

Study duo find adaptive value of same-sex pairing in Laysan albatross

November 27 2013, by Bob Yirka



Laysan Albatross (*Phoebastria immutabilis*) - Kilauea Lighthouse on Kauai, Hawaii. Credit: DickDaniels/Wikipedia

(Phys.org) —A pair of researchers with Pacific Rim Conservation has found that female same-sex pairings of Laysan albatross in Oahu, Hawaii results in more offspring for the colony of birds than if they'd gone it alone. In their paper published in *Proceedings of the Royal Society B*:

Biological Sciences, the two describe their nine year study of the birds and the unique way they have evolved to handle an unusual situation—females outnumber males by a very large margin.

The two researchers report that when they first began studying the [birds](#), they didn't realize that a high percentage of the pairings that developed to raise offspring were actually two [females](#), rather than a male and female. Further scrutiny revealed that approximately 31 percent of colony pairs were all female.

In watching how the birds mated, the researchers discovered that [males](#) made pairings with one female, but often strayed, fertilizing another. That other female would then pair up with another female to see the egg to fruition, and then to help raise it till it was old enough to survive on its own. Such pairings, the team reported, resulted in efforts that led to successfully raised chicks at an average of every four years. Male/female pairings on the other hand resulted in two chicks being raised every three years.

The researchers also discovered that the females in non-male pairings paid a price for their arrangement—they tended to have shorter lives which they note, is likely due to the long wait (up to three weeks) for the female that laid the egg to return after heading for the sea afterwards.

Perhaps the most important finding by the researchers was the fact that because they were so outnumbered by females, males were the ones to decide on a mate—a significant departure for birds many of whom in different species develop spectacular ornamentation to attract a female. Also, not only did the male decide on which female to pair and mate with, he also decided which single female to mate with, and apparently made his choice based on whether the single female managed to find another female and raise another bird the prior year. Those that failed to do so, were ignored the following season by all the males in the colony.

All in all, it appears, the researchers conclude, that the birds have evolved a strategy of raising young that helps to ensure their survival in the face of a low number of males compared to females.

More information: Adaptive value of same-sex pairing in Laysan albatross, Published 27 November 2013 [DOI: 10.1098/rspb.2013.2473](https://doi.org/10.1098/rspb.2013.2473)

Abstract

Same-sex pairing is widespread among animals but is difficult to explain in an evolutionary context because it does not result in reproduction, and thus same-sex behaviour often is viewed as maladaptive. Here, we compare survival, fecundity and transition probabilities of female Laysan albatross in different pair types, and we show how female–female pairing could be an adaptive alternative mating strategy, albeit one that resulted in lower fitness than male–female pairing. Females in same-sex pairs produced 80% fewer chicks, had lower survival and skipped breeding more often than those in male–female pairs. Females in same-sex pairs that raised a chick sometimes acquired a male mate in the following year, but females in failed same-sex pairs never did, suggesting that males exert sexual selection by assessing female quality and relegating low-quality females into same-sex pairs. Sexual selection by males in a monomorphic, non-ornamented species is rare and suggests that reconsideration is needed of the circumstances in which alternative reproductive behaviour evolves. Given the lack of males and obligate biparental care in this species, this research demonstrates how same-sex pairing was better than not breeding and highlights how it could be an adaptive strategy under certain demographic conditions.

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