

Letter from the Desk of David Challinor
January 2005

No one can argue that our planet's human population is growing. When I was born (1920) the estimated count was 1.9 billion; today it is about 6 ½ billion and still growing, with the fastest increases in sub-Saharan Africa, southeast Asia and parts of Latin America. Even with the recent precipitous declines in birthrates in Europe, Japan and the U.S., global population is extrapolated to reach 9 to 11 billion within the next century. The world probably can feed this number provided adequate will exists to distribute food crops where they are most needed. However, a concomitant problem will be how much territory these people will occupy. Competition for viable habitats between humans, their livestock and wild fauna can only increase with all odds favoring the former. Human intervention to offset declines in populations of wild flora and fauna has in some cases been remarkably successful. This month's letter will consider some successes and failures in our attempts to preserve species from extinction in a human-dominated world.

The struggle of small populations to survive has been well-documented. Below an often undetermined critical mass, a species is evidently doomed. Thus the north Atlantic population of grey whales vanished in the XIX century, and we may be witnessing the demise of north Atlantic right whales, now down to 300 odd individuals, which despite considerable human effort still show no trend towards increasing its numbers. Only last week the USS Iwo Jima struck and killed a pregnant female off the Virginia coast while she was migrating to southern Georgia to calf. Ship strikes are the major cause of mortality for this slow-swimming whale.

December reports have chronicled the recent extinction of two bird species. The disappearance of the Po'o-uli, a rare Hawaiian honeycreeper, was not unexpected. It was only discovered in 1973 and is the fourteenth specie of honeycreeper to have died there. This small brown bird lived in Maui's cloud forest and, when first found, its population was estimated to be only about 200 birds. By 1997 the population was down to three, none of which seemed inclined to breed. A desperate attempt to catch all three and to start a captive breeding colony failed when only one bird was caught; the other two, believed to be a pair, eluded capture and have not been seen for over a year. With the death of the captive bird, the species is now believed extinct. Sadly, seven more species of Hawaiian honeycreepers are "officially endangered" and it will be a battle to save them from such assaults as avian malaria or, in the case of the Hawaiian crow, (now down to a few dozen captive birds) from West Nile fever to which the corvid (crow) family is particularly susceptible.

Peter Grant, a former Yale colleague who is now a professor at Princeton, reported recently on the apparent extinction of the Galapagos warbler finch, one of the genus that Darwin studied during his brief trip to those islands. Grant, whose research on Darwin finch evolution was beautifully described in Jonathan Weiner's *The Beak of the Finch*, searched for the finch in five separate visits starting in 1979 to Isla Floreana, where it had been most abundant. He and his colleagues failed to turn up a single bird and the odds are strong that it has died out.

The two species discussed above perhaps qualify for a birder's epithet – "little brown job." Only a few scientists or birders have ever seen either bird, and their unglamorous appearance may have contributed to their demise. Being visible and glamorous helps survival, i.e., consider the species that have been saved. The Whooper and the Trumpeter (crane and swan) are both spectacularly large, white, noisy birds. In the 1930's, the Trumpeter was down to 47 birds in the lower forty-eight and the Whooping crane to only a few more. With adequate protection, Trumpeters are now relatively abundant in the west and are candidates for restocking in their former eastern range. Whooping cranes, too, have thrived, thanks to a lengthy and expensive effort by the U.S. Fish and Wildlife Service and their Canadian counterparts.

A seemingly successful effort to restore populations of the California condor, the largest flying bird on our continent, is also underway. Twenty years ago there were only 22 birds. Now there are over a hundred free-flying captive-bred birds, with another 125 or so still in breeding facilities. Just how wild these birds are is debatable, because to assist survival they are monitored with attached Global Positioning System transceivers that continually record their locations. Furthermore, so many released condors have succumbed to lead poisoning from scavenging on unrecovered game carcasses that they are now furnished with "clean" calf carcasses to eat. To date, three young have hatched and fledged, all progeny of zoo-raised birds. Their reintroduction has thus reached a critical phase to sustain itself and there is reason to be optimistic.

The reintroduction of peregrine falcons to the eastern U.S. after the extirpation of the local resident subspecies in the 1960's is a remarkable accomplishment. The birds now nesting in the east are an artificially developed subspecies—different from the original population—but only taxonomic "splitters" worry about subspecific variations. The success of this reintroduction occurred recently when the eastern peregrine was declared to be no longer endangered. First efforts twenty-five years ago cost about \$1,000 per bird to reach hacking stage. Since then, controlled breeding techniques have become more efficient and outfits like The Peregrine Fund have expanded to breed other endangered raptors such as the Harpy eagle, Philippine eagle and the Aplomado falcon. The latter is now being successfully introduced near Valentine, Texas, halfway between Marfa and Van Horn, and where I grew irrigated cotton in the early 1950's. Human population then was about one to the square mile; I doubt it is much denser today.

Although the National Zoo has not been involved in raptor reproduction for release, it operates an active breeding program at its Front Royal, VA facility to breed the Guam rail and the Marianas' kingfisher, two ground-nesting birds that were extirpated on Guam by the accidentally introduced brown tree snake. The last wild kingfisher was seen in 1986 and only 65 individuals of this species now remain, distributed in about a dozen U.S. zoos. There was great excitement at the National Zoo early last fall when a single bird hatched after artificial incubation. It has been a long, slow process and will take decades to build up a population sufficiently high to attempt reintroduction on suitable snake-free islands. Meanwhile, scientists are attempting to develop effective snake control techniques to make it safe to release the zoo-bred stock.

For the past twenty years the Zoo has successfully raised black-footed ferrets for release in prairie dog colonies. Perhaps even more noteworthy has been the Zoo's golden lion tamarin project to breed this small primate until there were enough to reintroduce into Brazil's Atlantic coastal forest. Beginning in the 1980's, the forest population has increased from a few score to over a thousand, forty percent of which are descended from zoo-bred animals. The principal problem now is not to raise more tamarins but to find suitable privately owned forest land on which to release them. The effort is being helped by the "Tom Sawyer painting the fence" technique—well-known to readers of Mark Twain. In the past few decades, having a colony of these beautiful tamarins in your forest has become a status symbol.

Successful reintroduction programs take considerable time and money. Not only do scientists have to learn the crucial behavior, diet, hormone cycling and other elements necessary for reproduction, but even more important, the precise limits to adding a new population to an area already occupied, even at a low level with conspecifics. The presence of local fauna with unnaturally large territories caused by population reduction (by hunting, for example) may cause enough stress in the introduced individuals to prevent the proper cycling of hormones necessary for reproduction. Furthermore, even the scattered remnants of a declining population may harbor pathogens to which they have become immune, but the naïve introduced conspecifics have not.

The more you consider the problem of floral and faunal extinction today, the more evident it becomes that the reasons are global. For example, in a recent paper Brashares, J.S. *et al.* (*Science* 306:1180-1183 (2004) showed how bushmeat consumption in Ghana was directly related to fresh and marine fish supply. When fish were plentiful, bushmeat hunting and marketing declined. Marine fish landings in Ghana have steadily dropped since 1975, primarily due to the rapid increase in the heavily subsidized European commercial fishery fleets where catches increased by a factor of 20 from 1950 to 2001.

Such a rapid rise in the fish harvest was triggered by the increasing demand for protein from the growing population of the EU. We in the U.S. have avoided net population decline by large-scale immigration—mostly from Latin America. In the EU,

especially Spain, France and Italy, a concomitant immigration is flowing from North Africa. The once productive fisheries of the North Sea, the Bay of Biscay and the entire Mediterranean have been fished out, forcing the prosperous EU nations to roam the globe for alternate protein sources. Thus, subsidized EU commercial fisheries have a direct effect on wildlife populations in West Africa, where bushmeat is an alternative protein source. What can the West African countries do? They can try to improve production of local fisheries by limiting access of foreign fishery fleets. A long-term solution would be international agreements between local nations to manage and stabilize catches. Ruthless pirate fishing vessels are rampant in these waters and they commonly dump from 75% to 90% of what they harvest as by-catch.

The fisheries' connection to wildlife conservation is but one example of the interconnectedness of global activities. We are not immune to narrow thinking as shown by this administration's proposal on December 2, 2004 to abolish restrictions on commercial development in the northwest that had been set aside to promote salmon run recovery. Although many of us opt for short-term benefits to support our opulent lifestyles, we also retain our bias towards saving big and noisy or small and cuddly animals from extinction—whatever the cost. My plea, therefore, is for us all to try to concentrate on the "big picture" and be aware of the crucial, but often still unknown, importance of all creatures on this planet that we jointly occupy.

David Challinor
Phone: 202-673-4705
Fax: 202-673-4686
E-mail: ChallinorD@aol.com