WHAT FUTURE FOR THE OSPREY?

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Birders and conservationists have been greatly concerned in recent years over the fate of the Osprey (Pandion haliaetus). The populations of this elegant, crook-winged raptor have declined drastically since the late 1940's. Over the years there has been a high rate of reproductive failure which has been linked to contamination by the insecticide DDT and more recently to compounds known as PCB's (polychlorinated biphenyls), found in such familiar objects as styrofoam coffee cups and plastic bags. Other factors may have contributed to the decline also, a leading contender being depletion of the fish populations on which the Osprey is solely dependent for food.

Both PCB's and DDT are persistent chemicals -- they do not break down easily. Insecticides in the same group as DDT remain undecomposed in the environment from two to 20 years. DDT has a great affinity for the fatty tissue in animals. Ospreys, as all species at the top of food chains, are particularly susceptible to a build-up of DDT in their system. The poison is transferred from prey to predator all the way up the line until it finally reaches the Osprey, having "snow-balled" into greater and greater concentrations. DDT has been found to cause reproductive failure in birds, such as the formation of thin-shelled eggs which are too fragile to survive. It is thought that DDT disrupts the balance of enzymes and the hormone estrogen which controls the transfer of calcium from bone to eggshells.

Although DDT is no longer in widespread use, because of a ban by the Environmental Protection Agency, the persistent nature of the substance means that insecticides will continue to be potentially damaging for many years to come. In order to offset this threat, many schemes have been devised for increasing the Osprey's breeding success. Providing poles and structures for nesting sites, to lure the birds into relatively unpolluted areas where the birds enjoy a higher success rate, has been tried in Maryland with good success. (A project of this sort was attempted on a small scale in the late 1960's in the clean environment of Quabbin Reservoir in central Massachusetts, but unfortunately the "osprey-poles" on the Dana meadows lured no occupants.)

Other plans have included removing the first clutch of eggs from a pair living in a relatively clean environment, such as the Chesapeake Bay area, and placing them in an incubator. The eggs would then be brought to the nest of a barren pair of Ospreys to rear, either as pipping eggs or as fledglings. Meanwhile, the original producer of the clutch would lay another set of eggs and care for them, thus doubling the potential reproductive success. If this plan were successful, it could prove valuable in replenishing the ravaged New England Osprey colonies.

Massachusetts Ospreys declined by about 80 percent during the 60's, paralleling the decline in all the northeastern coastal states, from Maine to New Jersey. Our state has only one significant colony of Ospreys left, on the Westport River near Narragansett Bay. This colony once numbered as many as 120 pairs. By the 1950's it had declined to 60 pairs, and by 1973 to 14 pairs, about a 90 percent decrease. In spite of this low population level (a record low which was also reached in 1963 and 1964), breeding success in 1973 was surprisingly high. The 14 pairs fledged a total of 27 young for an average of 1.9 young per nest. In 1972, the 15 pairs produced only 11 fledglings, an average of only 0.7 young per nest. The 1973 level is well above the 1.2 fledglings per nest which biologists at the U.S. Migratory Bird Population Station[1] have determined is the minimum output required to keep the population stable.

Actually, there are Ospreys in our state with an even better track record. On Martha's Vineyard two pairs have produced six, seven and six young[2] in the last three years, respectively, for an average of three or more young per nest.

This kind of performance is one of the most encouraging signs anywhere in the country that the Osprey may "make it." One year's success does not make a trend, but it gives new hope for this year's breeding season.

Footnotes

1. see: Zimmerman, David R. "Man and Osprey: Strategies for Survival" National Parks and Conservation Magazine. Vol. 47, #1, January, 1973.

2. Massachusetts data courtesy of Massachusetts Audubon Society.