

Among birds-of-paradise, good looks are not enough to win a mate

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A female twelve-wired bird-of-paradise inspects a male during courtship. Credit: Timothy G. Laman

Male birds-of-paradise are notorious for their wildly extravagant feather ornaments, complex calls, and shape-shifting dance moves—all evolved to attract a mate. New research published in the open-access journal *PLOS Biology* on November 20 suggests for the first time that female preferences drive the evolution of combinations of physical and behavioral traits that may also be tied to where the male does his courting: on the ground or up in the trees.

Lead author Russell Ligon, a [postdoctoral researcher](#) at the Cornell Lab of Ornithology, suggests that [females](#) evaluate not only how attractive the male is, but also how well he sings and dances. Female preferences for certain combinations of traits result in what the researchers call a "courtship phenotype"—bundled traits determined by both genetics and environment.

There are 40 known species of birds-of-paradise, most found in New Guinea and northern Australia. Study authors examined 961 [video clips](#) and 176 audio clips in the Cornell Lab's Macaulay Library archive as well as 393 museum specimens from the American Museum of Natural History in New York City. They conclude that certain behaviors and traits are correlated:

- As the number of colors on a male increase so do the number of different sounds he makes.
- The most elaborate dancers also have a large repertoire of sounds.

- Males that display in a group (called a lek) have more colors to stand out better visually amid the competition

Because female birds-of-paradise judge male quality based on a combination of characteristics, the study suggests that [males](#) may be able to evolve new features while still maintaining their overall attractiveness to females—there's room to "experiment" in this unique ecological niche where there are few predators to quash exuberant courtship displays.

The researchers found that where a bird-of-paradise puts on his courtship display also makes a difference. "Species that display on the ground have more [dance moves](#) than those displaying in the treetops or the forest understory," explains Edwin Scholes, study co-author and leader of the Cornell Lab's Bird-of-Paradise Project. "On the dark forest floor, males may need to up their game to get female attention." Above the canopy, where there is less interference from trees and shrubs, the researchers found that males sang more complex notes, where they are more likely to be heard. But their dances were less elaborate—perhaps a nod to the risks of cutting footloose on a wobbly branch.

Adapted from the press release by the Cornell Lab of Ornithology media relations team.

More information: Ligon RA, Diaz CD, Morano JL, Troscianko J, Stevens M, Moskeland A, et al. (2018) Evolution of correlated complexity in the radically different courtship signals of birds-of-paradise. *PLoS Biol* 16(11): e2006962. doi.org/10.1371/journal.pbio.2006962

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