

WILDLIFE

THE ENVIRONMENTAL BAROMETER

Can we save our threatened planet? By saving wildlife we may save ourselves says this article taken from an attractive brochure published by the Wildlife Management Institute. Copies of the brochure may be obtained in quantity upon request to the Institute, 709 Wire Building, Washington, D.C. 20005.

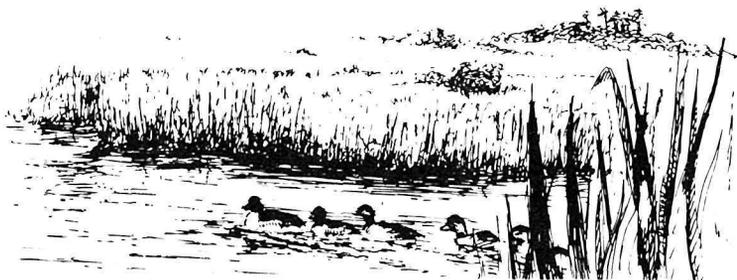
Fish and wildlife are highly sensitive to environmental change. Alter stream temperature or flow, drain wetlands, channel natural water-courses, clear forests or make other changes that limit their food, water, or shelter and fish and wildlife are immediately affected.

Habitat governs wild populations

The composition and condition of fish and wildlife populations serve as a barometer of the quality of the environment for man, because he too must have clean water, fertile fields, and healthy forests. Consequently, proper use of our nation's land and water resources is in the interest of man and of the fish and wildlife he enjoys.

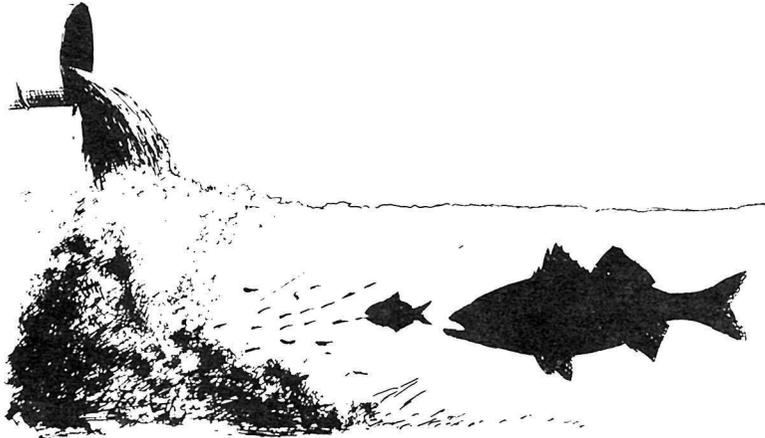
Nearly every wild fish, bird or mammal has a comparatively narrow range of environmental elements that determines its survival. These may be divided broadly into food, water, and cover. But, every species' need for each of these essentials differs to some degree from those of others.

Some desert animals, like the kangaroo rat, require little or no obvious water supplies; they have become adapted through evolution to obtain their moisture requirements directly from plants. At the other extreme, waterfowl and aquatic mammals, like the muskrat and beaver, need an abundance of water—not only for drinking but as part of their cover requirements and to promote the growth of their essential foods. Some species, like the pronghorn antelope, must have open grassland; others, like the deer, thrive in mixtures of brushland and young forest.



Climate, topography, and geology in a given area are basic influences on the composition of the plant community, and the nature and abundance of the local plants, in turn, govern the kinds of wild animals that the area can support.

Man-made changes in the environment need not be destructive of wildlife in general, although they may alter radically the composition of the wildlife population. Felling an isolated woodlot and replacing it with corn, for example, will eliminate gray squirrels but may improve conditions for pheasants. Flooding the entire cornfield would drive out pheasants but create useful habitat for ducks and muskrats. Altering or maintaining the environment to favor the needs of certain wild species, in fact, is a basic technique of wildlife management.



Man—a major environmental factor

Some environmental changes, however, may be extremely damaging to all wildlife. Excessive pollution, repeated uncontrolled forest fires, and farming and forestry practices that destroy soil fertility and the diversity of the plant community can create wildlife deserts.

When the balance between wildlife and its habitat is recognized, it is possible to understand why some species that never were hunted extensively became extinct while others that have been hunted intensively are among our most abundant species. The white-tailed deer, for example, is many times more abundant today than it was in 1900, and in most places more numerous than in 1600. Few of the birds and mammals listed as rare and endangered by the U.S. Bureau of Sport Fisheries and Wildlife ever were hunted. Most are victims of pollution, landfilling and clearing and other massive man-made environmental changes that have destroyed one or more essential elements in their habitat.

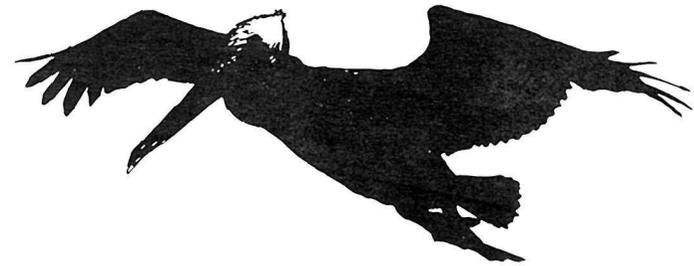
The transformation of America from wilderness to an urban-dominated landscape has brought great changes in the composition of the native wildlife. Species like the woodland caribou and ivory-billed woodpecker, which require habitats supplied only by wilderness, inevitably declined. But their places usually were taken by other species better adapted to an environment shaped by man, but, like the starling, not always as well liked by man.

When desirable wildlife begins to disappear from a given area, in spite of legal protection, it is an indication that something is wrong with the environment. And the effects on human beings may extend far beyond the loss of esthetic and recreational values.

The basic needs of wildlife are essentially the same as those of man. Most species of wildlife are products of a clean, fertile, and productive environment. They must have adequate food, clean water and protection from the elements if they are to survive. So must man.

Wildlife needs variety in its habitat in order to exist. So, too, does man, but perhaps on a larger scale.

Even the most urban-oriented citizen, who rarely ventures from the asphalt and concrete of modern Metropolis, needs a constant supply of uncontaminated water, meat from ranches and rangelands, produce from farms, fish from seas and estuaries, and paper pulp from forests. Although he may not think of them in such terms, these far-flung natural and cultivated areas are essential parts of the habitat of modern man.



The lands and waters that produce these commodities also harbor the bulk of our wildlife, and their capacity to support fish, birds and mammals is a good indicator of their capacity for meeting the basic needs of man.

Wild lands have human values

Most modern Americans are only beginning to recognize their close bonds with the natural world. A sign of this is found in changing attitudes toward swamps, marshes, and tidal estuaries. Until recently, these wetlands, cherished only by sportsmen and naturalists, generally were considered worthless until drained or filled. Unfortunately too many people still consider that their highest economic use is to serve as dumping grounds for the solid and liquid wastes of cities and industries.

The effects of this negative attitude have been apparent to sportsmen and wildlife scientists for many years. Marshes that once teemed with songbirds, shorebirds, waterfowl and a variety of mammals, their waters clouded by noxious bacteria and algae, now support little but starlings and rats. Many wetlands have disappeared completely under the avalanche of human expansion.

So what?

Are not housing and factory sites, airports and highways, and even convenient dumps more valuable to people than a few ducks, herons, muskrats, and songbirds? Perhaps to a few, but today's outcries of concern make clear that people are seeking effective ways to halt the accelerating destruction of their environment.

Unspoiled tidal marshes rank in economic productivity above the best prairie croplands. Marsh-rimmed estuaries are vital to the more important commercial marine fishes and to crabs, shrimps, and shellfish. Continued destruction of tidal wetlands threatens a major source of human food and the livelihoods of many people. A study of tidal bays and estuaries in Massachusetts revealed the presence of 84 species of fish at some stage in their life cycles.

Inland ponds, potholes, and marshes—vital breeding grounds for waterfowl and natural refuges for many other forms of wildlife—also have important economic values. In many places they are essential functioning units of the natural recharging of underground water supplies—vital to local agriculture, industry and human existence.

Oil spills and their immediate effects of wildlife have stirred great public indignation in the past few years. But run-away oil slicks are only the more obvious signs of a far greater problem.

Much of the pollution that originates on the land finds its way to the seas—pesticides carried by the air or washed into rivers, chemical wastes from factories, detergents from laundries and kitchen sinks, untreated sewage, water-soluble solids dumped offshore, carbon dioxide from heating plants, and lead and carbon monoxide from motor vehicles and aircraft.



Pollution—a threat to wildlife and man

The effects of this constant and increasing contamination of the air and oceans are already apparent. Some wild species have declined dramatically. The brown pelican has all but disappeared as a breeding species on much of the Pacific Coast and around the Gulf of Mexico. There has been a sharp decline in the nesting success and numbers of bald eagles and ospreys in eastern United States. All of these birds feed heavily on fish, which absorb the persistent pesticides and store them in their tissues. DDT is considered a major culprit in the decline of these birds, as it is in the virtual extinction of the peregrine falcon in eastern North America.

A chilling threat—not only to wildlife but to all life is seen by some scientists today in the cumulative effects of pollution on the oceans. Marine phytoplankton are the basic of food chains in the seas. Without these microscopic plants, all ocean life from the smallest shrimp to the largest whales would perish. Moreover, phytoplankton have approximately three times as much gross capacity for converting carbon dioxide to usable oxygen as all land plants combined. Their present abundance is essential, these scientists believe, to maintain the oxygen content of the atmosphere at a level that will support life.

But phytoplankton are extremely intolerant of acidity and trace elements, which are common in most pollutants, including pesticides. When carbon dioxide—a near universal by-product of human activity—is absorbed by sea water in quantities beyond those that marine plants can readily convert to oxygen, it creates an acid condition that kills the phytoplankton. Trace elements in other pollutants cause the death of more. If too many die, according to this sobering theory, the oxygen content of the atmosphere will fall, and Earth will become another dead planet.

The trend can be reversed

How far down the line the world has progressed toward this grim end, no one is sure. But the rising quantities of carbon dioxide in the atmosphere and the fact that DDT has been found in the tissues of Arctic polar bears, Antarctic penguins, and many wild species between the poles are warnings of a possible trend in that direction.

The trend can be reversed, if Americans and people of other nations have the will, intelligence, and prudence to act promptly and vigorously to cure the Earth's environmental ills. Wildlife that is threatened by air and water pollution and by the destruction of essential vegetation, soil erosion, and a general degradation of the environment can be saved.



By saving wildlife man may save himself.