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Honeybees Trained to Locate Landmines

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Honeybees Trained to Locate Landmines

Croatian researchers from Zagreb University are training honeybees to detect landmines in the Balkans. By feeding the bees a solution of sugar and TNT, the insects learn to associate the scent of explosives with a possible food source. As the bees explore and search for mines, infrared cameras track their movements.¹ The honeybees are intended for use in demined areas to locate mines that clearance teams may have missed.

Compared to other animals traditionally used for mine detection, such as dogs and rats, bees exhibit several advantages. The insects possess an acute sense of smell, quickly detecting the scent of explosives up to 4.5 km (about 3 mi) away.² Due to their minute size, they cannot set off the mines—a risk for other animals. Unlike dogs or rats, which require handlers at their side, honeybees are tracked with radio tags and infrared electronics.³

The Defense Advanced Research Projects Agency (DARPA) in the U.S. has conducted similar research pertaining to bees since 1999.^{3,4} For example, the Controlled Biological and Biomimetic Systems Project studies organisms and how they can work with technology to improve humanitarian aid.⁵ As a result of similar projects, DARPA discovered that “bees [can] be used as border-security sentries and as combatants against agricultural bioterrorism.”⁶



Honeybees at work.
Figure courtesy of AP.

The Croatian honeybees research project is a part of a larger program called Toolbox Implementation for Removal of Antipersonnel Mines, Submunitions and UXO (TIRAMISU), a multimillion-euro program funded by the EU that intends to develop a toolbox of applications and technologies to support humanitarian demining.¹ TIRAMISU began 1 January 2012 and expects completion by 2016. “General airborne survey technology will be operationally validated in real minefields in Osijek-Baranja County in Croatia [and] will improve the use of honeybees and biosensors for mine detection and quality control,” according to the TIRAMISU website.⁷ ©

~ Megan Hinton, CISR staff

Endnotes

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