

# Incest in Nature

by William Saletan

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Six years ago, I wrote about the science and ethics of incest ("[The Love That Dare Not Speak Its Surname](#)"). At the time, a study [showed](#) that having a child with your first cousin raised the risk of a significant birth defect from about 3-to-4 percent to about 4-to-7 percent. The authors concluded that this difference [wasn't enough](#) to justify genetic testing of cousin couples, much less bans on cousin marriage.

Now the incest taboo has taken [another hit](#). Ecologists Kelly Zamudio and Chris Chandler have published a study in *Molecular Ecology* on [sexual selection among spotted salamanders](#). From this and other research, *Science News* reporter Ewen Callaway has teased out a fascinating theme: Incest, apparently for sound Darwinian reasons, is [surprisingly common](#) in nature.

Through interviews with biologists and ecologists, Callaway looks at several cases. Among spotted salamanders, DNA analysis shows inbreeding "at the level of first cousins, on average. Despite having hundreds of possible mates to choose from, females tended to fertilize their eggs with sperm from related males." Another study found that "Japanese quail prefer first cousins over brothers and sisters and over less-related birds." Among ambrosia beetles: "Brothers and sisters tend to mate." A comparison over two generations of mating found that "inbred beetles fared no worse than outbred insects, and the eggs produced by brother-sister pairs were likelier to hatch than the eggs of unrelated pairs."

At least one fish species similarly prefers brother-sister mating. Scientists "found that fathers from brother-sister couples spent more time, on average, defending their caves and that both parents tended to pay more attention to their kids than unrelated couples." This makes obvious sense. The ecologist who supervised the study reports, "Couples which are full siblings are more cooperative in brood care. ... [T]he males and females stay with the offspring for several weeks and guard them—they defend them—and there's less aggression between full siblings."

These aren't the only rationales for inbreeding. Paraphrasing a Cambridge biologist, Callaway notes, "Many organisms might have slight genetic tweaks or adaptations tuned to their local habitats, and too much genetic mixing with outsiders can dilute these adaptations." Among ambrosia beetles, the practice "may cement the slight genetic differences between the insects," thereby helping to "create new species."

Nor is inbreeding universally taboo among humans. A study in Pakistan found that "three out of five marriages were between first cousins." Another in India that found "one-fifth of marriages occurred between uncles and nieces and a third between first cousins." And before you dismiss this as Eastern barbarism, read up on [Charles Darwin](#) and [Rudy Giuliani](#).

The incest taboo does have a firm biological basis. As Callaway explains, "Inbreeding ups the chances that a child will inherit two versions of a disease-causing gene." Data show higher mortality among infants born from first-cousin pairs. But beyond that range, there's evidence that breeding within the family has advantages. Two months ago, a study in *Science* [reported](#) "a significant positive association between kinship and fertility," with a likely "biological basis." The study found "the greatest reproductive success" among "couples related at the level of third and fourth cousins." On average, these cousins produced more kids than less related—and more related—pairs did.

The upshot seems to be that there are advantages and disadvantages to breeding with a relative, and as far as nature is concerned, the ideal course is to strike a balance. You're free to argue that incest is wrong, of course. But be careful what you call unnatural.

Posted [Wednesday, April 16, 2008 1:54 PM](#)

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