the following sources

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