

Tough early life makes wild animals live longer

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Banded mongoose *Mungos mungo*. Credit: Public Domain

Growing up in tough conditions can make wild animals live longer, new research suggests.

Scientists from the University of Exeter found that male banded mongooses that experienced poor [conditions](#) in their first year had longer lives.

However, there was no difference in the number of offspring they fathered - suggesting those born into poor conditions "live slow, die old" while those with an easier first year "live fast, die young".

Surprisingly, the males that fathered the most pups were those that grew up when conditions were highly variable. These males also lived long lives, like those born into poor conditions.

"Growing up in a poor or unpredictable environment isn't necessarily bad - it can have advantages," said lead author Dr Harry Marshall, of the Centre for Ecology and Conservation of the University of Exeter's Penryn Campus.

"It's not clear why variable early-life conditions were the best for male mongooses in terms of longevity and reproduction. It might be that male mongooses that experience different challenges in their first year are better prepared for those challenges later on."

The researchers used 14 years of data on wild banded mongooses (*Mungos mungo*) in Uganda. Rainfall was used as the measure of conditions, as the researchers found that more rainfall means more invertebrate prey for mongooses to eat. Variable conditions were defined as those with large fluctuations between wet and dry periods.

Early-life conditions appeared to have no impact on the chance that individuals survived their first year. There was also no impact on females' longevity or reproductive success.

"It is surprising that early-life conditions affected males but not

females," Dr Marshall said.

"We know that female mongoose survival is more sensitive to ecological conditions later in life, perhaps due to the greater demands pregnancy brings. This may hide any effects of conditions experienced during their first year."

He added: "Studying these effects helps us understand how animals might be affected by future environmental changes."

Professor Michael Cant, also of the University of Exeter, who leads the long-term banded mongoose study, added: "In [banded mongooses](#), as in humans, survival and health in later life depends on the conditions experienced during growth and development. Deciphering why these effects evolved through studies on [wild animals](#) has implications for human health."

The paper, published in the journal *Ecology and Evolution*, is entitled "Lifetime fitness consequences of early-life ecological hardship in a wild mammal population" and is by Harry H. Marshall, Emma I. K. Vitikainen, Francis Mwanguhya, Robert Businge, Solomon Kyabulima, Michelle C. Hares, Emma Inzani, Gladys Kalema-Zikusoka, Kenneth Mwesige, Hazel J. Nichols, Jennifer L. Sanderson, Faye J. Thompson and Michael A. Cant.

Provided by University of Exeter

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