

# Wildlife Corridors

Wildlife corridors are features that connect two or more otherwise isolated patches of habitat. Corridors can consist of natural features such as vegetation, water, or rock, or they can be made by people. Corridors are vital for wildlife to access available habitats. They allow animals to travel safely from one area to another, but may also provide food or other necessities as well. In many cases, corridors already exist and simply need to be enhanced, or they can be created using idle areas on a farm or property.

As with virtually any type of land use or management, corridors usually benefit some species but negatively affect others. For example, wide powerline rights-of-way may help bobwhite quail by providing suitable grassy nesting cover or brushy travel and escape cover, but they may bisect large blocks of woods and inhibit deep-forest wildlife like worm-eating warblers from traveling freely through the entire forest area. Similarly, a road may be used for navigation by migrating birds, but the same road may be a major source of mortality for frogs trying to cross it from one wet area to another.

Wildlife corridors are most easily designed by examining aerial photographs or detailed maps of properties or landscapes, and determining where connectivity between habitat patches is needed. This publication will address the most common types of corridors that exist or can be created, their placement on the landscape, and their design and management.

## Types of Corridors

### Woodland

Perhaps the most obvious corridors needed across most of Kentucky are those connecting isolated woodlots. Because of the interspersed nature of pasture or hayland, cropland, residential or industrial development, or other land uses, patches of woodland are often isolated as islands or separated from neighboring woodlands. This becomes obvious upon examination of aerial photographs. Blocks or strips of trees and shrubs\* should be planted or allowed to naturally revegetate\* in suitable areas to connect separated woodlots. A particular woodland corridor may



Figure 1. Fencerows that have few or no trees or shrubs (above) can be enhanced through natural revegetation or tree/shrub planting to create excellent wildlife corridors (below).





*Wildlife corridors are features that allow wildlife to travel between otherwise isolated habitat patches.*



*Figure 2. Crop fields such as this one, which has no wildlife corridors, offer little benefit to wildlife during much of the year. Grassed waterways, fencerows, and field borders can dramatically improve croplands for wildlife.*

contain tree and shrub species similar to the woodlands that are joined by it, or it may be composed of entirely different species, depending on the wildlife that would use the corridor. For example, several rows of eastern white pine trees may be used to connect two hardwood forest patches if they were being managed for white-tailed deer. The pines would provide year-round visual screening cover and winter cover for deer, as well as roosting and nesting cover for many other wildlife species. Pines would be ideal in areas where there are few or no existing evergreen stands. Similarly, if you were connecting two cedar thickets, you may want to use oak, hickory, and other hardwoods to provide hard mast (acorn and nut) food sources that are currently unavailable. On the other hand, in situations where relatively large blocks (50 acres or more) of a particular woodland type are isolated and can be connected, it is generally best to use the same tree and shrub species for the new corridor that occur in both of the isolated woodland patches.

Many landowners understandably want to maintain most of their fields. If this is your preference, streamsides\*, field borders\* and marginal areas are the best locations for woodland corridors. In any event, the wider the corridor the better. You should plant three or four rows of trees and shrubs or dedicate 25 feet of ground to woodland corridors.

### Grassland

Isolated patches of grassland are not often thought of as needing connecting corridors to be most beneficial for wildlife. However, just as with woodlands, isolated grassland patches may not be useful to animals. Wildlife need travel and protective cover between grassland areas to effectively use them.

Pasture or hayland is the most common grassland type in Kentucky. While crop fields offer cover during part of the year, after harvest there may be no cover connecting permanent grassland areas. Fall cover crops such as wheat or oats may be critical for connecting pasture or hayland during fall and winter, and should always be used while crop fields are resting in the off season. Otherwise, grassland corridors should be planted to clumpy (bunchy) grass species or allowed to naturally revegetate\*.

Native warm-season grasses\* such as big bluestem or indiangrass are the best selection for planting grassland corridors because of their clumpy growth form (which leaves open spaces between plants for animals to maneuver) and better cover qualities (generally taller stems that hold up better during winter). Beneficial cool-season grasses\* such as orchardgrass or timothy may also be used. Legumes\* or other forbs (broadleaf herbaceous plants) such as wildflowers\* should be seeded along with grasses in planted corridors, or allowed to naturally develop as part of a grassland corridor.

Grassland corridors can be established along fencerows, waterways, field borders, or as entire fields themselves. They may also be established or maintained in rights-of-way that pass through woodlands between grassland patches. As with tree or shrubby wildlife corridors, widths of at least 25 feet should be used, but the wider the better. Narrow grassland strips may predispose animals that use them to predation or nest destruction by predators, because they are more easily found in narrow strips.

## Shrubland

The principles that apply to woodland or grassland corridors also apply to corridors used to connect isolated shrubby areas. Cedar thickets, old field areas that have a lot of shrubs or saplings, or areas that have been planted to shrubs or seedlings should likewise be connected by desirable plant cover corridors. Like grasslands, shrubby patches are not often viewed as important habitats in themselves. But there are numerous wildlife species that depend heavily upon thicket\* cover. Prairie warblers, field sparrows, and golden mice are such species. Of course, thickets are used by a variety of animals that use shrubby habitat to meet some part of their life requirements. For example, northern bobwhite quail use thickets for travel, escape and resting purposes. Some desirable native shrubs that should be considered for planted shrubby corridors are gray or silky dogwood, hawthorns, crabapples, and viburnums such as blackhaw or nannyberry. However, shrubs and tree saplings will naturally populate a strip of ground if it is simply left alone for 3-5 years. As with the other types of corridors, use a 25-foot minimum width, but wider is better.

## Wetland

Swamps, sloughs, and similar wetland habitats normally can not be connected by identical habitat. In most situations, it simply is not feasible to create continuous shallow water wetlands\*. Corridors designed to connect wetlands should thus be focused on providing suitable vegetative cover between isolated wetland habitats. This will usually be one of the previously discussed cover types—woodland, grassland, or shrubland. If the corridor is to be planted, the plant species used should be selected to fit the site. Bottomland areas dictate that trees, shrubs and grasses that can tolerate or that thrive in moist or wet soils be used. Consult your local wildlife biologist or Division of Forestry office for tree selection assistance. An easy alternative to planting is to mark off the desired wetland corridor width(s) and allow the areas connecting wetlands to naturally revegetate. This will ensure that plant species suited to the soils will become established.

Rivers, streams, and ephemeral (periodically wet) drains serve as corridors for wildlife species such as river otters, raccoons, and Louisiana waterthrushes. These corridor types particularly their channels and banks—should simply be protected from disturbance. Like other wetlands, these are regulated through the U.S. Army Corps of Engineers and the Kentucky Division of Water, and any plans to alter them must be approved by these agencies. Establishing permanent vegetation along both sides of streams\*, whatever their size, is the best way to improve their corridor values to wildlife. Refer to the Streamside Management *Habitat How-To* for more information on this important practice.

## Non-Vegetative

Natural and non-natural barriers to wildlife movements can sometimes be overcome with other habitat modifications. Roads that bisect breeding grounds for frogs and salamanders can devastate the amphibians' local populations without suitable crossings. Larger animals such as bears and deer may pose



*Figure 3. The wooded drainage in the center of this photograph serves as a wildlife corridor, providing important travel, escape, and other types of cover for wildlife.*



*Wildlife corridors may consist of: vegetation such as trees, shrubs or grasses and forbs; running or standing water; rock outcroppings or cliffhines; or human-created features such as overpasses or culverts.*

threats to human safety as well as being jeopardized themselves if large and busy roads cut through their habitats. These problems can be remedied in part with human-made corridors. Such corridors can take a wide array of forms. Some may be created incidental to other land management practices, such as the placement of culverts in drainages during a road construction project. A culvert may be placed under a road to direct water flow, but it may also allow reptiles, amphibians, and fish to travel between suitable habitats.



Figure 4. Right-of-way corridors can often be managed to benefit wildlife.



*Vegetative wildlife corridors do not have to take up large areas. The following corridor dimensions (width x length) each total one acre:*

- 25 feet x 1742 feet*
- 30 feet x 1452 feet*
- 40 feet x 1089 feet*
- 50 feet x 871 feet*
- 100 feet x 436 feet*

Overpasses and underpasses should be included in road developments where habitats are bottlenecked, because these funnels will cause wildlife road kills and possibly human safety issues. Frequent collisions with white-tailed deer in a particular location are obvious examples of the negative effects of not providing ample corridors over or under roads. Smaller wildlife such as mink, salamanders, or frogs may not be as visible, but they can be heavily impacted by the lack of safe travel corridors across roads. Special consideration of these and other wildlife habitat needs are

important and should be incorporated into road construction planning. In many cases, simply including more open space beneath a highway overpass for drainage areas will accommodate wildlife travel needs with respect to roads. This may cost more initially, but it may save money in the long run by allowing more drainage for flooding, and by reducing law enforcement and road maintenance expenses associated with wildlife-vehicle collisions.

Extended road rights-of-way could be converted from tall fescue\* or other unproductive cover types to more beneficial grassy cover. While the strips of ground immediately adjacent to roads should be mowed closely to provide maximum driver visibility, the extended areas could be planted with beneficial short grass mixtures and maintained with annual mowing\* or strip disking\* outside of the primary nesting season.

Unusual natural corridors should be protected to preserve their functions. Cliff lines and rocky outcroppings that connect large rock formations or even caves may be important corridors for bats, cave salamanders, and eastern woodrats, some of which are rare or endangered species. These types of corridors or other sensitive areas\* are best left intact, or better yet buffered around with tree, shrub and grassy vegetation of adequate widths. Contact your local Kentucky Department of Fish and Wildlife Resources (KDFWR) wildlife biologist for help with managing special habitats such as these.

### Placement

The key to placing wildlife corridors is identifying isolated patches of habitat that need connecting. On a large scale, this is most easily done through examination of recent aerial photographs. On a smaller scale, such as on a particular farm or between farms, isolated patches that need connecting can be identified on the ground and corridors planned accordingly.

Streamsides, hillsides, fencerows, and other existing features are good places along which to consider establishing corridors. These areas allow farmers and other landowners to

provide the wildlife and other benefits of corridors without sacrificing more productive acreage. Of course, entire narrow fields may also be devoted to wildlife corridors. This may be particularly attractive if a field is highly erodible, rocky or otherwise marginally productive. Wetland corridors should normally be created along drainages—natural features that wetland wildlife would use to travel between habitat patches if suitable cover were provided.

## Design

The structural design of a particular corridor will vary depending on the habitat patches it is designed to connect, as well as the primary wildlife species it will benefit. Generally, corridors must be wide enough and provide the right type of cover to ensure safe travel for wildlife that will use them.

Width of wildlife corridors is a critical consideration. You should consider consulting with your local KDFWR wildlife biologist if you have questions, but the following considerations should get you started in the right direction. Wider corridors will provide benefits far greater than narrow ones. For example, a 200-foot wide native warm season grass corridor that connects larger blocks of grassland may attract nesting birds such as dickcissels and Henslow's sparrows that use relatively large blocks of habitat, in addition to providing travel cover for northern bobwhites and white-tailed deer. A 50-foot wide grassland corridor would likely not afford such a benefit.

Another design consideration is providing habitat features that are otherwise unavailable on the property or in the general area. For example, a landowner that is managing for northern bobwhite quail and eastern cottontail rabbits may want to use shrubby corridors to connect isolated woodlots if there is no other thick woody escape cover present on his or her farm.

The best vegetative corridor design for most situations is an edge feathered\* one, which includes zones of grasses, shrubs, and trees all in the same corridor. The center of such a corridor would be planted to trees, with zones or strips of shrubs on each side, and bordered on each outer side by zones of grasses. This would provide habitat for wildlife that may use all three types, as well as those requiring only one of them.

## Management

To maintain the benefits of a vegetated wildlife corridor, especially for grassland or shrubland types, management will usually be needed. Woodland corridors may be managed with timber stand improvement (TSI)\* if trees of suitable age and species are present. Similarly, a selective timber harvest may be an option if a corridor is managed properly. Consult your local Kentucky Division of Forestry district office or call 1-800-866-0555 for professional forest management assistance that is free of charge or obligation.

Grassland corridors may be effectively managed with prescribed burning\*, strip disking, or strip mowing depending on their condition and species composition. The key is to keep the grasses from growing too thick at ground level. However, avoid heavy disturbance adjacent to streamsides or other sensitive areas.



*Figure 5. This clean fencerow could be an excellent travel lane with a 20-30 foot shrub/grass planting on either side.*

## SUMMARY OF OPTIONS:

### Type of Corridor:

Woodland, Grassland,  
Shrubland, Wetland, Other

### Placement of Corridor:

Open Field, Right-of-way,  
Fencerow, Streamside,  
Ditchline, Hillside

### Width of Corridor:

Variable (Suggested  
minimum 25 feet)

### Vegetative Corridors:

Trees & Shrubs, Native  
Warm Season Grasses,  
Cool Season Grasses

### Non-vegetative Corridors:

Water, Rock Outcroppings  
or Clifflines, Culverts,  
Overpasses, Underpasses

### Management of Corridor:

TSI, Mowing, Burning,  
Disking, Fencing

Shrubby corridors are probably best maintained with strip mowing on a 5 to 6 year rotation. One-third of a shrubby corridor could be mowed lengthwise every 2 years. This will keep trees from shading out shrubs, and will help retain the low, thick cover of shrubs.

Wetland corridors usually are best managed with protection. Flat shallow-water areas that are kept in a grassy or herbaceous condition may be managed with periodic disking to stimulate annual plants such as wild millets and smartweeds. Shrubland or woodland corridors along wetlands should be left to grow, and managed with only selective tree removal or TSI.

An edge-feathered wildlife corridor may be managed with a combination of practices. Fencing\* may be required to protect a corridor from damage by livestock. Annual grain\* food plots\* or legumes\* may also be planted adjacent to corridors to enhance their value to wildlife.

### \*Related *Habitat How-To* references:

Annual Grains  
Cool Season Grasses  
Cover Thickets  
Cropland Management  
Edge Feathering  
Fencing  
Fescue Eradication  
Field Borders and Filter Strips  
Food Plots  
Legumes  
Mowing  
Native Warm Season Grasses  
Natural Revegetation  
Prescribed Burning  
Sensitive Areas  
Shallow-water Wetlands  
Streamside Management  
Strip Disking  
Timber Stand Improvement  
Trees and Shrubs  
Wildflowers



The Kentucky Department of Fish and Wildlife Resources does not discriminate on the basis of race, color, national origin, sex, religion, age or disability in employment or the provision of services and provides, upon request, reasonable accommodation including auxiliary aids and services necessary to afford individuals with disabilities an equal opportunity to participate in all programs and activities.

If you feel you have been discriminated against by this department, contact the Kentucky Department of Fish and Wildlife Resources Commissioner's Office, #1 Game Farm Road, Frankfort, KY 40601.

A portion of this publication was underwritten by the Forest Stewardship Program in cooperation with the Kentucky Division of Forestry.

*Planning for My Property*