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Producing Wildlife by Good Farm Land Use  
Michigan State University Extension Service  
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Issued December 1940  
24 pages

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# PRODUCING WILDLIFE

by **GOOD FARM  
LAND USE**

*By R. G. Hill and C. W. Bradt*

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Cooperative Extension Work in Agriculture and Home  
Economics, Extension Service, Michigan State College  
and the U. S. Department of Agriculture Cooperating.



### ACKNOWLEDGMENTS

For the photographs used in this bulletin, the authors express appreciation to Dr. L. Walkinshaw (center, cover); Dr. D. L. Allen (top and bottom cover, bottom Fig. 8); Paul M. Barrett (Figs. 1 and 2, A-B); Farley F. Tubbs (Fig. 3 top); Russell Martin (Fig. 3 bottom); Soil Conservation Service (Fig. 7, 10 A-B); and the Michigan Department of Conservation (Fig. 3 center, 4, 11 center and bottom, 12, 13, 14).

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## PRODUCING WILDLIFE BY GOOD FARM LAND USE

R. G. HILL and G. W. BRADT\*

NO group of people enjoys contact with wild living things more than do farmers, and no other group is in such a favorable position to influence directly the lives of wild creatures.

The request for a wildlife improvement program to accompany and supplement a land-use program is evidence that farmers realize their importance and responsibility to wildlife. Many factors, such as food, cover, soil, nest destruction, disease, weather conditions, predation, hunting and crop harvesting methods, influence wildlife population. However, the foremost influence upon wildlife is the **land on which it lives**. Every farming activity influences in some way the wild animal life on that farm. The tendency in recent years toward clean farming, the use of marginal land for crop production, and the utilization of non-crop land for pasturing have helped to decrease many wildlife species. An increased demand on our wildlife by an increasing population has made this problem of sustained production even more difficult. Large gaping gullies, sand blow-outs, eroded hillsides, and abandoned farms are mute evidence that much of this land should not

have been used for tillable crops or for pasture. An effort is now being made by many land owners to divert such areas from cultivation to other productive uses.

Our wildlife resources have many values to the farm. Approximately one million dollars is obtained annually by the farmer and the farm boy from the sale of fur pelts. Nearly 100,000 farm men, women and children in Michigan annually engage in the recreation provided by hunting, and approximately 500,000 other persons are hunting guests on the farm. Millions of dollars are distributed throughout the rural sections of our state each year by individuals interested in wild animal life. The part that songbirds and other wildlife play in controlling farm pests and making the farm home a more enjoyable place in which to live cannot be fully evaluated. "Aside from the general countryside picture of pleasing vegetation, birds preening, posing, flying, calling, singing add more to our enjoyment of rural

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*Fig. 1. In some counties land-planning committees of farmers decide what lands are best suited for wildlife habitat.*

life than do any other living things".\*

Non-tillable areas on the farm can be made productive by providing habitats for this valuable natural resource.\*\* In addition, many farm practices which meet the approval of those persons interested in good farming also are favorable to wildlife growth.\*\*\* Hence, the program outlined here is designed to supplement the program of good land-use and good farming rather than as an intensive independent project. All of the suggestions may not apply to any individual farm, but it is believed that some may be used to advantage on every farm. The extent to which results are obtained will

depend on the farmer's own initiative. It should be remembered that each species of wildlife has definite habitat requirements. Therefore, it is recommended that the following suggested practices be carried out with the purpose of improving conditions for wildlife common to the community rather than to attract other species to the area. More detailed information may be obtained from the sources listed at the bottom of the pages.

\*U. S. D. A. Farmers Bulletin 1682, "Usefulness of Birds on the Farm"

\*\*U. S. D. A. Farmers Bulletin 1456, "Home for Birds"

\*\*\*Michigan Conservation, February and March, 1938, "Farm Crops Versus Game," Tubbs

## THE FARM WOOD LOT

The farm wood lot is one of the most important wildlife habitats on the farm. A well-managed wood lot is a distinct economic asset and may contribute as much to farm income as does a similar acreage of crop or pasture land. Good forestry practices in wood lots are in general also good wildlife practices. The grazing of farm wood lots is usually disastrous to forest reproduction, and is questionable from an agricultural viewpoint because of the comparatively low forage value of wood lot pasturage, and the difficulty in controlling animal disease in shade. The elimination of wildlife cover by grazing is so pronounced that some kinds of wildlife disappear within a few months after the invasion of livestock into a wood lot. According to the 1935 Census, 75 per cent of all farm wood lots in southern Michigan are pastured. The devastating effect of this situation upon the population of rabbits, quail, grouse and pheasants in some areas is not fully appreciated.

Where the perpetuation of the wood lot and game or other wildlife is a desired consideration, grazing by livestock should be eliminated or at least confined to a small portion of the woods by means of a stock fence. If this cannot be done, reasonably generous portions of the wood lot should be fenced against livestock and allowed to grow up to undergrowth for the benefit of wildlife and tree replenishment. A pastured wood lot soon loses the sponge-

like surface mulch which helps to retain water and prevent its rapid run-off and subsequent erosion action. Foresters maintain that trees and shrubs two inches or less in diameter are too small to be cut profitably for fuel wood and, therefore, should be left in the wood lot.

The importance of fire control in farm wood lots is obvious. Fire not only destroys game cover, but ruins natural forest reproduction as well. Fire at any time is in the nature of a catastrophe in the wild animal world, like earthquakes and tornadoes in the human world.

Selective cutting of wood lots as recommended by foresters helps to maintain a diversity of size and age among the wood lot trees, and diversity is of prime importance to wildlife. It should be remembered that the greater the variety of trees, shrubs and vines in various stages of growth, the greater the value of the wood lot to wildlife. A few nut and mast producing trees, such as beech, while they may not have appreciable timber value in a wood lot, do assist in supporting various species of wildlife.

A few large brush piles scattered along the edge of the woods will provide havens of shelter and safety for rabbits and other wildlife. These piles of brush should be placed loosely over an old stump or log and should be at least 8 to 10 feet across and 6 feet high.

Hollow trees and stubs are valuable homes for wild creatures, and some of these should be left stand-



Fig. 2 (A). *A wildlife desert—Pasturing a woodlot destroys mulch, young trees, wildlife cover, stimulates erosion and retards animal disease control.*

ing, or the hollow logs left lying on the ground. Squirrels, raccoons, chickadees, wood ducks, screech owls, woodpeckers, and many other birds use the stubs, while rabbits and fur-bearing animals use the hollow logs.

The number of nut and mast trees, and hollow trees and stubs left in a wood lot and the number of brush piles made may vary from two or three per acre to a dozen or more, depending on the landowner's initiative and interest in the welfare of his wildlife.

It is also of great advantage to wildlife to leave an occasional opening in the woods where the sunlight can strike the ground, resulting in a tangle of vines and brush.

Perhaps the most important portion of the wood lot for wildlife is the border. Wildlife is a product of edges—the borders be-

tween different types of vegetation. To be of maximum value in wildlife production, the width of any woodland type should not exceed 600 feet, so that no point will be more than 300 feet from the edge.\* While the size and shape of farm wood lots cannot usually be altered for the convenience of wildlife alone, it is well to remember that large blocks of uniform woods are not the best locations for wildlife.

The planting or natural growth of shrubs and vines along woodland edges is an excellent device for improving wildlife conditions.\*\* Attention should be directed also to the leaving of woodchuck holes along the edges of wood lots or

\*"Improving Farm Woodland for Wildlife," Frank Edminister, Soil Conservation Service, Upper Darby, N. Y.

\*\*Game Division, Michigan Department of Conservation, "Trees and Shrubs for Wildlife Plantings"

in uncultivated areas. While such holes are admittedly somewhat of a nuisance in crop lands, their value as shelter and refuge for rabbits is so great that they should never be destroyed unless absolutely necessary.\* Many wildlife investigators consider the present scarcity of woodchuck holes in some localities one of the principal reasons for the reported scarcity of rabbits.

### MARSHES, SWALES AND PONDS

Lowland areas, such as marshes, swales and ponds, are also very important in their effects on wildlife. Protection of these areas from fire is vital. If fire must be used, the marsh should be burned

in early spring, before the birds have started to nest. Fall and winter cover should not be destroyed by burning. Under all ordinary circumstances, a running fire is an agricultural liability, even where set with good intentions. Not only does ground cover during the winter assist in supporting wildlife, but also assists in reducing wind erosion and acts as a snow retainer.

Pasturing of marshes and swales always disturbs their wild inhabitants, and heavy grazing ruins them as a habitat for wildlife. These marshes and swales are of the utmost importance to cottontail rabbits and pheasants during the winter when surrounding vegetation has been removed, has died down, or is covered by snow. If

\*Game Division, Michigan Department of Conservation, "Cottontails in Michigan"

*Fig. 2 (B). The woodlot with a future. Non-pasturing and selective cutting of timber will provide continuous new growth.*



marshes must be devoted in part to grazing, a fair share should be saved for wildlife by fencing against stock invasion. Deer and elk may be classified as browsing animals, but domestic animals obtain very little nourishment from conifer and shrubby browse, and certainly cannot be expected to produce a quantity of milk or meat on such food.

The draining of thousands of acres of farm lands has been necessary in many parts of the state, but unwise drainage has ruined thousands of acres of lowlands, not only for wildlife, but often for economic agricultural usage as well. Even more important than the direct damage to wildlife and to agriculture by unwise drainage is the indirect damage done by the consequent lowering of the water table.\* Certainly wise land-use planning demands that no large drainage projects should be carried out until a thorough examination has been made by competent engineers, soil specialists, and biologists to determine whether the benefits will exceed the harmful results, when all factors are taken into consideration.

The construction of small dams to create ponds or to hold water in marshes will return rich dividends in erosion control, water conservation, and in an increase in many types of wildlife. Such dividends may sometimes be returned in actual cash, as when muskrats and mink are harvested from the water areas.

The farm pond is a valuable asset to the farm in checking water runoff, providing water for stock, maintaining a desired water level,

and supplying suitable habitat for waterfowl and fur bearers.\*\*

On many farms the returns from fur are providing a valuable supplement to the income. Nearly half a million dollars are annually received by farm boys and their fathers in southern Michigan from the sale of muskrat pelts produced on their land. In addition, the majority of these ponds usually harbor at least one pair of waterfowl.\*\*\* Because these ponds are generally located on land that has questionable value from the standpoint of other crop production or pasture, a detailed survey should be made before going to the expense and work of draining such areas. Perhaps the pond could be of greater value to the farm if care were taken to maintain a constant water level and reduce erosion along the banks. A varying water level in such a pond prevents the establishment of suitable muskrat habitat and, at times when the water is low, may so concentrate the animals that losses from predation and fighting will be great. In some cases a few shovelfuls of dirt thrown in a ditch drain or a small check dam across the outlet may assist in stabilizing the water level. If steep land adjoins the pond and pasturing is allowed, not only will the bank

\*National Association of Audubon Societies, New York, N. Y., "Thirst on the Land"

\*\*University of Missouri Extension Circular 351, "Improvement of Farm Ponds and Watersheds for Erosion Control and Wildlife Production"

\*\*\*More Game Birds in American Foundation, Fifth Ave., N. Y., "Small Refuges for Waterfowl"

Game Division, Michigan Department of Conservation, "Michigan Waterfowl Management"



Fig. 3. There's gold in "them thar" marshes.

cover—which is desirable for wildlife coverts—be destroyed, but water erosion resulting from close grazing and hoof diggings may soon make the pond uninhabitable by animal life. Conifer and shrub plantings around the edge of such a pond may be a desirable activity for the landowner, or a natural habitat will usually occur provided such areas are protected from livestock and burning.

The use of farm ponds for wildlife purposes will be defeated if such spots are used as dumping grounds for sewage or tin cans, broken glass, or other rubbish. For additional information on the construction of check dams, consult your county agricultural agent, or write to the Agricultural Engineering Department of Michigan State College.

### UNUSED AREAS

On almost every farm there are places which are not suitable for crop production. Odd corners, stony outcrops, old gravel pits, stone piles, creek bottoms, brush patches and rough spots, if properly handled, can furnish necessary cover for songbirds, game



animals and fur bearers without interfering with the normal practices of the farm. These waste areas furnish very little in the way of pasture and in some cases, if grazed, may cause erosion problems to arise. In some instances, protecting such areas from pastur-



*Fig. 4. No birds from hard-cooked eggs—Burning can seldom be justified as a farm practice.*

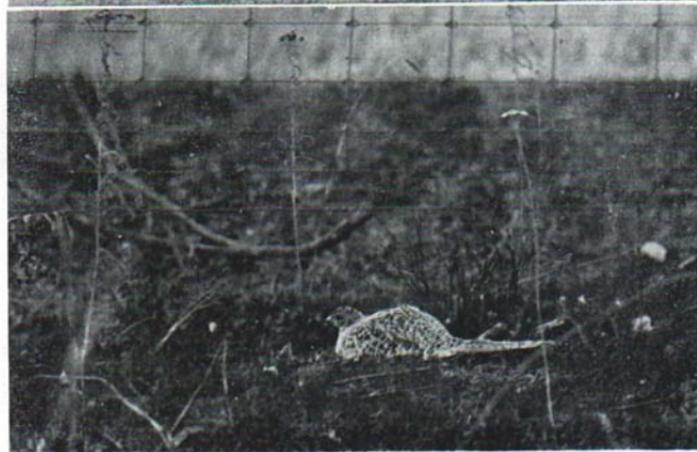




Fig. 5. "Going with the Wind".

ing and burning and allowing natural vegetation to grow is enough. The landowner may want to speed up this process by planting suitable vines, trees or shrubs. Such locations may be used to plant Christmas trees, fruit or nut trees or other plants from which he will derive some direct return. The species to be used will depend on the location of the area and the soil conditions.\*

Other usable areas for the production of songbirds and game animals on many farms include gullies, sand blow-outs, sheet eroded hillsides, eroding ditch or stream banks and road cuts. Such places are not only unsightly and reduce the value of the farm land, but they are the symptoms of an infectious erosion disease which unless checked will cause additional land to become unsuitable

for farming. The Soil Conservation Service has definite recommendations for checking and reclaiming such areas,\*\* and where vegetation is encouraged, valuable wildlife food and cover will be provided. Where plantings are necessary, the use of several species of shrubs and trees, rather than solid plantings of one species, is recommended for game and songbird cover.\*\*\* Such plantings should be composed of fruit-producing shrubs as well as conifers. Such native plants as red osier dogwood, locust, honeysuckle, snowberry, sumac, wild grape, wild rose, or raspberry and black-

\*U. S. D. A. Farmers Bulletin 1719, "Improving the Farm Environment for Wildlife"

\*\*U. S. D. A. Farmers Bulletin 1234, "Gullies and How to Reclaim Them"

\*\*\*Michigan Dept. of Conservation, "A Permanent Planting for Wildlife"



*Fig. 6. Non-tillable acres put to work—Songbirds, furbearers, and game animals—welcome!*



berry, may be included. The choice of the planting will depend on the soil, moisture and grade conditions as well as on the objective. In all cases, such areas must be protected from grazing and burning. Solid planting of large areas need not be made unless erosion control requires it because a few open areas scattered throughout heavy cover are desirable for game animals.

#### **STRIP CROPPING, CONTOURS, AND COVER CROPS**

Wildlife either directly or indirectly depends upon the vegetation growing on the land. It can

be said generally that farm practices which increase the productivity of the soil will also improve its attractiveness to wildlife. The addition of lime, the use of fertilizers, and the seeding of such recommended hay and pasture mixtures as alfalfa and smooth brome grass\* usually result in an increase of game habitat. Most game animals live around the "edges" of various vegetative growth; therefore, such soil-conserving practices as strip cropping\*\* which bring several types

\*Michigan State College Circular Bul. 159, "A Mixture of Alfalfa and Smooth Brome Grass for Pasture"

\*\*U. S. D. A. Farmers Bulletin 1776, "Strip Cropping for Soil Conservation"

**LOCUST RECLAIMS**  
**• • GULLIED AREA • •**  
**WITHIN THREE GROWING SEASONS**



June 1935  
Planted area fenced from pasture



September 1937

**• • IDLE LAND • •**  
**BECOMES PRODUCTIVE**

*Fig. 7.*

of plant growth close together and are usually interspersed with some permanent cover crop should increase the amount of wildlife habitat. The early fall drilling of rye, wheat, barley, or oats in corn stubble as a winter cover crop is recommended by agronomists.\* Likewise, the seeding of oats or rye in corn prior to the last cultivation or immediately following the cutting of the corn will provide a cover crop that will hold the soil during the fall and winter, serve as pasture or as a green manure crop in the spring, and provide both food and cover for ground-feeding game birds. The use of vetch and rye, or vetch and Sudan grass as a green manure crop is also a good farm practice for building up the soil. Horticulturists say that "The use of vege-

tative cover is the simplest and cheapest effective means of controlling erosion on sites adapted to orcharding."\*\*

\*Michigan State College Extension Bul. 203, "Conserving Soil by Better Land Use Practices"

\*\*Michigan State College Circ. Bul. 162, "Soil Erosion in Michigan Orchards"



*Fig. 8. Conifer plantations check erosion, provide trees and establish rabbit cover.*





*Fig. 9. Wind erosion checked by a windbreak is good soil conservation, provides farm trees and increases the possibility for additional wildlife.*

### WINDBREAKS

The use of windbreaks varies with the locality and the type of wind control problems involved.\* Agriculturists recommend their use to reduce wind erosion, increase the attractiveness of the farm, provide shelter for buildings, orchards and crops, reduce evaporation of soil moisture, and to serve in some locations as snow fences. Many landowners are beginning to believe that a bushy fence row is no longer a characteristic of a careless farmer but that it may be a distinct asset to the land as a windbreak. Such shelters and fence rows rank high in their value to wildlife. Songbirds find suitable nesting sites as well as necessary cover in such wind-

breaks. Game animals and fur bearers use these fences as travel lanes, emergency and concealing cover when feeding in adjacent fields; if there is grassy or shrub growth along the base of the shelter, nesting areas may be provided. If the landowner desires, vines, shrubs, and berries may be planted or encouraged along the base of such windbreaks.

Windbreaks on the farm are used for two main purposes—protection of the farmstead from the cold winds in winter, and to prevent wind erosion and excessive loss of moisture from fields.

For farmstead protection the windbreak should be planted 100 to 150 feet from the buildings; it should consist of three rows of

\*U. S. D. A. Farmers Bulletin 1504, "The Windbreak as a Farm Asset"



*Fig. 10 (A). Land destruction casts its shadow.*

trees planted in the form of an L on the north and west sides of the buildings. The location of the windbreak should be carefully selected so that the trees will protect all farm buildings, but not be so close to any of them that snow drifting through the windbreak causes inconvenience. It is not advisable to plant a windbreak on the south side of the buildings because cooling winds in summer frequently are from that direction.

There are several varieties of trees which are suitable for windbreak planting: Norway spruce, white spruce, white pine, red pine, white cedar and Douglas fir. The last species mentioned should be planted only in the southern part of the state and not in frosty locations. Transplanted trees three or four years old or older are recommended because they will survive better than seedlings and make faster growth.

Six-foot spacing is entirely too close unless the trees are thinned when the branches begin to interlock. The recommended spacing is 10-12 feet apart in the rows and the rows 8-10 feet apart.

Spacing the trees in the second rows alternately with the trees in the first and third rows will prevent any wind from blowing through when the trees are tall enough to make an effective windbreak.

A field or orchard windbreak with two rows of trees is usually satisfactory. Spacing is the same as that recommended for a farmstead windbreak. To give complete protection to a farm the windbreaks should be planted about 600 to 700 feet apart or two windbreaks across a "forty". One windbreak on the west side of a "forty," although not adequate, will be far better than no wind protection at all.

### PROVIDING FOOD FOR WILDLIFE

So far, practices beneficial to wildlife which are also directly connected with good land-use practices have been discussed. Many farmers desire to go still further and carry out practices aimed entirely toward aiding their furred and feathered friends.

Winter feeding is one of the most effective means at the disposal of farmers for aiding wildlife. Planned winter feeding of wildlife can be a very simple process, easily and effectively done by any farm boy or other interested person.\* Some of the most effective

ways of feeding are to leave a few rows of unharvested standing corn or soybeans near good cover; one or two shocks of unhusked corn which can be opened as needed; feeding stations containing corn or waste grain; patches of unharvested small grains; or specially planted patches of seeds and grains suitable for wildlife.\*\* The size of such food patches will depend on the quan-

\*U. S. D. A. Farmers Bulletin 1783, "Feeding Wildlife in Winter"

Michigan Department of Conservation, "Winter Feeding Stations and Foods for Ground-feeding Birds in Michigan"

\*\*Game Division, Michigan Department of Conservation, "The Planting of Feed Patches for Wildlife"

*Fig. 10 (B). Erosion under control—Strip cropping halts erosion and provides excellent habitat for game animals.*



tity of wildlife to be fed and available land. However, such a patch should be at least one-fourth acre in size. Some farmers leave the outside swath of grain over which

the binder has been run in making the first round for wildlife food. Manure spread on the fields during the winter not only is considered a good farming practice, but



*Fig. 11. Feeding stations and food patches—The bread line during the "tough season".*





Fig. 12. "Park Avenue" for the pheasant—This combination of grain field, swale and woodlot is ideal for pheasants, quail, and the cottontail rabbit.

likewise supplements the natural winter food supply for ground-feeding birds.\* The combining of small grains not only leaves a high stubble, which is good concealing cover for pheasants, ducks, Hungarian partridge and quail, but the waste grain and the additional weed growth which remains provides much needed winter food. Corn fields which are one of the most important sources of winter food especially for pheasants and in some places ducks, have very little such value if the stalks are cut close to the ground and the

entire crop removed to the barn or silo. However, where these fields are picked by hand or by a mechanical picker, or where stock is allowed to harvest the crop the remaining stalks serve to conceal the game animals while they feed on the corn that is left on the stalks or ground. However, in some localities the best farming interests may necessitate the plowing under of such fields to control disease.

\*Michigan State College Extension Bul. 71, "Value and Care of Farm Manure"



*Fig. 13. Game management cooperatives (Williamston Plan) aids wildlife, assists in controlling trespass, and limits harvest to annual surplus.*

## CONTROL OF HUNTING

In considering the crop of game, just as in considering the crop of corn or wheat, there are two phases to think about:

**First**, the production phase, which has been dealt with up to this point in the program.

**Second**, the harvesting phase, which is equally important, and in the case of game includes the hunting trespass problem.

Any inclusive program for game improvement must provide for an orderly harvest of the surplus ani-

mals, and for an orderly system of trespass control.

The legal part of the trespass problem is taken care of in Michigan by the Horton Trespass Act,\* with which every farmer should become familiar. Copies of this act may be obtained from the Department of Conservation.

Local control and limitation of hunters may perhaps best be secured through some cooperative

\*Michigan Farmer, Detroit, "Michigan Farm Trespass Laws"

measure similar to the "Williamston Plan". The value of this plan to the farmer is an orderly distribution of hunters, control of trespass, and limitation of the game kill (harvest). Copies of the "Williamston Plan" may be obtained from the Department of Conservation of the county agricultural agent's office,\* and members of the department and of the college extension service are available to explain and discuss all phases of the hunting control problem with farmers' groups.

#### AN EDUCATIONAL PROGRAM

Last, but important, should come some program for obtaining additional education and information by farmers, their wives and their children on wildlife conservation.

A 4-H conservation club program under the guidance of the

county agricultural agent and the 4-H club leader is available for youth education. Similar work may be carried on by Future Farmer boys under the direction of the teachers of vocational agriculture. In addition, representatives of the Extension Service of Michigan State College and of the Department of Conservation are available upon request for farm meetings.

Film strips and colored slides illustrating the relationship between game management and land use, with explanatory remarks, are available to local groups.

Some communities have found that discussion groups are effective means for carrying on adult education. Assistance with such meetings from land-use agencies is available.

\*Game Division, Michigan Department of Conservation, "Cooperative Game Management"

Fig. 14.



Michigan State College of Agriculture and Applied Science and U. S. Dept. of Agriculture co-operating, R. J. Baldwin, Director Extension Division. Printed and distributed under act of Congress, May 8, 1914.

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