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Exploring Our Little Corner of the World with the Galiano Naturalists

by Libby McClelland

Our Galiano deer species, although not having our gardens to eat in the early days, has lived in North America for over 2 million years. When the last ice sheet covering BC retreated, about 12,000 years ago, the Columbian Black-tail moved north into the coastal areas. Its current range extends from the summits of the coastal mountain ranges west to the ocean, from central California to S.E. Alaska.

Commonly called the Columbian Black-tailed deer, or just Blacktail, our deer is one of three subspecies of *Odocoileus hemionus* in BC. Its cousin the Sitka Blacktail, the smallest subspecies, lives on BC's north coast and in the Alaska panhandle. The larger Mule deer moved north into most of the rest of BC interior.

Named for the tail coloration, entirely black on top and white underneath, in contrast to the black-tipped, and smaller, tail of the Mule deer, the Blacktail shares many other characteristics with the other two subspecies. All have the very large mule-like ears, about 2/3 the length of the head, that can move independently of each other. The summer coats are rusty red and winter coats thicker and brownish grey, with white rump and throat patches. Males have a distinctive dark patch on the forehead and dichotomously branching antlers.

A key identifier is the "stotting" behaviour, a distinctive spring-like bounding leap in which all four feet hit the ground at one time. This gait enables them to change

direction in one bound, to clear 8 metres in one leap and to leap over shrubs and rocks that a predator must go around. The most obvious difference between Mule deer and Blacktails is in the former's larger body and antler size. Columbian Blacktail males weigh 50 to 90 kg, females 40 to 65 kg.

The Blacktail social system is based on a female clan, related by maternal descent, and unrelated males. After the mating



Original illustration by Libby McClelland.

season, females stay close to where they were born, but males disperse individually or form groups of unrelated males of varying age. In mountainous areas, Blacktails migrate to lower elevations in the fall, but on the coast they stay in their home range. Females occupy a discreet home range of about 2.5 sq km, and males, 5 sq km.

Communication is by sight, sound and scent. Surprisingly, Blacktail sounds include grunts, snorts, barks and fawn bleats. Body language is important, and male deer can see and follow another animal 600 metres away. Scents, or pheromones,

from several glands elicit specific reactions from other deer. For example, the metatarsal gland, a dark brown area on the outside of the lower hind leg, produces an alarm scent; the tarsal gland, inside the hock, serves for mutual recognition, and a gland between the toes leaves a scent trail.

The fall rut, or mating season, peaks in late November. Large, old, dominant males account for most of the breeding. To guard his group of does from his competitors, he forms a “tending bond” with them that lasts only until mating is complete. Average gestation is 204 days, with the peak birth period in the last half of June. Typically, a doe gives birth the first time at 2.5 years old, to a single fawn, and has twins thereafter. Fawn size at birth is around 3 kg in weight and 12 inches tall at the shoulder. The baby must nurse within 1 hour of birth and stand within 12 hours, though it may be able to walk within hours of birth. However, fawns are kept well-hidden until strong enough to follow the mother. While the mother is off eating, the baby is protected by its disruptive coloration of white spots, its lack of odor, and its silence. Fawns lose their spots and complete weaning at around 4 months of age. They become functional ruminants when 2 months old and stay with the mother until she runs them off as the birth of the next year’s fawns approach. Although a doe typically produces offspring each year of her life, 45 to 70% of fawns die in their first year. Few Blacktails live more than 10 years.

Male antler growth is initiated in early spring by the increasing light of longer days acting on the pituitary gland. Conversely, hardening, and later shedding, of antlers and the fall mating period are controlled by decreasing day length. Antlers grow from the “rose stocks”, two bone cores on the top of the skull. Growing antlers are covered with soft, hairy skin called the velvet that provides protection and nutrients through its

considerable blood supply. The velvet dries up and becomes flakey when the antlers reach full size and harden. Bucks rub it off against small tree trunks or branches, leaving patches where the bark is scraped off. Calcium and phosphorus must be stored in the deer’s bones through the year so antlers can grow quickly, up to 1 cm per day in the summer. Available mineral sources in the local diet do affect antler size. Locally, deer regularly visit the shorelines, where eating seaweeds may help to enrich the diet with salt and other minerals. Through spring and summer, bucks also store food reserves so that their neck and shoulder muscles can expand in size to help support the antlers and to allow them to effectively spar with competitors if necessary. They eat little during the rut.

Deer are herbivores, eating primarily “forbs“ (broad-leaved herbaceous plants), and “browse“ (the growing tips of trees and shrubs). The best food is fast growing, succulent new growth as it is highest in nutrient content and highly digestible. In late spring to early fall, deer have the widest variety of foods available, including blackberry, fireweed, pearly everlasting, our garden plants, and many other herbaceous plants, as well as sprouting grasses, fleshy fruits, mushrooms and the leaves of willow, salmonberry, thimbleberry, salal, maple and other shrubs and trees. If available, acorns are the favored food, rich in nutrients and especially of value for putting on fat. Blacktail capitalize on the seasonal abundance for growth and fat storage. Their strongly seasonal metabolic cycle, of appetite, growth and energy expenditure, is controlled by day length rather than availability of food. A natural decrease in metabolic rate, reduced appetite growth and energy expenditure in winter, allows them to survive on a lower intake of the poor-quality forage available, while minimizing the burning of stored fat. Blacktail diet from late

fall to early spring includes Douglas fir, western red cedar, red huckleberry, salal, fern tips and lichens from trees.

As ruminants, a deer's digestive system is divided into separate chambers containing important microorganisms to break down tough plant cell walls. Food is first swallowed whole, partially digested, regurgitated, chewed and then swallowed again. The process takes about 48 hours. The types of microorganisms present are critical to this process because they are specific to certain types of vegetation. If a deer cannot eat the foods that match its internal microbes, it can starve to death, even with full stomachs, because it is unable to digest that food type.

Blacktails have a 4- to 6-hour active feeding cycle, primarily around dawn, dusk, at noon and a couple of times at night. Blacktails normally eat about 22 gm of food per kg of body weight each day. Perhaps that information will prove useful for determining how long your unfenced garden plants will last.

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Natural Mysteries

October's mystery was: Mushrooms are often able to push up through heavy soil, rocks – even blacktop! Does anyone know how? And how many pounds per square inch they can lift? Nature is relentless, isn't it, constantly striving to undo the insults of the man-made world. So a mushroom shoulders its way up through patio bricks like some circus freak tossing dumbbells. And it's all done not with magic and mirrors but with water. Think of a plant cell as a water balloon in a cardboard box. Only, the skin of the balloon is semi-permeable, allowing water to pass in and out but not solids. The plant cell regulates itself to maintain just enough water pressure to keep the cell wall from either collapsing or from

bursting. This is called turgor. When the plant encounters an obstacle, the cells take in more water, which increases the pressure inside, like filling the balloon with a hose. A growing root has a turgor pressure in the range of 6 bars, about three times the pressure in a car tire. Turgor pressure in a leaf can be 15-20 bars. Compare that with the pressure in our puny human circulation system. The doctor gets upset if our blood pressure goes to 0.03 bars.

Along these lines, islander Jonathan Colvin sent us a picture of a mushroom poking up through an asphalt road. A true Naturalist, Jonathan took a few moments to identify the mushroom as *Agaricus bitorquis*, and then he ate it.

This month's Natural Mystery: Just past the end of Georgia View Road there is a tall conifer with a different kind of growth close to the top. Does anyone know what this is? Have an answer? Send your thoughts to galianonaturalists@gulfislands.com. Have a Natural Mystery of your own? Let us know, and we'll try to answer it.

THE GALIANO NATURALISTS are a group of curious explorers who enjoy observing, marveling, and sharing information about the natural world around us. Come join us. (galianonaturalists@gulfislands.com)