

(20%) and lizards (3.3%). In British Columbia, the specific diet of this snake is unknown and only anecdotal information exists hidden in the newsletters of local naturalist clubs (Gregory and Campbell 1996). Identifying prey eaten by the gopher snake is important to our understanding of the ecology of the species. This note describes details for five direct observations of gopher snake predation of nestlings in nest boxes in the south-central interior of British Columbia.

During the summer of 2004, Joan Best and I monitored the Dew Drop Meadows bluebird trail situated 3.5 km north of Kamloops Lake and straddling the northern border of Lac du Bois Provincial Park. The nest box trail consists of 35 boxes placed on fence posts and trees in an area dominated by 50 cm high big sagebrush (*Artemisia tridentata*) in open ponderosa pine (*Pinus ponderosa*) and lodgepole pine (*Pinus contorta* var. *latifolia*) forest. On 20 May 2004 we discovered a 45 cm long gopher snake coiled snugly in a nest box (#17) that seven days earlier held four newly hatched Mountain Bluebird (*Sialia currucoides*) nestlings. After this discovery we reviewed the results of our survey of all 35 boxes and concluded that other snake predation may have occurred at two more boxes where eggs and nestlings had disappeared prematurely. Nest box #20, 400 m to the west, had a total of five eggs and one seven-day old nestling unaccounted for, while nest box #31, about 1 km to the south-west had a full clutch of six eggs disappear, also in the latter part of May. Nest boxes #17 and #20 may have been close enough to each other to suspect predation by the same snake. In total, for all 35 nest boxes, five nestlings and 11 eggs disappeared for an 11.3% loss in bluebird production.

The three nest boxes that were predated were mounted on five-strand fence posts averaging 1.4 m above the ground and 10-20 cm in diameter. It may be concluded that a snake could gain access to the boxes with relative ease.

Four additional field observations of gopher snake predation on bluebird nestlings follows. While checking a nest box near Richter Lake, west of Osoyoos on 16 June 1963, R. Wayne Campbell discovered a large gopher snake in the process of swallowing a Mountain Bluebird nestling. Three other small nestlings were also in the box that was mounted on a fence post about 1.5 m above the ground. When disturbed, the snake simply coiled up and stayed in the box while the agitated adult bluebirds remained nearby. The box and contents were left as found.

On 27 May 1966, while searching for a Sage Thrasher (*Oreoscoptes montanus*) at White Lake, south of Okanagan Falls in the Okanagan Valley, Robert E. Luscher was attracted to a commotion by adult Mountain Bluebirds around a nearby nest box erected on a fence post. He opened the box and discovered a gopher snake coiled up in a corner getting ready to consume one of five small nestlings. He removed

INCIDENCES OF GOPHER SNAKE PREDATION IN BLUEBIRD NEST BOX TRAILS IN BRITISH COLUMBIA

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The feeding ecology and diet of the gopher snake (*Pituophis catenifer*) in North America has been recently summarized by Rodríguez-Robles (2002). In a sample of more than 2,600 published and unpublished accounts as well as from preserved and free-ranging specimens he found that mammals accounted for 74.8% of 1,066 food items examined. Secondary prey included birds and their eggs

the snake and watched it slither away in the sagebrush. He then returned to his car, picked up a can of oil and coated the fence post in hopes that if the snake returned it might find the second attempt more challenging.

While checking nest boxes near Vernon on 20 June 1979, J. Bryan discovered a gopher snake curled up in a box with three small nestling Mountain Bluebirds. The adult bluebirds became alarmed when the box was opened. It was not known how many young the snake had eaten although its body bulged in one spot. The snake was removed from the box with a stick.

On 14 July 1997, Linda M. Van Damme observed a gopher snake entering a nest box along a fencerow on the Gilpin Creek Forest Service Road about 4 km east of Grand Forks. The box was occupied by two young Western Bluebirds (*S. mexicanus*) that were 7 to 8 days old with eyes fully open and quills developing on their wings. Both adult bluebirds were busy feeding the young prior to the snake's arrival.

As the snake entered the box the parent birds hovered above, uttering loud, agitated calls. The snake remained in the box for 65 min., looking out twice and resting its head on the lip of the entrance (Figure 1). During this time, the male bluebird frequently perched near the box and continued to utter soft alarm calls.

When the snake finally exited the box, two lumps inside the snake were obvious. The snake was approximately 1.1 m long. The adult bluebirds were not seen near the nest box in the half hour of observation following the snake's departure.

Even when predation numbers for both species of bluebird are combined it has been reported by Rodriguez-Robles (2002) that the percentage attributed to the gopher snake is very low (e.g., 0.1 to 1.4%). Since most bluebird predations recorded involved eggs, this suggests that field observation reports are important.

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Literature Cited

Gregory, P.T. and R.W. Campbell. 1996. The reptiles of British Columbia. Royal British Columbia Museum Handbook, Victoria, BC. 102 pp.

Rodríguez-Robles, J.A. 2002. Feeding ecology of North American gopher snakes (*Pituophis catenifer*, Colubridae). Journal of the Linnean Society 77:165-183.



Figure 1. Adult gopher snake looking out of nest box. Gilpin Creek Forest Service Road, 4 km east of Grand Forks, BC. 14 July 1997. (Linda M. Van Damme). BC Photo 3067.

About the Author

Willie was born and raised on a farm in east-central Saskatchewan where he developed an early interest in birding and the outdoors in general. This continued into his adult years as he watched birds throughout Canada, in parts of the United States, and Europe while serving 25 years in the Royal Canadian Air Force and Canadian Armed Forces. Two of his favourite postings were in the Canadian Forces Base Cold Lake, Alberta and CFB Comox where he combined his love of birds with canoe trips, mountaineering, cross-country skiing, and other outdoor activities.

Willie has taught birding, regularly contributed to *The Birds of British Columbia* project and has participated in Christmas bird counts, swan-eagle counts, owl surveys, and monitored bluebird trails, and nest boxes for cavity-nesting ducks for Ducks Unlimited Canada.