

## Endangered Species-- Preservation, or Extinction

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Being somewhat of a bird watcher for a number of years, the subject of endangered species threw out a challenge to do some exploring. Since I have problems indentifying bird species about us, at times, I wondered why I should make things more complicated by adding rare or endangered species. I realize too, that I am in the midst of some sharp bird-watchers, and also those who are strongly interested in meaningful conservation, and those eager to maintain a good balance in nature. One may not feel that they are involved, but if not involved, are affected by the damaging of our environment, or the image we are leaving for future generations.

As an aside, bird-watching is a game with many factors entering into bird identification, with the final reward of self satisfaction coming from making the correct identification. Some of the keys for correct indentification are silhouettes, flight patterns, perching habits, color, song, movements such as walking, hopping, alone, or in a flock, ground feeders-- they all combine to give one correct identification. When out in the field, watchers have different reactions, oftentimes very amusing. If with brother Bill, and a flock of pigeons pass over, and you ask him casually "what was that?" In showing a little disgust, his reply is apt to be-- "a lot of crud." Or, if with John Donnelly on a cold day, and he has had some hot toddy, you will be amazed how his vision improves to 40/20!

The more I explored the field of endangered species, leaving out Homo Sapians, I realized I had to limit myself to a certain group of endangered species. Separate studies could, of course, be made on reptiles, mammals, insects, fish, viruses, amphibians, green plants, fungi, bacteria, or micro organisms. I will endeavor to held myself

primarily to birds. Anyone when exposed to only a small amount of reading on the subject of endangered species, is awakened, and quite likely would admit that they admire the beauty of nature, the songs of birds, and will seek to avoid the extermination of endangered species. To preserve endangered species, we must primarily avoid the deterioration of our environment.

How many species? Until the mid-60's, the number on earth were estimated to be around three million, with about half identified. The earth is considered to support about 8,600 birds, 4,100 known species of mammals, 6,300 reptiles, 3,000 amphibians, 2,300 fishes, roughly 800,000 insects, and over 300,000 green plants and fungi, plus several hundred thousand micro-organisms such as bacteria, and viruses

The extinction of species, or group of species, is nothing new. It has been going on as long as there has been life on this planet. Species come and go as they always have with the orderly evolution of life forms. Neither good nor bad, this action of species creation and species extermination is as much a part of life on our planet as is the rising or the setting of the sun, or the changing of the seasons. Such creation and extermination of species is part of the routine of life by which nature rearranges its supply of building blocks; the genes and chromosomes which determine the nature of species and, to a lesser extent, the action of all species.

Whether evolution was the result of trial and error over endless years or the result of an omniscient decision by an omnipotent Creator is really not relevant to our discussion. According to the Bible, there were only eight people on earth after the flood. They were Noah and his three sons, and their four wives. None of the women were named in the Biblical account-- women's lib had a long way to go in those days! Now it must be apparent that these eight humans were th

sole repository of the building blocks by which the process of evolution had to go forward. God said "Go forth and populate the Earth, and I will give you dominion over the birds of the air and fishes of the sea, and the animals of the land."

Did we obey the Divine command? There are now nearly five billion humans on this planet, so we certainly have "gone forth and populated the earth." How about the second part of the Lord's mandate? How have <sup>w</sup> we succeeded in our dominion over all other species? We have done very badly. We have failed to recognize that the right of dominion does not carry with <sup>it</sup> the right to exterminate.

We do know that man has been the only life form which has exercised complete dominion over all other life forms, and this is the first time that this terrible responsibility has ever fallen on one species. Today, many holds the power of life or death over every <sup>single</sup> species on this small planet-- including his own. Many <sup>18</sup> species have become extinct as a result of man's actions, and inactions. For instance there is the Indian tribal ritual of taking a young eagle, allowing it <sup>To GROW</sup> ~~grow~~ to a certain age, and then sacrificing it. If we look at it all from <sup>the</sup> viewpoint of the ten thousand other life forms, the dominion of many has been good.

Our record includes the extirpation of the passenger pigeon. The passage of this numerous species once blocked out the sun. Although there is a claim that the last passenger pigeon died in a Cincinnati zoo in 1914, the passing of this species was unnoticed. But our record also includes the tremendous effort put forth to save the whooping crane from extinction. Between the loss of the pigeon and the beginning of the fight to save the whooper, an amazing reversal of public awareness has occurred.

We can hold ourselves in high esteem because we harbor such feelings, but there is another, much more compelling reason for our

concern. Our own survival is surely at stake. Wildlife functions <sup>act</sup> as a Distant Early Warning system <sup>em</sup> for mankind. If the world is dangerous for the Kirtland's warbler, is it safe for humans? If the world is so full of noxious chemicals that the brown pelican is unable to manufacture a shell for its precious egg, are we not affected by those chemicals?

Like the caged canary which the miner once carried into the underground shaft in a test for the presence of deadly methane, all life forms on this planet are carried will-nilly, and without choice, as captives on a finite globe, into a future which only mankind determines.

We will now look at a few of the more familiar endangered species, note what efforts have been made for their preservation, and the results. Perhaps by studying what has happened, we will be able to prevent further catastrophes. Perhaps by watching the fate of defenseless warblers which cannot escape their environment, we can learn to control our own actions. From the latest report that I could find there are approximately 60 endangered bird species in the U.S.

First, we shall turn to the Kirtland Warbler. Perhaps the rarest of all small birds, the Kirtland now numbers something less than 500 individuals in the entire world. It is yellow breasted, and the only tail-wagging warbler with a gray back. If you need more identification, you will have to go to the source-- a six county section of northern lower MI. In the counties of Crawford, Oscoda, Iosco, Roscommon, Kalkaska, and Ogemaw, the 1979 census found 210 singing males. The Kirtland has NEVER been found nesting anywhere other than in the areas mentioned.

To further emphasize the "choosy" nature of the bird, the Kirtland nests only in stands of young jack pines, and in stands of at least 80 acres. They must be dense stands, six to thirteen years old and range from five to six feet tall. Trees are no longer attractive

to the bird when they reach the height of sixteen to twenty feet.

This preferred type of forest growth was plentiful in the old days when frequent wildfires destroyed stands of jack pines, and at the same time created ideal conditions for the regeneration of young jack pines. Enter Smoky the Bear, and modern fire protection practices! Fire was looked upon, not as a creator of habitat for warblers, but as the greatest tragedy that could befall the profits of the timber manager.

The first nest of the Kirtland was discovered in northern lower MI in 1903. Since that date, bird watchers have reported the tiny singer from 15 counties in MI and in widely scattered locations in Minn., Wisc., and Ontario. In 1953, a group of thirty bird lovers attempted a census-- a count of all the breeding males singing during the early part of the nesting season. Logically enough, they assumed that the male had a female to sing to, or he wouldn't have anything to sing about. They recorded 432 singing males. A similar census in 1961 gave a total of 502 singing males. However, ten years later the count turned up only 201 males. Since the bird does not prefer other habitats, something had to be done.

Under the terms of the Federal Endangered Species Act of 1973 the Kirtland was listed as an endangered species, and a Recovery Team was named to recommend courses of action. The annual census was continued, and widened in its scope to take in other possible areas to be sure that they were not missing populations of warblers which might have shifted their nesting location. None were found-- other than in northern lower MI. The dense stands of jack-pines were posted against entry from May 1 through Aug. 15 of each year, which is their nesting period.

Because cow birds have a parasitic habit of depositing its eggs in the nests of the Kirtland, cowbird traps were set up adjacent

to the known nesting areas of the Kirtland. If the cowbird's eggs are deposited in the nest of the Kirtland, the larger progeny of the cowbird crowded out, and starved out the legitimate smaller Kirtland. The Recovery Team also dedicated 135,000 acres of Jack pines, owned by State and Federal governments (and within the nesting areas), and managed so that there will be an annual production of 35,000 acres of jack pine habitat.

The Recovery Team is also thinking about the 8-9 months of the year when the Kirtland is absent from MI. No one has exactly pinpointed the wintering sites of the Kirtland, although they are known to be in the Bahamas. Until the actual wintering area is determined, there is no way in which studies can determine whether or not the Kirtland needs protection on the wintering grounds.

The tiny Kirtland and large whooping crane have much in common. Both are presently reduced in numbers so that a single natural catastrophe could wipe out a major part of the world's population of both species. The crane however, is long lived, while the life span of a warbler is measured more often in months than in years.

It would be difficult to ~~demonstrate~~<sup>determine</sup> a monetary value of the crane, and almost impossible to show that the passing of the Kirtland would cause anyone a loss of money. Yet surely we humans are advanced enough to know that when we cause the loss of a species by our actions-- no matter how well meaning our forest fire protection is-- the last individual of that species takes a lot of things with him <sup>when</sup> ~~when~~ he goes across the threshold of extinction. That last individual takes along a priceless set of genes which <sup>cannot</sup> ~~cannot~~ be duplicated, cannot be copied, and cannot be the basis for any further evolutionary development.

In contrast to the small warbler, we will now have a look at the larger bird, the Whooping Crane. The crane is more than six feet tall, with black wing tips, and a red head contrasting with spotlessly

and a wing span of 7-8 feet. white plumage. In 1941 there were only 21 whooping cranes. These 21 were the survivors of a species which nested from Neb. north to Canada, from the Rockies across to Iowa and down into La. and Miss. Their bones are found in fossil deposits dating to eons before man appeared. We find enough mentioned that they were used for food, and to know that they were definitely not rare in pioneer days. The report is that they were 1400 whoopers when Columbus landed, and if that minimum figure is accepted, we must bear the responsibility for causing the decline to the present number of 21. How did it happen?

The whooper is a classic example of the territorial animal in its nesting habitat. It stakes out its own territory, announces to the rest of the whooper world with its sonorous trumpeting call, and then bitterly defends its territory against all intrusions. As mankind moved into the central plains, the whooper moved his nesting territory northward, ever northward, constantly searching for a territory to call its own, secure from man's intrusions.

The plow and drainage shovel stole his nesting habitat, and the crane was only seen during migrations when they flew down across Saskatchewan, the Dakotas, Neb., Okla., and Kansas on his way to an even shrinking wintering area on the Texas Gulf Coast. During the summer months the whoopers were a complete mystery. No one knew where they had gone, but in the fall they reappeared.

The Arkansas Nat'l. Wildlife Refuge was established in 1937, and caused an awakening of the ecological conscience of the people of N. America to the plight of the whooper. Arkansas protected the cranes on their wintering grounds, and the Fish & Wildlife Service began to keep records of their number. Should add too, that the Audubon Society showed good results with its educational program. State and Federal enforcement personnel redoubled their efforts to stop illegal shooting of the cranes, and succeeded.

Whoopers do not breed until they are 5 to 6 years of age. They lay only two eggs, but with an interval of 3 to 4 days before the 2nd is laid, the adults will take the first hatched offspring and go away, leaving the 2nd egg to cool and die, which of course accounts for but a 50% hatch.. Then, the approach of winter starts the southbound migration before the whooper chicks have really had enough time to strengthen their flight muscles. So, they stop more often, which means more exposure to predators, and possible adverse weather conditions.

Whooping crane numbers grew slowly from 21 in 1941 to 48 in 1968, 59 in 1971, but then came a drop to 49 in 1973. However, by 1979 the number had grown to 119. Various measures have taken place to increase the number of whooper. Biologists have sneaked in and stole one of the <sup>two</sup> eggs the whoopers lay each year, and then hatched them by incubators. This has been repeated in Canada, and FWS personnel, beginning in 1967, and repeated each year. To maximize the breeding potential of the captive birds, the FWS installed lights, so as to provide 24 hours of daylight. The cranes did their stately courtship dance, and although, the males did their sign of noticing girl cranes, they did not mate. So, artificial insemination provided fertile eggs. The smaller sandhill cranes were also used to do the incubation for them. However, it is still too early to know whether or not the "imprinting" of the young whoopers by the sandhill cranes who reared them, is good or bad. What if the whoopers think that <sup>THEY</sup> are sandhill cranes?

Today we have a situation where every law enforcement officer will drop everything and hurry to guard a migrating whooper reported to be in his territory. The Audubon program of volunteers monitor migrations and report sightings methodically to provide a factual basis for migration studies. We have seen a growth from 15 birds in the wilds in 1941 to 91 in 1980. Most of the losses now seem to be occurring in the juvenile population. However, we have seen far more interest in the



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preservation of the whooper than can be explained by any intrinsic value the big bird may have.

Now, let us have a look at the perils which the Peregrine Falcon has experienced. The bird is crow sized, narrow tail, long pointed wings, conspicuous black mustaches. Spectacular on the wing, and in former times <sup>was</sup> were a favorite choice for the sport of falconry, plunging from tremendous heights at speeds estimated at 180 miles per hour to capture flying birds. It has a wing span of 3 to 4 feet. Never numerous, peregrines showed no measurable decline throughout the early part of mankind's occupation of the eastern states. In 1942, Dr. Joseph Hickey found that there were 275 known nesting sites in the eastern U.S. He knew there were 210 of these eyries which were active in 1942, and he felt that <sup>there</sup> ~~there~~ were probably 50 nesting pairs in the area, inasmuch as they had not located all of the eyries in the study. At the same time, there were some known nesting eyries in Canada, and Greenland, which might contribute to the number of migrating birds each fall and spring. By 1964, there was a considerable decline, for the number of known eyries had dropped to 209, and none of them were in nesting areas. This drop could not be blamed entirely on great horned owls, egg collecting, or indiscriminate shooting. A third major survey in 1975, showed that the peregrine was extinct as far as breeding pairs in the <sup>a</sup> eastern U.S. was concerned. To put the reason in the simplest terms, the peregrine had lost the ability to make egg shells within the female falcon's body. Researchers found the reason, although they found it too late to help. DDT and its metabolite DDE were convicted of the crime. DDT and DDE killed the pests we wanted killed, but it seemed to last forever in the food chain, as the birds ate the insects and chemicals were kept in their tissues. The accumulation of DDE in the birds prevented an eggshell to be made thick enough to serve as the holder of the embryonic young peregrine.

The use of chlorinated hydrocarbons in the U.S. has been greatly restricted since the loss of the peregrines, but it is still being used in the Latin <sup>Am</sup> American countries which are the southern termination of the peregrine's migration.

Fiercely independent and proud, the peregrine nests in the most inaccessible spots, and is a very unlikely candidate for a human-aided comeback. However, at Cornell University and at several other places, researchers found the ability to propagate the peregrine in captivity. Cornell refined the technique to the point where they could rear as many as 200 young peregrines per year.

Selecting the brood stock for the Cornell Peregrine Factory posed a problem for geneticists. After much soul searching, peregrines were chosen from the Arctic tundra of N. America, from the Aleutians and Queen Charlotte Island on the western coast, and from Scotland and the Mediterranean regions in Europe. Given the ability to produce the hawk in captivity, there was still much to be learned about the process of gradually releasing captive young falcons-- giving them semi-liberty while still feeding them as they became accustomed to life in the wild. "Hacking" has the added advantage of starting the "imprinting" process, for as the bird becomes accustomed to the area where it is hacked, it is more apt to return to this site. This resembles the natural way in which an adult returns to its nesting site.

Cornell began the "hacking" method of releasing birds to the wild in 1974, and has continued the program with marked success. Of the first 152 young falcons released, 112 survived to the stage of independent existence. In the spring of 1979, the peregrine paired, nested, and laid eggs at eyries in the U.S. for the first time in twenty years.

Reports have come showing nesting sites on tall buildings, in Baltimore, and Washington. Interior Secy. Andrus approved a project to release peregrines in downtown Washington, D.C., using the roof of the

Interior Bldg. as a release site. This environment is familiar to the birds. Pigeons furnish the food supply, and the skyscraper also closely approximates the mountain ledges which are the bird's favorite wild nesting site. Also, once the bird has caught its prey, updrafts against the side of the building enable the bird to sail upwards without even flapping its wings.

Eggshell thinning is still a danger to Pacific coast peregrines, more so than to the eastern birds. However, programs developed in the much more ambitious eastern program will be used in the West as additional "pen-reared" birds become more available.

The use of chlorinated hydrocarbons just about did away with the peregrines, but the trend was reversed in time. Mankind showed a strong and determined interest in caring for this bird so that now we have a turn about in this hawk's population.

We shall now make an examination of the perils of the Bald Eagle. This <sup>R</sup>is bird is dark brown over most of its body, and the <sup>R</sup>stikely beautiful white head appears after three years. With a seven foot wing span, <sup>the bird</sup> is a majestic flyer.

The bird is a carrion eater, and feasts on dead animals, and fish. Once plentiful over all of the N. American continent, excluding Mexico, the bald eagle has fallen on hard times, and was placed on the endangered species list in 1978. There are lots of bald eagles in Alaska-- probably more than in all of the other states combined.

Four reasons usually are given for the decline of the bald eagle, and they are: loss of habitat, loss of nesting trees, illegal shooting, and DDT and its metabolite DDE. Also, the eagle is quite intolerant of human intrusion in the area near the nest <sup>SITE</sup>site. If observers come to the nest site several times, even within binocular dis-

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tance from the nest, the eagles may desert the nest.

Today's monoculture in forests has caused a gradual loss of big nest trees through attrition. As the big hardwoods die and fall, they are replaced with conifers for lumber ~~for lumber~~, not with more hardwoods.

Illegal shooting was once a serious cause of mortality among eagles. The passage of the Bald Eagle Protection Act slowed the illegal shooting to the point of almost being negligible.

The fourth reason for the bald eagle decline is DDT. The eagle being at the un<sup>Ro</sup>protected top of a food chain made up of efficient big-accumulators. Algae at the bottom, were consumed by fish, and the fish eating eagle got the full impact of the stored DDT. This in turn prevented the eagle's ability to manufacture a strong egg shell. With the outlawing of DDT, we have seen signs that the trend is being reversed.

In 1980, the eagle survey conducted by the Nat'l. Wildlife Federation turned up a total of 13,127 eagles in ~~the~~ 45 of the lower 48 states. This was 35% higher than the total recorded a year earlier. So, the lingering effects of DDT are probably coming to an end at last. The fact remains, however, that nesting habitat is being steadily destroyed throughout the range of the eagles in the lower 48 states. Bright spots are the national wildlife refuges which are being managed to provide nesting sites, near water. Timber companies in the Pacific Northwest are also showing greater concern regarding wildlife on their lands and connecting water-ways.

We really must save this bird. What a national tragedy if we failed to save our own national emblem!

There are probably few here who have ever seen the Condor, but it is an endangered species. A little background might provide further interest. When seen, one might spot the bird hopping ~~awkwardly~~ <sup>backwardly</sup> along a high ledge, a huge black bird, rendering the bald eagle puny by comparison with a naked neck, and a reddish-orange head. They are actually hideous.

Its walk is the pigeon-toed waddle of a fat goose. Its yellowish legs and feet are those of an outside barnyard chicken, even to the almost useless claws. Its naked head with the blunt, over-shot beak is often pulled down into a ruff of dark feathers, making it seem to have no neck at all. And its reddish eyes, which have the telescopic sight of all hawks and vultures, look almost withdrawn. In the air however, the condor is a totally different creature, one of the most skilled soaring birds that ever lived. Its long broad wings have a spread of nine to ten feet. On them, the bird can soar for hours at a time, with no visible motion except in the finger like feathers at the tip. Soaring, not diving, it has been timed at more than 50 miles per hour. At rest, it stands four feet tall, with wings raised, it become six footer. A fully grown adult weighs 20 to 30 pounds, depending on how recently it has eaten. Notwithstanding its appearance, the condor does not kill, even for food. It is a scavenger, and at times may eat almost half its own weight, at one sitting. Its natural life is 30 to 45 years.

The Calif. condors were well established in N. America when the first man arrived over the land bridge from Siberia to Alaska, and they were common all the way down to the Pacific Coast into Mexico, and across the whole southern half of the present U.S. Father Asension, a Carmelite friar, wrote the first report after seeing a flock of huge birds feeding on a dead whale in Monterey Bay in 1602. Lewis & Clark's expedition saw condors which they called "remarably large buzzards." John. J. Audubon never saw a condor, but his <sup>son</sup> did in Calif. in 1849. By then, the condor population was waning. The early Spanish settlers in Calif. did little to disturb the birds, but with the Mexican War, and the discovery of nuggets at Sutter's millrace, the gold rush was on. The gold miners began to shoot condors-- such big birds had to be dangerous! Then someone found that the quills made good containers for gold

dust. Conservation measures then began to develop as they became concerned about the disappearance of the bird.

Condors tend to be social animals in feeding, and the young-- one egg is produced every two years, fly with their parents for several years after being fledged.

Currently, in spite of cutting back on many Federal projects, <sup>UNDER</sup> Secy. Watt the number of recovery plans approved or under review, has nearly doubled. There are no plans to disband recovery teams for the Calif. condor, peregrine falcon, or whooping crane.

As a parting remark about the condor, a recent newspaper clipping stated a condor egg is being incubated at the San Diego zoo. The three week old bluish egg-- six times the size of a chicken egg-- was taken from the rugged Ventura County condor sanctuary, put in a specially built "egg suitcase" and flown to the zoo. Scientists said this is the first attempt in history to artificially incubate a condor egg, and rear the chick from birth.

It is quite apparent that much has been done in reducing the dangers of endangered species. To continue these efforts, and maintain the momentum, we have several organizations, and programs that should be mentioned. Briefly, they are approximately 3,000 Wildlife Refuges; the Nat'l. Park System; there are literally hundreds of endangered species organizations; and finally the role of the zoos.

This paper is biased in that we have taken the position of protecting the endangered species. But, to be sure, there are those who feel we cannot play God in the determination of which species to protect. Should we kill foxes which threaten the nesting success of the endangered Aleutian goose? Should we kill raccons which threaten the nesting success of the whooping crane, or the trumpeter swan? Should we kill the coyotes which prey on the Attwater's prairie chicken, which is an endangered species? The larger predator in this same area is the endangered

Texas red wolf. Now the endangered Red Wolf loves to eat the endangered prairie chicken. Now we are on the sharp horns of a dilemma. Do we have the right to decide which species is to be allowed to continue, and which <sup>SPECIES</sup> species is to be sacrificed so that another <sup>SPECIES</sup> species can live? The decision can be avoided <sup>IN SOME CASES</sup> by proper management. In the case of the red wolf, they were trapped, and relocated after captive propagation, into areas far from the Prairie chicken. Too often, we fail to make any decision, and thus allow the species to perish by default. "To avoid this in the future, we must learn about every living species, and we must realize that a tug upon any part of the web of life will result in a <sup>WIDE</sup> widespread tremor. Knowledge is the key to the lock that protects endangered species.