



## Big frogs in small ponds

An unwelcome easterner is invading Vancouver Island – in leaps and bounds



Govindarajulu

by Valerie Shore

**T**hey're big, green, bug-eyed aliens with huge appetites and they're invading southern Vancouver Island.

If this sounds like a bad episode of *The X-Files*, it's not. It's reality, and you can see — and hear — the invasion happening in several lakes and ponds around Victoria, Duncan, Nanaimo and Parksville this summer. The intruder is the American bullfrog, and its distinctive *bwum, bwum, bwum* bass serenade is signalling big trouble for the Island's native frog species and aquatic ecosystems in general.

"The biggest problem is that bullfrogs eat other frogs. Actually, they'll eat just about anything," says UVic graduate student Purnima Govindarajulu, who is studying the biology of the bullfrog invaders for her PhD. Insects, fish, snakes, small mammals and birds, even other bullfrogs, are all fair game. "Whatever they can fit into their huge mouths," she says.

To find out where the bullfrogs are, how fast they grow and what they're eating, Govindarajulu spends her summers stalking,

catching, measuring and tagging her slippery subjects in Victoria-area ponds and lakes.

It helps that she's dealing with a giant of the froggy world. Bullfrogs are the largest frog in North America, measuring up to 20 centimetres in length (not including legs) and tipping the scales at up to three-quarters of a kilogram. Tadpoles can grow up to 15 cm long, with heads as big as golf balls.

No one is sure how these goliaths found their way to Vancouver Island, but it most certainly wasn't under their own hop-power. Bullfrogs are an eastern species, and in Canada are not naturally found west of Ontario. It was people — probably looking to enhance their aquatic gardens or farm frogs for their tasty legs — who brought the first bullfrogs to B.C.'s Lower Mainland and Vancouver Island several decades

ago. The frogs have been spreading in leaps and bounds ever since.

"Their range on the Island is expanding by about five kilometres a year, mainly near urban areas," says Govindarajulu, who conducted her first bullfrog survey in the Victoria area in 1997. So far, she's found them in several dozen local lakes and ponds, including Elk and Beaver Lakes. There is some transport by humans, she says, but the frogs are also colonizing on their own — not surprising given their long, muscular legs.

Equally unnerving is the frog's ability to reproduce. Females can lay up to 20,000 eggs at a time. "Their survival strategy is to eat as much as they can, grow as fast as they can, and make as many babies as they can," says Govindarajulu.

How the region's native frogs are coping with this robust new neighbour is a major focus of Govindarajulu's work. The red-legged frog — recently listed as a threatened species in B.C. — and the tiny tree frog are both easy meals for a large bullfrog. And while bullfrog tadpoles are vegetarian, they eat the same food as other frog tadpoles.

"Once bullfrogs get established they pretty much clean out the competition," says Govindarajulu. "In Victoria, all the lakes that have bullfrogs have few or one or two red-legged frogs."

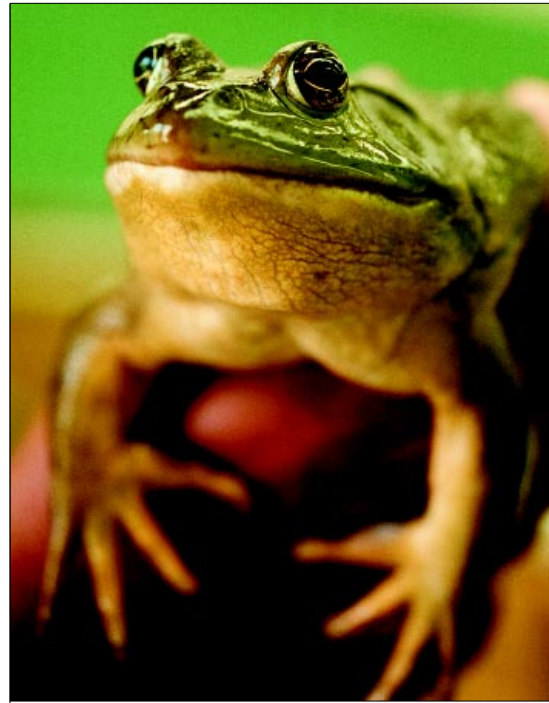
Although she's only halfway through her study, the evidence is mounting that bullfrogs are displacing native frog species. For this reason, she frequently gives public talks — through the UVic Speakers Bureau and the CRD's naturalist program — on ways to minimize the impact of this impressive, but unwelcome amphibian.

"The easiest thing we can do is not move frogs around, which people still do, especially now that aquatic gardens and backyard ponds have become so popular," she says. "Wild frogs aren't going to stay in your backyard, they're going to hop away."

As for kids, Govindarajulu encourages them to observe tadpoles, but to not take them home. Sometimes it's a tough sell. "They ask why bullfrogs can't be friends with other frogs," she sighs. "They grew up with Walt Disney and here I am talking about predation. It's hard."

Even some adults have difficulty understanding why Govindarajulu euthanizes bullfrogs captured in new areas. "They get very irate and say I'm playing God, but my answer is that we've already played God.

Bullfrogs don't belong here and they're endangering our native frogs. It's important to make that distinction."



### FACTS FROM THE EDGE

- Bullfrogs may be thriving in B.C., but in their native Ontario their numbers are declining, most likely due to a combination of habitat loss, pollution and overharvesting of frogs for sale to restaurants, where their legs are considered a delicacy.
- In general, frog numbers are declining around the world, a phenomenon that has scientists baffled — and worried. One of many possible factors is the invasion of exotic species, which the United Nations has declared as the second greatest threat to global biodiversity, after habitat destruction.
- Frogs are key players in aquatic food chains. They eat enormous numbers of insects and, in turn, provide food for fish, birds and mammals. Frogs may be especially important as indicators of environmental health. Because frogs have both aquatic and terrestrial life stages, they can signal changes in both types of environments.

### SHARPEN YOUR KNOWLEDGE

- To find out more about the bullfrog, red-legged frog, and tree frog on southern Vancouver Island — and the distinctive sounds they make — visit Purnima Govindarajulu's Web site at <http://web.uvic.ca/bullfrogs>
- A great site for general information on Canadian frogs is hosted by the Canadian Amphibian and Reptile Conservation Network at <http://eqb-dqe.cciw.ca/partners/carcnet/>
- Want to help find out how healthy B.C.'s frog and toad populations are? Check out the B.C. Frogwatch Program site at <http://www.elp.gov.bc.ca/wld/frogwatch>
- To get the global picture on frog conservation concerns, visit Amphibia Web at <http://elib.cs.berkeley.edu/aw>

### ON THE EDGE OF YOUR SEAT

Lansdowne Lecture: Can Stories About Education Educate?

Dr. Thomas Barone, Arizona State University  
Thursday, Aug. 3, 7 p.m.  
David Strong Building C108 (formerly the 1996 Classroom Building)

Dr. Barone is an eloquent proponent of a unique narrative and arts-based approach to educational inquiry. His stories about schools and the people who live and work in them have become educational classics. Many of these stories appear in his recent book, *Aesthetics, Politics and Educational Inquiry*, while others will be included in his forthcoming work, *Touching Eternity: Life Narratives and the Enduring Consequences of Teaching*. Free. Info: 721-7808.

## EDGE/WISE Gone frogging

Perhaps the most unusual part of UVic graduate student Purnima Govindarajulu's work takes place at night when she and her assistant, biology student Ron Patrick, go "frogging" in local lakes.

Paddling quietly in a canoe, they use a bright flashlight to scan for the glare of beady bullfrog eyes at the surface. Once they're close enough, Govindarajulu lunges for the frog. "After two summers of this, I'm pretty quick," she laughs. "I haven't fallen in yet, but we've taken in water a few times."

The captives are plopped into a bucket and taken to the lab, where they're anesthetized, sexed, measured, weighed and induced to throw up (to check stomach

contents). Govindarajulu also injects tiny dabs of coloured plastic paint into the webbing of each hind foot to identify individuals if they're recaptured. Within 24 hours of their "abduction," the bullfrogs are returned to their pond where they quickly resume their froggy business.

Govindarajulu goes frogging up to 12 nights a month during the summer, sometimes nabbing as many as 100 bullfrogs a night. "I usually call it quits at that point," she says. "Any more than that pretty much tires everyone out — us and the frogs!"

Govindarajulu's research on frogs is supported by the Natural Sciences & Engineering Research Council of Canada and the Habitat Conservation Trust Fund.

