CALIFORNIA CONDORS At Home in Arizona

N EASTER DAY, 1987, extinction loomed for the California condor. That day, the last wild condor was taken into captivity to join the 26 remaining members of its species, *Gymnogyps californianus*. The final blinking out of these huge New World vultures seemed close at hand, a forlorn end behind the bars of a zoo.

But the dead might live again. In a bold recovery program (started in 1980) the remaining condors are being bred in captivity and their young fed through hand puppets shaped like condor heads (to prevent their equating people with food). Condor numbers are now growing, ever so slowly. Today, the world population of California condors stands at 184. Happily, 63 of these are living in the wild.

First noted in the fossil record from the Middle Pleistocene, the California condor's nine-and-a-half-foot wingspan carried it on thermals in search of the recently dead: a whale washed up, a mastodon taken down by sabertooth tigers, or a fallen American camel. Though today it is the largest flying bird in North America, in earlier eras it was overshadowed by its huge teratorn relatives, including *Teratornis incredibilis* whose wings stretched 15 feet tip-to-tip (which were themselves puny compared to a South American teratorn whose wingspread reached an astonishing 35 feet).

The extinction of the Pleistocene megafauna—whether by a cooling climate, Clovis-era spear hunters, massive epidemics, or a combination of factors—left California condors as the sole avian survivor, relics of an age of giants. In a landscape no longer populated by beavers the size of bears, huge dire wolves that could run down antelope, American lions, and massive ground sloths, condors were likely hard-pressed for food except on the coast. The fossil record shows that, though its range once stretched from British Columbia to Mexico and throughout the southwest to Florida and north to New York State, about 10,000 or 11,000 years ago condor populations crashed. By the time Europeans crossed into the American West its breeding range was confined to a narrow strip near the Pacific. Condors may have returned to the Southwest as early as the 1700s, perhaps subsisting on herds of cattle, horses, and sheep that replaced their historic sources of carrion. But this range expansion was short-lived; in the nineteenth and twentieth centuries, shooting, predator control programs (like poisoned "coyote stations"), powerline electrocutions, eating carrion tainted with lead shot, DDT, egg collectors, and vehicle collisions—compounded by habitat destruction—decimated their populations. They were federally listed as endangered in 1967, received protection under the U.S. Migratory Bird Treaty in 1972 (though it is unclear if they are true migrants), and came under the Endangered Species Act in 1973.

In 1992—five years after David Brower had protested the capture of the last condor and called for them to be allowed to "disappear with dignity"—the U.S. Fish and Wildlife Service started releasing captive-bred condors in the Los Padres National Forest north of Los Angeles and then at several other sites in southern California. These birds are holding on, but the survival of the California condor in ever-urbanizing California is far from secure.

Looking to develop a second—geographically distinct condor population, a group of six birds was released on the Vermilion Cliffs north of the Grand Canyon in December 1996, 72 years after the last sighting of a wild condor in Arizona. Secure cliff habitat, historical breeding caves, and the long-term protection of being within a national park may mean that the California condor finds its best chance to survive in Arizona.

The Peregrine Fund runs the California Condor Restoration Project in Arizona. Ornithologist Sophie Osborn is currently Field Manager for this effort. She has worked on conservation efforts for numerous birds including Hawaiian crows in Hawaii, parrots in Guatemala, ducks in Argentina, various raptors in the West (peregrine falcons, prairie falcons, golden eagles, and goshawks), as well as the creek-loving American dipper. *Wild Earth* assistant editor **Joshua Brown** spoke with her in March of 2002.



JOSHUA BROWN: I understand that you found the first condor egg laid in the wild since the reintroduction effort began.

SOPHIE OSBORN: Yes, that morning I was out with a spotting scope monitoring a trio of birds in a side canyon of the Grand Canyon. The male went into a cave and started to roll something white and elliptical and smooth—and large—into view. I just couldn't believe it and at first wondered if it might be a rock. I stayed glued to the scope for an hour thinking, "This is the first time anyone has seen a condor egg in the wild in 16 years." We later collected the shell fragments to make sure.

This was the first *confirmed* egg in the wild. We suspect there may have been one laid in California the year before, but it was in a remote area and was never confirmed.

The egg that I saw was broken, but first-time pairs often break their own egg accidentally or lay an infertile one. It's still incredibly exciting to think how far these birds have come: after they were released from captivity five years ago and reintroduced as young birds without parents, they completed courtship activities, found themselves a cave, and laid an egg. It marks a huge step forward for the recovery effort and for these birds' future.

Much behavior in condors is learned, so we hoped courtship and finding caves were instinctive. Before that moment, though, we didn't know. Now the next logical step is for them to raise young in the wild. We think we have two pairs starting to incubate in caves, which is a very good sign.

In 10 years, what do you see as the best-case scenario for the condor?

That we have breeding birds in the wild in California and Arizona—who don't need any help from us. The population will be increasing through reintroductions, but also through natural reproduction.

What are the population goals of the recovery plan?

To have three populations of 150 each—one in captivity and one each in California and Arizona. We have a long way to go to reach that goal; it took us six years to get 25 birds here in Arizona, but we are learning and seeing better survivorship. This year we expect the overall population to reach 200, and we now have 31 free-flying birds in northern Arizona.

Are these target numbers established by the Peregrine Fund?

No, the U.S. Fish and Wildlife Service contracted with The Peregrine Fund to reintroduce the condor in Arizona; we are implementing their recovery plan under the Endangered Species Act. We run a captive-breeding program in Boise, Idaho at the World Center for Birds of Prey and use those birds along with birds from the San Diego Zoo and Los Angeles Zoo for reintroduction here in Arizona.

Eventually you'll be able to say, "We're done; they are back." Yes?

Yes, that is the goal. Because they are such a long-lived species and less hard-wired than other species, this will be a bit longer in coming than it was with the successful recovery of the peregrine falcon or the ongoing effort with the aplomado falcon. I do expect to see condors come off the endangered species list. They are so adept at finding food and covering huge distances, they have every reason to make it. We just have to give them a chance to be successful.



Sophie Osborn weighs a California condor above the Vermilion Cliffs in Arizona. This juvenile male was captured for behavioral problems, held for several months, and re-released on December 14, 2001. Prior to his release, he weighed 20 pounds.

Full recovery is a tough line to draw. We don't know enough yet to be fully certain about their natural population dynamics, but it seems reasonable to look for self-sustaining, stable populations as a measure of recovery. I expect that at a minimum this would mean having several hundred condors in different locations.

Though the main goal is to have the two wild populations, there are efforts underway to release additional condors in adjacent areas. There is talk of releasing birds in New Mexico, and the San Diego Zoo is developing a plan to release birds in Baja, Mexico. These birds may well join up with the other birds.

How has the recovery effort been viewed by people in your region?

Unlike the California reintroductions, Arizona condors have been designated an "experimental, non-essential" population. At first some local communities would see maps of the "10j" area (referring to the section of the ESA that designates populations as experimental within a particular boundary) and say, "Ahh! We don't want to be within that boundary!" But support has grown, since within the 10j area it is mandated that no changes in land use result from the condors' presence. At public comment meetings before the reintroductions began there was incredible hostility and anger. Now Fish and Wildlife is conducting a five-year review and about six people attended the meetings. In this case, indifference is a big step up!

The condors spend most of their time in the summer at the South Rim of the Grand Canyon, where thousands of visitors view them everyday. The positive feedback that comes into the Park Service and Peregrine Fund is overwhelming and numerous letters of support have been sent in as part of the five-year review.

Some conservationists consider the condor to be ecologically extinct; what do you make of this assessment?

In a sense they are a relict, but seeing them in the Grand Canyon where they spent thousands of years is to see them at home. If we keep up our efforts, they can again be successful in the wild. One of the major reasons condors almost went extinct is because they were persecuted by people and their slow life cycle didn't allow them to recover from such persecution. They don't start reproducing until age six or seven and have only one egg every year or two. Once the population was knocked down by humans shooting and poisoning them, it was very hard for them to recover.

But weren't condors mostly driven out of Arizona not in this century by people, but 11,000 or 12,000 years ago with the extinction of the Pleistocene mammalian megafauna that provided food?

This is a very complex issue, but we shouldn't obscure the key points: condors are native to Arizona, they lived here for millennia, and they can once again be a natural part of desert canyon ecosystems. We don't know for sure which factors were most responsible for their range contraction and their decreased presence in Arizona. They are showing us now that this area is eminently suitable for them.

Nevertheless, many of the large animals with which condors once shared the landscape are now absent. Will there be enough for them to eat? And are you concerned that they are dependent on people for food?

The condors quickly learn to find food on their own and there is plenty of food out there for them, a spectacular amount. They are not reliant on livestock carcasses, as some people have imagined. We have more records of them feeding on mule deer, especially in the summer, than on any other types of carcasses. We've also recorded them feeding on big-horned sheep and elk carcasses and even on dead coyotes and squirrels.

However, lead in their food is the most insidious problem that they face. The female that laid the wild egg had lead poisoning twice-but fortunately was captured and treated successfully. However, we had a devastating incident in the summer of 2000 where as many as five birds died from feeding on a carcass that was inundated with lead shot. Since then, we have changed our strategy somewhat by putting food out more often at the release site, in the hope that the birds will return more often and feed on this clean food source. There were some worries that the birds might become too dependent on us, but after observations last summer we were very much reassured. We have several birds that are hardly coming back to the release area at all and are doing very well. Right now it is just a percentage game; with populations so low we want to minimize the chances that they encounter lead-filled food. Once the population numbers rise, the condors have shown us that they will be able to find food on their own in the long haul.

What are the long-term genetic prospects for these birds? Do they have enough diversity to survive?

There is reason to be concerned. The geneticists on the project are working very hard to maximize diversity in captive breeding pairs. There are a few problems identified that may be a product of a population bottleneck or small population size. We don't know whether certain problems are genetic. I suspect that the tendency we've seen in some adult birds to form trios (two females and a male) rather than pairs is a function of the small population size, but we've also seen male-male pairing behavior which could be a genetic problem. We don't know how the condors will fare in the long run. We are holding our breath.

What is a day in the life of a condor scientist like?

Each bird wears two radio transmitters, so a lot of our work is just tracking birds from afar. They travel extraordinary distances. We have had birds do 100-mile roundtrips in two hours. They just pop across the canyon, whereas we may have to drive three or four hours to follow them. Each day we try to receive each bird's radio signal and monitor each bird's movements. We also try to get a visual on each bird every day. At night, a few times a week, we put out food for them. We have garbage can backpacks that we load up with calf carcasses and hike out to the cliff rim. We always feed the condors at night so they won't associate us with food. The food is mostly for the younger birds, because it takes them a while to learn to find food on their own.

It seems that a good bit of effort is required to condition the birds to avoid dangerous situations. How is the effort progressing?

Many of the traits that make condors what they are also create a recovery problem: they are exceptionally curious and aren't inherently wary of people. I don't know if this is because they have very few predators, or if it is because they were drawn to large aggregations of animals in their evolutionary past—since that is where food was usually found. Condors are attracted to and use other scavengers like ravens to help them find their food, and ravens are often attracted to the food available in populated areas. So by default, the condors end up in people areas too. Condors also get their food by being persistent; no matter how much they are harassed at a carcass by coyotes or wolves, they keep coming back. Much of what we do is try to condition them to keep their distance from people. We are there on the ground to haze them off, to give them the lesson that people are dangerous.

Are they learning?

Yes, as a population—some faster than others. With older birds out there we are starting to see fewer problems.

Nevertheless, with each release it seems that there is at least one bird that is just not wary enough and it is usually recaptured and given some more growing-up time; it seems that the adolescent birds are especially curious.

I know that ravens are particularly smart. Where do you put the condor on the IQ scale?

Right up there with ravens. They are incredibly smart.

They are also exceptionally social and gregarious. I was once looking for the condors and saw this black lump on the beach: it was II condors piled together, lying on the beach in a huddle. They are also unbelievably playful. They have places that they go back to just for the toys: they come to play with the same blue bucket or old rubber boot year after year.

Because they are scavengers, anything that they can mess with they will. I have seen similar play behavior in ravens and turkey vultures; it's adaptive. Behavior that makes us laugh, like playing tug-of-war with a piece of driftwood or dragging around heavy objects, is building up pulling and tugging muscles for feeding at carcasses.

I have heard criticism of the recovery effort for being too expensive. What makes this effort worth the millions?

I don't know if those people have ever had a condor flying over them. The more we get to know and observe condors, the more we are in awe.

Personally, just seeing them on the wing makes it worth the cost. It is also worth noting that much of our work is funded from individual donations. But from a larger strategic perspective, if we are successful with condors—as we have been with peregrine falcons and bald eagles—people will gain confidence in the Endangered Species Act. It benefits all endangered species and the act to recover a flagship species like the condor that is easily viewable by the public and spectacular to watch.

People see them perched and say, "Wow, that's an ugly bird," but then it gets up and flies and they can't stop exclaiming how beautiful it is! I have been at the South Rim, when the sun was setting and the light was spectacular and five adult condors were circling around before heading down to roost, and several hundred park visitors began clapping. There are not many wildlife spectacles that have people cheering out loud. This was not a program; it was just the birds getting ready to go to bed. They are masters of the air—there is nothing more beautiful than a condor overhead, with the wind in its wings. (