

Introduced Japanese white-eyes pose major threat to Hawaii's native and endangered birds

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In the late 1920s, people intentionally introduced birds known as Japanese white-eyes into Hawaiian agricultural lands and gardens for purposes of bug control. Now, that decision has come back to bite us. A recent increase in the numbers of white-eyes that live in old-growth forests is leaving native bird species with too little to eat, according to a report published online on September 17th in *Current Biology*. The findings show that introduced species can alter whole communities in significant ways and cause visible harm to the birds that manage to survive.

"Native Hawaiian songbirds cannot rear normal-size offspring in the presence of large numbers of introduced Japanese white-eyes," said Leonard Freed of the University of Hawaii at Manoa. "Their growth is stunted."

"Just as there are permanent effects of stunted growth in human children, there are permanent effects in adult birds," added Rebecca Cann, also of the University of Hawaii at Manoa. "Birds cannot use their shorter bills to feed efficiently for themselves or when feeding their young. Stunted birds have higher death rates than normal size birds. The Japanese white-eye is causing this problem for native Hawaiian birds by depleting the food available for growth, survival, and breeding."

Undernourished birds are left more susceptible to other threats, including infectious diseases. "Birds can only tolerate malaria if they have adequate nutrition to mount an immune response," Freed said. "They can only tolerate chewing lice if they have adequate nutrition to replace heat lost through plumage degraded by the lice."

The threat posed by the white-eyes came as a surprise to the researchers. That's because over more than a decade of study, it had seemed as

though the white-eyes were living in peaceful coexistence with other birds, including the endangered Hawaii akepa. But sometime after the year 2000, the researchers began to notice that young akepa were disappearing. The akepa fledglings that were seen were noticeably underweight. Other native birds had many broken wing and tail feathers—a sign of malnutrition—and suffered from a major increase in chewing lice. The researchers sounded an alarm, alerting the US Fish and Wildlife Service of the problem, but nothing was done, and two-thirds of the akepa in their long-term study site had disappeared by 2006.

Although Hawaiian birds face many threats, such as malaria, yellow-jacket wasps, and parasitoid wasps escaped from biological control of insects, the researchers were able to show that the white-eyes are most likely responsible for the decline of 7 of 8 native forest birds in a major portion of a national wildlife refuge. Young birds in a site with fewer white-eyes continued to grow normally, they found, despite potentially greater challenges from malaria and parasitoids. In other parts of Hawaii where white-eyes are flourishing, [native species](#) are suffering a similar fate.

The white-eyes are yet another example of the threats that introduced species can pose. When white-eyes were introduced, "no one at that time could have imagined that they would invade native forests," Cann said. "This is a problem with all introduced species. It is impossible to predict how they will respond to the new environment. The white-eye is a member of a bird family famous for expanding its range and consuming new types of prey, even to the point that individuals that colonize a new habitat may vary among themselves in the prey items they consume. But that was not known in 1929."

Even today, Freed said, foreign species continue to be put to work in risky ways. "Right now, realtors are using alien catfish to clean up the algae-ridden swimming pools of abandoned foreclosed houses in Florida. What if some escape during a flood into streams and lakes?"

Source: Cell Press ([news](#) : [web](#))

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