



New Directions for the CALIFORNIA CONDOR

by John C. Borneman

*Condor Naturalist —
National Audubon Society*

The California condor has long captured the imagination of man. Part of the reason is its size, a nine-foot wing span. It's the largest land bird in North America. To see it soar, one could easily mistake it for an airplane because of its stability in flight. Another thing that has contributed to the awesomeness of the condor is its habitat. From the remote, rugged, rocky canyon walls where it nests to the open, oak-dotted, rolling hills of the Tehachapi Mountains, the condor is king of the air. Over the years it has been shot by the curious, the malicious, and the ignorant. It has been referred to as "just an overgrown buzzard". In spite of the mixed feelings about the California condor and the variety of reasons for hating or appreciating it, its decline has become a symbol of the destruction and irreversible alteration of the land over which it once soared hundreds of years ago. To see the condor apart from his habitat, is to see him out of context. For this reason the proposal by the National Audubon Society and U.S. Fish and Wildlife Service to breed condors in captivity has been rooted in controversy. To understand the controversy one needs to understand the bird, its habitat, and the pressures that have been brought to bear upon the species over the past 100 years.

In 1937 a young forester, Cyril S. Robinson, was instrumental in establishing the Sisquoc Condor Sanctuary in Santa Barbara County. The purpose of this sanctuary was to protect a bathing and roosting site for the California condor. It was brought to the attention of the National Audubon Society that very little was known about the bird and its habits. Therefore the National Audubon Society elicited the assistance of the University of California in Berkeley to study the life history of the California con-

California Condor, *Gymnogyps Californianus*
See color photo on front cover.

dor. A young graduate student, Carl Koford, was chosen to do the basic research, which has since become the foundation of all further research on the condor. Shortly after the completion of his research in 1946 the 53,000 acre Sespe Wildlife Area was set aside in Ventura County. The word "condor" was purposely kept out of the sanctuary name, as the philosophy of condor preservation was to say nothing about condors. It was hoped that by not mentioning the condor, egg collectors, photographers, and the curious would be kept away from nesting and roosting sites of the giant vulture. It was hoped that condors could maintain their numbers by being left alone. It was felt that there was ample foraging area for the birds and all they needed was a chance to nest in seclusion.

A decade after the establishment of the Sespe sanctuary, an update was done to determine the current status of the condor. Dr. Alden Miller of the University of California at Berkeley headed the research project and turned the field work over to Ian and Eben McMillan of San Luis Obispo County. The McMillans concluded that the condors had declined from 60 to 40 birds and that the reasons for the decline were shooting and possibly poisoning. It was also felt by the McMillans that

food was still abundant and was not a cause of diminishing condors numbers. As a result of their work, the National Audubon Society appointed a "condor warden" to patrol the range of the condor and keep birds from being shot. The position was also created to start an educational work throughout the range of the condor. I took this position in 1965, and shortly after the title was changed to "Condor Naturalist," which is more in keeping with the demands of the job. The range of the condor is vast and there is much need for educating and contacting ranchers, and federal, state, and county wildlife people. There was a lack of awareness of the condor through the range and much misinformation had been spread. Also at this same time a 90 million dollar water project was proposed on the northern boundaries of what is now the Sespe Condor Sanctuary in Ventura County. This project was defeated by the voters of the county on economic grounds, thereby sparing the condor from another intrusion into its habitat.

In 1966 Fred Sibley was appointed to the position of Condor Biologist for the Fish and Wildlife Service. Sibley conducted two years of research to study the effects of the proposed Sespe Creek Project on the condor. At the end of his research he deter-

mined that setting aside the sanctuary was not enough. There are many condor nestsites outside of the sanctuary and Sibley proposed that these be protected from disturbance from construction by setting up a one and one-half mile buffer zone around each nest site. He also felt that trails within one-half mile of nest sites contributed to disturbance and eventual abandonment of nest sites. Sibley also discovered that condors did not necessarily nest every other year as Koford had believed, but nested in several consecutive years followed by several years of not nesting.

In 1969 Sanford Wilbur replaced Sibley as Condor Biologist. Using Sibley's observations, plus his own, Wilbur concluded that an abundance of food in condor habitat did not necessarily mean an abundance of food for the condors. It was found that to be of any use to the condors, food must be available where and when condors are foraging. Food that lies beyond one-half mile from normal condor foraging areas is unlikely to be discovered by the birds.

A comparison of flocks of condors and numbers of individuals seen throughout the year pointed to a steady but slow decline in condors numbers. It is also apparent that condors are successful in pro-

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ducing only 0-2 young per year. This rate of production was felt to be inadequate if the birds were to hold their own. In the early 1970's the California Condor Recovery Team drew up a contingency plan. This plan stated, in effect, that if all measures to encourage reproduction failed, captive breeding of condors should be seriously considered. A deadline of 5 years was recommended by the Recovery Team to see if production would increase through supplemental feeding, protection and acquisition of nesting habitat, and the elimination of aircraft disturbance over the nesting area. When condors did not respond to these measures, the Recovery Team submitted the contingency plan to the Fish and Wildlife Service for approval.

Because of the controversial nature of the plan, the National Audubon Society and the American Ornithologists Union picked a panel of scientists from various fields to study the condor situation and make a recommendation. This study concluded that captive propagation must be undertaken if the birds are to survive. The report submitted through the National Audubon Society recommended that studies be made of the effect of pesticides on the condor's environment, and that steps be taken to insure habitat for the eventual release of mature California condors.

The U.S. Fish and Wildlife Service agreed with the Audubon-AOU report and submitted recommendations for captive breeding of condors by requesting \$500,000 from Congress to initiate a program of research leading toward captive propagation of the bird. The National Audubon Society and Fish and Wildlife Service determined to put a team of biologists in the field to work cooperatively in this venture. Support was given to the project by the U.S. Forest Service, Bureau of Land Management, and the California Department of Fish and Game. The plan is to initiate a step-by-step methodical research program involving the attachment of radio transmitters to condors. It is hoped to learn more about the birds' range and the interaction within the population. The timetable for the whole program is being kept flexible so that changes can be made as we learn more about the bird. This would be the first time that a "hands on" approach to condor research has been used. Because of the rarity of the great birds, which are now down to less than 30 individuals, and also the almost mystical awe in which the condor is held, the thought of capturing birds for marking has been repugnant to a few of the condor's allies.

If the goal of captive propagation was to keep condors in captivity for the remainder of the species life, then I would

agree with those who oppose the project. However, the ultimate goal of the project is to have habitat to put the birds back into and to help offset some of the negative forces that have effected the decline of the species. Also, by studying the effects of pesticides on the condor's environment, we should be able to learn much about the probable effect on other species as well as on man himself.

Dr. Russell Peterson, president of the National Audubon Society, has referred to the condor as a "sampler of the environment". If we study the effects of sampling on the condor and other species as well, it will help us formulate wise policies regarding land use as well as the use of chemicals on the environment.

We have already learned that condor eggs had a 30% reduction on eggshell thickness during the DDT era. We have also found that the eggs have begun to return to normal thickness since the banning of DDT in the United States.

Are there guarantees that this program to breed condors in captivity will work? No, but from what we know about successful breeding of Andean condors and other raptors we do have some hope. Can we guarantee that the birds will be able to make it when released into their environment? Again, all we can say is that we have hope and will have many years to experiment with the release of Andean condors and other large vultures. Work along these lines has already been done by Dr. Stan Temple with turkey and black vultures. As mankind has become aware of the concept of endangered species, aviculturists are playing a significant role in the survival of several species. Research continues in the areas of increasing reproduction and survival rates.

In a society where we tend to revere "programs" we must be careful to focus on the ultimate goal. In my opinion that goal should be to have wise stewardship over our planet and all the life processes that support the abundant diversity of living organisms. It is to this end that the National Audubon Society is committed as we look forward to captive propagation of the California condor. To loose sight of this long-range goal would find us perpetrating the mistakes of the past. Also, by keeping the long-range goal in view, we make it possible for groups of diverse interests to work together toward its realization.

[Editor's note: Mr. Borneman graciously filled in the details regarding the various methods and programs being used to protect the California Condor. In addition, he sent the following information on the bird itself. The data is taken from a National Audubon Society leaflet.]

The California condor (*Gymnogyps californianus*) with its spectacular nine-foot wing-span is one of the rarest and most endangered species of birds in the world. In 1979 it was estimated there were about 30 living condors. The major part of its present range includes the mountains and foothills of the Sierra Nevada, Tehachapi and Coast ranges of Central and Southern California.

Condors do not build a nest but lay their one egg on a protected ledge or in a pot-hole or cave. The egg is about four and one-half inches in length and takes about fifty days to hatch. Both adult condors take turns incubating the egg and bringing food to the young chick. The young condor grows rapidly in the nest cave and nearly reaches its full growth by the time it's four or five months old. It is then that the young bird ventures from the nest for the first time. This first "flight" may consist of a jump and flap to an adjoining ledge or a clumsy flap to a dead tree snag near the nest. The next few weeks are spent sitting, preening and exercising its huge wings. Occasional short flights are attempted. As its muscles and confidence develop, the young condor begins to take longer and longer flights until it can stay with the adult birds on their foraging trips. Gradually, the young condor becomes less dependent on its parents for food. Finally,

after having been out of the nest site for eight or nine months, it is on its own.

Young condors can be identified by their dark gray heads, black bodies and mottled black and white wing linings. At about five years of age it then acquires the yellow-orange head and the pure white wing linings.

The feet of a condor are similar to the feet of a turkey in that they have toe nails instead of talons. They cannot grasp food with their feet so they carry food back to their young by storing it in their crop. A "full" condor can often be seen with what appears to be an orange balloon sticking out from the feathers in the chest. As is the case with many birds, condors feed their young by regurgitation.

In flight, the condor is set apart from all other soaring birds that would be encountered in its range. The flat plane of the wings differs from the dihedral and rocking flight of the small turkey vulture. The condor's soaring flight is very direct and steady in contrast to the much more animated flight of the golden eagle. It takes a condor more than thirteen seconds to make a complete turn when circling while the small raptors take much less time to complete a turn. When a condor has finished circling for elevation, it will give its giant wings a single deep flap before heading out into a straight course. This

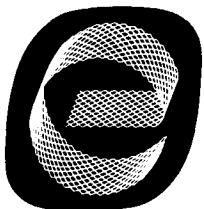
single flap is known as a "double dip." The wings appear to almost touch under its body.

The habitat requirements of the condor range from the rugged sandstone cliffs in the chaparral covered hills where they nest to the open rolling grasslands and scattered oaks that typify their foraging habitat on to the steep conifer-shrouded canyons where they roost.

If condors can survive their early years they can be expected to live more than thirty years, barring some accident. Their present day food consists of dead cattle, sheep and deer plus smaller mammal carcasses.

Because of their large size and restricted range, condors have been the target of egg collectors, museum collectors and shooters since the early 19th century. Some have fallen victim to poisons meant for predators. On top of all their pressures, egg shell thinning caused by DDT has been discovered. Grazing land provides the habitat for the food sources of the condor but is steadily being converted into farm land and second home developments.

The California condor has become a world-wide symbol of the plight of wildlife everywhere. It is certainly symbolic of the conflicts between maintaining quality human and wildlife habitat and providing for the needs of an ever expanding world population •



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