



Finding Solutions to Habitat Loss

International Migratory Bird Day (IMBD), held annually on the second Saturday in May, is an invitation to celebrate and support migratory bird conservation.

Habitat is defined as an area that provides the food, water, cover and space that a living thing needs to survive and reproduce. The quality and quantity of a particular type of habitat determines the number and variety of its inhabitants. Unfortunately, in altering or creating habitat for human uses, people often cause the loss or damage of habitat needed by birds and other wildlife. This loss and degradation of habitat has resulted in widespread declines and extinctions of many species.

It is not possible for people to live and prosper without affecting their surroundings. However, people do have the ability to consider the needs of other species and can choose to modify their activities to decrease the negative effects they have on wildlife habitat.

The Extent of Habitat Alteration

People have had a tremendous impact on habitats worldwide. Approximately half the Earth's land area has been transformed for human use: 11 percent each for farming and forestry, 26 percent for livestock pasture, and two to three percent for development (housing, industry, services, transportation).

Forest cover has been reduced worldwide. The tropical forests in the Caribbean, Central and South America decreased by 670,000 km² from 1980 to 1995, the greatest loss in the world during this time period. North America is experiencing forest regrowth after widespread clearing, yet forest quality is declining.

The losses of natural grassland are extreme. Since 1830, the provinces of Canada and the states of the U.S. have lost 20 percent to 86 percent of their short-grass prairies, 31 percent to more than 99 percent of their mixed-grass prairies, and 83 percent to more than 99 percent of their tall grass prairies. Much of the grasslands in South America, such

as the steppes of Argentina, have been degraded by overgrazing.

Two-thirds of the world's rivers have been altered and regulated. More than 50 percent of all wetlands in the contiguous U.S., and many of the wetlands in Canada, have been drained or filled since the time of European settlement. Despite restoration projects, loss of wetlands in North America has slowed but not stopped. The rate of wetland loss in Latin America remains high.

Human-caused pollution is present in all oceans of the world, with three quarters of the pollution due to terrestrial run-off. The Gulf of Mexico, one of North America's most productive marine areas, is heavily affected by coastal development. It contains a 4,144 km² "dead-zone" (area of little or no oxygen) caused by excess fertilizer and other pollutants.

Effects of Agriculture

Agriculture sustains our populations and underpins our societies. In North America, 27 percent of the land is devoted to agriculture (crops and permanent pasture). The agricultural potential of the Caribbean, Central and South America is 29 percent of the land area.

Transformation of land for farming requires deforestation, conversion of grasslands, and drainage of wetlands. For example, drainage for agriculture was responsible for 85 percent of wetland losses in Canada. Expansion of agriculture is one of the main causes of deforestation in Central and South America.

The value of agricultural lands decreases when they are poorly managed. It is estimated that 950,000 km² of land in the United States and Canada suffer from soil erosion, loss of nutrients, or other

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January 2002

degradation. In Central America, 74 percent of croplands and 11 percent of pastures are considered degraded. Overgrazing by livestock is responsible for much of the damage.

Modern agriculture is also associated with significant release of toxic materials. In the 1980s, Central America achieved a 32 percent increase in production, but used 200 percent more pesticides. The U.S. used more than 540,000 tons of pesticides in 1995.

The effects of agriculture on the natural environment can be tempered by adopting more sustainable management practices. These include crop and pasture rotation, terracing and tillage reduction, easement programs that take marginal areas out of production, and natural pest controls, among others.

Lands used for farming can support many forms of wildlife, though not usually the diversity found in unaltered landscapes. However, wildlife habitat is more likely to be found on agricultural lands than in areas of high human density.

Habitat for some species may actually be gained or improved by farming. In eastern North America, for example, cutting of forests for pasture land benefitted a number of species adapted to grassland habitat. Also, flooded fields bared by tilling may provide attractive foraging areas for shorebirds.



Effects of Logging

Natural forests are now recognized as dynamic places, subject to natural changes that affect the quantity and quality of available habitat. However, logging has resulted in disturbance on a scale unlike any caused by natural forces. At some time in the last 500 years, 95 percent of all U.S. forests were cut, leaving few old-growth timber stands. Over the last century, much of the North American forests have regrown or been replanted, increasing to 4.6 million km² in Canada and U.S. (13 percent of the world's forest area).

Tropical forests continue to be lost, increasingly due to direct exploitation (timber harvest). Harvest is usually unsustainable, given that government oversight and incentives, trained foresters, and local land ownership are lacking or absent. In tropical forests

worldwide, less than 1 percent of logging in the 1990s was carried out in a way that permitted ecological recovery.

A number of programs and techniques exist to mitigate the effects of logging, especially in North America, where 57 percent of forests are considered commercially productive. The need for forest conservation is high on the political agendas of many Latin American countries, and incentives associated with international certification programs have increased the use of sustainable practices.

A continuing controversy is the logging of remaining old-growth areas, critical habitat to some wildlife species. The regrown forests, especially the managed plantations, often provide habitat of lesser quality, e.g., fragmented, of lower complexity, or containing exotic types of trees. Like agricultural lands, however, harvested forests do provide more habitat than areas of high-human density.



Effects of Development

People need places to live and work, yet our patterns of settlement can have varied effects on wildlife habitat. Of all land uses, development is considered the most lasting form of habitat loss, since the presence of pavement and buildings hinders a return to natural conditions.

Currently, three-fourths of the North American human population lives in urban areas, but the trend towards urbanization has slowed significantly. Most people in Latin America also live in urban areas, often large cities, but urbanization levels are expected to rise to 85 percent in the next few decades.

In general, the congregation of people in cities probably preserves more habitat than if the equivalent population was spread evenly across the land. However, unplanned urban growth can create slums of extremely poor environmental quality. Cities also have a large "footprint," drawing resources from the surrounding areas, and the increased activity in cities results in increased production of pollution.

Piecemeal development can result in problems of habitat fragmentation. The

remaining patches of habitat not only support less wildlife, but they result in isolated populations. This isolation makes populations vulnerable to a lack of genetic diversity, as individuals are less likely to move from patch to patch. Also, fragmentation results in an "edge" effect, in which predators, parasites, and adverse weather conditions are more likely to penetrate a patch of habitat. One study showed that bird nests in suburban woodlots had a predation rate of 70 percent compared to 48 percent in rural woodlots. Effects of fragmentation can be reduced by land use planning that maximizes patch size and includes corridors from patch to patch.



Achieving a Balance

People have chosen to dedicate some areas to wildlife habitat. The World Conservation Union, an international consortium of government agencies and conservation organizations, recommends that 12 percent of the world's land area be set aside for wildlife. In the Caribbean and Central and South America, the amount of land under some form of conservation protection is increasing, with 1.3 million km² (6.6 percent of the land area) slated for strict protection. Although legal status does not always mean actual protection in this region, the designation of protected lands is a good start. In North America, 2.5 million km² of land, freshwater and marine areas (9 percent of the total continent) is set aside for wildlife habitat.

Protected areas are essential for maintaining many forms of wildlife. However, not all land can be protected from human activity. Thus, our challenge is to create managed landscapes and alter our activities to provide for the survival of the maximum number of species, including our own.



Figures taken from the United Nations Environment Programme's Global Environment Outlook 2000 and the American Association for the Advancement of Sciences' Atlas of Population and Environment (2000).