Lizards' feisty flicking changed by motion noise

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Animals that alter their movement-based signals to overcome visually 'noisy' environments could lead to a better understanding of vision systems and improve the capacity of 'seeing' machines, according to scientists from The Australian National University.

Dr Richard Peters from the Research School of Biological Sciences (RSBS) at ANU led a research team that demonstrated for the first time how animals that rely on motion signals to communicate will alter their behaviour in relation to other moving things in their surroundings. The results are published in the latest edition of *Current Biology*.

The researchers looked at the territorial signals of the male Jacky lizard, a medium-sized dragon that lives in rocky, scrubby areas along eastern Australia.

"In order to defend its territory against other males, the Jacky lizard performs a display that begins with a series of tail flicks and culminates in a sequence of push ups, in which it asserts its strength and viability," Dr Peters said. "But the lizards' environment is often windy, which means there can be a lot of branch movement, or motion noise, from surrounding plants."

To see how the lizard copes with motion noise, the researchers created large outdoor enclosures on the New South Wales south coast. They used electric fans to simulate the wind, creating movement in the plants. They then introduced a second male to each enclosure to initiate the territorial

display.

“Under sustained wind conditions, the lizard changed the structure and duration of its introductory tail flicking before it performed the push ups,” Dr Peters said. “Under calm conditions, the tail flicking may last for as little as a few seconds. But in high winds, we observed that the action may last as long as two minutes, with much longer pauses between flicks.”

Dr Peters said that this altered behaviour in response to environmental conditions is most likely inspired by the lizard’s desire to ensure reliable detection of its signal against increased background noise. He said learning more about the production and reception of such cues could have real benefits outside of biology.

“By understanding more about how an animal uses visual motion to communicate, we can learn more about how animals’ vision systems operate. This could ultimately have implications for how we can improve machine vision in things like robots.”

Source: ANU