OHIO WILDLIFE HABITAT EVALUATION INSTRUCTIONS

This inventory evaluates important characteristics (evaluation factors) that determine the quality of wildlife habitat in common Ohio land use settings where NRCS may assist landowners or managers. Although other characteristics also impact wildlife habitat, these were selected and scored because of their importance, ability to be easily managed by the landowner and likely impact from NRCS-assisted conservation activities. This evaluation method is developed primarily to evaluate general habitat conditions for a variety of typically-occurring wildlife species where intensive habitat management for particular species is not the goal. It may be necessary to utilize other methods where more intensive manage is occurring or where the focus is on a particular species. This evaluation method does not cover truly aquatic sites such as streams, rivers, ponds or lakes. This evaluation is not to be used where programmatic or other rules require the use of a specific habitat evaluation method.

Evaluation worksheets are available for the following habitats: cropland, grassland, pasture/hayland, shrub/oldfield, wetland, and woodland. A worksheet will be completed for each land use that is present or planned for establishment. The evaluation may be completed for the entire land use acreage if management of each field is fairly consistent or easily averaged. The land use acreage may also be subdivided into areas of different management. If there are numerous fields/blocks of a habitat type, a representative sample may be used to come up with scores. Most of the information needed for this inventory should be easily obtained from field visits, aerial photography or landowner discussion

Every habitat evaluation factor for each habitat type must be scored. Scores should be selected for both the existing and planned system. More than one alternative may be recorded if this is the case. The point values given represent maximum and minimum for each factor as well as scores for representative situations. Scores other than those on the worksheet may be used for situations not represented on the worksheet or where average conditions in several fields are used. For example, where a producer has less than 20% residue on some fields and greater than 50% on others, a score of 2, 4 or 5 may be given for residue management depending on the relative amounts of the different tillage. However, scores beyond the range of the maximum or minimums listed cannot be used.

For each habitat type an index is calculated. This index will range from 1.0 (best habitat) to 0.0 (worst habitat conditions). By calculating an index, the effects of varying point totals for the habitat types are equalized. This also allows for a means of identifying a level that may be referenced in planning criteria (e.g. 0.5 for Inadequate Habitat for Fish and Wildlife) or programmatic requirements.

Calculating a Weighted Tract Index

If only one habitat type is being evaluated or if it is preferable to keep the evaluations separate by habitat type, there is no need to calculate an index for the entire planned area.

However, if a score for the entire planning area is needed it may be calculated as a weighted average. The Ohio Wildlife Habitat Evaluation Summary form (Excel spreadsheet) provides a summary of the habitat index value for each habitat type and the entire planning unit under both the existing and planned conditions. It can serve as the documentation of whether or not the planned system meets FOTG quality criteria for wildlife habitat; show the potential wildlife habitat under differing management systems; or suggest which habitat types need improvement for wildlife habitat.

For each habitat type present on the planning unit, record the habitat index from the inventory worksheet and the acres of that habitat type in the planning unit. A weighted score for each habitat type is calculated as well as a weighted score for the entire planning area. A habitat index is calculated for the existing benchmark conditions as well as each alternative or combination of alternatives.

Guidance for Completion of Habitat Evaluation Forms

Cropland Habitat

Cropland includes land used for row crop, small grain production as well as land having hay included as minor part of a rotation. (If hay is a significant part of the rotation, this should be evaluated on the pasture/hayland sheet.) It also includes land devoted to truck crops or specialty crops planted on an annual basis; it does not include land established to more permanent specialty crops such as berries, vineyards or orchards. Minor amounts of permanent herbaceous cover such as filter strips, grassed waterways or field borders may be included. It also includes small acreages of other cover such as fencerows, odd areas or wetlands embedded in or adjacent to the cropland. The most important factor is the amount of cover and food provided to wildlife over winter. Diversity of cover, summer food sources and permanent cover are also important.

Residue management reflects the importance of waste grain and crop residue that is left over winter both for food and cover. Since a variety of tillage methods may be used depending on crops grown and soil types, it is typically necessary to use a score that best represents the relative amount of the fall tillage across all fields. The factor refers to both fall tillage and ‘disturbance’; disturbance means any non-tillage actions that affect residue such as mowing, shredding, burning or grazing.

Crop rotation affects the diversity of cover types available, the amount of over winter cover, potential food sources and possible nesting cover. The rotation evaluated does not have to match the order of the rotations listed but should contain all the elements listed. When considering small grains, winter wheat can score slightly higher than oats. If cover crops are used regularly, scores below 10 may be increased by 1 point.

Concealment cover is critical for many species as protection from winter weather or predators, travel corridors, food sources and nesting cover. Concealment cover may include dense brushy fencerows or ditchbanks, windbreaks, rock piles, dense emergent wetlands, brush piles or woodlands. Concealment cover should not be monotypic stands of grasses such as tall fescue or smooth brome. Concealment cover that is linear (fencerows, filter strips, etc.) must be at least 30 feet wide and non-linear patches must be at least at least 100 feet square (approximately ¼ acre). Very small areas of wetlands or woodland that are not significant enough to be score separately may be considered here. Base the score on the average of all fields or a representative sample of fields. Concealment cover on adjacent lands not under the control of the landowner of the planning unit may be considered if there is a reasonable likelihood that these areas will remain intact (e.g. under public ownership or easement).

Post-harvest crop management determines the amount of unharvested grain or other food that will be available to resident wildlife over the winter. Unharvested crops are areas that were planted to a crop, the crop grew to grain production and the area was left unharvested and undisturbed until spring. Winter food plots should be predominately grain producing species. Acreage is calculated as a percentage of the total cropland acreage.

Grassland Habitat

Grassland includes non-production areas maintained in primarily grass/legume/forb cover for wildlife habitat, other conservation purposes (soil protection, water quality) or simply idle. Scattered woody vegetation may be present but if it exceeds 10%, the area may be evaluated as shrub/oldfield habitat. It may include CRP acreage and significant areas of grassy areas such as filter strips, grassed waterways, or field borders. The most important characteristics are related to stand composition and structure; size and management are also considered.

Species composition with multiple species of different types (grasses, forbs, legumes) primarily composed of native species provides the best conditions for wildlife food and cover in grasslands. Stands with very low diversity and greater numbers of less desirable species may not provide the proper nesting cover or food sources for a variety of grassland birds. Desirable and undesirable species are listed at the end of this document.

Bare ground is important for many grassland nesting birds especially when they are newly fledged. It is also a good indicator of the open structure desired by many grassland species. Bare ground is determined by both the lack of litter or duff on the surface as well as sparseness of growing plant stems at the soil surface.

Undesirable species provide poorer quality habitat conditions in terms of food and also reduce the presence of more desirable species. The presence of undesirable species may indicate a site being invaded by these species and that the coverage of them is likely to increase. Undesirable species are listed at the end of this document.

Management and disturbance are important to create and maintain the favorable structural conditions; this may include actions such as ground disturbance, burning,

mowing or prescribed grazing. It is also useful promote the growth or more desirable plant species or permit their re-establishment.

Size of the grassland is critical for the presence of area-sensitive species which typically require larger contiguous stands of grass to breed successfully. Smaller areas can provide habitat for a wide variety of species as well but these tend to be more common species.

Pasture/Hayland Habitat

This evaluation is used to evaluate areas managed for livestock forage either as pasture or hayland. Hayland in rotation with annual crops where those annual crops are typically for just a year may be included as well. Important characteristics of this habitat type are amount of disturbance during nesting season, diversity of cover and amount of cover over winter.

Species composition is important because areas with a high diversity of species including forbs, desirable cool season grasses (CSG) and warm season grasses (WSG) provide better food and cover. It is not necessary for species to be completely intermixed; fields which have various species planted in strips or blocks meet this criterion as well.

Management which avoids disturbance during the nesting season is preferred; the extent to which this disturbance is deferred or reduced in extent increases the score. Management also affects the condition of cover in the winter. This factor is evaluated differently on pastured versus hayed areas; use the correct column depending on use.

Concealment cover is critical for many species as protection from winter weather or predators, travel corridors, food sources and nesting cover. Concealment cover may include dense brushy fencerows or ditchbanks, windbreaks, rock piles, dense emergent wetlands, brush piles or woodlands. Concealment cover should not be monotypic stands of grasses such as tall fescue or smooth brome. Concealment cover that is linear (fencerows, filter strips, etc.) must be at least 30 feet wide and non-linear patches must be at least at least 100 feet square (approximately ¼ acre). Very small areas of wetlands or woodland that are not significant enough to be score separately may be considered here. Base the score on the average of all fields or a representative sample of fields. Concealment cover on adjacent lands not under the control of the landowner of the planning unit may be considered if there is a reasonable likelihood that these areas will remain intact (e.g. under public ownership or easement).

Desirable forbs and legumes are important to providing food resources and the appropriate cover. Refer to the lists of desirable species at the end of this document.

Protection of sensitive or important wildlife habitat evaluates whether or not areas such as wetlands, streams or woods are protected from grazing (primarily) or haying. Typically this would be accomplished by some sort of fencing; the addition of a buffer provides extra value. If none of the areas are present in areas that are hayed or grazed, mark N/A in the columns to the right; in these cases the maximum total score would be 90 instead of 100 and the index should be calculated accordingly.

Shrub/Old Field Habitat

These are typically areas that are abandoned, reverting or idle and do not meet any of the other habitat types; they may also be areas established to this cover for wildlife or other purposes. Usually the cover will be a mix of herbaceous species and shrubs or small trees. They should be at least 1 acre. Smaller areas may be considered as concealment cover for pasture/hayland or cropland. Areas that are predominantly herbaceous plants can be considered under grassland and areas that have greater than 10% tree (2" DBH and/or 20 feet height) canopy should be evaluated under the woodland habitat.

Species composition is important because areas with a high diversity of species including forbs, grasses and shrubs provide better food and cover. The presence of high amounts of undesirable or invasive species will degrade the value for wildlife. Generally the species will be intermixed.

Structure that is composed of plants with varying heights provides a more diverse cover that provides benefits for a variety of wildlife species.

Disturbance during the nesting season severely limits the value for nesting birds and other species.

Wetland Habitat

Wetlands provide a unique habitat critical to the life history of many species as well as a source of food, cover and water to other non-wetland dependent species. This index evaluates wetlands based on the permanence of water, the type of vegetative cover and the protection given to the wetland. If there are large wetland areas which may be evaluated specifically for wetland wildlife habitat value, other wetland-specific or species-specific methods should be used to evaluate these areas separately. Large wooded areas that meet the wetland definition may be evaluated as either wetland or woodland; they cannot be evaluated under both categories.

Species composition influences the quality of habitat by providing desirable food and cover; the more diverse cover provides better habitat for a variety of species; the presence of invasive species reduces habitat quality.

Hydrology, as reflected in the frequency and duration of inundation, creates the unique conditions that make wetlands so different from uplands. Although saturated wetlands and short-duration ponded areas have value as well, the presence of more permanent water increases value for more wetland dependent species.

Management or disturbance of wetlands can help improve habitat conditions if done properly; however disturbance occurring during the growing season can have detrimental effects. Vegetated buffers help protect the wetland from off-site disturbance or impacts (sediment, pesticides, nutrients).

The size of wetlands and proximity to other wetlands influences the ability to support a wide range of species; small, isolated wetland often support fewer species.

Woodland Habitat

This index is to be used to evaluate areas with at least 10% canopy cover of woody species with DBH greater than 2 inches or greater than 25 feet high. This may be areas ranging from young, newly reverting or planted sites to mature woodlands. Areas with scattered large trees may be evaluated under the Grassland or Old Field Index depending on the dominant cover. Very small wooded areas may be considered more as concealment cover affecting cropland or grassland and not evaluated separately. Isolated wooded wetlands may be evaluated using the wetland evaluation instead particularly if wetland wildlife are more of a priority.

Woodlands managed so that there is a diversity of trees, both in terms of size classes and species, provide the best general wildlife habitat. This is a reflection of both past and current management. Other factors such as the presence of other cover, invasive species and the size of the woodland are also considered.

Species diversity with greater variety of native species provides a wider range of food and cover for various wildlife.

Structure of the stand should have trees and understory of various size classes (sapling, pole, mature, vines, etc.); this maximizes the number of wildlife species with appropriate cover for protection and nesting

Disturbance can reduce the diversity of cover, the ability to regenerate appropriate cover and the likelihood of wildlife using the woodland. The effects of past disturbance where the site is restoring are less harmful than current disturbance.

Mast producing species are very important for providing a variety of food sources for many woodland wildlife. A list of soft and hard mast species is included at the end of this document.

Snags and den trees provide nesting and cover for many woodland wildlife species. Forest management for timber may decrease the amount of snags or den trees that are seen as unproductive. Snags may be naturally occurring or created; they may also be replicated through the installation of nest boxes.

Ground cover in the form of downed logs or smaller material such as branches and leaves are critical both as cover for many smaller species as well as supporting food cycles on which many wildlife species depend. Larger debris provides more long-lasting cover while finer debris is important for maintaining soil conditions appropriate for wildlife. Constructed brush piles may be used to replace or supplement larger woody debris.

Invasive species reduce the potential for desirable species to grow and reproduce. They also do not provide the type of food or cover desired by a wide variety of woodland species. The presence of high levels of invasive species indicates a site being invaded by these species and that the coverage of them is likely to increase.

Size and connectivity reflects the value of larger, connected woodlands over smaller, isolated woodlands. Small, isolated wetland may not be able to support populations of

wildlife sufficient to maintain themselves. Although landowner are not able to influence the presence/amount/connectivity of woodlands on adjoin lands, they can manage woods on their land to increase size or connectivity.

Plant Species Lists

Desirable and Undesirable Species

Although not all-inclusive, this list contains species that are frequently established or managed especially on agricultural lands or areas managed for wildlife. Desirable species are those that are preferred for wildlife food and cover. Undesirable species are those that have been shown to not provide habitat that is utilized by or beneficial for a variety of wildlife species. Also, any invasive species listed further below is also considered undesirable. There are likely species not included on this list that may be found in the area of evaluation; in general, they may be considered desirable as long as they are not species that tend to be overly aggressive or invasive and tend to dominate a site. If unsure, contact the NRCS state biologist or other professional biologist.

Plant Type	Desirable	Undesirable
Introduced Grasses	Orchardgrass Timothy Redtop	Tall Fescue Perennial Rye Smooth Bromegrass
Native Grasses	Big Bluestem Little Bluestem Indiangrass Switchgrass Eastern gamagrass Sideoats Grama Wild Rye	
Introduced Legumes	Alsike Clover White Clover Red Clover Birdsfoot Trefoil Ladino Clover Alfalfa	Yellow Sweet Clover White Sweet Clover Sericea Lespedeza
Native Legumes	Illinois Bundleflower Lead Plant Partridge Pea Tick trefoil Wild Indigo Roundhead Lespedeza White or Purple Prairie Clover	
Forbs	Golden Alexander New England, Swamp, Sky Blue or Flat top Aster	Heath Aster Canada Goldenrod Queen Anne’s Lace

	Black-eyed Susan Blazing Star Gray-headed, Purple or Yellow Coneflower Tall Coreopsis Rigid, Riddells or Showy Goldenrod Milkweeds Ironweed False and sawtooth Sunflower Vervain Joe-Pye Weed Note: Many other native forbs are desirable; these are some of the most commonly planted or naturally occurring species. In general if a species is listed as recommended for wildlife practices for CRP, EQIP or similar program, they may be considered beneficial.	(although native, these species have a tendency to become overly aggressive and dominate stands: if present in limited numbers they may be desirable)

Invasive Plant Species

These are the most commonly recognized plant species that are considered invasive and that may significantly degrade land's ability to provide beneficial wildlife food and cover. Those species in **bold** are ones officially designated as invasive species under the new invasive species regulations administered by the Ohio Department of Agriculture.

Species	Form	Habitats Invaded
Tree of Heaven *Ailanthus altissima*	Tree	Woodlands
Garlic Mustard *Alliaria petiolata*	Herbaceous	Woodlands
Japanese Barberry *Berberis thunbergii*	Shrub	Woodlands, Grasslands
Common Barberry *Berberis vulgaris*	Shrub	Woodlands, Grasslands
Smooth Bromegrass *Bromus inermis*	Herbaceous	Grasslands, Woodlands
Flowering Rush *Butomus umbellatus*	Aquatic Herbaceous	Wetlands, Ponds
Oriental Bittersweet *Celastrus orbiculatus*	Vine	Woodlands
Spotted Knapweed *Centaurea stoebe ssp, micranthos*	Herbaceous	Grasslands
Canada Thistle *Cirsium arvense*	Herbaceous	Grasslands

Species	Form	Habitats Invaded
Common Teasel *Dipsacus fullonum*	Herbaceous	Grasslands
Air Potato *Dioscorea polystachya*	Vine	Woodland (edges), Riparian areas
Cutleaf Teasel *Dipsacus lacinatus*	Herbaceous	Grasslands
Brazilian Elodea *Egeria densa*	Herbaceous	Wetlands, Ponds
Russian Olive *Eleagnus angustifolia*	Shrub	Grasslands, Woodlands
Autumn Olive *Eleagnus umbellata*	Shrub	Grasslands, Woodlands
Hairy Willow Herb *Epilobium hirsutum*	Herbaceous	Wetlands, Streambanks
Winged Burning Bush *Euonymus alatus*	Shrub	Woodlands
Wintercreeper *Euonymus fortunei*	Shrub/Vine	Woodlands
Bohemian Knotweed *Fallopia x bohemica*	Herbaceous	Stream banks, Woodlands (edges)
Japanese Knotweed *Fallopia japonica*	Herbaceous	Stream banks, Woodlands (edges)
Giant Knotweed *Fallopia sachalinensis*	Herbaceous	Stream banks, Woodlands (edges)
Tall Fescue *Festuca eliator*	Herbaceous	Grasslands
Glossy Buckthorn *Frangula alnus*	Shrub	Woodlands, Grasslands, Wetlands
Giant Hogweed *Heracleum mantegazzianum*	Herbaceous	Woodland (edges), Riparian areas
Dame's Rocket *Hesperis matronlis*	Herbaceous	Woodland, Edges, Grassland
Hydrilla *Hydrilla verticillata*	Aquatic Herbaceous	Deep Wetlands, Ponds
European Frog-bit *Hydrocharis morsus-ranae*	Aquatic Herbaceous	Deep Wetlands, Ponds
Common Privet *Ligustrum vulgare*	Shrub	Woodlands
Japanese Honeysuckle *Lonicera japonica*	Vine	Woodlands
Amur Honeysuckle *Lonicera maackii*	Shrub	Woodlands
Morrow's Honeysuckle *Lonicera. morrowii*	Shrub	Woodlands
Tatarian Honeysuckle *Lonicera tatarica*	Shrub	Woodlands
Purple Loosestrife *Lythrium salicaria*	Herbaceous	Wetlands
European Wand Loosestrife *Lythrum virgatum*	Herbaceous	Wetlands
Japanese Stiltgrass *Microstegium vimineum*	Herbaceous	Woodlands, Stream banks
White Sweet Clover Melilotus alba	Herbaceous	Grasslands

Species	Form	Habitats Invaded
Yellow Sweet Clover Melilotus officinalis	Herbaceous	Grasslands
Chinese Silvergrass *Miscanthus sinensis*	Herbaceous	Grasslands, Open areas
Parrotfeather *Myriophyllum aquaticum*	Aquatic Herbaceous	Deep Wetlands, Ponds
Eurasian Water-milfoil *Myriophyllum spicatum*	Aquatic Herbaceous	Deep Wetlands, Ponds
Yellow Floating Heart *Nymphoides peltata*	Aquatic Herbaceous	Deep Wetlands, Ponds
Princess Tree *Paulownia tomentosa*	Tree	Woodlands
Mile-a-minute Weed *Persicaria perfoliatum*	Herbaceous	Woodlands, Wetlands
Reed Canary Grass Phalaris arundinacea	Herbaceous	Wetlands, Grasslands
Amur Corktree *Phellodendron amurense*	Tree	Woodlands
Common Reed *Phragmites australis*	Herbaceous	Wetlands
Bamboo *Phyllostachys* sp.	Shrub	Woodland edges, Grassland, Stream banks
Curly-leaved Pondweed *Potamogeton crispus*	Aquatic Herbaceous	Deep Wetlands, Ponds
Kudzu *Pueraria montana var. lobate*	Vine	Woodlands
Callery Pear *Pyrus calleryana*	Tree	Woodlands, Grasslands
Lesser Celandine *Ranunculus ficaria*	Herbaceous	Woodlands, Riparian areas
European Buckthorn *Rhamnus cathartica*	Shrub	Woodlands, Grasslands, Wetlands
Multiflora Rose *Rosa multiflora*	Shrub	Grasslands, Woodlands (open)
Bouncing Bet *Saponaria officinalis*	Herbaceous	Woodlands, Grasslands
Water Chestnut *Trapa natans*	Aquatic Herbaceous	Deep Wetlands, Ponds
Narrowleaf cattail *Typha angustifolia*	Herbaceous	Wetlands
Hybrid cattail *Typha xglauca*	Herbaceous	Wetlands
Siberian Elm *Ulmus pumila*	Tree	Woodlands, Grasslands
Black Swallow-Wort *Vincetoxicum nigrum*	Vine	Woodlands
Japanese Wisteria *Wisteria floribunda*	Vine	Woodlands (edges, open areas)

Noxious Weed Species

Ohio has designated the following plants as “prohibited noxious weeds”. Although these are designated primarily due to their threat to agricultural crops, some are also problems in wildlife habitat, particularly open areas or grasslands. Some of these species may be considered invasive as well.

Shatter cane (Sorghum bicolor)
Russian thistle (Salsola Kali var. tenuifolia)
Johnsongrass (Sorghum halepense L. (Pers.))
Wild parsnip (Pastinaca sativa)
Wild carrot (Queen Annes lace) (Daucus carota L.)
Oxeye daisy (Chrysanthermum leucanthemum var. pinnatifidum)
Wild mustard (Brassica kaber var. pinnatifida).
Grapevines: when growing in groups of one hundred or more and not pruned, sprayed, cultivated, or otherwise maintained for two consecutive years
Canada thistle (Cirsium arvense L. (Scop.))
Poison hemlock (Conium maculatum)
Cressleaf groundsel (Senecio glabellus)
Musk thistle (Carduus nutans)
Purple loosestrife (Lythrum salicaria)
Mile-A-Minute Weed (Polygonum perfoliatum)
Giant Hogweed (Heracleum mantegazzianum)
Apple of Peru (Nicandra physalodes).
Marestail (Conyza canadensis)
Kochia (Bassia scoparia).
Palmer amaranth (Amaranthus palmeri).
Kudzu (Pueraria montana var. lobata)
Japanese knotweed (Polygonum cuspidatum)

Mast Producing Species

Soft Mast	Hard Mast
Birch	
Black Cherry	American Beech
Black Gum	Buckeyes
Flowering Dogwood	Butternut
Hackberry	Hickories
Hawthorn	Native Oaks
Maples	Pecan
Persimmon	Black Walnut
Serviceberry	
Sweetgum	
Tuliptree	