Returning the ‘alalā, Hawai‘i’s endemic crow, to its native habitat

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PHOTOS BY JACK WOLFORD
You hear them first. The cries of the 'alālā, or Hawaiian crows, erupt like communiqués from a supernatural realm. These are no ordinary caws but rather startling shrieks, hypnotic growls, chortles and whistles. Next you see the birds, because 'alālā aren't shy. Black wings thump down on a nearby perch. A crow, as sleek as chiseled onyx, evaluates you. It hops a little closer. Two more birds land beside the first. Six black eyes stare at you.

The chance for such an encounter with the 'alālā—Hawai‘i's largest and most intelligent endemic forest bird—happens but once a year these days, during the annual open house of the Hawaii Endangered Bird Conservation Program (HEBCP). 'Alālā are currently extinct in the wild, but that's about to change. After decades of intensive efforts to revive the species, the captive population of the birds now exceeds one hundred, and in 2016 HEBCP plans to release a few back into their native habitat. The Hawaiian crow is going home.

When humans first made landfall in Hawai‘i, the tree canopies teemed with corvids—the raucous bird family that includes ravens, crows, magpies and jays. Subfossils suggest that five large corvid species once darkened Hawai‘i’s skies. Only the smallest of these, Corvus hawaiiensis, has survived. It inhabited the archipelago’s two youngest islands, Maui and Hawai‘i, but by the late 1800s its range was restricted to a band of forest halfway up the mountains in South Kona.

In this primordial landscape, cracked black lava plains stretch to the sea, and mists sneak up the mountain, obscuring and revealing towering koa trees at whim. The 'alālā is a chunk of this raw terrain taken wing. The crow's triangular mouth, when it opens to squawk or snatch a berry, is the same fiery red as the lava lake at Halema‘uma‘u. Its feathers glint in the sun like laupahoehoe, rippled lava. And when an 'alālā chick’s eyes first open, they are pale, clear blue, like the sea at dawn.

“Any creature that can talk to you and recognize you is significant,” says Sam ‘Ohu Gon III, Hawaiian cultural advisor and senior scientist with The Nature Conservancy. The crow's Hawaiian name, he says, refers to a child's wail; 'alālā is also a call to battle and a chanting style. In days past Hawaiian warriors opened their mouths wide and vibrated their vocal cords to project haunting appeals across vast distances. “'Alālā is a boisterous chant style, meant to be loudly presented,” says Gon, who learned this method from his kumu (teacher), John Lake. “It’s used for chants of entreaty, such as calling to a god to end a drought—essentially anytime the voice needs to be heard.”

Gon notes that forest birds were viewed as messengers or guides. Captain James Cook’s second mate reported that some Hawaiian families kept 'alālā as ceremonial pets. Others revered the crow as an ‘āumakua, one of the physical forms assumed by an ancestor or guardian spirit. Artists embellished royal kāhili (standards) and statues with crow feathers.

‘Alalā were still plentiful when George Munro came to Hawai‘i from New Zealand in 1890. The botanist and ornithologist wrote the pioneering text Birds of Hawaii, in which he describes 'alalā pursuing forest intruders and responding to imitated calls. The inquisitive, noisy birds could also be “entirely silent as they sail from tree to tree on motionless wings.”

Unlike continental crows that scavenge at the forest's edge, the 'alālā is a deep-forest-dwelling fruit- and seed-eater. It belongs to Hawai‘i’s ma‘u or mesic forest—the biologically rich terrain where wet and dry forest species mingle. During Munro’s time flocks of 'alālā migrated up and down

The ‘alālā, one of Hawai‘i’s most endangered species, was declared extinct in the wild in 2002. In recent years staff at the Hawaii Endangered Bird Conservation Program (HEBCP) have had success raising these extraordinary birds in captivity, now they are preparing to release some of them into the wild. Here conservation program manager Bryce Masuda is seen with an ‘alālā named Lilinoe; at right, he's with an ‘alālā named Nālie.
the mountainside after the ‘ie’ie vine’s seasonal fruits and flowers. The crows used their hefty bills to crack open their other favorite snack: large seeds from hō’awa and hala pepe trees. Occasionally ‘alālā robbed eggs and nestlings from honey-creeper nests.

As cattle ranches overtook Kona’s forests, ‘alālā declined, and the mesic forest all but disappeared. Introduced rats, cats and mongooses preyed on chicks. Farmers shot adult crows foraging in orchards, and mosquitoes infected the birds with avian malaria and pox. “By 1937, I found a great change,” says Munro. “I saw no flocks, only a few scattered individuals.”

In 1967 the ‘alālā was among twenty Hawaiian birds listed as endangered by the federal government. Shortly after, the first Fish and Wildlife Service employee hired under the Endangered Species Act arrived in the islands. Winston Banko came to investigate what was happening to Hawaiian forest birds. He read all of the available literature on the native crow, which wasn’t much. He and his son Paul searched the forests and talked with ranchers. They determined that maybe a hundred ‘alālā remained. The species was in a free fall toward extinction.

Paul Banko remembers climbing a tree to inspect an ‘alālā nest back in the 1970s. “I came in close with my camera. I felt a tingle on the tip of my nose that spread to the rest of my face.” Bird mites. He was covered in them and so was the nestling. He scooped up the tiny bird and brought it home to decontaminate. His father rescued another ailing chick. Before long they had three ‘alālā, which later became the nucleus of the state’s breeding program.

Banko’s trips with his father ignited a passion for Hawaiian forest birds that hasn’t dimmed. Today he’s a wildlife biologist with the US Geological Survey and an authority on Hawai‘i’s rare and endangered avifauna. The 65-year-old still climbs trees to spy on nestlings. He bikes to his office in Hawai‘i Volcanoes National Park, not far from the employee housing where he grew up. He doesn’t work directly with ‘alālā anymore but is among the few people still alive to have observed the Hawaiian crows’ behavior before the population collapsed. “The birds really know what’s going on,” he says, “when this fruit’s going to be ripe, when this nest should be robbed. They’re masters of their environment.”

They’re called crows, but Hawai‘i’s corvids are more closely related to ravens. Like ravens, they possess marked intelligence, use tools and cache food. The ‘alālā’s language might be even more sophisticated than that of its relatives, with more diverse vocalizations. “You can be quite confident that they recognize who’s calling just from their voice,” says Banko. ‘Alālā can also identify individual humans. Biologists who regularly visit nests learn to wear disguises or risk being dive-bombed. The birds have a playful streak, too. Banko once spent ten minutes searching for an ‘alālā that finally announced itself with a shriek over his head. A colleague of his watched one crow playfully decorate another with flowers.
Hawaii’s corvids are so curious, so sentient, that even scientists anthropomorphize them, assigning them human names and personality traits. The Banks’ three rescues were christened Umi, Hina and Kekau. The clever birds soon outgrew their makeshift cages at the national park. In 1976 they were transferred to the State of Hawaii’s endangered species breeding facility at Pohakuloa. Thus began decades of heartache as biologists struggled to breed ʻalalā faster than they were vanishing from the wild.

The Hawaiian crows’ current custodians are, in many respects, the birds’ opposite: quiet, demure and intentionally invisible. They whisper when passing bird-occupied buildings and limit human contact with the birds. Bryce Masuda removes his shoes before entering the Keauhou Bird Conservation Center. He doesn’t want to track in any contagion. Plus, he likes working barefoot. Raised on Maui, Masuda earned a master’s in zoology in New Zealand with a specialty in rehabilitating wild birds. Two years ago he landed a prime job back home: managing the HEBCP. He now supervises the program’s two centers, at Keauhou on Hawai‘i Island and at Olinda on Maui.

HEBCP represents a ninth-inning miracle, a presidential pardon for many Hawaiian forest birds. “We’re one of the few places in the world raising endangered birds for conservation,” says Masuda. Fortunately they have decent shoulders to stand on; the program’s parent agency, the
San Diego Zoo, gained fame for re-establishing the California condor in the wild. Since forming in 1993, the Hawai‘i program has lent emergency aid to just about every endemic passerine in the Islands, from the saffron-checked kiwiku, or Maui parrotbill, to the shy and musical puaiohi, or Kaua‘i thrush. The ‘alalā is the rarest bird under its care—and the reason the program began.

By the mid-1990s, everything that could have gone wrong for this imperiled species had. Fewer than two dozen ‘alalā existed on Earth: a handful in captivity and the rest on a single ranch near Honouluu in Kona. The state’s attempts to raise captive birds suffered a string of plagues. Its Pōhakuloa breeding facility neighbors the Army’s firing range, and the continual bomb detonations shattered eggs and stressed the birds. Rats sneaked in and preyed on eggs. Pesticides used to control the rodents might have contributed to the death of three birds. The state relocated to a better site in Olinda, but breeding efforts were this time stymied by the birds themselves: They were too closely related. The eldest male, Umi, had sired the other three males. Without fresh genes from wild ‘alalā, inbreeding would cripple the program.

Meanwhile, the wild birds hadn’t fared any better. Landowners logged critical nesting trees. Researchers’ field cameras might have caused ‘alalā to abandon nests. The last small flock took refuge at McCandless Ranch, where it was subject to a political tug-of-war. The ranch owners refused biologists access to the birds. Critical years passed without any new fledglings. Things were so bad that the Audubon Society sued the US government for failing to uphold the Endangered Species Act. As a result, in 1993 the state and federal governments partnered with the Peregrine Fund to create the HEBCP. Their first task: remove eggs from wild ‘alalā nests and hand-rear chicks for release. The ranch owners complied.

The effort seemed promising. The first year, five ‘alalā chicks were released into the existing flock at McCandless Ranch. Seven more followed the next year. But again things turned grim. The ranch’s degraded habitat lacked the understory plants that young ‘alalā need. Older wild birds bullied the newcomers. And then came a plot twist that no one predicted: The native Hawaiian hawk, or ‘io, swooped out of the sky and picked off naïve fledglings. While it might be natural for ‘io to prey on ‘alalā, under these circumstances it was disastrous. Twenty-one of the twenty-seven birds released over five years died prematurely. Chastened biologists recaptured the remaining six in 1999. That left a single pair of wild crows in the forest. Three years later the gloomy day came: The ‘alalā was declared extinct in the wild.

All was not lost. HEBCP still had a captive brood and had been steadily feathering its nest. After taking over the state’s facility in Olinda, program managers built a new center in Keauhou with a $1.5 million appropriation from Congress. The center is just south of Hawai‘i Volcanoes National Park, tucked away on a 33,000-acre ranch. Twenty-six screen aviaries, open to the elements, are scattered far enough apart that the resident birds can hear one another but aren’t crowded during breeding season.

As manager, Masuda inherited the program’s checkered history. But every past
misstep represented a lesson learned. This time around, HEBCP has heavyweight partners. Kamehameha Schools lends the land on which the Keahou facility sits and provides educational support. Two thousand students visit the center every year.

Because ‘alalā are so scarce, each aspect of their lives is monitored and manipulated. Specialists pull eggs from nesting mothers to ensure that every single egg hatches and to encourage mothers to lay a second clutch. “We turn the eggs seven times per day, just like a female would do in the nest, so that the chick inside develops properly,” says Masuda.

Hatchlings’ initial diet includes bee larvae and cricket guts. In time they graduate to papaya, mouse pups and waxworms. The staff wears crown hand puppets while feeding chicks, so the baby birds do not imprint on humans. Later, adult ‘alalā get their food served as puzzles: food hidden in containers stuffed with leaves, which stimulates their natural foraging skills.

Each ‘alalā is an individual with preferences and idiosyncrasies, which can complicate breeding plans. “We use computer software to come up with coefficients to reduce inbreeding,” says Masuda. “But sometimes our matchmaking doesn’t work.” This year at HEBCP there are a record forty breeding pairs. The focus has switched from producing as many birds as possible to re-establishing parent rearing. Instead of pulling eggs, Masuda leaves them in the nest for parents to incubate. “We’re finding that ‘alalā chicks raised by their parents act more like wild birds than those that are hand-reared,” he says. “That’s typical of intelligent birds.”

The program has reached max occupancy and can’t absorb any more fledglings. It’s time for the program itself to fledge and push its birds out of the nest. The plan is to release an average of fifteen fledglings per year on a natural reserve northeast of the Keahou facility. This time the birds will find plenty of native understory on land that was never rained or logged. “‘Ie‘ie, piolo and ‘ohelo berries are abundant,” says Masuda. He is exploring ways to teach ‘alalā to defend themselves from the Hawaiian hawk. To condition a fear response to this unfamiliar threat, he’ll play recordings of ‘io calls along with ‘alalā alarm calls. In the past, gangs of crows likely mobbed ‘io midair. Because there won’t be enough birds to form a gang, they’ll have to devise other strategies. “It’s adaptive management,” says Masuda. “A lot of it we won’t know until it happens, which is exciting.”
One thing is certain: the long-term survival of ‘alālā will require every technological assist available. In the bioacoustics lab at the University of Hawai‘i at Hilo, grad student Ann Tanimoto studies spectrograms: digital pictures of ‘alālā birdsong. Back in the 1990s Paul Banko recorded hours and hours of ‘alālā chatter in the wild. He included behavioral notes: what the birds were doing as they sounded off. Tanimoto followed this up with her own recordings of captive birds at Keauhou. She then cataloged the entire ‘alālā repertoire. She classified recurring sounds into seven categories, including courting, submission and alarm calls.

Comparing the spectrograms of each call, Tanimoto can see precisely how the captive crows’ language varies from that of their wild forebears. As it turns out, an entire class of vocalizations is missing: broadcast calls. Wild ‘alālā made these sounds when defending territory against other birds—something captive crows don’t need to do. “Some calls might be innate but others are socially learned,” says Tanimoto. Are broadcast calls essential to survival? Will the ‘alālā remember them when they’re needed? These are factors the ‘alālā release team must consider.

Another high-tech project involves a single bachelor bird. Hatched in captivity twenty-five years ago, Kinohi imprinted on humans and refused to breed, but his genes are too valuable to lose. In 2009 he was shipped to San Diego, where experts retrieved semen samples. Hopefully, Kinohi
The HEBCP plans to release an average of fifteen ‘alalā fledglings per year into the forest at a natural reserve northeast of the facility. ‘Ile‘ie, pilo and ‘ohelo berries are abundant,” says Masuda. At right, an ‘alalā with a hō‘ōpua seed.

will sire offspring via artificial insemination. Geneticists are employing the same techniques to save the ‘alalā that they’re using with the northern white rhino: storing the species’ genetic lineage in a cryopreserved “Frozen Zoo.”

One might wonder whether a mere crow is worth all of this expense and effort. The short answer: Yes. Not only are ‘alalā intrinsically valuable, but new research shows that they play a critical role in the regeneration of Hawaiian mesic forests. Susan Culliney, in cooperation with HEBCP, published a study demonstrating that rare native tree seeds germinate more readily after passing through the crows’ digestive tracts. Culliney offered the ‘alalā at Keauhou seeds from thirteen Hawaiian plant species, including hō‘ōpua, ‘ōha kēpau and loulu palm. The crows not only ate all of the seeds, but they also carried them around and cached them. The germination results were staggering—some seeds sprouted only with a crow’s help.

Botanists once extolled the Hawaiian mesic forest as the most diverse, most magnificent in the entire Pacific. As Hawai‘i’s last large endemic seed-eater, the ‘alalā could be this ecosystem’s missing link. Under the fairest projections, it will be decades before there are enough wild ‘alalā to affect forest structure. Will this strident voice of Hawai‘i’s past be a herald of its future? For biologists the mere possibility is thrilling. “The call of the ‘alalā,” says Masuda, “makes the forest come alive.”

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