



## BIRDING FOR FUN

Paul R. Ehrlich

### People vs. Birds

*“As the human population has sky-rocketed, bird populations have declined. It’s an ancient process... Today, the process is accelerating.”*

**W**Henever you’re watching birds, keep in mind that you are a member of a species that poses a colossal threat to the global avifauna. As the human population has sky-rocketed, bird populations have declined.

It’s an ancient process. Human beings colonizing New Zealand quickly put an end to the moas. The Hawaiian Islands are littered with the fossil remains of bird species exterminated by Polynesians, who chopped down the forests the birds inhabited and killed them for food and for feathers to make ceremonial cloaks, capes, and helmets. The Carolina Parakeet and the Passenger Pigeon were wiped out by hunting in North America. And the Little Bustard and Andalusian Hemipode disappeared from Sicily in the first half of the 20th century as their steppe habitat was destroyed to make way for cereal crops.

Today, the process is accelerating. When I was born in 1932, there were 2 billion people on the planet. When *The Population Bomb* was written in 1968, there were 3.5 billion. Now there are 5.3 billion, and each year the population equivalent of Great Britain, Iceland, Belgium, Denmark, Norway, Sweden, and Finland is added to the planet — 95 million more people annually.

As the human population grows, natural habitat disappears, and the toxic influences of human society spread over the entire planet. As more and more people have crowded into the eastern United States, continuous

tracts of forests have been broken up by clearing for farms, homes, shopping centers, freeways, golf courses, and all the other features of “development.” This fragmentation of eastern forests has led to a sharp decline in species of songbirds — many of them species that winter in tropical America — that are dependent on unbroken

tracts of woodland.

The culprits causing the decline are easily observed if you bird in the East. Unless a major expedition is undertaken, most birding is necessarily suburban. And among the birds easiest to see in the suburbs are Blue Jays and Brown-headed Cowbirds, both deadly enemies of the nests of warblers,



Darryl Wheye

vireos, flycatchers, and of other small songbirds. Other enemies in the easy-to-see category are cats, racoons, and small boys, which like the jays and cowbirds are "edge animals," adapted to making a living along woodland margins. They thrive in the suburbs. In the fragments of forest that now typify the east, most or all nesting sites in the woods are close to "edges" and thus exposed to high levels of predation.

Of course, it is not only destruction of forests in the United States that threatens these birds, but also the disappearance of habitat in Central America and northern South America. Many of our most beautiful passerines are not "ours," but rather denizens of the tropics that move north for a few months to breed. These migrants take advantage of the flush of insects in our spring and summer, and then return home for the remainder of the year. And evidence from local censuses in North America and radar records of trans-Caribbean migrations suggests that populations of most forest-dwelling migrants may have been reduced by roughly half in the past few decades.

"Home" for these birds is an area where human populations are booming. The number of people living in Central America is projected to increase from about 120 million today to almost 200 million in 2020. That of tropical South America could shoot from 245 million to 400 million in the same period. In his fine new book, *Where Have All the Birds Gone?* (Princeton, 1989), John Terborgh points out the close correlation between the density of human populations in Latin America and the destruction of forest habitat critical to wintering migrants. The vegetation of Haiti, with the second highest human population density in the Americas (600 per square mile), has been "reduced to bedrock." El Salvador, the most densely populated nation (650 per square mile) "has no natural vegetation left either, though the hilly interior...has regrown to scrub."

Assuming that areas of natural environment of any significant size are unlikely to persist in Latin American nations after population densities pass about 250 per square mile, Terborgh considers the Dominican Republic, Jamaica, and Trinidad and Tobago already over the edge, and Cuba,

Guatemala, Honduras, and Costa Rica moving rapidly towards ecological destruction. With the exception of Trinidad and Tobago, all of those countries are crucial for maintaining populations of birds that enliven North America in the breeding season. Where the needs of people for food, fuel, shelter, and cash come into conflict with the needs of birds for a place to live, the birds inevitably lose out. Even in comparatively enlightened Costa Rica, whose government has been much more concerned with the preservation of biological diversity than has ours in the United States, the protection of remnant tropical forests will prove increasingly difficult in the

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face of human population pressures. Although it has made great progress in reducing its birthrate, Costa Rica's population is still growing at a rate which, if continued, will double it in 28 years.

Expanding human populations require expanding food supplies. The way agricultural systems are now run, that means an expanding misuse of pesticides. The impact of that misuse on bird populations in the United States was so dramatically presented in Rachel Carson's *Silent Spring* that many people date the modern environmental movement from its publication. Peregrine Falcons, for example, were wiped out east of the Mississippi because of eggshell thinning traced to the use of DDT. Ospreys, Bald Eagles, and Brown Pelicans were among other species that suffered severely from pesticide poisoning.

In the quarter-century since *Silent Spring*, DDT has been banned in the

United States, although it is increasingly present in the environment because it occurs as a contaminant in the widely used pesticide Kelthane. Worse yet, large quantities of many pesticides banned in the United States are still used in tropical countries and thus pose a threat to migrants on their wintering grounds. Peregrines, for example, have been reestablished over much of their range in North America thanks largely to the efforts of Tom Cade and his associates. But some of our Peregrine populations are still in trouble from chlorinated hydrocarbon residues, apparently picked up south of the border.

Aside from direct habitat destruction, and the purposeful spreading of toxins such as DDT, the greatest threat to birds from human population growth comes from the inadvertent release of gases such as nitrogen and sulfur oxides, chlorofluorocarbons (CFCs), carbon dioxide (CO<sub>2</sub>), and methane. These gases are mainly responsible for acid precipitation, depletion of the ozone layer, and global climate change.

Acid precipitation appears to be implicated in the declines of Common Loons and Black Ducks in some areas of North America. Acidification of lakes devastates the fish populations these birds depend upon to feed their young. In Britain, breeding Dippers are absent from acidified sections of streams; the insect larvae they dine on are gone as well. Even more frightening, various breeding birds from titmice to woodpeckers are showing egg-shell thinning attributed to acid rain in the Netherlands. Apparently, acidification impairs calcium uptake by trees, leads to calcium-deficient insect prey, and thus has an impact on egg shells reminiscent of that of chlorinated hydrocarbons.

It is too soon to know what the impact of the thinning of Earth's ozone shield by CFCs is likely to be. Life was confined to the sea until several hundred million years ago. By then marine photosynthesizers had placed enough oxygen in the atmosphere to form the shield, and organisms that lived on land could evolve. As the ozone layer thins, the amount of deadly UVB radiation reaching the surface will increase. That radiation will affect birds indirectly through its impacts on plants, insects, and mammals, all of

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which will suffer. The birds themselves may have their immune systems impaired and thus become more susceptible to disease: they also may develop cataracts.

The greatest potential danger from the gaseous effluents of humanity is posed by those (CO<sub>2</sub>, methane, nitrous oxide, chlorofluorocarbons, among others) that enhance the greenhouse effect. One possible consequence, a rapid rise in sea level may destroy complex coastal wetland ecosystems, depriving shorebirds and others of critical habitat. If the climate changes at an unprecedented pace, the results could be even worse. Much of the habitat birds now depend upon occurs in nature reserve "islands" surrounded by seas of human development. When the climatic conditions required by the vegetation in those islands begin to migrate, there will be no way for the vegetation to follow. Saplings, for example, usually will not be able to develop and survive in a cow pasture or parking lot. Rapid climate change

could lead to the extinction of a significant portion of Earth's avifauna.

All of these gaseous threats to birds are tied to the size of the human population. Even the CFCs, the easiest of the lot to control by changing technologies, would be only half the threat if the human population were only half as large (and everything else were equal). But the connections between emissions of CO<sub>2</sub>, methane, and nitrous oxide, and the size of the human population will not be easily broken — so here also human numbers are inevitably competing with the numbers of birds.

One might be tempted to say "What the hell, people are more important than birds, so why care?" But what threatens birds also threatens people. Rapid climate change will clobber our agricultural systems; ozone depletion will make us sick and also hurt food production; acid rain has already ruined fisheries and forests; coastal marshes essential to marine fish production could be wiped out by a rise in

sea level; overuse of toxic substances directly threatens human health, and so on. The birds are just serving as miner's canaries for us once again, telling us that too many people threaten not just them but ourselves. Population is just one component of the environmental crisis, but it is a basic one.

So when birders you meet comment that it is harder and harder to find certain warblers in their local woodlot, remind them that part of the reason is that it's easier to find small boys. Write a letter to your congressman or George Bush and ask why the United States lags behind most of the rest of the world in dealing with population problems. You'll be helping both the birds and your kids. ■

—Professor of Biology, Stanford University; coauthor of the Birder's Handbook. Ehrlich's latest book, written with his wife Anne is *The Population Explosion* (Simon and Schuster, 1990)

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