



United States
Department of
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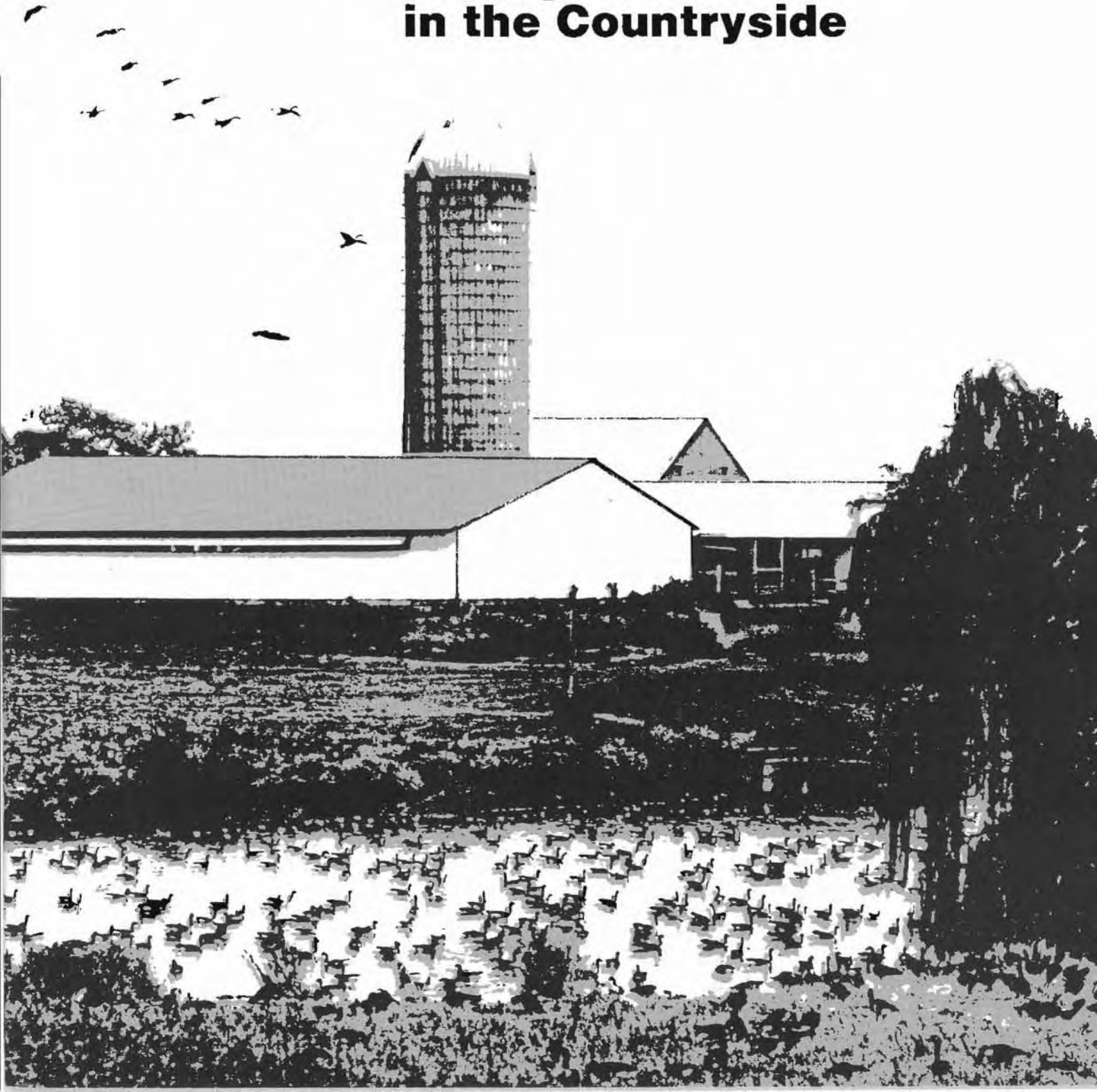


Landscape Architecture

Note

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Landscape and Wildlife Habitat Management in the Countryside



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April 1987

**Landscape
and Wildlife
Habitat
Management
in the
Countryside**

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Introduction

Farm, landscape, and wildlife management have many principles in common. This technical note discusses these shared principles and illustrates how typical landscape and wildlife management objectives are integrated into countryside conservation planning and decisionmaking. The resulting management guidelines are based on concepts and principles that one should be aware of when considering landscape and wildlife values as part of a comprehensive resource management plan. Information included here is intended to help SCS field office and other personnel understand and apply these related principles and concepts.

No two areas of the agricultural countryside are alike. The landscape

reflects both the physical setting and the cultural meaning we bring to our interpretation of it. The character of the countryside is determined by the pattern of agricultural activities, interspersed with natural areas, woods, farmsteads, and rural communities. Farmland in America is a bountiful but finite resource, valued for its obvious productive capacity. But the countryside is also part of our cultural heritage. It is aesthetically satisfying to many, and it is a home for wildlife (fig. A). The conservation of soil, water, and related resources such as wildlife and landscape elements is significant in maintaining the high productivity and quality of life associated with the countryside.

A



Shared Management Principles

Management principles are broad objectives that indicate how specific management activities and practices can be applied. These objectives include a need to conserve: (1) the highly productive farmland of this country, (2) an aesthetically pleasing and ecologically healthy landscape, and (3) the cultural heritage of our countryside. The type, distribution, and configuration of landscape elements—vegetation, water, landform, and structures—are critical factors in both wildlife habitat management and landscape resource management. Wildlife habitat management concerns are creating, improving, or maintaining acceptable levels of food, cover, and water for wildlife. Landscape resource management concerns are creating or maintaining attri-

butes that contribute to human enjoyment and well-being. These two objectives are often compatible, can be achieved by applying the same management practices, and are easily integrated with conservation of soil, water, and related resources.

Another concern of landscape resource management is conserving those landscape characteristics that people value. The character of any landscape is determined by the landscape elements and the activities occurring within that landscape. The relationship of these elements and activities to each other are important determinants, not only of the character of the landscape but also of the distribution

of wildlife within it. Therefore, it is important to analyze these characteristics before landscape resource management or wildlife habitat management recommendations are made.

How land can best be used is determined by such natural constraints as terrain, wetness, climate, and soil characteristics, as well as pertinent state and local regulations. Together with the operational requirements of the farming system, these constraints determine the pattern of land use. In assisting with conservation plans, we analyze these constraints systematically, and the consistent application of this planning process gives rural landscapes a sense of order and harmony. The natural constraints that place limitations on the use of land are consi-



dered in landscape resource management and wildlife habitat management. Systematic analysis of these limitations is used to determine management guidelines.

Personnel applying the principles of landscape resource management and wildlife habitat management must plan for multiple uses. Following a basic problem-solving process, they inventory and evaluate conditions, identify problems and opportunities, develop alternatives, evaluate effects, and select a course of action. Diversity, which creates a wide range of opportunities, is usually a common objective. Following is a discussion of several design principles used in formulating management strategies.

Space, Form, Scale, and Enclosure
 Terrain or landform may create very different experiences for the observer. A dome or plateau will create a sense of exposure; a valley or hollow will create a sense of enclosure. Hedges, trees, and woodlands also create a sense of enclosure in many farmed landscapes. These elements also determine the "scale" of a landscape, which is probably the most important factor affecting how we experience the landscape. Wide, open, large-scale landscapes with few, widely spaced enclosing elements are usually exhilarating and impressive (fig. 1). The same terrain with many enclosing elements and small spaces may give the observer a sense of intimacy and security (fig. 2). One is not a "better" landscape

than the other. And no one can say that a large-scale landscape, such as a grass prairie, is "better" or "worse" for wildlife than a small-scale landscape. Each will support quite different species, although the small-scale landscape is likely to support a greater variety of species.

Edge

The edge between field and woodland or field and stream divides two natural systems or ecosystems. Edges between ecosystems are "ecotones". Edges in the countryside are very important visual features in the landscape. They may divide two spatial elements, such as a hedgerow dividing two fields (fig. 3), or they may



divide a space and a mass, such as the edge between field and woodland (fig. 4). Edges may be enclosing elements, a hedge or a windbreak, or, as in the case of a terrace or grassed waterway, they may not create any sense of enclosure at all.

Biologically, the edge or ecotone tends to be richer in wildlife species than either of the ecosystems that it separates. The edge/area ratio is a measure of the visual diversity and enclosure of a landscape and also of its value as wildlife habitat.

Consistency, Order, Harmony

The pattern of the countryside usually displays natural order. Woodland tends to be on steep slopes or along watercourses and farmland on the more productive,

well-drained soils. The pattern is not arbitrary. Depending on the natural constraints and the farming system, the character of the landscape will vary from area to area. But within any area the pattern of land use should show a consistency and order that generally result in a harmonious landscape. Consider the four hypothetical landscapes illustrated. Note how the pattern of use is different yet results in a consistent landscape within each area.

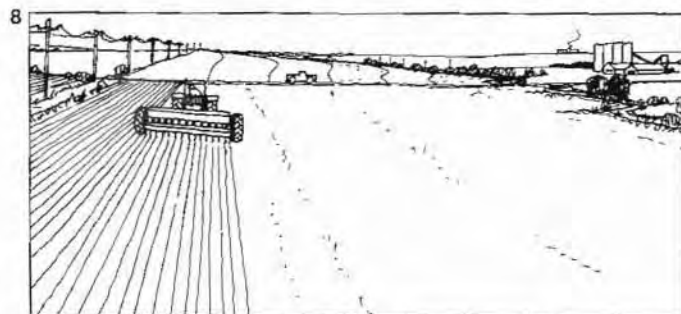
(1) Rugged terrain (glaciated)—Narrow valley floors in farming, hills in forest. Stream channel with narrow band of riparian vegetation (fig. 5).

(2) Broad valley/plateau—Valley floor and plateau in farming, steep valley sides in forest. Well-defined riparian vegetation (fig. 6).

(3) Rolling landscape—Confined valleys. Plateaus in farming, steep valley sides and narrow valley floor in forests (fig. 7).

(4) Flat, gently rolling—All in farming except narrow strips of riparian vegetation (fig. 8).

A systematic procedure for formulating conservation plans based on natural capabilities of the land will result in an orderly and harmonious landscape pattern.



Continuity

Linear components in the landscape are continuous, for instance a stream or a road. The alignment of a stream follows the strict laws of nature and is predictable and comprehensible. The stream alignment is reinforced visually by bands of riparian vegetation of varying widths on each bank, and sometimes by steep wooded slopes on each side of the valley. This makes up a continuous linking thread in the landscape, which also enables the observer to understand the drainage pattern and terrain at a glance (fig. B). This continuity may also be important for the movement of some species of birds, mammals, and aquatic life. Other natural features, such as steep escarpments or ridges, also may form

continuous features, and the resulting continuity should be respected wherever possible.

Manmade features such as roads are not as predictable in their location. Yet these, too, are often reinforced visually by borders, hedges, fences, utility poles, and the like. They serve farmsteads and other houses, and help the observer to understand both past development of the landscape and the pattern of economic uses. Roads are also important as vantage points from which most people experience the rural landscape.

B



Agriculturally Productive Land

Cropland

Dividing an area of productive farmland into small fields is appropriate on mixed farms where a number of different crops are grown and livestock are present. On the specialized one- or two-crop farm, the size of field is limited only by natural obstacles and by operational limitations. In any area, therefore, the size of fields tends to reflect natural constraints, and, hence, a fairly consistent pattern emerges. If fields are too small for efficient highspeed operations, a farmer may remove some obstructions, such as wetlands, hedgerows, or ditches. Many miles of terraces have been removed or

modified because they were incompatible with larger, faster machinery (fig. 9). The advantages and disadvantages should be considered before recommending removal of such features. Disadvantages include destroying the conservation value of the feature and its value as a landscape resource element, wildlife habitat, or both.

It is not appropriate to set an arbitrary maximum field size. Steep back-slope terraces, stripcropping, and other contour conservation practices, however, create long, narrow units of one crop divided by strips of different crops or by narrow bands of permanent grass (fig. C). This increases the edge/area ratio and the value for wildlife. The contour practices also emphasize landform and provide visual diversity (fig. 10).

"Clean" weed-free crops are a source of pride to many farmers, an attitude probably shared by a majority of the public. Excessively clean crops, however, can mean a biologically impoverished system in which many species of animals cannot survive. Farmers may be able to practice less stringent weed control without loss of productivity. Or they may be able to use some traditional methods such as crop rotation to avoid buildup of weeds. Other management techniques such as using pesticides, burning, and other means may adversely affect wildlife unless properly planned and applied.

C



D



Consider establishing permanent vegetation on areas that are operationally awkward (fig. D). They may be awkward because of terrain, their location or configuration (acutely angled field corners, for instance), or their small size. They may also pose problems because of a difference in soil type or drainage characteristic that might result in uneven ripening of the crop or drying out of the soil. The area might not be less productive but would interfere with the timing of operations, which is critical on a specialized farm. When planning farm operations and field configuration, consider breaking up large areas of cropland, where possible, with terrace systems, field borders, or other areas of permanent

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vegetation. Plan these systematically to follow natural boundaries or on less productive land.

Farmers should be encouraged not to cultivate too close to natural areas. Although a sharp edge between field and woodland is often visually attractive, a broad edge made up of grass border or shrubs and low trees is much more valuable for wildlife. These areas will colonize naturally with trees and shrubs, and planting will not usually be necessary (fig. 11).

Other management practices, particularly spraying with herbicide, should be carried out with great care at the edges

of crops and natural cover. Spray drift can destroy an area of cover or severely reduce its value both for wildlife and as a landscape feature.

Grassland

Intensive pastureland management generally favors a few species of grass and legumes; and small grazing units and rotational grazing systems are used frequently. Botanically, these pastures are far less diverse than less intensively managed native grassland. From a distance, the difference may not be striking visually. Biologically, however, the richness of the flora and fauna of the latter grassland is more obvious (fig. 12).

The implications of differences in fencing patterns of different systems of

grassland management are discussed in later paragraphs.

When seeding grasslands, consider using a wide range of species. This will provide a plant community tolerant of varying soil moisture and nutrient conditions. Proper grazing use will reduce animal competition, maintain diversity in the plant community, and provide vegetative height needed for cover. If possible, small areas should be managed less intensively.

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Seminatural Areas

Woodland

Trees are important vertical elements in an often predominantly horizontal landscape. Woods, or groups and lines of trees are important masses or enclosing elements in the landscape as illustrated in the comparison (fig. 13).

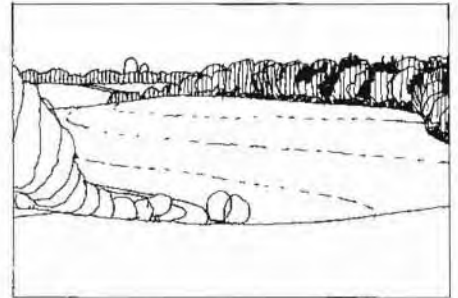
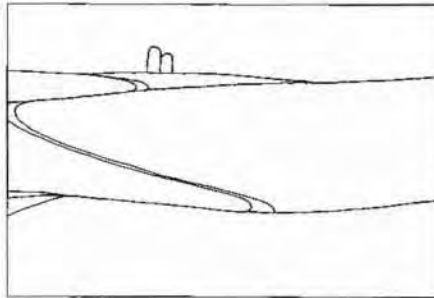
Existing areas of woodland are likely to be on land unsuitable for farming. Many small woodlots on farms are not managed for commercial timber production, and the pattern of woodland tends to follow agriculturally unproductive steep land and stream valleys. The analysis of site conditions in making conservation plans will reinforce this pattern and result in a harmonious and orderly landscape.

Woodland being managed for other than timber production should be maintained or planted with approximately the

same species and structure as natural woodland in the locality. Special attention should be given to providing suitable nesting habitat, cover, or food for certain wildlife species by carefully selecting woodland species. The diversity of natural woodland in temperate climates provides plenty of visual interest.

Locate fence lines very carefully at the edge of woodland or clumps of trees. A fence located just inside the woodland is less obtrusive visually (fig. 14). Livestock browse the vegetation at the woodland edge, allowing the observer to see into the woods. However, this may reduce the wildlife value of a potentially rich edge

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14



15



habitat that is better protected by placing the fence outside the woodland edge (fig. 15).

Do not assume that all seminatural areas should be woodland. Some should be managed as permanent grassland, some as scrub or at an intermediate stage of succession, and some as semi-mature woodland. Grassland is not an important climax plant community in the Eastern United States except in a few areas. It should generally be located on the hotter, drier slopes which are less suitable for woodland. Brush management will be needed usually, including periodic cutting or controlled burning.

Proper livestock grazing is compatible with specific timber types. In those situations, a grazed woodland may be

visually attractive, as it is more open and makes movement easier (fig. 16). In other situations, livestock grazing is incompatible because the livestock tend to destroy established vegetation and prevent new establishment.

Avoid arbitrarily cleaning out woodland by removing understory vegetation or burning all brush. It may be necessary to do so occasionally to reduce fire hazard and improve access, but the size and distribution of these areas should be planned carefully and limited to only small areas each year. Cutting and stacking thinnings can provide valuable nesting habitat for some species; however, avoid locating them in visually sensitive areas.

Avoid practices that damage woodland and other "natural" areas, notably the following:

- (1) Allowing spray drift of pesticides.
- (2) Treating hedgerows, roadsides, field borders, and streambanks with herbicide to prevent spread of weeds into crop or to tidy up.
- (3) Allowing runoff from silage pits, manure lagoons, and similar places to flow into these areas.

Windbreaks

Windbreaks are woodland belts of various widths that are managed to give adjacent fields maximum protection from the wind. Because their main purpose is to protect crops, they are often located on productive farmland. Windbreaks tend to be

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regularly spaced and oriented at right angles to the prevailing wind. The resulting pattern is not strongly related to natural features but is orderly and very often visually striking in the landscape (fig. 17).

Because windbreaks are narrow woodland belts in productive farmland, they have a high edge/area ratio and are valuable for wildlife. However, because of the proximity of the farmland, they are vulnerable to spray drift or damage from other farming practices (fig. 18).

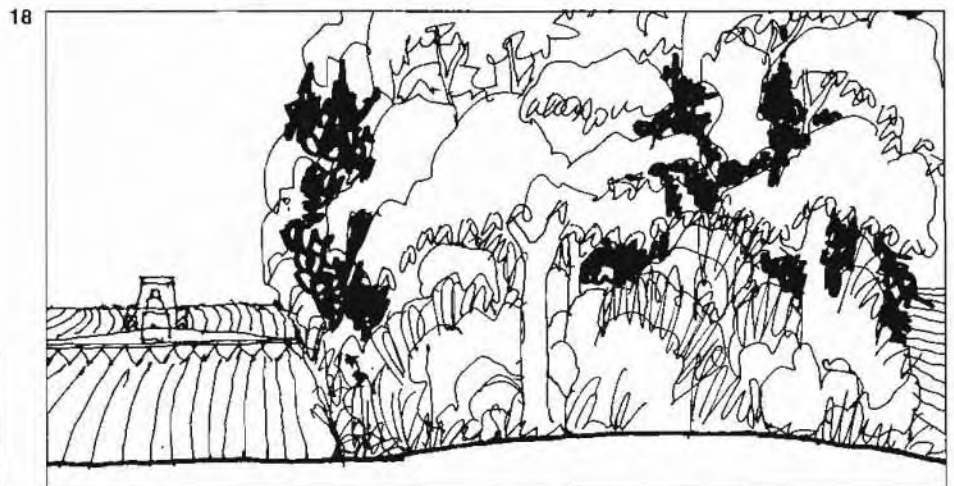
Livestock should not be allowed access to windbreaks. Browsing by livestock will destroy the understory vegetation, making the windbreak ineffective and less suitable for wildlife (fig. 19).

Hedges

Layered stockproof hedges were never common in the United States and most have been replaced by wire or other types of fencing. Hedges or hedge-rows are usually lines of trees, shrubs, or a mixture of the two. They vary in width, usually with a grass border on each side. They are often located where soil types change, on steep slopes, or other "natural" boundaries (fig. 20). Hedges located on natural boundaries may not obstruct farm operations. They are linear elements which reinforce the natural form of the landscape (fig. 21). In some areas old hedgerows may survive from earlier

mixed farming days. These often superimpose a regular pattern of small fields on the landscape and are not related to natural features (fig. 22). Unlike hedges located on natural boundaries, these often obstruct high-speed tillage operations. Yet, they may be valuable for wildlife and as visual features, or they may be interesting historically. In these cases, ways of saving and managing some of them should be discussed with the farmer.

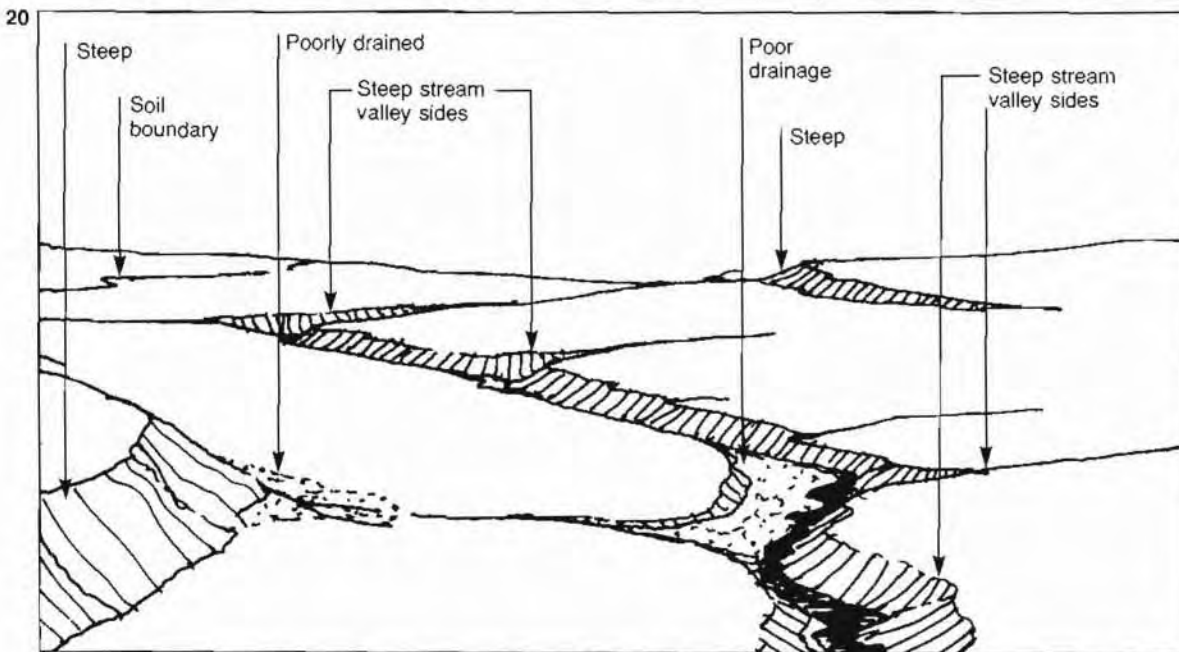
A hedge is, in effect, two compressed woodland edges. Like edges, hedges often contain a rich diversity of species and are a valuable habitat. Most of the plant species are characteristic of an early stage of plant succession, and many are valuable food for birds. The



proximity of the crop, the grassy border, and the shrub/tree strip give the hedge a structure that is ideal for nests of many bird species (fig. E).

Because the hedge is a narrow strip of seminatural habitat between two agricultural crops, it is especially vulnerable to damage from farm operations, particularly from spray drift and equipment damage. In some cases it may be feasible to allow a broader strip of land for the hedgerow.

On livestock farms, a hedgerow will likely contain a wire fence. The farmer may wish to keep this free of brush by



cutting, burning, treating with herbicide, or a combination of these. Whichever treatment is used, the farmer should do it on a 4- to 5-year rotation to allow wildlife refuge and should avoid treating during nesting season. On most farms it is probably ideal to manage the hedgerow by cutting it to the ground during the winter every 4 to 5 years. Selected trees may be allowed to grow. Cutting 20 percent of the hedges each year will completely treat the farm within 5 years and leave 80 percent annually for wildlife and landscape values.

Shade Trees

Large, old shade trees with distinct "browse" lines are very striking landscape features (fig. 23), and farmers should be

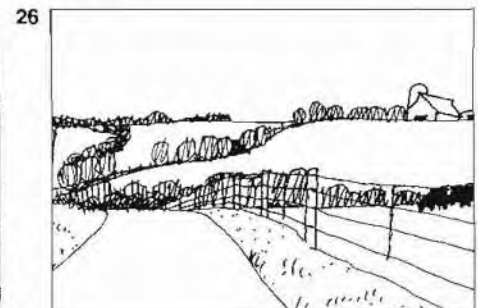
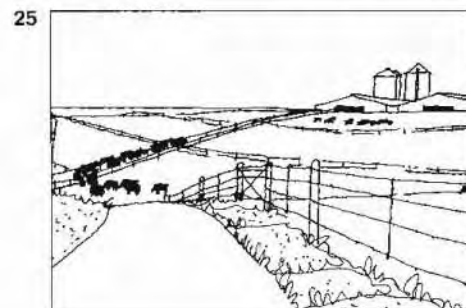
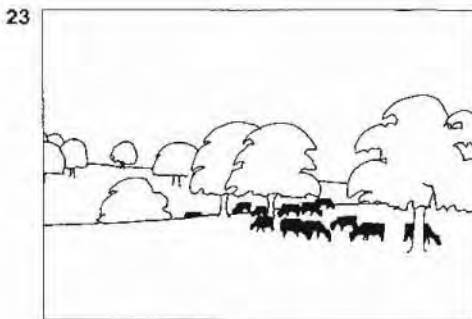
advised to save them whenever possible. Specimen trees in rolling grassland give the landscape a parklike effect that is usually very attractive. It may be appropriate to plant new trees or small groups, especially to mark rock outcrops or other less productive areas.

Specimen trees usually have limited wildlife value because of the impoverished herb and shrub layer trampled by livestock seeking shade. If the trees are to provide shade for livestock, this is inevitable. The same trees are often important for songbirds and others to gain shelter, roost, or build nests in. Some fruiting species also provide a favorite source of food. New trees or groups of

trees should be fenced until the canopy of the tree(s) is well above the browse line (fig. 24). During this stage the fenced area will provide nesting habitat for ground-nesting birds, and the mature canopy will provide long-term benefits to other species.

Permanent Pasture

Many farmers manage pasture intensively, favoring a small number of productive and palatable grass/legume species. However, less intensively managed grazing land will contain a far greater number of species. Meadows of diverse vegetative species are botanically interesting landscape features which in some areas are becoming rare, along with animal species that inhabit them.



Fences and Borders

Fences are prominent landscape features in livestock and mixed farming areas. Post and wire have replaced traditional forms of stock boundaries, walls, and hedges. On intensively managed operations, fences divide the farm into small pastures, often in a grid pattern (fig. 25). Where grazing is less intensive, the grazing units are larger and field boundary fences tend to run along natural boundaries, woodland, streams, or roads (fig. 26).

The fence itself (in the case of permanent fences) will be bounded on one or both sides with a strip of grass/scrub which does not receive the same level of

management as the adjacent field and will probably contain a richer community of herbs and small shrubs (fig. F). These may be botanically interesting and valuable for wildlife. For some species, nesting boxes on fence posts can increase the value of the fence (fig. 27).

Fences may create awkward corners that can be managed for wildlife. Livestock, of course, can graze into corners, but large, high-speed haymaking and silage equipment cannot. Leaving the corners undisturbed can be valuable for some species. It may be possible to plant trees in these corners; however, if livestock have access to them for shade, they will have less value for wildlife. As landscape features, corner plantings of trees can be striking, particularly if lo-

cated consistently over a large area of countryside.

Shrubs and brambles tend to grow up along fences. They are often berried types, spread by birds that perch on the fence. The farmer may need to periodically remove this growth to prevent the fence from becoming overgrown. Cutting every 4 to 5 years, treating one-fourth to one-fifth of the farm each year, is preferable to using herbicides. Operations should not be carried out in the nesting season.

It may be necessary to periodically prune trees located near woodland fences. Again, it is preferable to do this on a rotational basis, about once every 10 years, one section each year.



Roadsides

Without regular fertilizer and herbicide treatment, borders along public roads and farm roads often develop into herb-rich communities of botanical interest. Sometimes they support striking displays of wildflowers. Often these areas are separated from the field by a fence or hedgerow, in which case they have more structural diversity and, therefore, more value for wildlife.

If roadsides are very broad or if they adjoin agriculturally unproductive land, it may be desirable to establish trees in these areas. However, managing them as grassland is usual.

Permanent areas of this kind are important habitat for larks, hawks, and several other species. Mowing should be

done in mid or late summer, after the nesting season and when most species of wildflowers have seeded, and again in late fall. Burning in early spring may be desirable once every 5 years or so.

Terraces and Grassed Waterways

Terraces and grassed waterways emphasize patterns and landforms commonly found in the agricultural countryside and are very striking visually.

The presence of permanent grass, especially in a tillage landscape, provides visual diversity and can be valuable for wildlife (fig. 28). The narrowness of terraces and grassed waterways makes

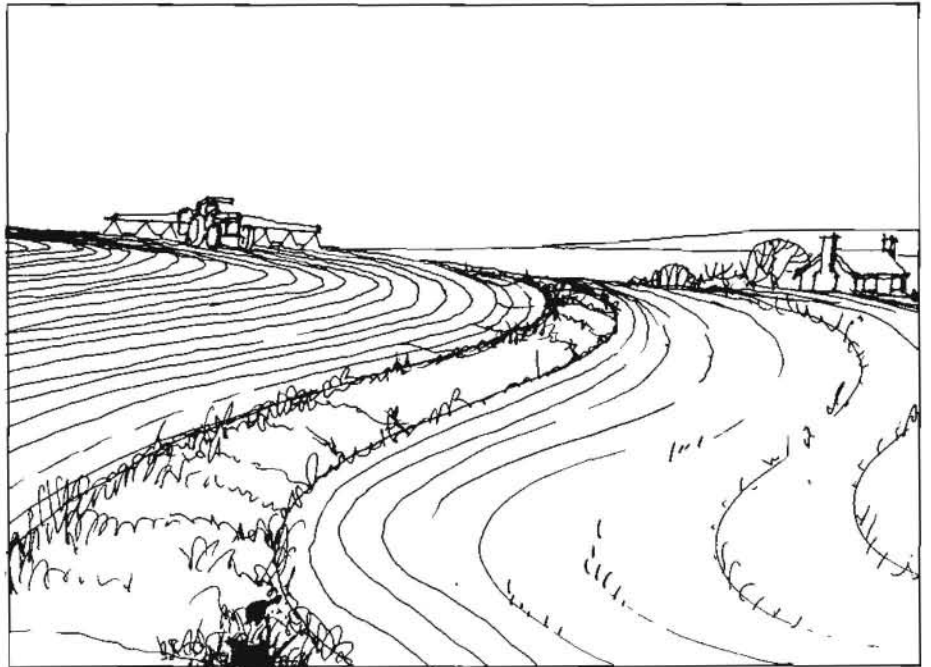
them vulnerable to spray drift from farm crops on both sides. This may reduce their value.

Regular mowing increases the density of the turf and so increases its resistance to erosion. Although occasional fertilizer applications will improve erosion resistance of the turf, it should be done cautiously to allow an acceptable mixture of vegetative species to develop.

Power Line Rights-of-Way

Power lines and their rights-of-way must be regarded as permanent features that have lasting effects in the countryside. During the past two decades, many planning, design, and construction techniques have been used by utility

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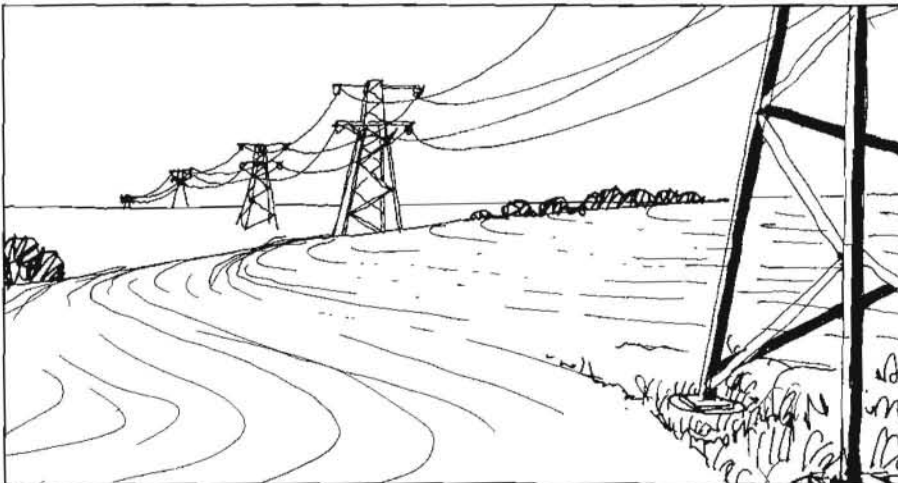


companies and government agencies to avoid or minimize adverse effects on the landscape and its use. Utility corridors that optimize existing landscape patterns and the use of nonreflective structure materials or construction practices that minimize site disturbance are just two of the techniques cited.

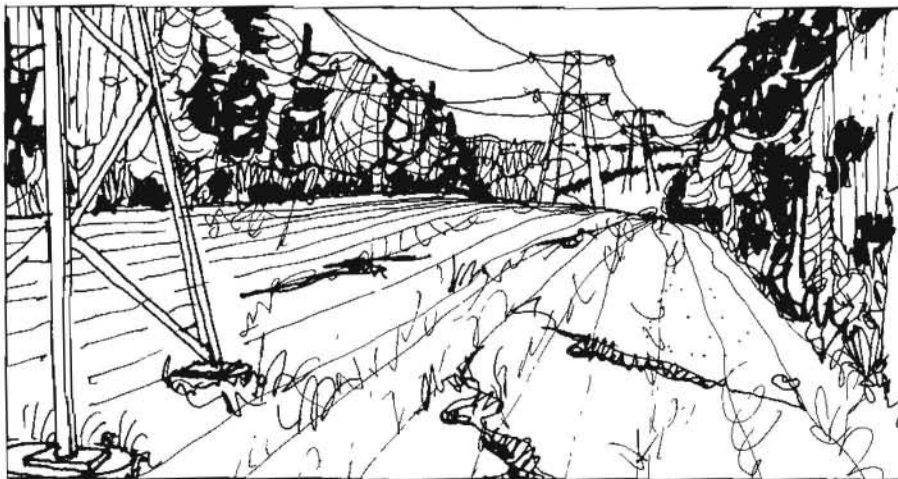
Where powerlines cross farmland, the rights-of-way are normally managed for crops or grazing, with small areas of grass and woody vegetation around the base of the towers (fig. 29). These can be useful "oases" of cover for nesting birds and other species. Permanent grass/shrub cover is especially valuable in areas where such cover is scarce.

Where powerlines pass through woodland, the rights-of-way are frequently managed in grass and low woody vegetation (fig. 30). In recent years, however, a method of selectively clearing the rights-of-way has evolved as a result of stronger conductors and pressure to keep the adverse visual impact of the powerline to a minimum. Fewer trees are removed, and cleared areas are designed to blend with natural vegetative openings in the vicinity. This produces areas that are valuable for wildlife, as they are essentially ecotones between woodland and grassland with a high edge/area ratio.

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Water Elements

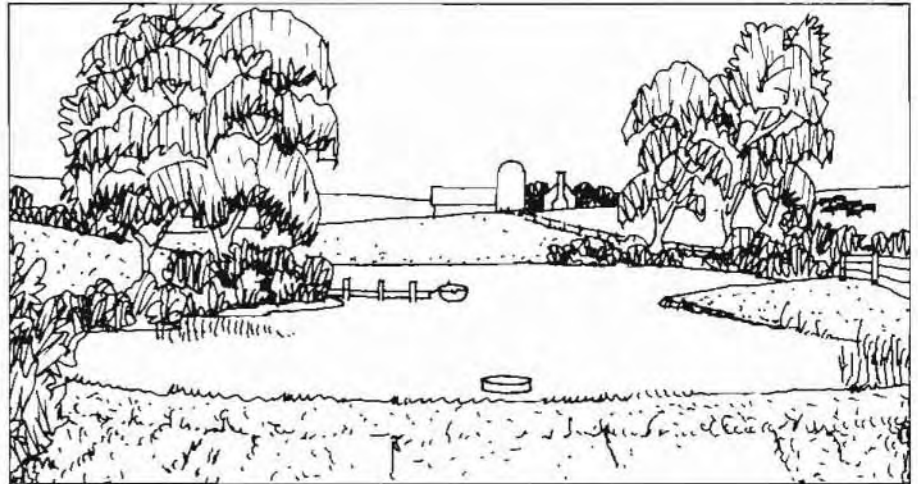
Ponds

Ponds are common features on many farms. In addition to their value for wildlife and landscape quality, they are used for livestock, recreation, fire protection, fish production, and irrigation. Water adds variety to a landscape and further enhances its quality while attracting many kinds of wildlife. Diverse shoreline vegetation and variable water depth will also increase the value of the pond for wildlife (fig. 31). A pond visible from a home, patio, or entrance road increases the attractiveness of the landscape and often improves land value. A pond can provide many farm families opportunities for leisure time.

Ponds for watering livestock are generally unsuitable for swimming, and the poor water quality will often reduce fish

production. Livestock tend to break down the banks and create muddy, unsightly conditions, which reduce the aesthetic value. The value of the habitat for wildlife is also reduced by livestock trampling and destroying riparian vegetation. Water pollution problems may result in growth of algae and unsightly masses of aquatic vegetation. Consideration should be given to limiting access by livestock to only a short length of gently sloping bank and to "berming" of a small section of the pond to confine water pollution. Alternatively, the pond can be fenced off completely and a trough, supplied by a pipe through the dam, can be provided below the dam for livestock (fig. 32).

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Ponds for irrigation are likely to be drawn down severely in summer. If the banks slope gently, drawdown may expose extensive, unsightly areas. Gentle slopes above the normal shoreline increase the apparent size of the pond. Steeper slopes below the shoreline make water fluctuations less noticeable by reducing mud flats and may result in fewer insect problems.

Trees, shrubs, herbs, and grasses should be retained or planted near ponds where they will be compatible with wildlife needs, the surrounding landscape, and planned use of the pond. A diverse mixture of vegetation, both in species composition and structure, will considerably improve its value for wildlife habitat and landscape quality. Vegetative treatment

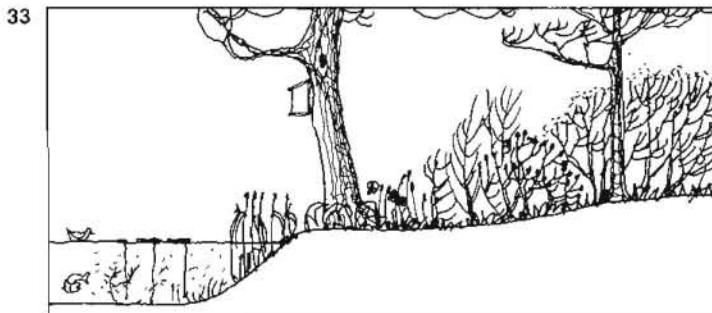
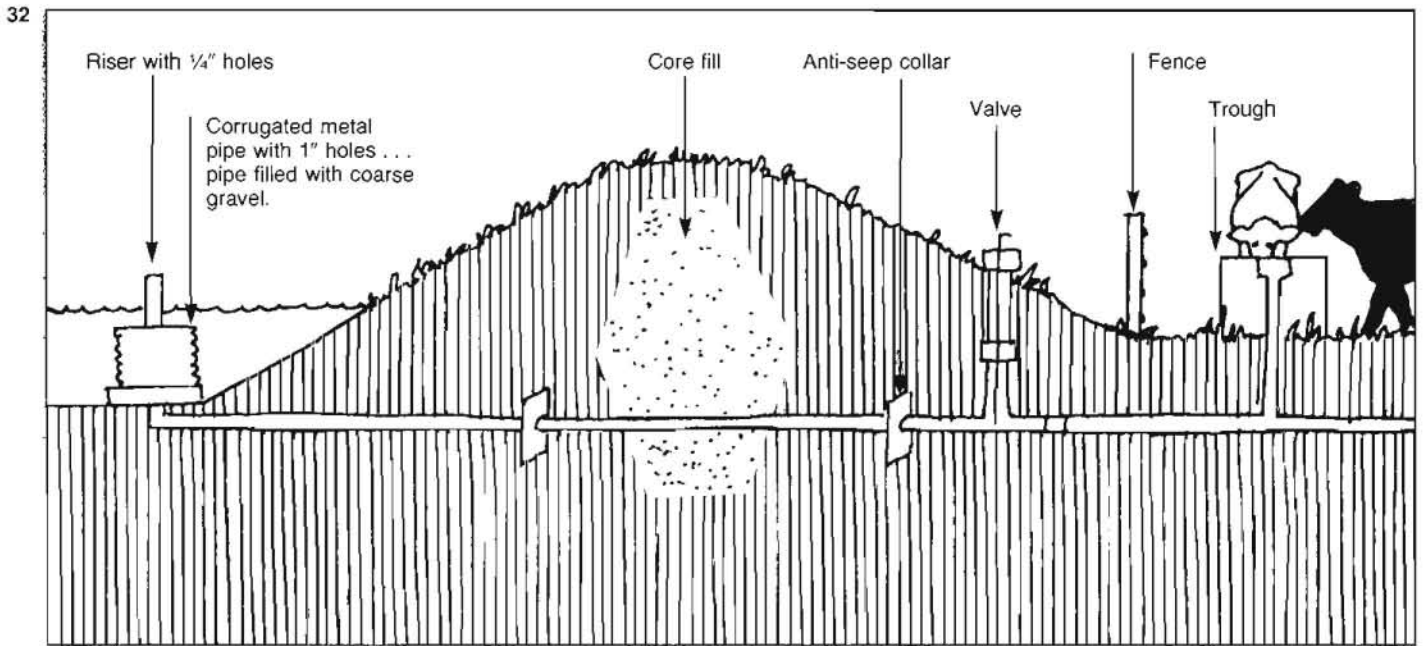
should provide natural-appearing edge and open areas. The density and height of vegetation should increase progressively from the water's edge to the undisturbed vegetation to provide a visual transition (fig. 33). Selective clearing, new plantings, or both can be prescribed to produce this transition effect.

Variation in the degree of slope and depth of water at the edge of ponds will encourage species of littoral vegetation, resulting in a more interesting and diverse flora, but will hasten eutrophication and conflict with fishing or swimming. Trees in close proximity to the water will encourage some species, such as wood ducks, that otherwise would not be attracted to

the site. Varieties growing naturally in the surrounding landscape are good candidates for retention because they usually blend with their surroundings and are often less costly to maintain or establish. Avoid planting trees on the embankment face where their roots can endanger the integrity of the structure.

Streams

Landforms have largely been shaped by the action of ice and water. Streams and the pattern of drainage, therefore, are essentially the skeleton of the landscape. The drainage pattern allows us to understand the way the landscape functions and is usually emphasized by riparian vegetation and steep slopes along the edge of the stream. Therefore, the stream



and the stream "corridor" are often important visual features in the landscape. Trees along streams are not usually "enclosing elements," as they are located on low ground; but riparian trees are strong "pattern elements" in the landscape (fig. G).

A natural stream is usually in a delicate state of equilibrium within its setting. If the amount of flow is increased, the stream will enlarge its channel. If the stream course is straightened, its gradient will be increased and degradation will result. The stream course will eventually revert to a natural meander, causing localized bank erosion during the process. Therefore,

farmers and ranchers should be encouraged not to alter natural streams without first understanding the consequences and, then, only if the total energy system is kept in balance by installing compensating measures. Change is likely to destroy visually important riparian vegetation and severely reduce the value of the stream for wildlife.

Some drainage systems have outfalls of underground drains into ditches or existing streams. These outfalls must be kept clean and flowing freely. Therefore, drainage plans frequently involve deepening the stream channel and clearing the banks of all vegetation that could block the outfalls. These actions may severely reduce the value of the stream both as a visual feature and as a wildlife habitat and

should be carefully planned to minimize damages and avoided where possible.

Wetlands

Marsh and other wet areas are often interesting landscape features not found elsewhere on the farm (fig. 34).

Wetland habitat is becoming scarce in many areas, resulting in the local extinction of some wildlife species. Farmers should be made aware that these areas are valuable landscape features as well as highly productive in terms of wildlife. They should also be encouraged to take an interest in the species there. On some

G



farms, low-lying marshy areas are used for dumping. This makes the area unsightly, and careless disposal of chemical containers can contaminate ground water and be very hazardous to both humans and wildlife.

Ditches

A well-managed network of major drainage ditches and watercourses is likely to form a distinctive pattern of landscape features. These ditches, with adjacent riparian vegetation, are also valuable to wildlife (fig. 35). Farmers should be advised of these values to prevent arbitrary installation of underground pipe and resulting loss of ditches for efficiency of farm operations or other purposes.

In areas where the water table is high and ditches are frequent, it may be necessary to install pipe to make farm operations easier. However, if a well managed network of major drainage ditches and watercourses is identified and maintained, selective removal is unlikely to be a problem.

Lagoons

Waste lagoons themselves have little value for wildlife or as features contributing to landscape quality. If a series of lagoons is used, however, the water quality in the lower lagoons may support a rich flora and fauna. Vegetative screens or earth berms retained or installed around lagoons to control odor or screen them from view are often good habitat

elements for wildlife. Siting of lagoons should be evaluated for terrain, operational limitations, potential visibility, perception of odors, and compatibility with surrounding landscape characteristics and use patterns. Trees, shrubs, herbs, and grasses should be retained or established where they will be compatible with wildlife needs and the surrounding landscape.

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Farmstead Elements

Old Buildings and Silos

With modern high-speed handling techniques, two- and three-story traditional farm buildings are often not used, resulting in their collapse and removal. It is perhaps sentimental and nostalgic to plead for all of these to be conserved as landscape features, and unreasonable to expect money to be paid for their preservation if there is no possible use. However, adaptive reuse of valuable buildings is often possible at no extra expense and should be encouraged. Old buildings and silos, especially if isolated, are often used by barn owls, hawks, swallows, and other unusual species. Grass and shrub growth around these buildings can also

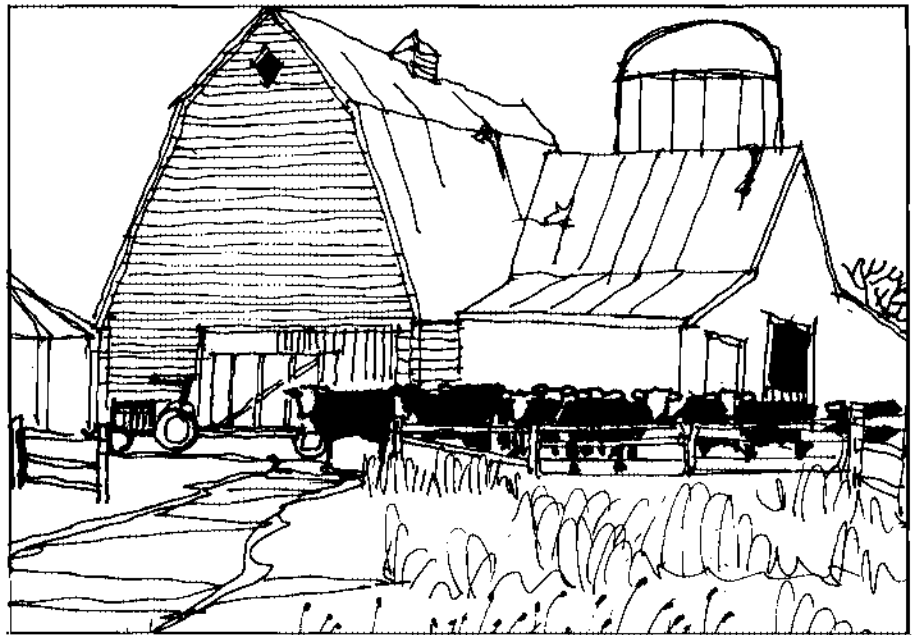
be valuable for some species. As a minimum, if possible, the farmer should be encouraged to keep the roof weather-proofed to protect the structure of these buildings (fig. 36).

New Buildings

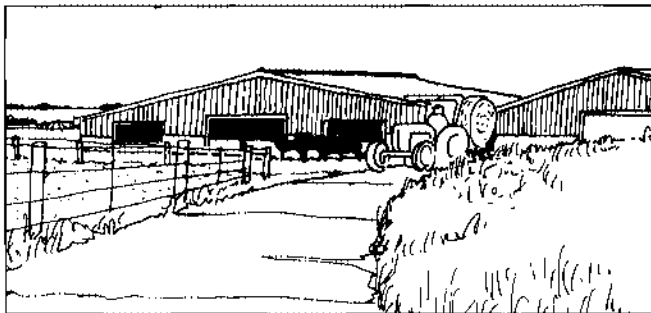
New farm buildings tend to be large, one-story buildings with a clear span, high eaves, and clad in sheet material, which is often highly reflective (fig. 37). They are often prominent features in the landscape. Because of the large area of level ground and required circulation around the building, siting is often difficult, and poorly accomplished.

Ideally, a new building should be located in or close to an existing group of buildings, but this is often operationally

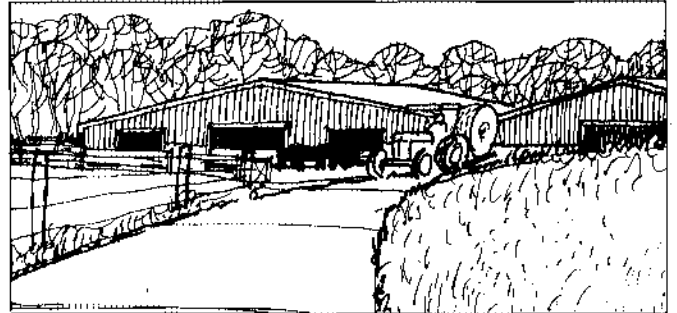
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Farmstead Elements

Old Buildings and Silos

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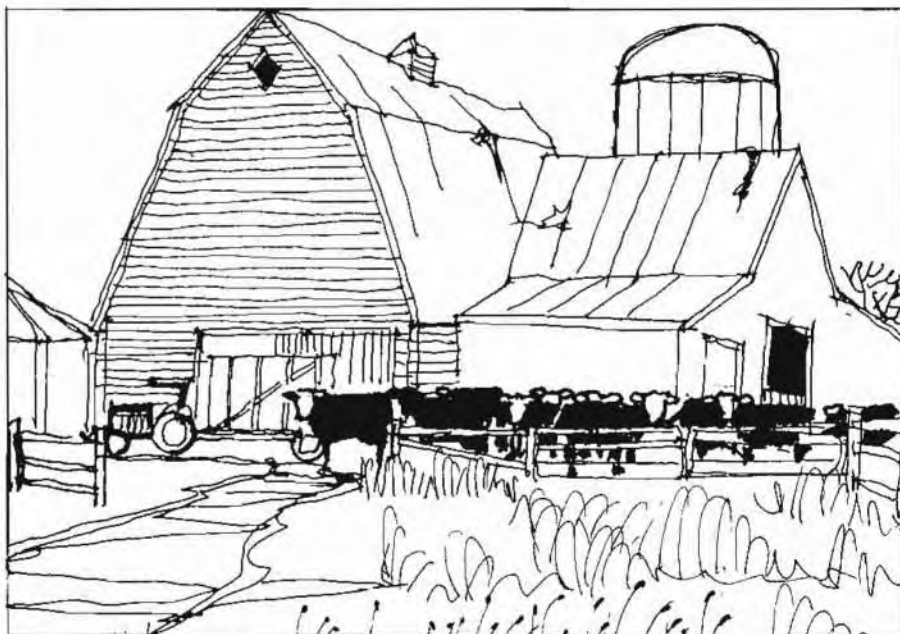
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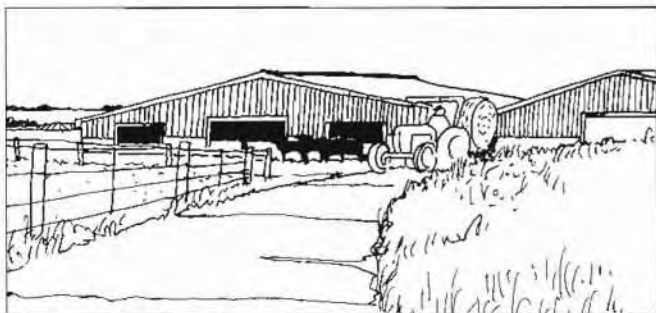
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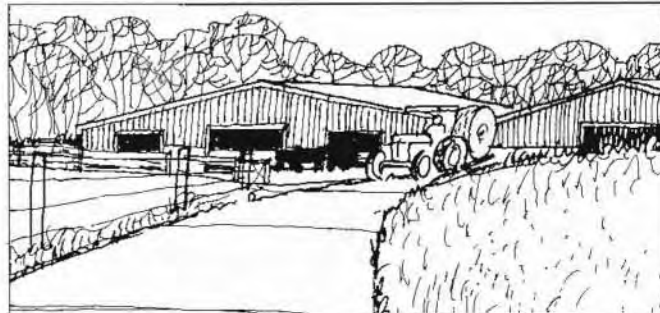
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impossible or undesirable. If so, locate large, new buildings against a backdrop of trees or higher ground where possible. The bulk of a new building is less prominent when sited with a background, and the trees lower high daytime temperatures or otherwise protect facilities from adverse climatic conditions (fig. 38).

It is sometimes possible to use traditional materials such as wood, particularly for cladding sides or gables of buildings. This is often preferred for ventilation and can provide visual continuity in the farmstead complex. When there is a choice of colored cladding sheets, "earth tone" colors that are somewhat darker

than the appearance of the backdrop will allow the buildings to blend with their surroundings. Color coordination of farm structures will also provide visual continuity in the farmstead.

Generally, only pest species of wildlife such as rodents, sparrows, starlings, and pigeons, inhabit farm buildings in everyday use. The buildings are usually designed to minimize nesting sites for these species. Eaves, a characteristic of traditional buildings that encourages starlings and pigeons, seldom appear on new buildings.

Farm Roads

Farm roads are often important elements in the landscape and may be prominent visually (fig. H). This may be because

utility lines, hedges, fences, and the like often follow the same alignment which draws attention to the road. When locating new roads, consider the following in addition to operational constraints:

Locate and design the road to fit into the landscape with a minimum of modification to existing landscape elements and use patterns. Flowing, rather than abrupt changes in gradient or alignment, should be encouraged to blend the road into the landscape and provide a positive visual experience for the traveler (fig. 39). Generally, the horizontal alignment should consist of a series of curves connected by short, straight sections.

H



Where possible, locate farm roads where they form or utilize an edge between two management units. If along a fence, consider varying the width of the edge area or corridor to accommodate a curvilinear road alignment. The wider corridor with roadside vegetation will provide many benefits discussed earlier under "Roadsides."

When locating trees along farm roads, remember the following problems:

- (1) Drifting snow may block the road.
- (2) Shade, particularly from evergreens, may slow thawing of snow or ice on the road.
- (3) Shade may slow drying of unpaved roads.

- (4) Trees on the north side of the road may reduce crop productivity because of shading. Trees on the south side will shade the road, not the crop.

Be careful to locate and design unpaved farm roads to prevent erosion. Besides maintenance and sedimentation problems, drivers will avoid eroded spots by driving on the roadside. This looks bad and destroys the roadside's value for wildlife and landscape quality.

It may be possible to use the road to create water storage and valuable habitat for wildlife (fig. 1). Where the road crosses

depressions, a small impoundment or wet area could be created, with the road effectively forming a dam. Adequate outlet facilities should be provided.

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Conclusion

This note is intended as an introduction to managing wildlife habitat and landscape resources as dual objectives. It may not always be possible to plan for both, but these two purposes should be considered in any conservation planning effort. For more specific information and assistance, contact an SCS biologist or landscape architect.

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