

Incest can lead to more disease in offspring, crow study finds

March 25 2009, By Krishna Ramanujan



The crow on the right is from a large, open population around Ithaca, N.Y. that was tagged for study.

(PhysOrg.com) -- Crows that are the product of incest are more susceptible to diseases, according to a new Cornell study published online this month in the journal *Proceedings of the Royal Society B*.

The findings have important implications for endangered species, which may find [mating](#) with relatives unavoidable if they have a small pool of potential mates, say the researchers from Cornell and Binghamton University.

Using a powerful technique of [genetic analysis](#) to disentangle the family histories of hundreds of wild [crows](#), the researchers were surprised to find that nearly a quarter of newly hatched crows result from matings

between mothers and sons or other such close family members as cousins, aunts, uncles, nephews and nieces.

While this level of inbreeding might be expected in small, isolated populations where birds have few mating options, the study revealed surprisingly high rates of familial matings in a large, open population of crows around the Ithaca, N.Y., study location.

"It's very rare to find inbreeding and incest in wild populations in birds," said Andrea Townsend, a graduate student in the Cornell Lab of Ornithology's Fuller [Evolutionary Biology](#) Program and the paper's lead author. "But in some cases, it might be that people expect it won't happen, so they are not looking for it."

By measuring the overall survival rates of both normal and inbred crows, the researchers found that the inbred crows often died in the nest prior to fledging, and those that did fly off were far more susceptible to such diseases as avian pox and bacterial infections.

One likely cause of these deaths is that incest and inbreeding increase the chances that recessive [genetic diseases](#) will be expressed in offspring. Another potential reason is that when both parents' genes are very similar, the offspring's immune system is less able to fight off a broad diversity of pathogens, explained Townsend.

"[Sexual relations](#) in these crow families rival those from Greek mythology or your favorite daytime soap opera," said Irby Lovette, director of Cornell's evolutionary biology program, Townsend's adviser and co-author. "And just as we have long been taught, there are real costs to mating with your relatives. For these crows, we now know that inbreeding results in greater susceptibility to diseases of many kinds."

While crows are often known to bond with their mates for life, they are

also promiscuous; females sometimes produce offspring with males other than their primary mates, said Townsend, and sometimes those males are the females' sons.

The researchers have been tagging and tracking crows in the Ithaca area since 1988. In most wild animals, it is difficult to document patterns of disease, but crows are well known as the sentinel species for West Nile virus. Because of their concern for West Nile virus, local citizens who find dead crows often contact the crow research group, and the Cornell veterinary school determines the birds' cause of death. By doing so, the researchers assembled an unusually complete inventory of the causes of death of their tagged birds.

Provided by Cornell University ([news](#) : [web](#))

Citation: Incest can lead to more disease in offspring, crow study finds (2009, March 25)
retrieved 26 April 2024 from <https://phys.org/news/2009-03-incest-disease-offspring-crow.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.