

Introduction

This evaluation tool will identify minimally acceptable wildlife habitat conditions for common desirable wildlife species in agricultural landscapes. It is a general assessment of wildlife habitat, designed to be as simple and quick as possible, but still adhere to basic wildlife management principles and concepts. It has been developed primarily for the Natural Resources Conservation Service (NRCS), by the NRCS and the Illinois Department of Natural Resources, with input from other wildlife professionals as well.

Purpose

This evaluation was designed to be used when planning a Resource Management System. The Natural Resource Conservation Technical Guide requires that when a Resource Management System is being planned, that wildlife habitat be evaluated, and planned to score at least 0.5 on this or similar evaluation procedures.

Uses

This evaluation procedure will work well to evaluate rural agricultural tracts where wildlife is either a secondary use of the land, or is not a concern, or where management for most common wildlife species is the objective. If intensive management for one species is planned, or to evaluate habitat for a species that requires large acreage of one habitat type, or to specifically benefit a threatened or endangered species, use a species based evaluation procedure and input obtained from a wildlife biologist.

After evaluating an area using this procedure, a review of inventory components (questions and choices) with low scores will suggest practices that would improve the quality of the habitat for wildlife.

This evaluation procedure can also be used to sample habitat quality on a watershed basis when doing Resource Planning. It can be used to help document effects of a practice or project in an Environmental Evaluation. However, this tool does not evaluate the percent or mixture of habitat types that are needed for a desired purpose at the landscape or watershed scale.

Instructions

Procedure:

- 1) Identify all the habitats on the area to be evaluated as cropland, woodland, grassland, or wetland. Habitat type definitions are given in Table 1. Wetlands should also be categorized as cropped, wooded, grassy (including prairie, meadow, marsh, savanna or old field), or open water only. If a field contains areas of more than one habitat type, evaluate each habitat type within the field separately according to the criteria appropriate for the habitat type. For example, evaluate a woody fence row adjoining a crop field as woodland, and a grass filterstrip in the field as grassland.
- 2) Complete the inventory form (attached) in the field and compute the score for each habitat type. See detailed instructions below. If values for all questions in a habitat type are at least 5, the habitat score is the sum of the value for each question divided by the total possible for that habitat type. If the values for any question is less than 5, the habitat score is the lowest value achieved divided by 10. For example, if a cropland field rates a 2 on distance to another habitat type, and the field rates a 5 or above on the other 2 questions, the habitat score for this cropland field is 0.2.

Table 1 Wildlife Habitat Type Definitions¹

Habitat Type	Habitat Characteristics		
	Vegetation ²	Soils/Hydrology	Disturbance Pattern ³
Wetland ⁴	Water body without vegetation; or if vegetation present, then >50% cover by hydrophytes.	Soils: Hydric soils present. Hydrology: Ponding, soil saturation, or surface water for long duration during growing season	Light to severe; or if overlaps with habitat below, then same pattern as below.
Cropland	Annual or perennial herbaceous plants (Less than 25% cover by perennial woody plants)	Any soil type or hydrology capable of supporting characteristic vegetation.	Severe
Woodland/ Forestland	At least 25% cover by perennial woody plants. Woodlands are more open than forestland.	Any soil type or hydrology capable of supporting characteristic vegetation	Light to moderate.
Grassland ⁵ / Savanna	Annual or perennial herbaceous plants (Less than 25% cover by perennial woody plants). Savannas are dominated by grasses but have scattered fire tolerant trees, usually oaks with 10% to 80% cover. Woody understory of savanna trees is usually absent or suppressed for much of the stand's lifespan.	Any soil type or hydrology capable of supporting characteristic vegetation	Light to moderate.

1 - A general guide for identifying habitats for the purpose of planning wildlife habitat management. Not all areas encountered will fit these initially, nor can all areas be altered to conform to these criteria.

2 – Percent cover refers to areal cover by uppermost layer of vegetation, except all layers are measured to determine if an area is wetland. A habitat may have inclusions of other habitat types.

3 – Refers to disturbance pattern after planned management is applied. Any habitat may be severely disturbed prior to management.

Severe disturbance: >50% of area mowed, tilled, harvested etc. on an annual basis*.

Moderate disturbance: ≤50% of areas mowed, tilled harvested etc. on an annual basis*.

Light Disturbance: <5% of area mowed, tilled, harvested etc. on an annual basis*.

* Or average annualized basis for harvesting or artificially flooding woodlands, or prescribed management in grasslands <5 acres in size.

Allowable severity of disturbance post management depends on disturbance type. Consult the practice specifications.

4 – Wetland can overlap with any of the other habitat types. If vegetation has been cleared or otherwise altered by man, an area is still a wetland if hydrophytes would predominate in the absence of further disturbance.

5 – For grassland with significant amounts of shrubs (e.g. abandoned pasture or hayland) determine acreage covered by shrubs and evaluate as shrubland under Woodland/Forestland section. Evaluate the remaining acreage as grassland.

3) Evaluate sampling units of approximately 40 acres when evaluating cropland or 10 acres when evaluating habitat of another type. Sampling units should be approximately square areas.

Evaluate separate patches of the same habitat type together if they occur within a sampling unit. Evaluate separate patches of habitat independently if they are too distant to be included in the same sampling unit. For example, a woody fence row may be inventoried as part of the same sampling unit as a nearby, but disconnected, woodlot.

4) If all of a habitat type falls within a single sampling unit, evaluate the unit as a whole, or subdivide based on component differences, whichever results in the best score. For example, consider a woodland sampling unit with 1 acre which is grazed and has 40 snags and den trees and 9 which is undisturbed and has a total of 20 large den trees and a few snags.

Evaluate as a whole for scoring the snag and den tree component:
Component Value = 5 for the 10 acres

Evaluate separately for the disturbance component and compute a weighted average value:

Subdivision	Value	Acres	Weighted Value	Total Weighted Value = $\frac{72}{10} = 7.2$
Grazed	0	X 1	= 0	Total Acres Evaluated 10
Undisturbed	8	X 9	= $\frac{72}{10}$	
Totals		10	72	

5) If a habitat type is larger than a single sampling unit, and the distribution pattern of all components is similar throughout the habitat, then only one sampling unit need be evaluated for that habitat. Again, evaluate the unit as a whole, or subdivide based on component differences, whichever results in the best score.

Where the distribution pattern of one or more habitat components varies, divide the habitat type into areas where the distribution of components is similar. Evaluate one sampling unit from each area of similar habitat quality and compute a weighted average score. As before, evaluate the unit as a whole, or subdivide based on component differences, whichever results in the best score.

For example, consider cropland on a 120 acre tract with 5 fields. On the 80 acre upland portion, Fields 1 and 2 are each 38 acres, separated by a drainage ditch with field borders on both sides of the ditch. Both fields are included in the same corn/bean/wheat rotation. The 40 acre lowland portion is woodland except for Fields 3, 4 & 5, which are about 3 acre each.

Sample 2 units for this tract. Choose either Field 1 or 2 for the first sample unit. Consider Fields 3, 4 & 5 together to be the second sample unit.

Field	Habitat Score	Acres	Weighted Score	Total Weighted Score = 47
1	.54	X 76	= 41	----- = --- = 0.6 weighted average Habitat Score
3,4,5	.69	X 9	= 6	
Totals		85	47	

6) Record the habitat scores for each habitat evaluated in the summary table provided at the bottom of the first page of the evaluation sheet. Habitat Units may be computed by multiplying the habitat score by acres of that habitat in the evaluation area.

Evaluation of Alternatives: If the score for any habitat type is low, plan conservation practices that will raise the score for that habitat type. The higher value responses for the questions (components) that achieved a low score will suggest which practices to recommend. Then repeat the evaluation assuming the planned alternative is installed.

Quality Criteria: In order to meet Field Office Technical Guide Quality Criteria for animal/wildlife, any habitat type comprising more than 25% of the tract acreage must have a habitat score of a least 0.5.

Score Interpretation: In general the habitat scores can be interpreted as follows:

- 0.3 or below indicates poor habitat
- >0.3 to 0.5 indicates fair habitat
- >0.5 to 0.7 indicates good habitat
- above 0.7 indicates excellent habitat

Inventory Directions: Complete the inventory section of the evaluation in the field with the client if possible. A planning map and a scale for making measurements would be very helpful. The following are detailed directions for each question (component).

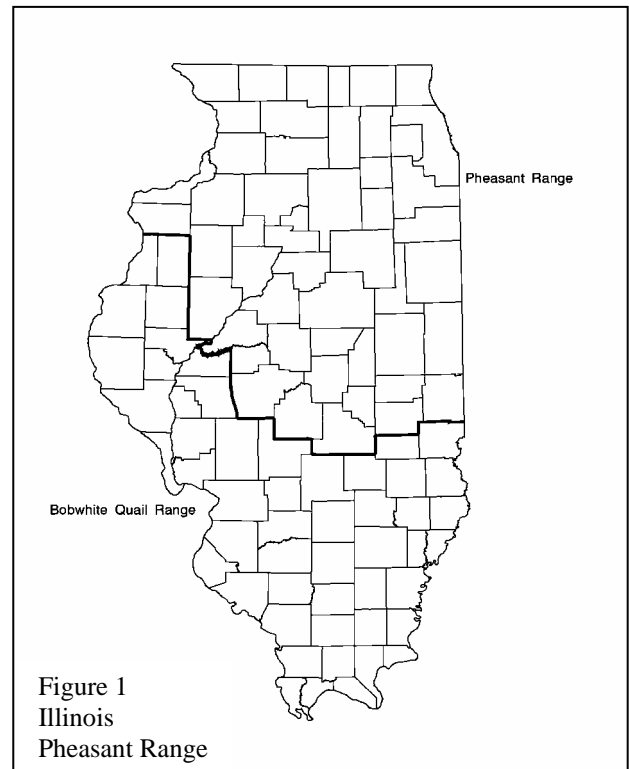
CROPLAND

--- **Maximum distance from 95% of the field to another habitat type with a score of 0.5 or above. Other habitat may be woodland > 16' wide and $\geq 1\%$ of area, or grassland or wetland at least 16' wide and $\geq 2\%$ of area.**

This measurement is to be taken from the point in the cropland field that is farthest from another habitat type that would rate at least a 0.5 habitat score, and is at least a certain size. The 16' width of other habitat cannot include cropped area. The percent of area is the acres of the other habitat type divided by the acres of the cropland field, multiplied by 100.

Ditch banks (within the channel below high water) should not be counted as acceptable grassland nesting habitat since they have a great risk of flooding. Cover across a barrier such as a busy road should not be counted as other habitat for the field since many species cannot cross the barrier to use the habitat.

For a map of the Pheasant Range see Figure 1.



--- Crop rotation and plant cover

Crop rotation = Specified plant covers in the field, occurring either sequentially in consecutive seasons or simultaneously in separate areas (strip cropping).

Winter food plots = Area within the cropland field that has been seeded to a wildlife food plot mix, or crop (corn, milo), not harvested, and left undisturbed over winter.

Perennial grassy cover = Grassy area within the cropland field that is not grazed, hayed, burned, mowed, tilled or otherwise disturbed during the nesting season. Examples may include field border strips, grassed waterways, or set-aside. See also explanation below under Grassland.

Cropland field flooded during waterfowl migration = Area within the cropland field where, in 3 years out of 5, a grain crop is unharvested, or crop residues are untilled and ungrazed, and that is flooded or ponded to a depth of 3 or more inches during spring waterfowl migration.

---- Tillage & Residue

The tillage requirement or minimum residue requirements are to be met after each crop in the crop rotation for at least 90% the field being evaluated. Crop residue is to be measured after planting, or estimate of what is likely to be present after planting given the operators cropping system. Low residue crops include soybean and sunflower. No fall/winter tillage is defined as no tillage from harvest to March 15. Injection of anhydrous ammonia with straight shanks or injection of manure is not considered tillage for this evaluation.

GRASSLAND & SAVANNA

If a grassland such as an intensively grazed or hayed field, scores <5 on the disturbance component, then it may be evaluated for wildlife purposes as cropland under the cropland section if the pasture or hayfield also meets ≥ 5 for Successional stage and ≥ 5 for Plant species diversity for Grassland & Savanna.

If a grassland has a significant amount of shrubs or small trees, such as an abandoned pasture or hayfield, then determine the acreage of shrubs and evaluate it as shrubland under the Woodland/Forestland section. Evaluate the remaining grassland as grassland.

---- Maximum distance from 95% of the field to escape and winter cover >16' wide and > 2% of field for grass or >1% for woody cover.

Escape and winter cover includes stiff grasses and forbs that will still be standing at least 18 inches tall after winter. This usually excludes most cool season grasses. Examples would be switchgrass and Indiangrass on sites with at least normal fertility. It includes dense woody cover that is difficult for a person to walk through. For a map of the Pheasant Range see Figure 1.

--- Grazing, haying, burning, mowing, tillage, or other disturbances

Disturbances = Events which produce significant short-term stress in ecosystem structure or function. Evaluate disturbances as listed below where they occur outside of prescribed wildlife management or compatible purposes. Disturbances are: GRAZING, HAYING, BURNING, PESTICIDE USE, ARTIFICIAL FLOODING, MOWING or TILLAGE (except <5% for paths or firelanes <20' wide, or mowing as needed to establish grassy cover), DEVELOPMENT (Area <100' from a building or developed site), or OTHER (on a site specific basis).

Disturbed = Field is subject to disturbance(s)

Nesting season = period within which 95% of nesting activity is completed by locally occurring grassland wildlife that is likely to be affected by prescribed management, generally from mid-April through July.

Undisturbed in nesting season = Field is not subject to disturbance(s) during nesting season.

More than 50% disturbed annually = Disturbance due to grassland management activity is more intensive than prescribed for wildlife management.

At least 50% undisturbed each year = Mowing, tillage, or burning for prescribed wildlife management purposes do not disturb more than 50% of field. Frequency of management activity does not exceed once annually.

Grazing more intensive than Prescribed Grazing Standard No. 528A = Become familiar with this standard in the FOTG. Generally, initial grazing heights (at beginning of season and after rest periods) must be 6-8 inches for most cool season grasses, and 18 inches for warm season grasses; minimum grazing heights are 3 or 4 inches for most cool season grasses, and 8 inches for warm season grasses. Other restrictions apply.

Grazing within specifications given in Standard No. 528A = Grazing not more intensive than allowed in Prescribed Grazing Standard No. 528A.

Grazing with foliage height maintained above 8" on >33% of area = Stocking rates, rotational periods, and management practices are such that the canopy cover over at least 33% of the grassland is foliage maintained at a height of at least 8 inches.

Grazing with foliage height maintained above 10" on >50% of area = Stocking rates, rotational periods, and management practices are such that the canopy cover over at least 50% of the grassland is foliage maintained at a height of at least 10 inches.

Excessive litter build-up controlled = Management technique used such as prescribed burning, mowing, or tillage, to break down excessive thatch (dead plant material) in very thick and heavy stands of grass. If excessive litter build-up is not occurring, then it may be considered controlled.

--- Successional stage

Barren = That part of a field that has less than 25% vegetation cover. Usually this will be a salt damaged area or some area of the field that has a condition that does not allow normal growth of vegetation. Do not interpret barren as the percentage of the ground not directly covered by vegetation in a "light" stand of grass that has at least 25% cover. Barren does not apply for temporary conditions such as new seedings.

Woody plant invasion not controlled = Mowing, tillage, burning, etc. for prescribed wildlife management purposes is not adequate to prevent >25% aerial coverage by invading woody plants. Trees that make up a savanna are not considered invading woody plants. See Table 1 Wildlife Habitat Type Definitions on page 2. Desirable patches of shrubs should be evaluated as shrubland under the Woodland/Forestland section and not evaluated as part of the grassland.

Perennial grassland = Percent of field that has herbaceous plants which are not Annual (see below).

Annual grassland = Percent of stand or field that has herbaceous plants that must reseed themselves every year. Many of these species are called weeds. Some annual species are:

- Foxtails Beggar ticks
- Ragweeds Crabgrass
- Smartweeds Tick trefoils
- Sedges Pig weeds

--- Plant species diversity (herbaceous plants)

These criteria may be used to evaluate planned alternatives as well as existing habitat. When establishing new habitat, consult suggested species mixtures for wildlife seedings. Evaluate wetland grasses, rushes and sedges as warm season grasses and other emergent wetland plants as forbs.

Undesirable species = Plants which are: 1) listed in the Illinois Noxious Weed Law, 2) listed in IDNR Policy 2450, (i.e., exotic species with a capacity to spread and replace native plants), or 3) species which have unacceptable habitat value if present in monotypic stands. Hence, a plant that has wildlife benefits may still be listed as undesirable for reasons other than a lack of wildlife value.

Noxious Weeds

Marijuana	<i>Cannabis sativa</i>
Musk Thistle	<i>Carduus nutans</i>
Canada Thistle	<i>Cirsium arvense</i>
Perennial sowthistle	<i>Sonchus arvensis</i>
Shattercane	<i>Sorghum almum</i>
Johnson Grass	<i>Sorghum halepense</i>
Common ragweed	<i>Ambrosia artemisiifolia</i>
/(incorporated areas only)	
Giant ragweed	<i>Ambrosia trifida</i>
/(incorporated areas only)	

Exotic Species

Purple loosestrife	<i>Lythrum salicaria</i>
Crown vetch	<i>Coronilla varia</i>
Tall fescue	<i>Festuca eliator</i>
Sericea lespedeza	<i>Lespedeza cuneata</i>
Garlic Mustard	<i>Alliaria petiolata</i>
Teasel	<i>Dipsacus sp.</i>

Other Undesirable Species

Common reed	<i>Phragmites communis</i>
Reed canarygrass	<i>Phalaris arundinacea</i>

Species with >5% canopy cover = Percent of total acreage that the canopy of that species covers. Does not include above undesirable species.

WOODLAND/FORESTLAND

--- Grazing, mowing, other disturbances

In order to achieve the 5 value, adjacent pasture fields, or areas containing livestock, must be fenced to exclude livestock from the woodland. This does not include forestry management practices such as harvest activities. Areas managed as shrubland, and newly established tree planting, also receive a 5 value. Green tree management receives an 8 value.

Disturbances = See explanation above under Grassland. Disturbances are: BURNING, PESTICIDE USE, ARTIFICIAL FLOODING, or CUTTING; MOWING, TILLAGE or GRAZING (except <5% for paths, firelanes or access lanes <20' wide, or mowing or tillage as needed to establish woody cover); DEVELOPMENT (Area <100' from a building or developed site); or OTHER (on a site specific basis).

Logs undisturbed = Downed trees. Disturbance would be removal of logs and woody debris for firewood or other use. After a timber harvest operation or a natural disaster causes a lot of downed trees, salvage operations (such as firewood removal) are permitted on 90% area.

Crop trees = Individual trees that have been selected and managed to encourage their growth for future timber harvest or other purposes.

Wildlife crop trees = Individual trees that have been selected and managed to provide some component of wildlife habitat.

Green tree management = Intensive management of water levels in woodland during the dormant period.

--- **Plant species diversity (desirable trees, shrubs, or woody vines)**

Desirable = species that are not on the Undesirable Woody Species below. In addition, consider undesirable herbaceous species when evaluating percent of area covered by undesirable species.

UNDESIRABLE WOODY SPECIES	
VINES	
Japanese honeysuckle	<i>Lonicera japonica</i>
Kudzu	<i>Pueraria lobata</i>
Round-leaved bittersweet	<i>Celastrus orbiculatus</i>
Winter creeper	<i>Euonymus fortunei</i>
SHRUBS	
Amur honeysuckle	<i>Lonicera mackii</i>
Autumn olive	<i>Elaeagnus umbellata</i>
Multiflora rose	<i>Rosa multiflora</i>
Tatarian honeysuckle	<i>Lonicera tatarica</i>
Winged Wahoo/burning bush	<i>Euonymus alatus</i>
TREES	
Amur maple	<i>Acer ginnala</i>
Tree of heaven	<i>Ailanthus altissima</i>
Black locust	<i>Robinia pseudoacacia</i>
Common Buckthorn	<i>Rhamnus catharticus</i>
Glossy buckthorn	<i>Rhamnus frangula</i>
Saw-toothed buckthorn	<i>Rhamnus arguta</i>
Dahurian buckthorn	<i>Rhamnus davurica</i>
Japanese buckthorn	<i>Rhamnus japonica</i>
Chinese buckthorn	<i>Rhamnus utilis</i>

Conifer stand >1 acre = Evergreen tree stand (usually a pine tree plantation) that does not have more than 2.5% non-evergreen trees within it.

2.5% canopy cover = Percent of total acreage that the canopy of that species covers. Note, it is possible to have more than 100% canopy coverage if all species are added up, because there are different layers that are covering the same spot at the same time. 2.5% = 2 1/2 square feet out of a 10 X 10 foot area, or a 33 X 33 foot area out of 1 acre.

--- **Mast producing tree and shrub density**

Mast producers = The following species:

Trees > 10" diameter

Oak
Walnut
Pecan
Hickory

Shrubs

Hazelnut
Blackberry
Raspberry
Elderberry
Black Chokeberry
Dogwood
Viburnum
Coralberry
Sumac

<u>Soft Mast Trees > 15' tall</u>	<u>Small Trees > 6' tall</u>
Hackberry	Red Cedar
Mulberry	Hawthorn
Black Cherry	Crabapple
Persimmon	Plum
Maple	
Box Elder	
Ash	
Elm	

5% canopy cover = See 2.5% coverage above. 5% = 5 square feet out of a 10 X 10 foot area, or a 47 X 47 foot area out of 1 acre.

--- Snag and Den Tree density

Add both snags and den trees together for these criteria. Within the size classes in values 4 and 7 snags and den trees should be equally divided in each size class. Does not apply (score = 5) for areas maintained in low, dense woody cover (e.g. shrub thickets, some wildlife fencerows); or newly established (until mature) tree plantings.

Snag = A dead standing tree, or dead limb, at least 10 feet long.

Den Tree = A live tree with a cavity (hole) large enough to shelter wildlife. Include artificial nest boxes where present or a planned alternative.

Dbh = Diameter of the trunk at breast height (4.5').

WETLAND

--- Water management

Water level manipulations = Includes drainage activities, or flooding that will damage existing habitat. Water quality and quantity acceptable for wildlife and habitat = Wildlife populations and habitat are not significantly impaired or reduced due to poor water quality or amount of water.

Moist soil management = Intensive management of water levels to promote naturally occurring aquatic emergent plants.

Green tree management = Intensive management of water levels in woodland during the dormant period.

For wetlands that occur in cropland, grassland (marsh or meadow), or woodland, evaluate as the appropriate other habitat type and combine with the value achieved for water management, then divide by the highest possible value for the combined components. For wetlands that are open water only, score using water management criteria. Examples: A farm pond with little aquatic vegetation would be scored only under water management. A marsh would be scored using both water management and grassland. A bottomland wooded wetland would be scored using both water management and woodland.

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