



Researchers Study Impact of Climate on Dogs' Ability to Detect Explosives

ELYSSA SANDERS | OCTOBER 11, 2021

Paola Tiedemann and Nathan Hall to study canine explosives detection under different environmental conditions.



Paola Tiedemann, a research associate professor of forensic science in Texas Tech University's Department of Environmental Toxicology, and Nathaniel Hall, an assistant professor of companion animal science in the College of Agricultural Sciences & Natural Resources, have received a \$270,717 cooperative agreement from the U.S. Army Research Office to study how environmental factors impact the performance of explosives-detection dogs (EDD). Funding for this study is provided by the Defense Health Agency as part of a larger portfolio supporting Military Working Dog basic research.

“This project will help us understand the odor fate of important explosives under different environmental conditions while simultaneously studying the limits of canine detection,” Tiedemann said. “Together, these experiments will evaluate their interrelated effects and help us inform the canine community of better ways to acclimatize dogs and mitigate environmental impacts on their detection.”

Because of their superior sense of smell and tolerance for extreme working conditions, canines serve as a critical line of defense against security threats involving explosives and firearms. However, despite the prominence of EDDs in military and law enforcement operations, very little is known about how atmospheric conditions impact their odor-recognition capabilities, let alone what can be done to mitigate any negative performance outcomes.

Spanning May 2021-22, this research contract is an interdisciplinary collaboration between Tiedemann's Forensic Analytical Chemistry and Odor Profiling Laboratory, housed within the Department of Environmental Toxicology, and Hall's Canine Olfaction Research and Education Laboratory, housed within the Department of Animal & Food Sciences.

By studying the psychological and physiological impact of extreme weather and other environmental factors on canine odor detection, Tiedemann and Hall are exploring virtually uncharted territory. This emerging research could uncover effective strategies for boosting canine performance in extreme climates.