PRIVATE LAND PARTNERSHIPS
WORKING TOGETHER FOR WILDLIFE

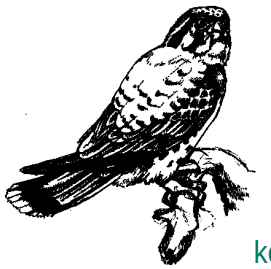
INTRODUCTION TO CROPLAND MANAGEMENT

About half of the earth's land surface has been converted to agriculture use. In some areas, including parts of Michigan, the figure is closer to 90 percent. The change of land to agriculture use began with the earliest of Euro-American settlers. After they realized the depth and richness of the prairie and savanna soils, these areas were cleared for agriculture, leaving only traces of the original plant community. Farming also occurred on cleared forest areas. Eventually some of these forest areas did begin to regenerate but were very different from earlier forests.

In 1850, the population within lower southern Michigan was mostly farmers. Farmland acres in Michigan peaked at 19 million in 1940. Since then, agricultural land has decreased to 10½ million acres. This decline is due to the increase in urban development and the loss of family farming. Nevertheless, Michigan is a key agricultural state, currently leading the nation in the production of tart cherries, blueberries, cucumbers, and dry navy, black, and cranberry beans.

Family farming for subsistence has given way to a modern mixed agriculture/industrial buisiness. As a result, opportunities for maintaining or creating wildlife habitat occur mostly on those former farmland acres taken out of production. In an effort to help keep farmers solvent by reducing crop production and raising crop prices, the U.S. Department of Agriculture has created various programs which pay landowners to set land aside--to keep it out of production. The current federal conservation programs attempt to reduce erosion by keeping soil in place, limiting the use of pesticides and fertilizers, maintaining ground and surface water quality, and recommending wildlife-friendly plantings.

About three percent of the state's agricultural land, or some 250,000 acres, is currently enrolled in the Conservation Reserve Program (CRP), which is administered by the United States Dept. of Agriculture, Farm Service Agency (FSA) through their county offices. Land typically eligible for enrollment includes croplands susceptible to erosion that fall within conservation priority areas. Cost share money is often available to establish shelterbelts, shallow wetlands, and filter strips of grass or trees.



kestrel

Information is available from USDA offices, Conservation District offices, and Michigan State University Extension offices.

Conventional Versus Conservation Tillage

Conventional crop production practices that include moldboard plowing affect wildlife in several ways. First, they reduce and isolate the amount of natural habitat so that all that remains in heavily farmed areas are scattered remnant patches, wet depressions, and linear strips in a sea of cropland. Second, few native plants and animals adapt to, or can tolerate, heavily managed croplands. Third, the practices leave little food or shelter for wildlife during the winter months. The greatest impact to wildlife is the practice of fall plowing, which is often used with conventional tillage.

Conservation tillage is a broad term referring to several tillage methods that maintain crop residue (stubble or other plants) on the field surface. These tillage methods reduce wind and water erosion, conserve soil moisture, and increase organic matter, which

red-winged blackbird

result in better soil structure. Studies have shown that conservation-tillage fields can have yields that equal or exceed conventional-tillage fields, and the practice cuts production costs considerably. The approach varies from "minimum tillage," where about 20 percent of the previous year's crop residue is left, to "no till", where at least 90 percent of the previous year's crop residue remains on the soil surface. Although not as productive for wildlife as unfarmed habitat in various stages of succession, conservation tillage is far superior than conventional tillage.

Conservation tillage causes less compaction of the soil, (compaction occurs when heavy equipment and implements cross the field over and over), which has a positive effect on the soil, allowing water to perculate into the soil instead of causing erosion and washing pesticides and fertilizers into the surface water. The soil's better permeability also favors soil invertebrates. Invertebrates account for 90 to 95 percent of all animal species, and play a critical role in soil health. Growers need insects, spiders, worms, snails, and nematodes because the invertebrates act as decomposers, pollinators, soil conditioners, food sources for higher organisms, and control agents for other organisms, which may be harmful.

Conservation tillage overall is better for wildlife than conventional tillage. Crop residues serve as mulch, safeguarding soil from wind and water erosion while conserving soil moisture. The crop residues furnish nutrients, shelter, and micro-climates that soil organisms need. Pheasants, grasshopper sparrows, and meadowlarks will nest in no-tilled fields where residue is sufficient. Migrating waterfowl, shorebirds, and songbirds such as snow buntings, Lapland longspurs, and common redpolls--along with pheasants, quail, and other winter residents--rely on waste corn, soybeans, other grains, and weed seeds for food. Vesper sparrows show a clear preference in spring and summer for foraging in fields with the most crop residue, probably because one of their favorite foods--spiders--live in the residues. Cover is also increased and song perches are elevated.

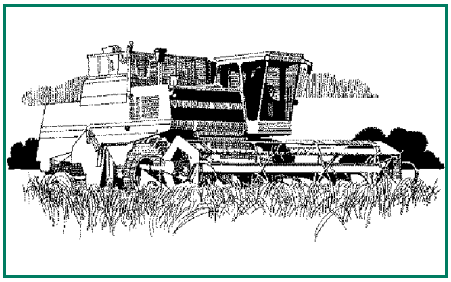
Large, open fields with no natural cover only attract a few bird species such as the brown-headed cowbird, horned lark, Vesper sparrow, and killdeer. Similarly, few mammals use these open fields, such as deer and white-footed mice, voles, and ground squirrels. Many more species--and as many as five times more birds--prefer the edge over the middle of such clear fields. Consequently, as field size increases, the proportion of field edge decreases and so does the average abundance of birds per field. Road-to-road farming operations that remove old fields, woody cover, and edge habitats can lead to a huge decline in the number and kinds of wildlife.

Other Conservation-minded Farming Practices

Most wildlife depend on a number of habitat types for food and cover. Greater wildlife abundance and diversity are possible through management of the entire ecosystem rather than management of an individual area or species. For the greatest impact, consider the total picture--how croplands, forests, and wetlands can provide good living conditions to a variety of wildlife. If some food and cover types are available on nearby areas, best results may be achieved by providing an element of the habitat that is missing. Management is also more effective when neighboring lands are involved. Greater varieties of food and cover will result in more abundant wildlife. Here are several practices to consider. In addition, the **Cropfields** chapter will have additional information.

Crop rotation is a time-honored farming practice that reduces plant diseases and increases soil nutrients and yields. When alfalfa, clover and other legumes are worked into the rotation, valuable nitrogen is produced, along with insects and nesting cover for wildlife.

Organic farming practices that rely on composting and manuring of fields may help improve the compatibility between



crop and animal production practices and wildlife conservation. Organic farmers usually use less conventional tillage, avoid manufactured fertilizers and pesticides, have greater crop diversification, rely on crop rotations, and cultivate smaller fields.

alfalfa

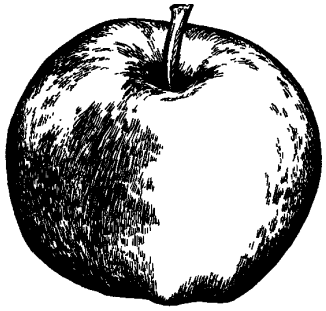
Field borders, shelterbelts, and fencerows between fields and around the perimeter of fields can help wildlife if the borders contain grasses, legumes, and fruit-bearing shrubs. The more diversity, the greater the attraction to more wildlife species. Wider is always better. At a minimum, borders should be at least 30 feet wide. Such linear borders are important for wildlife because they provide edge cover and travel lanes (corridors) between habitats. For more information see the chapter in this section on **Field Borders and Corridors.**

Hayfields will provide desirable plants used by livestock and preferred by wildlife. Lack of vigorous growth and an increasing amount of undesirable plant species that invade hayfields may be signs of low fertility, low pH, and a need for replanting. Burning, mowing, and grazing are three common practices to rejuvenate hayfields and retard natural succession. Burning and mowing should be done before April 15 or after July 15, so nesting wildlife will be spared. Separat-ing pastures into units and grazing them alternately will prevent over-use by livestock and allow wildlife to nest undisturbed in unused units. Grass areas next to ponds and other wetlands, where wildlife naturally congregate, should be fenced off to protect water quality and nesting wildlife. A minimum of 100 feet of perimeter protection is recommended.

Hayfields can be established with either native or introduced grasses and legumes. Lands that have been taken out of production are often planted with cool season grasses such as timothy or orchard grass, or legumes like ladino and sweet clover. Native, warm season grasses--switchgrass, big bluestem and Indiangrass--have their greatest growth in mid-summer and give landowners an option to continually mowing or grazing cool-season grasses and legumes. Planting a field of cool season and another with warm season grasses provides different heights and densities, which wildlife find attractive. Refer to the **Hayfield** chapter in this section for more information

fencerow

Other areas such as field corners, rocky and low-yield fields, eroded gullies, rights-of-way, and old orchards can be planted with a mixture of trees, shrubs, and grasses. Orchard fruit is a delicacy for many wildlife species. Ripe apples and pears attract grouse, quail, rabbits, raccoons, foxes, opossums, squirrels, skunks, and deer. Wherever fruit trees are found, along fencerows, next to farm buildings and homesteads, in old orchards, they become centers of activity for wildlife in fall and winter. It is important to leave some old trees, which will provide cavities for a variety of wildlife. A few rows of grain next to brushy areas increases their value during winter. The management of other areas will vary depending on what is currently there.



In summary, even though your goal may be financial, studies indicate that new crop management methods increase your overhead while helping wildlife. Indeed, cropland management can be both beneficial to the landowner and to wildlife. The following chapters in this section explain a variety of management options that do just that.

FOR ADDITIONAL CHAPTERS CONTACT:
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Lansing, MI 48909
517/371-1041

Private Land Partnerships: This partnership was formed between both private and public organizations in order to address private lands wildlife issues. Individuals share resources, information, and expertise. This landowner's guide has been a combined effort between these groups working towards one goal: Natural Resources Education. We hope this manual provides you with the knowledge and the motivation to make positive changes for our environment.

FOR ADDITIONAL ASSISTANCE: *CONTACT YOUR LOCAL CONSERVATION DISTRICT*