

## SPECIES ACCOUNT

### Species Data

Common Name:	<b>Western Painted Turtle</b>
Scientific Name:	<i>Chrysemys picta</i>
Species Code:	R-CHPI
BC Status:	Blue-listed
COSEWIC / SARA Status:	Special Concern (Intermountain - Rocky Mountain population)



### Project Data

Project Name:	Middle Shuswap River Sensitive Ecosystems Inventory
Project Type:	Terrestrial Ecosystem Mapping
Ecoprovince:	Southern Interior
Ecoregions:	Thompson-Okanagan Plateau
Ecosections:	Northern Okanagan Highland (NOH), Shuswap Highland (SHH)
BGC Units:	IDFmw1, ICHmw2
Map Scale:	1:20 000

### Distribution

#### Provincial Range

The Painted Turtle is distributed across the southern third of British Columbia, and are locally abundant in main valleys, including the Rocky Mountain Trench north to Golden, the Creston and Nelson areas, the Okanagan Valley, and the Kamloops-Shuswap Lake area. In addition, there is a disjunct population near Williams Lake, which are believed to be introduced (Blood and Macartney 1998). Although abundant in many areas in the United States, the population in British Columbia is small because it is restricted by climatic and geographical boundaries. They can be found in wetlands in valleys or lowlands in the southern part of the province in the BG, CWH, ICH, IDF, and PP biogeoclimatic zones.

Population estimates for Painted Turtles have not been attempted in BC. However, densities of 500 or more per hectare have been documented (Gregory and Campbell 1984) and detailed surveys in Kikomun Creek Provincial Park have provided estimates of 800 to 900 turtles (Blood and Macartney 1998). The best Painted Turtle habitat in the province is most likely Kikomun Creek Provincial Park beside Lake Koocanusa in the East Kootenay Region.

#### Elevation Range

Low elevations, below 1300m.

#### Distribution in the Project Area

Known from one location in the study area, west of Cherryville (H. Davis pers. Comm.).

## Ecology and Habitat Requirements

Painted Turtles are found in ponds, lakes and slow-moving water with muddy bottoms, often with emergent aquatic vegetation (Gregory and Campbell 1984). The vast majority of seasonal activities, such as feeding, mating, sleeping and other activities, are generally carried out in the water (Gregory and Campbell 1984; Macartney and Gregory 1985). Time spent on land is minimal and restricted to brief excursions during the summer nesting season and occasional overland movements between lakes (Macartney and Gregory 1985), particularly if ponds dry up. Painted Turtles are generally active during daylight although nest-digging and egg-laying usually occur in early morning and late evening (Gregory and Campbell 1984). The length of the active season and hibernating period is governed by water temperature, as is onset of breeding activity (Gregory and Campbell 1984). Activity begins in the spring when water temperature reaches 10° C, but feeding does not begin until it is about 14° C (Blood and Macartney 1998). Painted Turtles hibernate underwater during the winter, obtaining oxygen from the water.

Adult Painted Turtles are omnivorous, feeding on insects, crayfish, other arthropods, tadpoles, and many aquatic plants (Nussbaum et al. 1983, Brown et al. 1995). Adults may also scavenge on dead animal matter (Gregory and Campbell 1984, Blood and Macartney 1998). Juveniles are almost completely carnivorous, feeding mainly on small invertebrates, then switching to frogs and fish, and eventually becoming increasingly herbivorous as they grow older (Nussbaum et al. 1983, Gregory and Campbell 1984). Algae, moss, lobelia, turtles, snails, mussels, dragonflies, crickets, bugs, caterpillars, flies, beetles, rose bugs, wasps, ants and trout fry have all been recorded in the diet of Painted Turtles (Orchard 1988). Foraging occurs almost entirely in water because they cannot swallow unless the food is suspended in the water (Blood and Macartney 1998).

Painted Turtles are ectotherms, and therefore basking is an important part of thermoregulatory behaviour (Gregory and Campbell 1984). In addition to raising the body temperature, basking in the hot sun rids the turtle shell of algae and promotes shedding (Blood and Macartney 1998). Turtles can frequently be seen basking in large aggregations, sometimes piled two or three deep, on suitable sites such as logs, mud banks, or other objects above water (Gregory and Campbell 1984).

Female Painted Turtles normally reproduce at 5-6 years, males at 3-4 years (Brown et al. 1995). In British Columbia, females do not reproduce until they are seven or eight (Blood and Macartney 1998). Courtship and mating usually take place in the spring and mating occurs in shallow water (Gregory and Campbell 1984). Egg laying occurs during June and July in the northern portion of the Painted Turtle's range, but can occur as early as May (Nussbaum et al. 1983). Clutch sizes normally range from 6-18 eggs (Gregory and Campbell 1984, Macartney and Gregory 1985). Although turtles can produce more than one clutch per year in some parts of their range, in BC only one is produced (Nussbaum et al. 1983, Blood and Macartney 1998).

Nesting occurs on land, usually in the late afternoon or early evening, and usually within 150 m of water (Nussbaum et al. 1983, Gregory and Campbell 1984). Eggs incubate for 70-80 days (Macartney and Gregory 1985). In BC, most eggs or hatchlings appear to overwinter in the nest and emerge the following spring (Nussbaum et al. 1983, Gregory and Campbell 1984, Macartney and Gregory 1985).

### ***Reproducing (Security/Thermal)***

Painted Turtles are very particular about where they bury their eggs and usually select flat or warm aspect sites that are relatively free of surface vegetation, roots and large stones (Blood and Macartney 1998, Macartney and Gregory 1985, Gregory and Campbell 1984). Turtles will abandon nests when they encounter roots or stones that they are unable to remove from the hole (Macartney and Gregory 1985). The soils of nest sites have good drainage, loose surface layers, fairly compact subsurface layers, and are composed of a mixture of small to medium size gravels, fine silts, and sands with low organic content (Gregory and Campbell 1984, Macartney and Gregory 1985).

Nests have been found in open beaches, flood plains, shrubby fields, roadsides, gravel or soil roads, pastures, and in any sites where digging is easy (Nussbaum et al. 1983, Gregory and Campbell 1984, Brown et al. 1995).

Egg deposition sites are usually situated within 35 m of a lakeshore, but females have been known to travel up to 150 m or more to locate suitable sites (Gregory and Campbell 1984, Macartney and Gregory 1985).

### ***General Living All year (Food and Security/Thermal Habitat***

Ponds, marshes, margins and other shallow portions of lakes, **quite backwaters of rivers**, slow rivers or streams with muddy bottoms provide the necessary habitat for feeding, basking, security from predators, and hibernation (Nussbaum et al. 1983, Gregory and Campbell 1984, Macartney and Gregory 1985, Brown et al. 1995). Painted Turtles prefer floating logs, branches, or other emergent objects that lie offshore or over deep water for basking (Nussbaum et al. 1983, Macartney and Gregory 1985, Brown et al. 1995). When suitable basking sites are absent or limited in number, turtles will burrow into warm mud (up to 31° C) in shallows along lake margins (Macartney and Gregory 1985).

Painted Turtles forage on the bottom of lakes and ponds, generally at depths of less than three metres (Orchard 1988).

## **Ratings**

This model employs a 4-class rating scheme because there is insufficient knowledge of specific habitat requirements to use a 6-Class scheme yet there is sufficient knowledge to go beyond a 2-class rating scheme. This complies with the recommended rating scheme in the RIC (1999) standards manual.

### ***Provincial Benchmark***

Ecoregion	East Kootenay Trench (EKT)
Biogeoclimatic Zones	IDFdm2 (Kikomun Creek Park)
Habitats	Open water and nearby friable soils

### ***Map Themes***

Habitat Use	Life Requisite	Season	Rating Code	Ecosystem Attributes
Reproducing	Security/ Thermal	All year	RE	<ul style="list-style-type: none"> <li>flat or gentle slopes with loose, gravelly soils; lightly vegetated to increase insolation and decrease rootedness</li> </ul>
Living	Food, Security/ Thermal	All year	LIA	<ul style="list-style-type: none"> <li>still or slow moving waters greater than 1 meter deep, excluding open areas of large lakes</li> </ul>

### **Ratings Assumptions**

<b>Reproducing – Security/Thermal (RE)</b>	
Site Series	<ul style="list-style-type: none"> <li>Ecosystem units where digging is fairly easy including beaches, grasslands, roadsides, and pastures rated up to H</li> </ul>
Structural Stage	<ul style="list-style-type: none"> <li>No effect.</li> </ul>
Aspect	<ul style="list-style-type: none"> <li>w (warm and &gt; 25% slope) and gentle slopes rated up to High</li> <li>k (cool and &gt;25% slope) rated N</li> </ul>
Slope	<ul style="list-style-type: none"> <li>Flat to moderately sloped ground rated higher than steeper ground</li> </ul>
Drainage	<ul style="list-style-type: none"> <li>Poorly drained soils rated N</li> <li>Moderately well drained to well drained soils rated up to H</li> </ul>
Soil depth	<ul style="list-style-type: none"> <li>Less than 10 cm deep rated N</li> </ul>
Soil texture	<ul style="list-style-type: none"> <li>Loose surface layer, fairly compact subsurface layer, composed of a mixture of small to medium size gravels and fine silts/sands with low organic content rated up to H</li> <li>High coarse fragment content (cobbles and larger) in surface layers (top 10cm) rated N</li> </ul>
Other	<ul style="list-style-type: none"> <li>Ecosystem units relatively free of surface vegetation rated up to H</li> <li>Soils containing root masses rated N</li> <li>Ecosystem units containing aspen or cottonwood rated N because soil is too moist and high root density</li> </ul>
<b>General Living – Food, Security/Thermal (LIA)</b>	
Site Series	<ul style="list-style-type: none"> <li>LA, OW, PD, RI (shallow, slow moving only) rated up to H</li> <li>Absence of water rated N</li> </ul>

### **Map Interpretation**

Wetlands and nesting areas form the two essential layers of habitat uses. The aquatic general living habitat is the focus of the map. Suitable nesting habitats *within 250 m of polygons containing suitable aquatic habitats* are also depicted.

The model uses the highest-value method to display all suitable aquatic and nesting habitats, even if it only forms a component of a habitat complex. This is due to the small aquatic habitats that are naturally used, and the microsite requirements of a nesting site.

Roads and other hazardous developments should not occur near wetlands, in any nearby suitable nesting habitats, or in any habitat that lies between the aquatic habitat and nesting sites. Specific locations of turtle ponds and nesting sites should be identified, and corridors must be maintained between the ponds and nesting sites. Connectivity between aquatic habitats must also be considered. Management should include protection or enhancement of shrubs around all wetlands as a buffer from disturbances. Artificial nesting habitat can be created; ensure plans and work are authorized, especially if part of a compensation package.

## Literature Cited

- Blood, D.A. and M. Macartney. 1998. Painted Turtle; Wildlife at Risk in British Columbia. Brochure. BC Environment. Victoria, BC.
- Brown, H.A., R.B. Bury, D.M. Darda, L.V. Diller, C.R. Peterson, and R.M. Storm. 1995. Reptiles of Washington and Oregon. Seattle Audubon Society, Seattle WA. 176 pages.
- Gregory, P.T. and R.W. Campbell. 1984. The Reptiles of British Columbia. Royal British Columbia Museum. Handbook No. 44.
- Macartney, M., and P. T. Gregory. 1985. The Western Painted Turtle in Kikomun Creek Provincial Park. Unpublished report, submitted to Parks Branch, British Columbia.
- Ministry of Environment. 2005. Okanagan Region wildlife observation database. Penticton, BC.
- Nussbaum, R.A., E.D. Brodie, Jr. and R.M. Storm. 1983. Amphibians and Reptiles of the Pacific Northwest. University of Idaho Press, Moscow, Idaho.
- Orchard, S.A. 1988. Species notes on Reptiles, Vol. 3 of Wildlife habitat handbook for the Southern Interior Ecoprovince. BC Government, Victoria, BC.
- RIC (Resources Inventory Committee). 1999. British Columbia wildlife habitat rating standards, Version 2.0. Ministry of Environment, Lands and Parks, Resource Inventory Branch. Victoria, BC.
- St. Clair, R. C. 1989. The natural history of a northern turtle, *Chrysemys picta bellii* (Gray). Masters thesis, University of Victoria, Victoria, BC.

## Personal Communications

- Davis, H. 2011. Artemis Wildlife Consulting. Armstrong, BC.



## Western Painted Turtle Suitability: Middle Shuswap River

