



How to Save a Wetland? One Frog at a Time

By Dawn Green

photograph by Gerry Ellis

Garibaldi Springs Golf Course, Squamish, B.C.

They're already huddled in groups of three, a quirky collection of university students, environmental educators and retirees knee-deep in green pond scum – intently mapping one-metre-square quadrants with hand-held compasses and madly scribbling on wilting field-data sheets. Overhead, the summer sky arcs in a half-moon of blue. A swallow swoops low over water the colour of chocolate, the staccato chirps of songbirds echo in the surrounding underbrush. Just one hour into the second day of this wetland conservation course (the province's premier citizen-science program according to the BC Wildlife Federation), and our fingers are already curled stiff with the damp.

Squelchh. It's a sudden, loud, mud-sucking sound; 12 heads swivel in unison toward Gabriella Samson.

Oy, that was close. The 20-something biology student is filthy with reeking plant matter. But she's laughing as hands reach gingerly to pull her from the pond's sudden drop-off, saved from complete immersion with only centimetres of hip wader to spare.

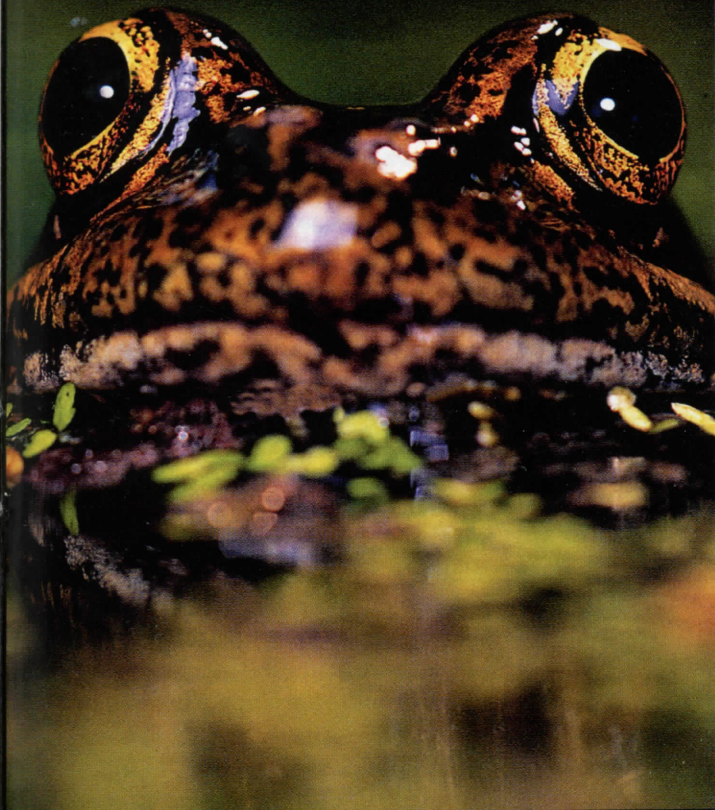
Me, I'm still struggling into the day's de rigueur waders under biologist and wetland conservation instructor Elke Wind's indulgent gaze. Sensibly, she grabs the opportunity to regale a curious journalist on the significance of two key wetland species, slimy but charismatic critters Wind has studied since the 1990s: the red-legged frog and western toad. Found only in southwestern B.C. and on Vancouver Island, the former is "a species of special concern" across Canada according to the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). The latter is a stocky, stumpy-legged character that tends to walk rather than hop, and whose numbers in southwestern B.C. are similarly declining due to pollution, disease and the steady erosion of wetland habitat by agriculture, industry and illegal garbage dumping.

The importance of wetlands as nature's freshwater purifiers, reservoirs, flood-control systems and carbon "sinks" is increasingly evident to the scientific community, and now to the 12 of us in this, our first wetland identification, restoration and conservation workshop. And as we discovered in an earlier class on aerial-map-reading and wetland vegetation, despite their unassuming appearance and temperament, few other creatures are as vital as frogs and toads to the

survival of wetlands and other local ecosystems.

The pair provide food for other species and transport wetland nutrients into surrounding ecosystems as they

A CRUCIAL INDICATOR SPECIES of ecosystem health, frogs exist smack in the middle of the food web. They prey on insects and invertebrates, but are in turn prey themselves to birds, mammals and snakes. (left) The red-legged variety is listed as "a species of special concern."



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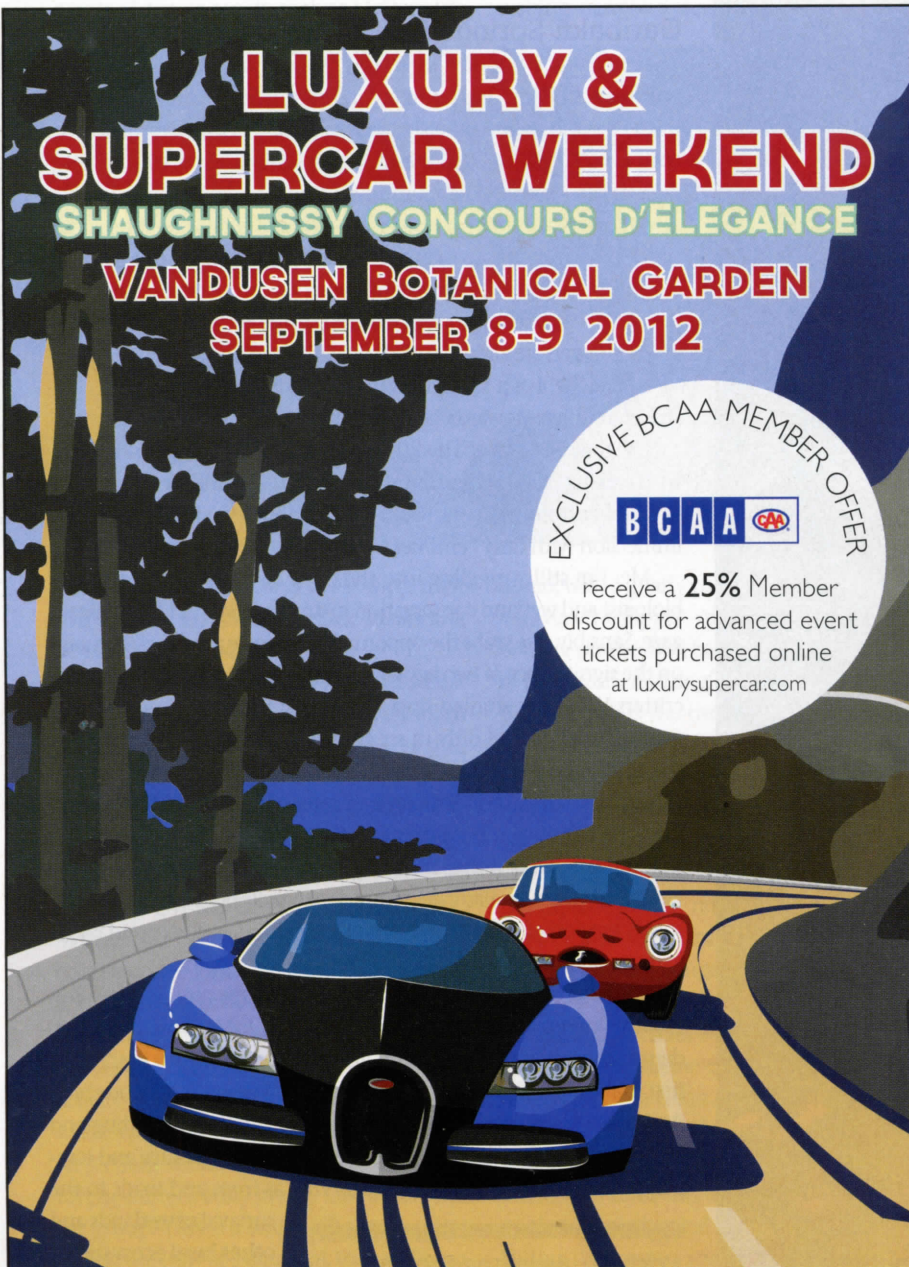
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metamorphose from water to land dwellers. It's this dual citizenship, in both aquatic and terrestrial habitats – along with a unique vulnerability due to the moist skin through which they breathe, unprotected by scales or hard outer shell – that makes them particularly qualified as harbingers of environmental change. Which is why, in 2010, news that 41 per cent of the planet's nearly 6,000 known amphibian species faced extinction rocked the conservation world. An updated "Global Amphibian Assessment" published in 2010's December 10 edition of the weekly *Science* journal reported that nine amphibian species have already been listed as extinct since 1980; another 113, not seen in years, may have also disappeared forever.

With her trainees' quadrant-mapping and vegetation survey complete in pond one, Wind leads the way to a second pond on the former Garibaldi Springs golf course. This now-muddy, water-logged expanse seems devoid of life at first glance, but Wind encourages us to look closer. "Be like a great blue heron," she prompts, lifting her long legs elegantly, "so that you're moving slowly and stealthily."

Squelching softly along the shoreline, clipboard at the ready, I ponder the handiness of waterproof paper as the first raindrops splat down on us. Samson, the aforementioned mud diver and now my workshop partner, mimics Wind's high-stepping gait as we search for frogs in various life stages hidden amongst the reeds. It seems an impossible task; the long-legged heron is so much more graceful than we in our gangling gear. Luckily this is egg season, and all 12 of us easily spot the amphibian egg masses floating near the surface like globs of clear jelly.

Another classmate wades over, gingerly cradling a sample to view up close as Wind outlines how wetlands are "nurseries, some of the most important life support systems on earth." Comprising roughly 5.6 per cent (or 5.28 million hectares) of B.C.'s total landmass, she notes, wetlands provide critical habitat for fish, birds and other wildlife. Perhaps surprisingly, they also have a significant monetary value according to environmental economists who calculate the "goods and services" exchange of such things: in this case, \$19,580 per hectare. With a total tally of 5.28 million hectares, this means B.C. wetlands are worth \$100 billion-plus per year.

Yet their rate of loss is escalating. Some 80 per cent of the Fraser River Delta wetlands have already disappeared; in the South Okanagan, the figure is 85 per cent. All of which spells big trouble for wetland residents – frogs and toads in particular.

Wind, unruly blonde hair stuffed under a toque, her florescent vest bulging with various tools, holds up what looks vaguely like a lobster trap. These collapsible, mesh funnel traps, she explains, are live traps used to capture a snapshot of amphibian life, and almost two-dozen of them are submerged throughout the pond like hidden Easter eggs. We scatter immediately, our competitive instincts tweaked.

Minutes later, Samson and I triumphantly lift the first waterlogged trap to the surface, then hold it – dripping mightily – aloft. Peering inside, we find ourselves face to face with a frog, the underside of its hind red legs a brilliant red. *Bingo!* Cries of surprise echo ours as other groups gawk to find more red-legged frogs, along with northwestern salamanders, dragonfly larvae, water scorpions (*ranatra fusca*) and giant water bugs (*lethocerus americana*). I momentarily hold “our” frog in my hand, then ceremoniously place it in a deep bucket’s 10 centimetres of pond water. I’m convinced I can feel its tiny heart beating in rhythm to the rain.

Waiting for the others to lug more buckets ashore, Samson and I record each find from within our allocated study area: one red-legged frog, 12 egg masses, five water striders and one giant water bug. This is *fun*, I think. Suddenly I’m imagining leading my own Wetlandkeeper group late one future afternoon, revelling in a melody of frog calls. But the vision quickly evaporates with Wind’s news that B.C. coastal frogs don’t call. In fact, she says, the red-legged frog communicates underwater. “Sometimes we take groups out with the hydrophone, the same model used to listen to whales. If you put one in the water, you can hear them then,” she says, laughing. “They make a funny quack sound.”

More mysteries of the amphibian world are revealed: Did you know male western toads don’t have a mating ritual? The males simply grab anything resembling a female toad and if it squeaks they know they’ve grabbed a male and let go; if it doesn’t squeak, they hang on. “When you’re sitting there it sounds like a whole bunch of squeaky toys going off,” notes Wind, “very comical.” Apparently, the frogs get so crazy



AKA “NATURE’S KIDNEYS” (due to their function as a natural filtering system), wetlands sustain more life than any other ecosystem, including many tropical rainforests. Though they exist on every continent except Antarctica, they are also particularly abundant in Canada, where 25 per cent of the Earth’s wetlands are found.

when breeding that they cluster in mating balls: “You’ll get tons of males all trying to grasp one female and occasionally they drown her. Sometimes there will be one male hanging onto this dead female at the bottom of the wetland, and he’s holding his breath for a long time because the drive to hang onto his prize is so strong.” After human destruction of amphibian habitat, though, the most serious threat to local frog populations is the invasion of the American bullfrog. “They’re the bullies of the frog world,” says Wind. “They’ll march into wetlands and eat anything in sight, including the native frogs.”

AS THE LAST GROUP STRUGGLES out of the murk, the rest of us gather around the stars of the show for one last look. We can’t help but marvel at how such inconspicuous little creatures, albeit with bulging eyes and slimy skin, play such a critical role as thermometers of our planet’s health. Despite the biting rain and nearly frozen wet hands, our communal flood of compassion is evident in the way we scramble to place these newfound “friends” gently on the grass, then snap photos from every angle: left, right and centre.

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ECO-WATCH 101

NUMEROUS OPPORTUNITIES exist to lend a hand with B.C. conservation efforts. Just a few of the possibilities:

- **Monthly Bird Counts** on Lost Lagoon and Beaver Lake; beached-bird monitoring. Vancouver. stanleyparkecology.ca
- **The Great Canadian Shoreline Cleanup** In 2011, volunteers removed more than 143,000 kg of litter from 3,144 km of B.C. coastline. shorelinecleanup.ca
- **All About the Fish** Scuba divers can conduct fish surveys at their fave B.C. dive sites (fishcount.org). Non-divers can also pitch in, with coho identification in the Cariboo (cccconserv.org) and stream rehab in the Comox Valley (morrisoncreek.org) and Vanderhoof (250-567-9542).
- **Ecosystem Restoration** A 50-organization effort. South Okanagan. soscp.org □

snowshoers, Leavenworth also hosts a series of successful summer events dedicated to the grape. At the annual June Leavenworth Wine Walk (now in its 10th year), guests can sample local wines while exploring the village's shops and galleries. Also in June: the Great Leavenworth Food & Wine Festival pairs wine tastings hosted by 24 vineyards with cooking demonstrations by local chefs. And in August, there are even more opportunities for wine tastings and gourmet dining, this time coupled with live music, courtesy of the Leavenworth Wine Tasting Festival. ■

TRAVEL TIP: For more roadtrip ideas, five free Snohomish County cyber tours are accessible by iPhone, Android, tablet and smartphone users: Aviation Adventures; Everett on Port Gardner Bay; City of Granite Falls; Mountain Loop Highway; and City of Snohomish. See snohomish.org

This promotional feature was prepared for Washington Co-op by Robin Brunet. Snohomish County (1-888-338-0976); Amtrak (1-800-872-7245); Bellingham Whatcom County Tourism (1-800-487-2032); Island County Tourism (1-888-747-7777); Leavenworth Chamber of Commerce (1-509-548-5807).

Lobby at Hotel FIVE/Pineapple Hospitality

Regal Repose



One way to maximize any Washington State experience is to explore Snohomish County by day and recharge in King County at night. And given that Seattle is often the first choice among weekenders booking a home base for regional daytrips, many travellers are finding that the personalized service and attention to detail at Pineapple Hospitality's boutique hotels translates as four tranquil homes away from home to choose from – each with its own unique ambience:

- **Hotel FIVE's** interior is, literally, a modern artwork in itself. Just minutes from Pike Place Market, this is a hip, chic establishment geared to the young business traveller – and all those with a preference for anything bold, modern and lively.
- **The Maxwell Hotel**, a brand-new facility adjacent to the Space Needle, is a tribute to vivid, sophisticated design. And, like Hotel FIVE, it caters to the modern traveller, with such conveniences as dog-friendly rooms, in-room fridges and microwaves.
- **The Watertown Hotel**, in Seattle's University District, is just four blocks from the University of Washington. A family focused retreat, the emphasis here is on comfortable accommodations that feature a wide range of extras; plus a business centre, meeting centre and other business-travel perks – including the Pineapple Cafe, for that first cup of Joe!
- **The University Inn** relives bygone eras of travel, when going abroad was a grand adventure and dazzling service was standard. Complementing the Inn's funky décor: award-winning organic cuisine and staff who take the utmost pleasure in meeting every guest's every need, 24 hours a day. Details at: staypineapple.com □

Wetlands

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Newly armed with the basics of how to identify and conserve a wetland and create and run a stewardship group, we've taken our first step in fighting the good fight. ■

Based in Squamish, Dawn Green writes about mountain culture, travel and the environment.

Prep Read Amphibians and Reptiles of B.C. (2006, Royal B.C. Museum; \$25.95). • **Inspiration** The documentary Winged Migration demonstrates just how many bird species rely on wetlands in their epic migratory movements (imdb.com/title/tt0301727/); also, peruse the Frogwatch website (env.gov.bc.ca/wld/frogwatch). • **Gear** Bring your own wellies; hip waders and other equipment provided. • **Cost** Wetlandkeeper courses, \$90; Institute Workshops, \$650. **Sign-up** 2.5-day Wetlandkeeper courses are held several times a year throughout B.C., with Castlegar up next, June 1 to 3; Sea-to-Sky region, July 9 to 15. Ages 14 and up welcome. bcwf.net

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