

JOHN MOIR

Wing Beats of Hope in an Age of Loneliness

Four of us are heading down the Big Sur highway under a morning sun half-hidden by gossamer bands of fog drifting in from the Pacific Ocean. We pass the Henry Miller Library and continue south until our destination appears ahead. It is an unmarked headland, one of dozens of outlooks along this spectacular coastline created by geologic uplifting. If we're lucky, this rocky promontory will offer us a once-impossible sight: the flight of North America's largest bird—the California condor.

We pull into a gravel turnout and walk to the edge of a precipitous slope that plunges several hundred yards to the ocean below. Dozens of jellyfish dot the aqua-green water, and a raft of sea lions are splayed out on the rocks. The condors, which are carrion eaters, frequent this sea lion colony looking for an easy meal. For several minutes, I scan the trees and shoreline.

"There!" I point to a black-and-white bird soaring toward us from behind a cliff. It's as large as a small airplane. Soon we are watching six condors cruise overhead. We find three more roosting in the trees below. At one point, 15 birds circle over our heads. One condor sweeps past us, no more than 30 feet away, its nine-and-one-half-foot wingspan stretched full and an orange head accenting its stunning black-and-white wings. We can hear the air whistle through its flight feathers.

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I visited this location for the first time in the late 1990s to view some of the first condors released in Central California. On that initial visit, I spent an afternoon watching several condors circle the Big Sur sky and talking with Joe Burnett, the biologist who manages the Central California condor releases. I remember feeling deeply curious, but at the time, I had no idea that this afternoon would be life-changing.

Soon I began writing articles for newspapers and magazines about the condor recovery effort and discovered that not only had the giant birds captured my imagination, but that I had become obsessed with the riveting story of the human effort to save this species. It led me to spend two years writing *Return of the Condor: The Race to Save Our Largest Bird from Extinction*.

As I delved into the condor's story, I learned that the species had survived quite nicely for tens of thousands of years. But in the mid-1800s, a flood of gold-seeking settlers swept into California looking for quick fortunes. The arrival of the forty-niners upended the region's ecology, and the condor, like so many other species, began to spiral toward extinction. By 1982, only 22 California condors remained in the world.



Dan Linehan



Ken Jones



Ken Jones

Even as the condor's numbers sank toward oblivion, biologists were unsure what was causing the bird's decline. Was it egg collecting, shooting, poisoning, lack of food, a low birthrate—or something else? What data there were did not point to a conclusive reason, and conservationists were deeply divided over the best way to save the bird. Traditionalists said that if the condors were simply left alone, they would recover. But a group of scientists hired by the U.S. Fish & Wildlife Service believed that the situation had become too dire to wait and advocated for a “hands-on” approach that included radio-tagging the birds and trapping some of them. After years of bitter controversy, the hands-on side prevailed. It had become clear that the only hope for the species was to bring in the remaining condors and attempt an untested captive-breeding program.

Taking the last wild condor to a zoo in 1987 represented far more than the capture of just one bird. This was the first time in at least 40,000 years that not a single condor flew over the North American continent. To many, the condor symbolized unfettered wilderness, deep time, and intact ecosystems. If the condor was gone, what would be next?

I came to see that the condor's story strikes a chord with so many people not because the bird's plight is so rare but because it is so common. And, as we'll see in a moment, the condor's saga is not yet over. The bird's brush with extinction epitomizes the unprecedented level of human-induced species loss that stretches from where we stand in that gravel turnout on the Big Sur highway across the Pacific and around the globe.

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If you observe the ocean below this stretch of coastline, you often can spot sea otters frolicking in the kelp beds. These photogenic creatures, with their huge, guileless eyes, have a story eerily similar to the condor's.

Unlike other sea-going mammals that have protective layers of blubber, otters rely on a thick fur coat for warmth. Run your hand across an otter pelt, and the softness invites you to sink your fingers into its luxury. The fur is remarkably dense: an entire human head holds about 600,000 hairs while a sea otter has 2,000,000 hairs per square inch. Fur hunters slaughtered the otters by the thousands. Eventually, the once-numerous otter population crashed, leaving only 20 of them along the Big Sur coast.

The otter is known as a “keystone” species, the *sine qua non* for an ecosystem. Removing such a species brings unintended and profound consequences. With the otters gone, the sea urchin population—a primary food source for otters—exploded. The growing legions of sea urchins feasted unchecked on the seaweed forests, annihilating the kelp beds and leaving behind underwater deserts known as “sea-urchin barrens.” The loss of kelp beds had a devastating effect on other species that depended on the underwater forests. In addition, when the kelp disappeared, it no longer buffered the coastline from the erosive effects of waves.

Conservation efforts, including the Endangered Species Act and other protections, have helped the otter make a tentative comeback but its status—like the condor’s—is still precarious.



When the Big Sur condors circle the sky, they have a view of the rocky coastline that winds south into the hazy distance. A few miles down that coast, another threatened sea mammal is staging a comeback from its own encounter with extinction.

The northern elephant seal derives its name from its pachyderm-like proboscis. Hundreds of thousands of these sea mammals once roamed the Pacific Ocean. A male elephant seal is larger than a car: 18 feet long and weighing more than 5,000 pounds. Elephant seals routinely dive nearly a mile into the ocean and can hold their breath for more than an hour. A generous layer of blubber allows them to survive in the icy water, and this was their undoing. Hunters seeking the oil-rich blubber decimated the elephant seal’s population in a rush for quick profits. By the late 1800s, the seemingly inexhaustible population of elephant seals had disappeared from the Pacific Ocean. Only a group of about 100 of them held out on a remote island off Baja California. Early in the 20th century, the Mexican and U.S. governments gave these last few elephant seals protected status. On this slender thread, the elephant seal climbed out of the extinction abyss and has, in recent decades, expanded its numbers.



On warm afternoons, when the thermals are good, the condors spread their wings and ride the updrafts a mile or two into the sky. From this lofty visage, the California landscape stretches to the horizon. In the past two hundred years, this view has changed dramatically as an unparalleled ecological transformation has spread across the state’s mountains and valleys.

Everywhere, native grasses have given way to invasive species. The majority of California’s wetlands have been drained, diked, or developed, destroying many rich habitats. Nowadays, the only place you’ll find a grizzly bear—once numerous in the region—is on the state flag.

The transmogrification of California’s ecology illustrates a pattern that has played out across the planet. The view west across the Pacific Ocean reveals a similar story of depleted fisheries and of whale populations hunted to the brink. The details change, but wherever you go around the globe the story is essentially the same: the first humans arrive and soon afterward the large mammals and flightless birds disappear. Then technologically advanced cultures develop, altering the environment with powerful tools of steam and steel. The pace of extinctions accelerates.

Renowned Harvard biologist Edward O. Wilson estimates that each year approximately 30,000 species vanish forever. Most are unknown plants, insects, and arachnids as well as countless microscopic creatures that comprise the bulk of the biosphere.

Biologists call this phenomenon the Sixth Extinction. In the past half billion years, five mass extinctions have swept the planet. The best-known of these occurred 65 million years ago when the dinosaurs met their demise. We now have entered a new era where human-induced extinctions are rending the fabric of life. Not surprisingly, habitat destruction leads the way in causing species loss. Invasive species—non-native biological invaders that ravage habitats—are another potent force undermining the integrity of our ecosystems. When you add in global warming, the overexploitation of natural resources, and worldwide pollution, you have a planet under siege.

Wilson says that the current extinction rate is 1,000 times above normal and predicts that unless we change the trajectory of human overpopulation and overconsumption, half of Earth's species will be lost by 2100. We are entering the Age of Loneliness.



Biodiversity loss is one of the great challenges facing humanity in this century. Where do we begin? What do we do? “Tug on anything at all and you’ll find it connected to everything else in the universe,” John Muir said. That is exactly what the scientists who are bringing back the condor have done. In the face of the Sixth Extinction’s juggernaut and against all odds, they developed a recovery program for the condor—and started tugging. It took many years of backbreaking work as well as great good luck, but the recovery team is close to accomplishing what many deemed impossible.

A crucial discovery in 1984 helped turn the tide when biologists found a condor that had died after ingesting a lead bullet fragment. Here was the hitherto unknown reason for the species’ troubles. Condors are carrion eaters, and if they feed on a deer or pig or other game left behind by hunters, they ran the risk of consuming tiny pieces of lead. Lead is highly toxic and even small fragments can paralyze the nerves in a condor’s digestive system leading to a slow, painful death by starvation.

This finding led to the capture of the last wild condors in the late 1980s. It made no sense to leave the remaining birds out in the wild where they faced a high risk of dying from lead poisoning.

With the success of the captive-breeding effort and the release of the first zoo-bred birds in 1992, the lead problem resurfaced. The obvious solution—ban lead bullets—presented a political conundrum for the recovery team. While many hunters embraced the use the excellent alternative ammunition that is available (usually copper bullets), some gun groups disputed the science and opposed the transition away from lead. The recovery program still struggles with this dilemma. Even though condors are reproducing well, the recovery team spends much of its time trying to prevent released condors from consuming lead and treating birds that get poisoned. Dozens of released condors have suffered from lead poisoning.

In 2006, a study done at the University of California at Santa Cruz linked the “fingerprint” of the specific lead isotope ratio found in lead bullets to the lead found in

the blood of poisoned condors. This study, along with a mountain of other scientific data that show lead bullets to be the culprit, prompted a coalition of environmentalists, hunters, and recovery team members to begin the complicated political process of pushing for regulations requiring nonlead bullets for hunting. In October 2007, they succeeded. A bill was signed into law in California mandating nonlead ammunition for big game hunting in condor country. It takes effect in July 2008.

For the first time, the condor recovery program has a real chance at reaching its ultimate goal: two self-sustaining wild populations with each group comprised of at least 150 birds.

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Late in the afternoon we return to the Big Sur headland for a final look at the condors. A copper sun sinks toward a distant fog bank hovering over the ocean. It is quiet—only a few cars whisper by on the highway—and the warm air is filled with the spicy tang of chaparral. The last of the condors are heading inland, winging their way toward evening roost sites. An otter dives for sea urchins in the kelp bed below. A few miles down the coast, dozens of elephant seals are hauled out on the sand for their annual mating rituals.

For a moment, life appears as it has always been, and it seems possible to imagine that the 3.5-billion-year-old web of life upon which our survival depends can still be preserved. Breathing in the stillness, you can envision a future for the condor—and the sea otter and the elephant seal and countless other species—that is as solid as the striated rocks twisting through the coastal cliffs.

Maybe this moment is merely a mirage, the afterglow to an enchanting Big Sur sunset. Then again, here at the edge of the continent, dreams have a way of gathering a tailwind and slow-dancing toward the tangible. If the condor can be brought back from the brink, perhaps the efforts dedicated to saving biodiversity across the planet can yield similar results. Let us hope.