

Overcrowding forces pheasants to cooperate in Hawaii

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A Kalij Pheasant keeps an eye out for predators in Hawaii. Credit: L. Zeng

"Survival of the fittest" usually means that animals put their own needs first, but occasionally it pays to work together. A new study in *The Auk: Ornithological Advances* describes an unusual example of cooperative breeding in an introduced pheasant population in Hawaii, where young males help care for chicks and defend against intruders rather than striking out on their own.

Cooperative breeding, where members of a social group provide care to young that are not their own offspring, is rare in "precocial" bird species like [pheasants](#)—those where [chicks](#) are already well-developed when they hatch and don't require intense parental effort. However, Lijin Zeng of the University of California-Riverside and her colleagues have discovered that [cooperative breeding](#) is the norm among Kalij Pheasants in Hawaii's Volcanoes National Park. While females incubate their eggs alone, all group members, including up to six males as well as the breeding female, feed the chicks after they hatch and defend the group against intruders. Dominant males father the most chicks, but almost a third are fathered by [subordinate males](#) within the same group or [males](#) from other groups.

This is only the third time cooperative breeding has been observed in the pheasant family, and Kalij Pheasants, introduced in Hawaii in the 1960s, are not known to breed cooperatively in their native range in Asia. Possibly due to a lack of predation and disease, their population density in Volcanoes National Park has grown very high, and overcrowding may prevent [young males](#) from being able to establish their own territories. Instead, their best hope to pass on their genes is to stay with the group and wait to move up in the dominance hierarchy, fathering a few chicks in the meantime.

Zeng and her colleagues spent years trapping individuals to color band them for easy identification and to take blood samples. They located nests by tracking females with radio-transmitters and closely observed

groups to determine their composition and hierarchies. "Observing the pheasants' behavior and social relationships was very interesting and fun," says Zeng. "I spent so much time getting to know my birds and their siblings, spouses, and children, and I suspect that some of them learned to identify me as well!"

"Cooperative breeding is thought to be rare in pheasants, but a few recent papers have challenged this view. In their study of Kalij Pheasants in an introduced population in Hawaii, Zeng et al. reveal that the social system of Kalij Pheasants is far more complex than previously thought," according to Princeton University's Christina Riehl, an expert on cooperative breeding. "The detail and completeness of this research is truly impressive, illuminating not just individual reproductive strategies, but also how population-level ecological constraints shape the evolution of these strategies."

More information: "Social behavior and cooperative breeding in a precocial species: The Kalij Pheasant (*Lophura leucomelanos*) in Hawai'i" *The Auk: Ornithological Advances*, September 7, 2016.

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