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FISH AND WILDLIFE SERVICE

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TEN YEARS LATER: BIRD POPULATIONS RISE AS DDT DECLINES IN THE ENVIRONMENT

Ten years after the official ban on the use of DDT, the news from the wild is good: bald eagles, brown pelicans, and other bird species once decimated by the pesticide are repopulating former habitats as chemical residues fade.

The pesticide was banned in 1972 in the face of scientific evidence that it was causing serious environmental problems, including reproductive failure in susceptible bird species. For the past decade, human efforts have combined with natural forces to restore species that experienced sudden, sharp declines in the 1950's and 1960's. While specialists have teamed up to put intensive recovery programs into action, U.S. Fish and Wildlife Service researchers have completed studies that have proven DDE, a breakdown product of DDT, to be specifically responsible for eggshell thinning--the main reason some birds could no longer reproduce. Service scientists also learned which species were sensitive to the pesticide, as well as which ones suffered the heaviest exposures.

Scientists at the Service's Patuxent Wildlife Research Center near Washington, D.C. began to study the impact of DDT on wildlife shortly after World War II. In their investigations, Service scientists compared field observation with specialized laboratory research on surrogate species. They verified that sensitive species most seriously affected by DDT build-ups were those which preyed on fish and other small animals that had been exposed to DDT. Scientists learned that the higher a species and its food source were on the "food chain," the more severe the impact.

The bald eagle was highly vulnerable since it fed heavily on fish in which DDT residues had accumulated. By the late 1960's breeding populations had been practically lost in the Great Lakes region and on the East Coast, with just one known breeding pair each in New Jersey and New York State. Recently, however, bald eagles have returned to nest in formerly contaminated wetlands. Florida's population, which dropped 90 percent in the 1950's, has made a complete comeback, and the eagle's return to such regions as the Great Lakes may signal a turning point for America's national symbol.

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The peregrine falcon--an efficient hunter which can strike its prey at 200 mph in mid-air--occupies a position in the food chain similiar to that of the bald eagle and suffered a similar decline. By the late 1960's there were no peregrines known to nest east of the Mississippi River where several hundred pairs had existed formerly. Since there were no birds left to repopulate former habitats, the falcon's recovery has been aided in the last decade by re-introduction of captive-reared birds to promising areas, including cities where prey such as starlings and pigeons abounds.

While bald eagles and peregrine falcons were contaminated by DDT through high concentrations in their diets, research has shown that they are less than half as sensitive to the pesticide as the endangered brown pelican. Most pelican populations on the Atlantic and Gulf coasts were hard hit in the 1960's. In South Carolina, for instance, there were about 6,000 breeding pairs before DDT washed into Atlantic estuaries. In 1969--a low point for pelicans and other contaminated species--only 1,100 to 1,200 pairs were left and reproduction was nil. Now the pelicans number some 5,000 pairs, their rapid comeback mostly due to their principal food source, the menhaden fish, not having retained much DDT residue. Service scientists say that while pelican populations are not yet completely restored, their reproductive rate in most of the U.S. has returned to near normal.

The osprey (fish hawk) also staged a rapid comeback after being nearly eradicated in parts of the East. From New York to Boston the osprey population fell from 1,000 to 100 breeding pairs in the 1960's. But the species has been on the rise since the mid-1970's, with normal reproduction. Biologists hope ospreys will reach their pre-DDT population level by the end of the century.

Scientists have not completely answered why species with similar habitats vary in their sensitivity to DDT. The black duck, for instance, is more sensitive to DDT than the mallard. Terns and skimmers that shared coastal habitats and fish diets with pelicans apparently were not affected by the pesticide. Herring gulls consumed heavy amounts with little adverse reaction.

Although DDT has been banned in the U.S. for a decade and residues in most areas are slowly fading, some bird populations are still affected. In Los Angeles, for instance, high residues in sediments that are taking years to break down continue to contaminate pelicans. Also, some Western migratory bird populations, including peregrine falcons and black-crowned night herons, are absorbing DDT in Latin American countries where the pesticide is still used.

The Service's research with DDT and other chemicals has demonstrated that different species react very differently to each compound and industrial chemical. For example, evidence thus far indicates that polychlorinated biphenyls (PCB's) have little if any effect on reproduction in some wild birds at levels normally found in today's environment. In contrast, some mammals are sensitive to minute amounts of PCB's in their habitats.

"The Service's evaluation of pesticides is continuing as new compounds are placed on the market," says Robert A. Jantzen, the Interior agency's director. "While the public understandably has questioned the impact of such compounds on the environment, we realize that pesticides have valid uses. With proper research and development and under the proper conditions, many pesticides can be used safely."

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