



Painted Turtle

*The habitats
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favoured for
human settlement.*





Why are Painted Turtles at risk?

The Painted Turtle faces many threats within its limited range in southern British Columbia. Furthermore, the specific habitat it requires – wetlands and ponds for hiding and foraging, adjacent to upland areas with soils suitable for nesting – is found in very few places within that range.

Alteration or destruction of its habitat is probably the main threat faced by the Painted Turtle in British Columbia. The wetlands favoured by this reptile are almost all in valleys or lowlands in the southern part of the province, the same locations favoured for human habitation. Particularly in past years, many wetlands, ponds and sluggish channels were drained, filled or modified to meet human needs. Uplands around many wetlands have been developed, leaving little or no nesting habitat.

Living in areas of human development also poses other threats for these turtles, including traffic mortality on roads located beside wetlands, disturbance of basking or nesting turtles by the public, trampling of their nests and the illegal capture of turtles for pets.

Painted Turtles have numerous natural enemies in the wild. Because many of their nests are dug up by egg predators, such as Coyotes, Badgers, skunks or ground squirrels, few young turtles are produced each year. Under natural conditions this low level of recruitment is enough to maintain the population, since adults have lower death rates and may live 20 or 30 years. But when habitat destruction and human-caused

mortality are added to natural losses, turtle populations usually decline. This combination of factors has placed the Painted Turtle at risk in British Columbia.

What is their status?

The Painted Turtle is the most widely distributed of the 49 turtle species in North America. Although local populations have been reduced by land development across its range, it is abundant in many areas in the United States. The British Columbia population is small because our province is at the northern edge of its range and provides little habitat that is suitable for this specialised animal.

The number of Painted Turtles in British Columbia is not known. Detailed surveys have been done in only one area – Kikomun Creek Provincial Park beside Lake Koocanusa in the East Kootenay Region – where researchers estimate there are 800 to 900 turtles. That area may have the best Painted Turtle habitat in the province, so numbers in other locations are most likely lower. The provincial population probably numbers in the low thousands, but better information is needed.

In view of its localised occurrence and threats to its habitat, the Painted Turtle has been placed on British Columbia's Blue List. This list identifies species that are believed to be vulnerable to further declines in abundance. Like most native wildlife species in British Columbia, the Painted Turtle is protected against harassment, killing or possession under the provincial Wildlife Act.

The Painted Turtle is the only native freshwater turtle in British Columbia.

What do they look like?

Painted Turtles (*Chrysemys picta*) are often visible on warm days, swimming in shallow water or basking on logs along the lakeshore. As the only native freshwater turtle in British Columbia, this species is unlikely to be confused with any other animal, except introduced species, such as the Red-eared Slider Turtle, that have been thoughtlessly released by pet owners.

The characteristic feature of all turtles is their protective bony shell, which encloses most of the body. The shell has three parts: the domed carapace on the back; the flat plastron on the underside; and the bridges, which connect the two shells. In Painted Turtles, the carapace is slightly longer than it is wide. Turtle shells are covered with thin, horny scutes, which give the turtle its characteristic colour. The scutes are shed and re-grown each summer. Many scutes often collect at favoured basking sites where the turtles dry their shells in the hot mid-summer sun to get rid of algae and promote shedding. Turtles possess no teeth and rely on a sharp, horny beak for chewing. The hind feet are webbed and are the main source of propulsion when swimming.

The standard measurement of the length of a turtle is its plastron length. In British Columbia, adult male Painted Turtles have plastron lengths of 9 to 17 centimetres; females are bigger and their plastrons may be up to 22 cm long. With head and tail extended, the total body length is increased by about 50 percent. Males rarely weight over 800 grams, but females may reach 1400 g.

This is one of the most colourful turtles, as its name suggests. Yellow stripes on its head, neck, tail and legs, and irregularly shaped, bright red markings around the edges of the plastron and under the rim of the carapace stand out vividly against its



generally black to greenish back. Male and female Painted Turtles have generally similar colouring. Males sometimes have dark worm-like markings (reticulate melanism) on the carapace. One of the most reliable features for telling the sexes apart is the long slender claws on the front feet of the male.

How do they reproduce?

Studies at Kikomun Creek Provincial Park have shed considerable light on Painted Turtle reproduction near the northern edge of this species' range. In this area, male turtles become sexually mature at about four years of age; females not until seven or eight years. During the breeding season, in early spring, several males often swim after a female. When one catches up, he faces her and uses his long claws to stroke her head, then swims away enticing her to follow. After several minutes of courtship the female sinks to the bottom of the pond, followed by the male, and they mate.

In British Columbia, females lay clutches of about 6 to 18 leathery, white eggs from early June to early July. The small, oval eggs are about 3 cm long.

Only one clutch is produced each year. Females breed throughout their life, although some individuals probably do not breed every year. Painted Turtles are very particular about where they bury their eggs and usually select warm, unvegetated south-facing sites with soils that are dry, light in texture and free of roots or large stones. Exposure to warm summer temperatures is necessary for egg development and hatching. Site selection has a profound effect on the young since their gender is determined by the temperature of the nest – male offspring from cooler nests and females from warmer ones.

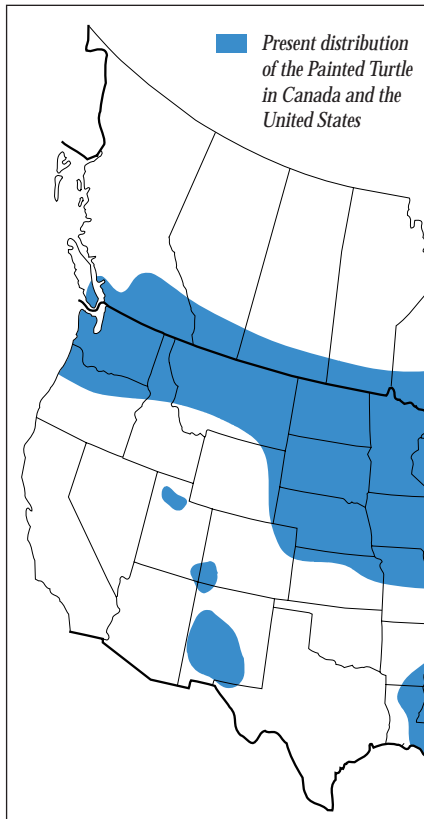
Nest sites are usually within 150 metres of ponds and may include non-natural environments like dikes, road shoulders or parking lots. Uplands around many ponds used by Painted Turtles, including those at Kikomun Creek Park, are mostly forested, therefore open nesting terrain is very limited.

Gender is determined by the temperature of the nest.

Females that are ready to lay their eggs gather along the water's edge at dusk, scanning for predators or other danger, and may approach land several times before deciding it is safe to go ashore. During nest-digging and egg-laying, which start at dusk and continue late into the night, they are very wary and readily abandon the attempt if disturbed. Females spend several minutes exploring the nesting area,

before selecting a suitable site and digging a depression with their front claws. They then straddle the depression and dig a flask-shaped hole about 12 cm deep with their strong hind feet, while periodically wetting the soil with urine. If they encounter stones or roots they sometimes move to another location or come back another night.

The eggs are deposited one at a time in the nest hole, each one being carefully positioned toward the back of the cavity. When she is finished laying, the female pushes the excavated soil back into the hole, moistens it with more urine and packs it down with her hind



feet and by raising and dropping her shell on the nest surface. The entire digging, laying and covering process takes from one to three hours.

Eggs in nests that are not destroyed by predators incubate for 70 to 80 days and hatch in late August or early September. The baby turtles, called hatchlings, tear open the thin eggshells like birds do, using a sharp projection on their upper beak called the egg tooth. In British Columbia, most hatchlings stay in the nest until May or June of the following year, despite winter temperatures which may fall to -5°C in the shallow nest. This means that eggs or hatchlings may be present at a nest site nearly year round.

Many nests are dug up by predators, and even in undisturbed nests it is not uncommon for some or all of the eggs or young to perish due to winter freezing. Some hatchlings are also killed by predators during their journey to the pond or after arriving there. Fortunately, adult turtles have low death rates and can live as long as

30 years, so the few hatchlings that survive are usually enough to maintain the population.

What do they eat?

In the spring, Painted Turtles become active when the water temperature reaches 10°C , but they do not start feeding until it is about 14°C . Feeding occurs almost entirely in the water because these turtles have difficulty swallowing dry food. In summer, they often stay underwater for up to 20 minutes before coming to the surface to breathe. On sunny days most feeding activity is in the morning, followed by basking in the afternoon when the sun is hottest.

The diet of the Painted Turtle has not been studied in detail in British Columbia. In the United States they are reported to feed on a wide variety of aquatic plants and small animals, with young turtles tending to be carnivorous and to become more herbivorous as they grow older. On the other hand, researchers in Saskatchewan found that adult Painted Turtles primarily ate crayfish, which were large, abundant and easily captured. This was true even where aquatic vegetation was abundant. They never saw turtles graze on vegetation and concluded that most vegetation in turtle stomachs was eaten by accident. In other areas, Painted Turtles eat a variety of freshwater insects and larvae, snails, earthworms, frogs, tadpoles, and aquatic plants such as milfoil and algae. They also scavenge on dead animal matter, or carrion. A diet high in animal matter may be important for northern turtles, allowing them to grow quickly during the short open-water season and to accumulate enough energy to survive a long, cold winter.

What makes them unique?

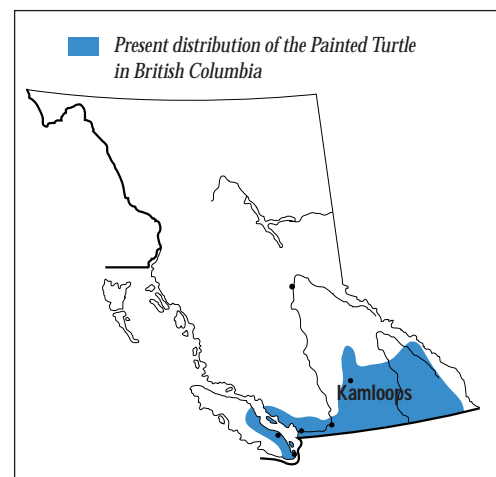
Turtles have bodies that are quite different from those of other four-legged creatures and other reptiles, like snakes. Because their ribs form part of the shell, they are unable to breathe by expanding and contracting the ribs. Instead they contract and relax the abdominal muscles to pump air in and out of the lungs. Their shells are also heavy and restrictive, especially on land. Nevertheless, this unique anatomy does have advantages, the main one being that the head, legs and tail can be drawn into the shell for protection.

Painted Turtles feed in the morning, and bask in the afternoon.

Having no external ears, turtles cannot hear high-frequency sounds, but the shell serves as a sort of ear drum by conducting low-frequency vibrations to the middle ear.

Painted Turtles breathe when out of the water, but can stay submerged

without breathing for long periods. Turtles are ectotherms, meaning that they do not produce their own body heat like birds or mammals, but absorb heat energy from their environment. Their metabolic rate and demand for oxygen therefore varies with the external temperature. Painted



Turtles are the most northerly occurring turtles in North America. In winter, the waters of their ice-covered ponds are generally about 2°C and their metabolic rate is extremely low. This allows them to survive months of hibernation by relying on anaerobic metabolism (metabolism without oxygen), supplemented with some direct uptake of oxygen through specialised gill-like tissues around the cloaca (the common opening of the reproductive and digestive tracts).



BASKING IS A FAVOURITE TURTLE ACTIVITY.
Bill Swan photo

Freshwater turtles are unequalled in their ability to tolerate the build-up of lactic acid, a toxic substance produced by anaerobic metabolism. In British Columbia, most Painted Turtles occur in the Interior, where their ponds may be frozen from November to April with a covering of ice that reaches half a meter in thickness. At Kikomun Creek Provincial Park, biologists found turtles wintered in shallow waters (10-100 cm deep) within 10 m of the shore, on top of the mud. Oxygen levels in those waters were 5 to 9 parts per million, compared to only 3 or 4 parts per million in deeper parts of the lake. Selecting the most oxygen-rich waters probably helps these northern turtles avoid lactic acid poisoning, which could result if they were completely dependent on anaerobic metabolism for several months.

In addition to their ability to survive long, cold winters, northern populations of the Painted Turtle differ from their more southern relatives in several ways. They tend to grow faster and larger, be more carnivorous, mature later and produce fewer but larger clutches of eggs. These are believed to be adaptations to the northern environment.

Where do they live?

Painted Turtles have a wide distribution, occurring across southern Canada from British Columbia to Nova Scotia, and south to Kansas, Louisiana and Georgia. They are generally absent from the arid southwestern United States and the Pacific Coast south of Washington State. Throughout their range they frequent ponds, marshes, small lakes, ditches and sluggish streams, usually with muddy bottoms and considerable growth of aquatic plants.

In British Columbia, Painted Turtles are irregularly distributed but locally abundant in Southern Interior valleys, including the Rocky Mountain Trench north to Golden, the Creston and Nelson areas, the Okanagan Valley, and the Kamloops-Shushwap Lake area. There is also a population near Williams Lake. On the coast they are less common, but have been recorded in the Fraser Valley from Vancouver to Hope, in the Sechelt-Powell River area, and on southeast Vancouver Island. The Vancouver Island records probably result from escaped pets and this may also be true for other coastal sites.

Reliable places to see Painted Turtles

include the Creston Valley Wildlife Area and Kikomun Creek Provincial Park. At Kikomun, the turtles occur in good numbers in a chain of kettle-hole lakes formed by isolated chunks of melting ice at the end of the last ice age. These small, fairly shallow lakes get quite warm in summer, have muddy bottoms, and support aquatic plants like stonewort, milfoil and pondweeds. Some turtles here move short distances between lakes in search of hibernation, basking, foraging or nesting sites.

In the Southern Interior, Painted Turtles are most frequently seen from late April or May, when the water temperature reaches about 10°C, to September. At Kikomun and other places, turtles are sometimes seen swimming, usually in shallow areas while foraging in the morning, but the best viewing opportunities are when they are basking in the sun on warm summer afternoons. For basking they prefer floating logs or other sites surrounded by water where they are safe from predators. Where such sites are not available, they may bask in warm lakeshore mud. At favoured basking sites, which are in high demand, the turtles may be piled two or more deep. At one lake in Kikomun Park, as many as 60 turtles have been seen basking on an 8-metre long log!

What can we do?

Habitat protection is the most urgent priority for Painted Turtle conservation in British Columbia. This requires better knowledge of the local distribution and abundance of the turtles. Not just any wetland is used by these turtles, so we need to know the location of key habitats if we are to protect them.



THE PAINTED TURTLE HAS YELLOW STRIPES ON ITS HEAD AND NECK. R. Wayne Campbell photo



THE COLOURFUL PATTERN ON THE PLASTRON GIVES THE PAINTED TURTLE ITS NAME. BC Parks photo

Although some Painted Turtle habitats in the province are well known and some are in protected places like parks or wildlife sanctuaries, others are not. Most wetlands and riparian zones now receive some kind of protection, but this is hard to achieve on private lands, which comprise much of the valley bottom area in southern British Columbia. Even in parks, the development of roads, trails, beaches and campgrounds can have an impact on turtle habitat. And where visitor levels are high and the turtles are an attraction, they may be frequently disturbed or even captured and taken home by well-meaning, but uninformed turtle enthusiasts. Turtles do not make good pets and many suffer a slow death due to starvation or malnutrition. Taking them from the wild also prevents them from maintaining natural populations by reproducing.


When visiting those delightful places where Painted Turtles are trying to go about their business, as they have done for millions of years, take great care to avoid disturbing them. This means observing basking sites from a distance, keeping dogs on a leash, not trampling nest sites and not picking up any turtles. People with information about Painted Turtles are urged to contact BC Environment regional offices.

Interested citizens and naturalists can support Painted Turtle conservation

by alerting provincial or municipal habitat protection staff about land developments that threaten the turtles or their habitat. With proper planning it may be possible to prevent habitat loss and end up benefiting a myriad of wetland organisms in addition to turtles.

As well, it may be possible to improve the lot of turtles in some locations by restoring degraded wetlands, providing basking logs, creating nesting habitat,

re-introducing turtles to former habitats or removing alien predators like bullfrogs. These activities require individual study to determine their feasibility and likelihood of success.

The public is urged to become more familiar with this unique member of British Columbia's diverse fauna and to take part in programs to protect it. It will be a sad day indeed if this colourful turtle ceases to brighten our waters. 

FOR MORE INFORMATION ON PAINTED TURTLES, CONTACT:

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