



the humans who hadn't been x-rayed.

"Quite often detection dogs would find concealed items that had been missed on x-ray, as the item was too small or easy to miss for the human operator," she said. "It is also known that when passengers see detection dogs, they tend to be compliant. Therefore, having detection dogs at airports and mail centres can be more of a deterrent."

'Robot noses' potentially have their place in Australia's ongoing battle against the importation of illegal substances, however, they can never totally replace detection dogs, said Ms Teigan.

"Machines can have mechanical issues and potentially breakdown. They need regular maintenance which may inhibit their use. The person operating the machine may use bias to search certain people without realising it. Whereas a dog does not show bias. It will only detect what it has been trained to detect," she explained.

Potentially, electronic noses and canine noses can be used simultaneously, as one nose may be more advantageous to use than the other in certain circumstances.

To keep the detector dog industry moving forward into the future, "professional detector dogs need to be held to high standards in the field through regular testing of the handler and dog team. The dogs are as good as their training," said Ms Teigan.

In the meantime, many organisations, agencies and government departments

in Australia who use detector dogs rely on comparing detector dog programs in Australia and around the world to determine the best practice model in detector dog breeding, training and/or program quality assurance.

Considering the development of electronic smelling technology worldwide, it's clear more research still needs to be done in that area. Researchers believe the robotic nose is more likely to "interact" with dog detection than replace the living, breathing canine nose.

For the Australian detector dog industry to remain world class, it's more important

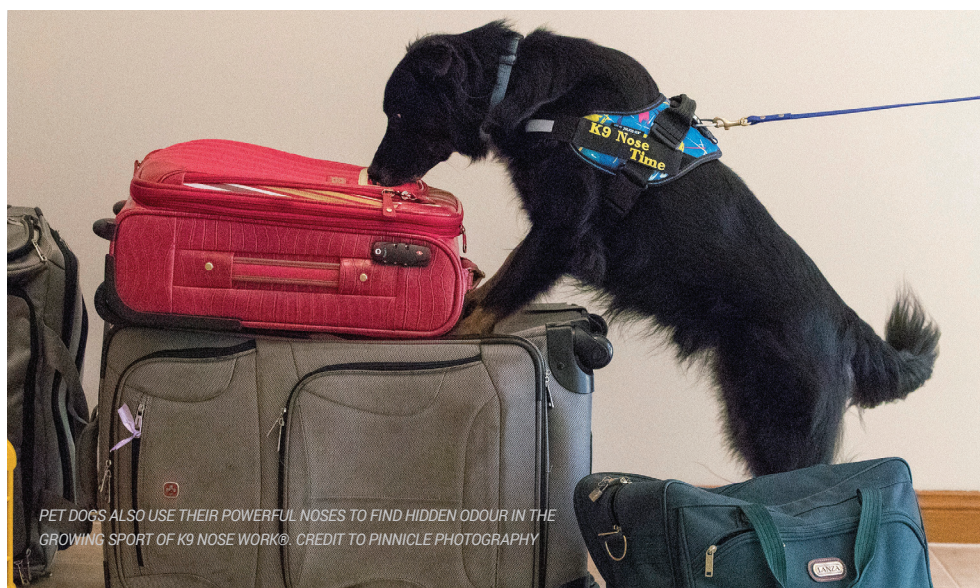
than ever for the Australian detector dog industry to develop a national standard for their programs so that our working dogs don't go sniffing up the wrong tree. ■

<sup>1</sup> P. Quignon, E. Kirkness, E. Cadieu, N. Touleimat, R. Guyon, C. Renier, C. Hite, C. André, C. Fraser, F. Galibert, Comparison of the canine and human olfactory receptor gene repertoires, *Genome Biol.* 4(12) (2003) R80.

<sup>2</sup> <https://doi.org/10.1038/s41467-018-06806-w>

<sup>3</sup> DOI: 10.1038/s41598-018-32244-1

<sup>4</sup> [https://esf.com.au/wp-content/uploads/2018/01/Detector\\_Dog\\_Final\\_Report.pdf](https://esf.com.au/wp-content/uploads/2018/01/Detector_Dog_Final_Report.pdf)



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