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Battling invasive species? Release the hounds (and drones)

Prevention costs a fraction of the potential damage

BY LARRY PYNN, VANCOUVER SUN FEBRUARY 2, 2016

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Hilo and handler Cindy Sawchuk check over a boat for invasive mussels at an inspection station in Alberta.

Photograph by: Alberta Environment and Parks

Dogs and drones are the latest weapons in the fight against invasive species, a global problem estimated to cause more than \$1 trillion in harm annually to terrestrial and aquatic landscapes.

Cindy Sawchuk, a dog handler with Alberta Environment and Parks, told about 150 people at an Invasive Species Council of B.C. conference Tuesday in Richmond that her province has three dogs trained to sniff out invasive mussels on boats.

The dogs mainly work at watercraft inspection stations along the eastern

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border closest to Manitoba, where invasive mussels have been detected, and along southern borders to check Canadian snowbirds returning from warm southerly retreats.

Faster and more efficient than human inspectors, the dogs are able to detect the scent from an invasive mussel smaller than a grain of rice, she said. The dogs are even fitted with booties so they don't scratch paint jobs.

The inspection stations have conducted about 21,500 boat inspections, of which 11 carried invasive mussels — more than half of them headed for B.C.

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Invasive mussels are especially challenging because they can survive for about a month out of water, clinging to hard surfaces on boats.

Since invasive mussels were introduced into North America in the late 1980s in ship ballast, they have caused havoc to water infrastructure and native ecosystems, Sawchuk said. With no natural predators, one female invasive mussel can produce one million young a year. "It's a huge area of concern, a game changer," she said.

Alberta estimates it would cost \$75 million annually in maintenance costs if invasive mussels such as zebra and quagga varieties become established.

The B.C. government is spending about \$600,000 a year to help fight the introduction of invasive mussels, including mobile inspection units, auxiliary conservation officers, and improved signs and education. Groups such as the Okanagan Basin Water Board have said that's too little money and recommend inspection stations be set up along the Alberta border.

Catherine Tarasoff, a consultant and adjunct instructor at Thompson

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Sarahna Parson, a consultant and drone instructor at Thompson Rivers University in Kamloops, told the conference that experiments are underway with drones to search for invasive species.

One case involved the search for the invasive plant, yellow flag iris, within the Creston Valley Wildlife Management Area.

"The sky's the limit," she said. "You can think of anything and you can do it with a drone."

She said drones reduce safety risks for workers in the field, and can more efficiently check large inaccessible areas.

But she said there are limitations to the technology, including the potential for trees to obscure views of smaller invasive plants, and the challenge of detecting target plants interspersed with other plants. The drones typically have a battery life of 20 minutes which means that researchers must come prepared, she said. Extensive post-processing of information obtained by drones must also be factored into budgets, she added.

The council reports that damages and economic losses from aquatic and terrestrial invasive species worldwide are estimated at more than \$1.4 trillion annually. Forestry, agriculture, fisheries, recreation and tourism are among the heavily affected sectors.

The cost of invasive species to Canada in 2004 was estimated at up to \$34.5 billion a year, the council states.

In B.C., just six invasive plants caused at least \$65 million in 2008 and could reach \$139 million by 2020 if they continue to spread, the council said. The six are purple loosestrife, diffuse knapweed, hawkweed, cheatgrass, Scotch broom, and Eurasian water-milfoil.

lpynn@vancouversun.com

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