

BIRDS of a FEATHER



Is this bird an impostor?

By KATHY A. FACKELMANN

One whiff of the dead bird in the bag and H. Douglas Pratt knew there was something wrong.

For more than a decade, taxonomists had classified this chunky, short-tailed bird as part of the Hawaiian honeycreeper family, which gives off an odor resembling that of a musty canvas tent.

But this Poo-uli specimen didn't smell like much of anything, Pratt thought.

He stuck his nose in the bag again. Nothing. Nada. Zip.

Pratt's olfactory evidence and other controversial research suggest that the Poo-uli (*Melamprosops phaeosoma*) may not belong to the clan of Hawaiian honeycreepers at all. If Pratt, at Louisiana State University in Baton Rouge, is correct, the Poo-uli may represent the last living example of a family of birds that flew to Hawaii eons ago.

However, other researchers argue that Pratt is just winging it with his theory.

In 1973, biologists discovered the Poo-uli flitting about the lush rain forest that grows on the northeastern slope of a dormant volcano in Maui. Although the Poo-uli was originally identified as part of the honeycreeper family (Drepanididae), Pratt and other ornithologists noticed that it lacks many characteristics that define these songbirds.

To sniff out the undisputed Hawaiian honeycreeper, Pratt had an assistant place specimens of dead honeycreepers and a Poo-uli in opaque cloth bags. Next, Pratt and his colleague Andrew Engilis Jr. conducted an odor test, smelling each bag without knowing which bird it contained. They discovered they could easily distinguish between the Poo-uli and the other birds.

Virtually all Hawaiian honeycreepers give off a peculiar scent. "It's not particularly unpleasant," Pratt says, "but they do have a characteristic smell."

Pratt and other ornithologists believe the odor emanates from a water-repellent oil the birds secrete in order to preen, a grooming practice that keeps feathers prepared for flight. Honeycreepers living in very wet forests tend to emit a much

stronger scent than birds that dwell in dry areas, Pratt says. Because the Poo-uli lives in the rain forest, one would expect it to stink to high heaven, but neither Pratt nor Engilis could detect an odor when they smelled the bag containing the Poo-uli.

The smell permeates everything the honeycreeper touches, including its nest. Therefore, Pratt and Engilis also conducted blind sniff tests of nests abandoned by birds in the wild. While honeycreeper nests still smelled strongly, the Poo-uli homes had no smell at all, says Engilis, an endangered species biologist formerly employed by the state of Hawaii and now with Ducks Unlimited, a waterfowl conservation organization, in Sacramento, Calif.

The Poo-uli had again flunked a smell test, suggesting it's a bird of a different sort.

Of course, Pratt didn't just follow his nose to that conclusion. He also relied on other sensory information, such as the songs one hears in the canopy of the rain forest.

"Most Hawaiian honeycreepers have songs that are loud, canary-like trills," Pratt says. In contrast, the Poo-uli relies on a rapid series of dry, not-very-melodious "chips" that serves as a call to an available mate. "In fact, for a long time people were claiming that the Poo-uli didn't have a song," he adds.

"It's not a very gifted songbird," Engilis says of the Poo-uli.

By all accounts, the Poo-uli lives in an almost primeval rain forest, dense with an understory of fruit-bearing shrubs, ferns, and leafy tropical plants. In the canopy above, several types of honeycreepers, including a crimson Akepa and a green-and-yellow Akiapolaau, flit from flower to flower. While Hawaiian honeycreepers generally boast feathers in exotic colors, the Poo-uli is a study in muted tones of brown, gray, and white.

Ornithologists who had observed the

Poo-uli in the past described it as a five-inch-long bird with a chocolate-brown back, a buff-colored belly, a black face mask, and brown legs. However, unpublished research by Engilis suggests that this color pattern is found in very young birds. His field observations demonstrate that the adult Poo-uli sports a grayish brown upper body, a pearly white underbelly, and pink legs. The adult retains the prominent black mask that runs from the bill past the eyes.

"What we found is that the juveniles are a drab version of the adults," Engilis says, noting that he conducted his research in 1986. Engilis recalls spying a pair of Poo-ulis building a nest in the upper branches of an Ohia, a native Hawaiian tree that is the bird's preferred habitat. The pair had built one twig-and-moss nest, but a nasty storm wiped out their efforts, Engilis says. The birds then began building their nest again in a nearby tree. This time they successfully hatched and reared a young Poo-uli, thus enabling scientists to note the color differences.

In recent years, there have been no confirmed sightings of the Poo-uli, says ornithologist Sheila Conant of the University of Hawaii in Honolulu. "The bird is in terrible shape," Pratt says, adding that the Poo-uli remains an endangered species.

Biologists call the array of life forms that has evolved in the Hawaiian archipelago nothing short of extraordinary (SN: 11/7/92, p.314). Yet damage to the environment by mankind has led to severe habitat loss. Thus, the Poo-uli joins a host of birds, animals, and plants that are on the verge of dying out, Conant notes. Last spring, the National Research Council issued a report on another endangered bird, the Hawaiian crow (*Corvus hawaiiensis*). Biologists may have to trap such crows in the wild and start a captive breeding program, a move that may be recommended for the Poo-uli as well.

While some researchers fear the Poo-uli has already died out, Conant remains hopeful about this bird's future. She has a team scouring the rain forest now in search of the Poo-uli.

If the Poo-uli or the Hawaiian crow dies out, biologists would lose a rare opportunity to study these unique creatures, she notes. In addition, she says, the Earth would lose another species that contributes to its biological diversity.

In the debate over the Poo-uli's heritage, Pratt looks to the bird's strange tongue to bolster his argument.

Aside from its color, song, and odor differences, the Poo-uli has a tongue unlike the typical honeycreeper's, Pratt says. Many honeycreeper tongues have a fringed tip that folds together to form a tube that the birds use to extract nectar from the crimson Ohia flowers.

In the February 1992 CONDOR, Pratt describes the Poo-uli's tongue, noting that it appears rounded, smooth, and completely lacking a fringed tip. Indeed, there's no evidence the Poo-uli likes nectar at all. In fact, it seems to prefer a diet of snails, grubs, and insects.

"They creep along the bark of trees and pry up patches of moss" in their search for food, Pratt says. Alternatively, the bird will forage on the forest floor, where it peers under large leaves to find a tasty land snail or two, Engilis adds.

Pratt is the first to admit that such observations don't prove the Poo-uli's taxonomic status. However, the bird's oddities argue against its inclusion within the Hawaiian honeycreeper family, he says. He believes that taxonomists should reclassify the Poo-uli as a bird of uncertain status. Ornithologists just don't know where the Poo-uli fits in at this time, Pratt says.

"There are other birds in that limbo," he adds.

After watching the Poo-uli in its habitat, Engilis says the bird seems quite different from its purported relatives. "My feeling on the Poo-uli is that they are not allied with the Hawaiian honeycreepers," he says, adding, "I don't know what they are."

Not everyone agrees. Helen James, an avian paleontologist at the Smithsonian Institution in Washington, D.C., says her work suggests that the Poo-uli is indeed part of the honeycreeper family. She's collected fossils of 14 different types of extinct Hawaiian honeycreepers. One of those ancient skeletons resembles the bones of the modern-day Poo-uli, James says.

Is the Poo-uli simply a maverick honeycreeper? To find out the answer to that question, scientists may have to rely on a powerful method of DNA analysis. For example, Robert Fleischer, an evolutionary geneticist at the National

Zoological Park in Washington, D.C., has already conducted such a study of another Hawaiian honeycreeper of questionable status, this one known as the Maui creeper (*Paroreomyza*). Fleischer's unpublished work suggests that the Maui creeper is part of the honeycreeper family, although it probably split off from the main group long ago.

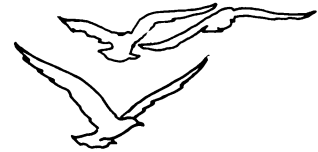
In the November CONDOR, Pratt notes that *Paroreomyza* also lacks the distinc-

tycreepers evolved from a single flock of birds, probably finches, that flew from Asia or North America to the islands of Hawaii millions of years ago. If the Poo-uli's DNA looks radically different from the DNA of undisputed honeycreepers, then researchers would assume that the Poo-uli evolved from another, as-yet-unknown ancestor, Fleischer says.

Just a few flocks of birds colonized the Hawaiian islands, but those original birds



Pratt, LSU



When H. Douglas Pratt went to graduate school at Louisiana State University to study birds, he thought he would also dabble in painting. As it turned out, Pratt has done an impressive number of bird paintings, including this picture of a Poo-uli. "Basically, I am an ornithologist. That's my training," he says. As for his love of the palette: "I describe it as a hobby that got out of hand."

The Poo-uli in the painting is perched on a moss-covered branch of an Ohia tree, a favorite spot of this endangered bird. The Poo-uli lives in a 150-acre rain forest on the slope of the volcano Haleakala. However, a 10-day survey of this area last August failed to turn up a single Poo-uli, Pratt notes. "The Poo-uli may have gone extinct before adequate studies of it could be done," he says.

ive "old tent smell" and a number of other characteristics that define the honeycreepers. He notes that *Paroreomyza* will dive through the air for insects, a foraging strategy not observed in any other Hawaiian honeycreeper. He concludes that this bird's lineage is uncertain. However, *Paroreomyza* shares more characteristics of the honeycreeper than the Poo-uli does, Pratt says.

Fleischer has yet to test a Poo-uli to see if its DNA resembles that of the rest of the honeycreeper family. The Poo-uli (like *Paroreomyza*) may represent a bird that left the main line of honeycreepers eons ago and thus evolved much differently than its relatives, he says. Or, the DNA tests may prove the Poo-uli is not a honeycreeper at all.

Avian biologists believe Hawaiian hon-

gave rise over the millennia to the modern-day honeycreepers, crows, flycatchers, and other birds that live in Hawaii. If the Poo-uli's DNA doesn't match that of the honeycreeper clan, it means the Poo-uli is not related to those first finches. "It means some other group also colonized the Hawaiian islands," Pratt says.

Fleischer plans to visit Maui this January to look for a live Poo-uli. If he finds one, he'll take a blood sample, one that may answer the question of the Poo-uli's family tree. If biologists can't find a live Poo-uli, Fleischer's team may try to get a snippet of skin from one of the specimens now under glass in a museum. Either way, ornithologists may know soon whether the Poo-uli is a real Hawaiian honeycreeper or a black-masked impostor. □