

Birds in uncertain climates are more likely to stray from their mates

February 16 2012

Married people may pledge to stay faithful through good times and bad, but birds sing a different tune — when weather is severe or uncertain, birds are more likely to stray from their mates, says a new study by researchers working at the National Evolutionary Synthesis Center and Columbia University.

The results could mean more marital strife for [birds](#) coping with climate change, the researchers say.

Divorce and infidelity are a normal part of life for most birds, which typically nest with one partner for a few months or years, but may have chicks out of 'wedlock' or move on to new mates between breeding seasons.

"Most apparently monogamous birds end up having multiple partners," said lead author Carlos Botero, who conducted the study while at the National Evolutionary Synthesis Center, and is now a postdoctoral fellow at the Initiative in Biocomplexity at North Carolina State University.

Botero and his colleague Dustin Rubenstein of Columbia University wanted to find out if bird divorce and infidelity were more or less likely in dicey climates.

To find out, they studied records of the mating habits of hundreds of bird species, focusing on species where males and females work together to raise their chicks — a large data set that included swallows,

chickadees, blue birds, falcons, warblers, sparrows, ducks, geese and gulls.

For each species in their data set, they measured the rate of infidelity — defined as the fraction of nests containing chicks resulting from an 'affair' — as well as the rate of divorce, or the fraction of birds that changed partners between breeding seasons.

When they combined this data with temperature and precipitation records from weather stations near each species' nesting sites, they found something interesting — birds that breed in changeable climates were more likely to cheat.

Infidelity was more common in species that breed in areas with more dramatic seasonal swings between warm and cold. When seasons are severe, promiscuity may pay off as a way of increasing the genetic diversity of the chicks, Botero said. "Mating with multiple partners improves the chances that at least one chick will have the genes to cope with the variable conditions to come," he explained.

The effect was greater for divorce. Birds in unpredictable climates were more likely to cast off their current mate and seek a new partner for the next breeding season, even at the expense of losing valuable breeding time before they paired up again.

"The quality of a potential mate depends on the context," Botero explained. In the Galapagos Islands, for example, finches with bigger beaks are better at finding food during dry periods, when larger, drier, harder-to-crush seeds are more important, whereas finches with smaller beaks do better during wet periods.

The perfect partner during one set of conditions may be a so-so mate at another. But when the length, timing or intensity of annual weather

cycles is less certain, it may be harder for a bird to predict, based on conditions during the courting phase, what conditions are likely to be like during the chick-rearing phase. "The more unpredictable the environment is, the more likely birds are to make mistakes [in picking a mate], and the more likely they are to divorce," Botero said.

What does this mean for birds coping with climate change?

"As a result of [climate](#) change weather patterns have become more unpredictable, and the frequency of extreme weather events has increased," Botero said.

Whether the findings apply to humans is still unknown, but in birds "we would expect marital strife will become much more common," he added.

More information: Botero, C. and D. Rubenstein (2012). "Fluctuating environments, sexual selection and the evolution of flexible mate choice in birds." *PLoS ONE*.

Provided by National Evolutionary Synthesis Center (NESCent)

Citation: Birds in uncertain climates are more likely to stray from their mates (2012, February 16) retrieved 19 April 2024 from <https://phys.org/news/2012-02-birds-uncertain-climates-stray.html>

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