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UCSB Researchers Find that Less is More, for Female Cowbirds

More modest male displays attract the females when it comes to brown-headed cowbirds, contrary to sexual selection theory, according to UC Santa Barbara researchers Adrian O'Loghlen and Stephen Rothstein. Their findings are published May 2 in the open access journal PLoS ONE.

While sexual selection theory predicts that females should find more flamboyant displays the most sexually attractive, the opposite holds true for brown-headed cowbirds, a small songbird common in North America. Using audiovisual recordings of displaying males shown to captive females, the scientists found that the less intense the wing spreading, feather puffing, and bowing were during a display, the more sexually interested the female would be.

"Although cowbirds have been studied for years, it hadn't really been noticed that displays directed at females were different in intensity than those directed at other males," said O'Loghlen, a research scientist in the Department of Ecology, Evolution and Marine Biology. However, technical advances in the area of audiovisual recordings made it possible for the researchers to investigate the brown-headed cowbirds's display behaviors in greater depth. O'Loghlen and Rothstein, a professor of Zoology, are the first to use AV technology to study the sexual responses of female songbirds to male displays.

Several things factor into cowbird displays, said O'Loghlen. For one thing, displays are typically targeted directly toward another cowbird. The display is a coordinated song and dance, with the bird singing as it puffs its feathers, spreads its wings, and bows. While earlier experiments had shown that female cowbirds are sexually responsive to some male songs and not to others (for example, they prefer local over foreign song types), this study shows that they also respond to the visual display that usually accompanies cowbird song.

"With these new audiovisual techniques we have developed, we can basically ask a female, ‘Which type of displays does she find more sexy?'" said O'Loghlen.

A previous study had shown that the most intense wing-spread displays are directed at other males and are used to signal strength and establish position in the birds's social hierarchy. Female cowbirds may not like intense displays because they are generally used by males as aggressive signals.

"She may be frightened; she may be threatened by these more intense displays," O'Loghlen said.

This audiovisual research is still at an early stage and there are many questions yet to be answered about these displays.

"For example, why do males bother to display at all when they sing to females?" asked O'Loghlen.

A possible answer may be the presence of light-colored feathers under the wings of younger male cowbirds. Older males are preferable as mates to female cowbirds, possibly because they are likely to have better quality genes, having survived longer. Females may require males to display to them so that they can tell if a "suitor" is a young or older male. When a male suitor displays, he spreads his wings, showing the age-revealing color of his under wing feathers.

Brown-headed cowbirds are among the most-studied species of songbird. They are brood parasites, laying their eggs in other birds's nests, and leaving their young to be raised by their foster parent "hosts."

In some cases, this can have drastic consequences for the host parents, as their own young may die when the cowbird chick outcompetes its adopted siblings for food.

The next steps for the researchers include looking for reasons why females respond to these male displays, and how males develop their display skills.

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† Top image: A male-directed display by male cowbirds tends to be more intense than female-directed displays.

Credit: Sonia Fernandez/UCSB Public Affairs

†† Middle image: A male cowbird's female-directed display usually consists of little more than a puffing of the feathers and a song.

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