

# **Do newly discovered mating habits of female Tasmanian devils help or hurt the species?**

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Morris Animal Foundation-funded researchers at the University of Sydney discovered that Tasmanian devil females can be polyandrous and their male

partners can be younger than once thought. This could mean the devils are adapting to life with Devil facial tumor diseases in their midst, but it could also pose a challenge for conservationists trying to maintain genetic diversity in species recovery programs. Credit: Dr. Sarah Wilks, private consultant in Sydney, Australia

Wild female Tasmanian devils have mating habits that could pose a challenge for conservationists trying to maintain genetic diversity in species recovery programs, found Morris Animal Foundation-funded researchers at the University of Sydney.

The research team discovered that Tasmanian devil females can be polyandrous, or have multiple mating partners, and their [male partners](#) can be younger than once thought. The team published their findings in the *Biological Journal of the Linnean Society*.

Devil facial [tumor](#) disease 1 (DFT1) and the recently discovered devil facial tumor 2 (DFT2) have decimated wild Tasmanian devil populations. Save the Tasmanian Devil Program, an initiative by the Tasmanian and Australian governments, was established to maintain an enduring, ecologically functional population of Tasmanian devils in the wild with a captive, insurance population of animals free from DFT1 and DFT2.

"The good news is that these devils may be changing their [life history](#) to adapt to life with the disease in their midst," said Dr. Tracey Russell, biologist at the University of Sydney and lead author of the paper.

"There are benefits to multiple paternity, including increased genetic diversity of offspring, but this may be problematic in a captive situation, where females have access to more than one male, making the parentage of the offspring unknown and needing to be determined."

Multiple paternity of litters has been recorded in numerous marsupial species but had not been reported in Tasmanian devils. Dr. Russell's team studied a population of devils on the Forestier Peninsula, in southeast Tasmania. Researchers extracted DNA from samples of each individual and compared those of the pups to those of potential fathers to identify sires.

The researchers discovered four out of the nine litters tested showed multiple siring of offspring. Even more interestingly, some of the sires were yearlings. Devils are thought to be sexually mature at 2 years old. While females have been observed to breed as yearlings in disease-ravaged areas, this is the first record of males doing so.

As this is a newly discovered phenomenon, it's not yet known if multiple paternity increases offspring survival in the wild. However, in many species, polyandry offers potential benefits, such as reduced risk of male infanticide of offspring and increased [genetic diversity](#) of [offspring](#).

DFTD1 and DFT2 are highly unique forms of transmissible cancers that are passed from one devil to another through biting, a common behavior that takes place during feeding and mating. Most infected Tasmanian devils die within three to six months of developing visible tumors. Primary tumors typically develop on the face or inside the mouth, and quickly grow into large tumors that metastasize to the internal organs.

When these cancers ravage a population, it is usually the older devils that succumb to the disease, since they tend to be the ones inflicting penetrating bites to each other. As the older devils die, younger devils are left without competition from larger males to breed with the females.

"This newly discovered potential adaptation is an important finding, in addition to efforts to find a cure for both diseases, as we seek to save the Tasmanian devil from extinction," said Dr. Janet Patterson-Kane, Morris

Animal Foundation Chief Scientific Officer. "The devils are in an evolutionary arms race with devil facial tumor disease and we continue to do all we can to increase their odds of success."

**More information:** Tracey Russell et al, Multiple paternity and precocial breeding in wild Tasmanian devils, *Sarcophilus harrisii* (Marsupialia: Dasyuridae), *Biological Journal of the Linnean Society* (2019). [DOI: 10.1093/biolinnean/blz072](https://doi.org/10.1093/biolinnean/blz072)

Provided by Morris Animal Foundation

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