

## Sex obsession a killer for male snakes

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A female (large red-sided garter snake) being pursued by smaller male snakes during the mating season in North America. Credit: Christopher R Friesen

An international team of scientists led by the University of Sydney has confirmed a frenzied approach to the mating season is resulting in males ageing faster and dying earlier and in worse condition than their female counterparts, who prioritise body-maintenance over short-term

reproductive success.

In the study population of red-sided garter snakes in North America:

- males undertake energetically expensive mating for 2-4 weeks a year;
- males don't eat and must compete with thousands of other males during the [mating season](#);
- females stay at the orgy site for as little as one day, compared with up to 21 days for males; and
- snakes hibernate underground for eight months in their communal dens and emerge en masse in spring, to form large aggregations where males scramble to locate and mate with females.

The research is published today in the *Royal Society journal Proceedings B*.

The study measured telomere length, which is a biomarker of ageing, in male and female snakes. The team found that males are unable to maintain good body condition, and age faster than females. This is probably because males spend their energy on mating, instead of protecting against DNA and cellular damage associated with ageing. In contrast, females prioritise body condition and may be better able to repair [cellular damage](#), leading to longer lives and future opportunities to reproduce.

Senior author at the University of Sydney Dr Christopher R Friesen, explained that the snakes made good use of the relatively short amount of time to procreate, having only four months a year to breed, feed and have babies.

"Although we believe that all females mate every year, they only stay at

the den sites (where mating takes place) for a short period of one- to three days; much less than males, who remain for at least a week and up to 21 days, which seems to result in males ageing faster and dying earlier than females" Dr Friesen said.

"Females reproduce every other year, which depends on their stored fat/energy reserves. Our previous research has shown that females can store sperm for up to 15 months or more before she uses the sperm to fertilise her eggs!"

The paper reported: "The relationship between body condition and age differed strikingly between sexes, with [females](#) maintaining their [body condition](#) with age, while condition decreased with age in [males](#)."



Researchers studied populations of red-sided garter snakes in Manitoba, Canada over the breeding season. Credit: Christopher R Friesen

In addition to prioritising self-preservation over sex, the female garter snakes studied in Manitoba, Canada, did not waste energy on looking after their babies postnatally, which is in line with the parenting approach of other snakes.

University of Sydney co-authors at the School of Life and Environmental Sciences are Dr Friesen, Nicky Rollings and Dr Camilla Whittington (Sydney School of Veterinary Science). Other researchers comprise: Prof Mats Olsson, Goteborgs Universitet; Prof Robert Mason, Oregon State University; Assoc Prof Heather Waye, University of Minnesota at Morris; Assoc Prof Randolph Krohmer, Saint Xavier University and Dr Emily Uhrig, Linköping University.

**More information:** Age-related sex differences in body condition and telomere dynamics of red-sided garter snakes, *Proceedings of the Royal Society B*, [rspb.royalsocietypublishing.org ... .1098/rspb.2016.2146](https://royalsocietypublishing.org/doi/10.1098/rspb.2016.2146)

Provided by University of Sydney

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