

## SPECIES ACCOUNT

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### **Species Data**

Common Name:	<b>Painted Turtle</b>
Scientific Name:	<i>Chrysemys picta</i>
Species Code:	R-CHPI
BC Status:	Blue-listed
Identified Wildlife Status:	
COSEWIC Status:	

### **Project Data**

Project Name:	Central Okanagan Terrestrial Ecosystem & Wildlife Habitat Mapping Project
Project Type:	Terrestrial Ecosystem Mapping
Area:	Central Okanagan
Ecoprovince:	Southern Interior
Ecoregions:	Thompson-Okanagan Plateau
Ecosections:	Northern Okanagan Basin (NOB)
BGC Units:	IDFxh1, PPxh1
Map Scale:	1:20 000

### **Distribution**

#### **Provincial Range**

The Painted Turtle is distributed across the southern third of British Columbia, but is 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, 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 Bunchgrass (BG), Ponderosa Pine (PP), Interior Douglas-fir (IDF), Interior Cedar – Hemlock (ICH), and Coastal Western Hemlock (CWH) biogeoclimatic zones.

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

#### **Elevation Range**

Low elevations, below 1300m.

### **Distribution in the Project Area**

Painted Turtles are expected to occur throughout the study area wherever permanent shallow open water is found in basins with unconsolidated bottoms. Populations are known from Gorman's Ponds, Roses Pond, Southerand Hills Prov. Park, and Hardy Lake (Orchard in Erickson and Torrence 1989).

### **Ecology and Habitat Requirements**

Painted Turtles are found in ponds, lakes, and streams with muddy bottoms, and slow-moving water, 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 nesting season and occasional overland movements between lakes during summer (Macartney and Gregory 1985). Painted Turtles are generally active during daylight, although nest-digging and egg-laying usually occurs 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 in ponds during winter.

Adult Painted Turtles are omnivorous, feeding on insects, crayfish, other arthropods, tadpoles, and many aquatic plants (Brown *et al.* 1995, Nussbaum *et al.* 1983). 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, later switching to frogs and fish, and eventually becoming more and more herbivorous (Gregory and Campbell 1984, Nussbaum *et al.* 1983). 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 Painted Turtles cannot swallow unless the food is suspended in the water (Blood and Macartney 1998).

Painted Turtles are ectotherms, 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 reproduce at 3-4 years (Brown *et al.* 1995). In British Columbia, females do not reproduce until they are 7- 8 years (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 their 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 in some parts of their range Painted Turtles can produce more than one clutch per year, in BC only one clutch 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 150m 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**

Terrestrial sites suitable for egg deposition must have appropriate exposure, slope, and drainage (Macartney and Gregory 1985). Painted Turtles are very particular about where they bury their eggs and usually select warm, non-vegetated, south-facing sites with soils that are dry, light in texture and free of roots or large stones (Blood and Macartney 1998). Nests have been found in open beaches, floodplains, shrubby fields, roadsides, gravel or soil roads, pastures, and in any sites where digging is easy (Nussbaum *et al.* 1983, Gregory and Campbell 1984). Sites generally lie on flat to moderately sloped ground on a southern or southwestern aspect (Gregory and Campbell 1984, Macartney and Gregory 1985) in areas that are relatively free of surface vegetation and underlying root masses (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-sized gravels, fine silts, and sands with low organic content (Gregory and Campbell 1984, Macartney and Gregory 1985). Nests can also be found in sandy soils or grassy areas near water (Brown *et al.* 1995). Turtles will abandon nest sites when they encounter roots or stones that they are unable to remove from the hole (Macartney and Gregory 1985).

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

### ***General Living All year***

#### **Food, Security/Thermal Habitat**

Ponds, lakes, marshes, and warm, quiet backwaters of rivers, slow rivers or streams with muddy bottoms are required for all life requisites of Painted Turtles (Brown *et al.* 1995, Nussbaum *et al.* 1983, Gregory and Campbell 1984). Margins and other shallow portions of lakes or ponds provide the necessary habitat for feeding, basking, security from predators, and hibernation (Macartney and Gregory 1985). Painted Turtles prefer floating logs, branches, or other emergent objects that lie offshore or over deep water for basking (Macartney and Gregory 1985, Brown *et al.* 1995, Nussbaum *et al.* 1983). 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 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 standards manual (1999).

### ***Provincial Benchmark***

Ecosection	East Kootenay Trench (EKT)
Biogeoclimatic Zones	IDFdm2 (Kikomun Creek Park)
Habitats	Permanent ponds

## Map Themes

Life Requisite	Habitat Use	Season	Rating Code	Ecosystem Attributes
Reproducing	Security/ Thermal	All year	STRE	<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>calm or slow moving waters greater than 1 meter deep, excluding open areas of large lakes</li> </ul>

## Ratings Assumptions

Reproducing – Security/Thermal	
Site Series	<ul style="list-style-type: none"> <li>Ecosystem units where digging is fairly easy including beaches, floodplains, shrubby fields, roadsides, gravel or soil roads and pastures rated up to High.</li> </ul>
Structural Stage	<ul style="list-style-type: none"> <li>No effect.</li> </ul>
Aspect	<ul style="list-style-type: none"> <li>'w' modifiers (warm and &gt; 25% slope) rated up to Moderate.</li> <li>'k' modifiers (cool and &gt;25% slope) rated Nil.</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 Nil.</li> <li>Moderately well-drained to well-drained soils rated up to High.</li> </ul>
Soil depth	<ul style="list-style-type: none"> <li>Less than 10 cm deep rated Nil.</li> </ul>
Soil texture	<ul style="list-style-type: none"> <li>Loose surface layers, fairly compact subsurface layers, composed of a mixture of small- to medium-sized gravels and fine silts/sands with low organic content rated up to High.</li> <li>High large coarse fragment content (cobbles and larger) in surface layers (top 10cm) rated Nil.</li> </ul>
Other	<ul style="list-style-type: none"> <li>Ecosystem units relatively free of surface vegetation rated up to High.</li> <li>Soils containing root masses rated up to Nil.</li> <li>Ecosystem units containing aspen or cottonwood rated Nil because soil is too moist and has high root densities.</li> </ul>
General Living – Food, Security/Thermal	
Site Series	<ul style="list-style-type: none"> <li>LA, OW, PD, RI (shallow, slow moving only) rated up to High.</li> <li>Absence of water rated Nil.</li> </ul>

## Map Interpretation

The aquatic general living habitat will be the focus of the map. Suitable nesting habitats within 150m of polygons containing suitable aquatic habitats will also be depicted.

The model will display all suitable aquatic and nesting habitats, even if it only forms a component of polygon (highest-value method). This is due to the small aquatic habitats that are naturally used, and the micro-site requirements of a nesting site.

## Management Recommendations

Management should include protection or enhancement of shrubs around the wetland as a buffer from disturbances. Specific locations of nesting sites should be identified, and corridors must be maintained between ponds and nesting sites. Developments that pose a hazard or obstruction to Painted Turtles, including roads, retaining walls, and steep-sided trenches, should not occur between aquatic habitat and nearby suitable nesting habitats.

Management should also consider the connectivity between aquatic habitats, to maintain gene flow between turtle populations. Artificial nesting habitat can be created, particularly as part of a mitigation program.

## Literature Cited

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## Painted Turtle Suitability Map

