

Loner lizards don't light up: The social side of lizards (w/ Video)

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(Phys.org) —One of the first studies conducted on young reptiles reared without contact with their siblings is challenging the assumption that only mammals and birds are shaped by social interactions.

"Our results demonstrate that rearing these animals in different environments strongly affects their [social development](#)," said Cissy Ballen, a PhD candidate in the University of Sydney's School of Biological Sciences and lead author of the paper published in *Animal Behaviour*.

"These chameleons catch insects using a 'ballistic' rapid fire tongue movement and use dramatic colour changes to signal dominance. The lizards raised in isolation were more submissive, were slower at attacking certain food and displayed darker and duller colours than those raised with their siblings."

Most people know that to rear a baby on its own would have devastating consequences for its development. Until very recently, scientists have believed that only the 'social' species, such as birds and mammals, were disadvantaged by being reared in isolation.

It has been assumed that reptiles, as 'lower' animals, are non-social, so their behaviour is determined by their genes, not by their interactions with members of the same species.

The research was conducted using young veiled chameleons (*Chamaeleo*

calyptratus), large tree-dwelling lizards native to Yemen and Saudi Arabia that are popular as pets and in zoos. While their mother usually leaves after giving birth, they often encounter their brothers and sisters as they grow up.

The chameleons were raised alone or in groups of four.

In addition to their slower food attack times and duller colours when young isolated chameleons had contact with siblings, they fled and curled into balls. In contrast, those reared in groups interacted and exhibited their colours in a competitive display.

"Young chameleons, like many reptiles, often engage in intense combat with each other. The absence of this opportunity appears to slow the development of behaviours that help the lizard intimidate rivals and succeed in acquiring food."

Early research assumed that reptiles' behavioural traits were highly stereotyped and fixed, differing between species but not changing in response to the conditions that an individual experienced during its lifetime. However, there is emerging evidence of complex social systems among some lizards, including the ability to solve cognitive tasks, exhibit social learning and demonstrate specific variations in mating behaviour.

"The idea of lizards as machine-like creatures who do not respond to local conditions is being replaced by a new appreciation of the subtlety and flexibility of reptile behaviour as influenced by their local environment and genetic factors," said Ballen.

"Future research could explore the possibility that some reptiles are far more responsive to social cues than we expect.

"Our results also have obvious implications for the captive rearing of

reptiles. These animals are commonly raised by zoos, private keepers and pet owners in [social isolation](#), under the assumption that [social cues](#) are irrelevant to their development. Our results call that into question and suggest that for many [reptiles](#), an environment rich in [social interaction](#) may provide important benefits for their wellbeing."

More information: Cissy Ballen, Richard Shine, Mats Olsson, Effects of early social isolation on the behaviour and performance of juvenile lizards, *Chamaeleo calyptratus*, *Animal Behaviour*, Volume 88, February 2014, Pages 1-6, ISSN 0003-3472, [dx.doi.org/10.1016/j.anbehav.2013.11.010](https://doi.org/10.1016/j.anbehav.2013.11.010).

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