

NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

UPLAND WILDLIFE HABITAT MANAGEMENT

(Acre)

CODE 645

DEFINITION

Provide and manage upland habitats and connectivity within the landscape for wildlife.

PURPOSE

Treating upland wildlife habitat concerns identified during the conservation planning process that enable movement, or provides cover, water, and/or food in proper amounts, locations and times to sustain species that inhabit uplands during a portion of their life cycle.

CONDITIONS WHERE PRACTICE APPLIES

Land where the decision maker has identified an objective for conserving a wild animal species, guild, suite or ecosystem.

Land within the range of targeted wildlife species and capable of supporting those species.

CRITERIA

Only an approved habitat evaluation or appraisal shall be used to identify habitat-limiting factors in the planning area.

Application of this practice shall remove or reduce limiting factor(s) in their order of significance, as indicated by the habitat evaluation.

Application of this practice alone, or in combination with other supporting and facilitating practices, shall result in a conservation system that will enable the planning area to meet or exceed the minimum quality criteria for wildlife habitat established in Section III of the FOTG.

Habitat Appraisal or Habitat Evaluation:

- The evaluation will result in a quality rating or habitat suitability index (hsi). This will consider the amount, quality and distribution of habitat components required. The quality rating or hsi will be a minimum of 0.5 using the *Wildlife Habitat Evaluation Procedure for Resource Management Systems* in Section IV, Tools, of the FOTG when a suite of wildlife species is planned as a secondary landowner objective. The hsi will be a minimum 0.75 with this appraisal tool when general wildlife is a primary landowner objective.
- When the landowner objective is for the management of one target species, an approved habitat appraisal shall be specific to the target species and completed by the planning biologist.

Establish additional criteria for components of this practice including, but not limited to:

- Vegetation establishment for cover, food, and to facilitate movement;
- Structural measures to provide cover,

food, water, or enable movement; and

- Manipulation of vegetation to sustain desirable habitat conditions over time.

Vegetative manipulations to restore plant and/or animal diversity shall be accomplished by Prescribed Burning (Practice Standard 338) or mechanical, biological, or chemical methods, or a combination of the four.

Where feasible, other disturbance treatments will be used instead of mowing to maintain the desired successional stage.

In livestock or forage operations, prescribed grazing or haying shall be conducted in a manner to maintain or improve vegetation structure and composition so as to improve the desired habitat for a particular species. When grazing is used as a wildlife management tool, Prescribed Grazing (528) must accompany this practice.

Management measures shall be provided to control invasive plant species and noxious weeds.

To protect forbs and legumes that benefit native pollinators and other wildlife and provide insect food sources for grassland nesting birds, spraying or other control of noxious weeds shall be done on a “spot” basis.

Plant material specifications shall include only high quality and adapted species.

Site preparation, planting dates, and planting methods shall optimize vegetation survival and growth.

Equipment travel, grazing, haying and other disturbance treatments shall be restricted during critical periods such as nesting, brood rearing, fawning, or calving seasons (April 15 to August 15). Exceptions to disturbance restrictions are allowed when necessary to maintain the health of the plant community and control noxious weeds, but only to the

point of performing the minimum remediation treatment necessary to address the problem using the least damaging method possible (e.g. weed control during the first growing season after planting native grasses or chemical spot spraying to control noxious or undesirable plants). However, exceptions to disturbance restrictions shall take into account potential impacts to imperiled species.

All measures implemented under this practice shall comply with all applicable federal, state, and local laws.

CONSIDERATIONS

Habitat Components:

The following habitat components will be considered when assessing wildlife habitat. Some do not apply to some vegetation types.

1. Food
 - a. Type
 - b. Amount
2. Cover
 - a. Type
 - b. Amount
3. Water
 - a. Quality
 - b. Quantity
 - c. Accessibility
 - d. Seasonal availability
4. Interspersion and Distance to:
 - a. Crops
 - b. Herbaceous Cover
 - c. Shrubs
 - d. Trees
 - e. Water
5. Migration
 - a. Routes
 - b. Season of Use
 - c. Corridors

Tables 1 and 2 provide a partial list of needs, treatments and recurring management intervals to maintain or improve habitat components for certain species or guilds of species.

This practice may affect the target species as well as non-target species through mechanisms such as hunting, predation, disease transmission, nest parasitism, etc. Consider effects of this practice on species with declining populations.

Wildlife population control may be necessary to protect and maintain certain habitats. This is a responsibility of the landowner. State and federal regulations may apply to population control methods.

Undisturbed areas conserved at a sufficient extent during management activities may sustain disturbance-intolerant animals and plants.

Consider the impacts of habitat fragmentation.

When developing upland wildlife habitat, consider habitat linkages and habitat corridors.

Consider establishing or maintaining mixtures of plant species to promote plant diversity rather than using monocultures. Refer to **Table 3** for a partial list of commercially available food and cover plant materials.

Other conservation practices that may be utilized in conjunction with this practice to create a wildlife management plan include:

Brush Management (314)

Fence (382)

Field Border (386)*

Firebreak (394)

Forage and Biomass Planting (512)*

Forage Harvest Management (511)

Forest Stand Improvement (666)

Forest Trails and Landings (655)*

Hedgerow Planting (422)*

Herbaceous Weed Control (315)

Land Clearing (460)

Early Successional Habitat
Development/Management (647)*

Restoration and Management of Rare or
Declining Habitats (643)*

Pond (378)

Prescribed Burning (338)

Prescribed Grazing (528)

Riparian Herbaceous Cover (390)*

Riparian Forest Buffer (391)*

Tree/Shrub Establishment (612)

Access Control (472)

Watering Facility (614)

PLANS AND SPECIFICATIONS

NRCS shall ensure plans and specifications for this practice are prepared by persons with adequate training in the fields of wildlife management, biology, or ecology.

Written plans and specifications, schedules, and maps for this practice shall be prepared for each planning area and vegetation type.

Specifications shall:

- Identify the amounts and kinds of habitat component, locations, and management actions necessary to achieve management objectives.

- Describe the appropriate method, timing, and intensity of management needed to produce the desired habitat conditions and sustain them over time.

Specifications shall be transmitted to clients using NRCS approved specification sheets, job sheets, or customized narrative statements included in the conservation plan.

OPERATION AND MAINTENANCE

The following actions shall be carried out to ensure that this practice functions as intended throughout its expected life:

- Evaluate habitat conditions periodically to adapt or adjust the conservation plan and schedule of implementation.
- Annually inspect and repair structural or vegetative components of this practice.

REFERENCES

Bolen, E. and W. Robinson. 2002. Wildlife Ecology and Management: 5th Edition. Prentice Hall, 656 pp.

Bookhout, T.A. (ed.). 1996. Research and Management Techniques for Wildlife and Habitats, 5th Ed. Wildlife Society, 740 pp.
Harper, C. A. 2004. Growing and Managing Successful Food Plots for Wildlife in the Mid-South. U.T. Extension. PB1743. 40 pp.

Harper, C. A. 2008. A Guide to Successful Wildlife Food Plots; Blending Science with Common Sense. U.T. Extension. PB1769. 168 pp.

Harper, C.A., Bates, G.E., Hansbrough, M.P., Gudlin, M.J., Gruchy, J.P., and P.D. Keyser. 2007. Native Warm-Season Grasses: Identification, Establishment, and Management for Wildlife and Forage Production in the Mid-South. 188 pp.

Rayne, N. F. and F. C. Bryant. 1994. Techniques for Wildlife Habitat Management of Uplands. McGraw-Hill, Inc. 841 pp.

United States Department of Agriculture, Natural Resources Conservation Service. National Biology Manual. Title 190, Washington, D.C.

United States Department of Agriculture, Natural Resources Conservation Service. 2004. National Biology Handbook. Washington, DC.

Wildlife Habitat Management Institute. 1999. Wild Turkey. Fish and Wildlife Habitat Management Leaflet Number 12. USDA Natural Resources Conservation Service. 12 pp.

Wildlife Habitat Management Institute. 1999. Grassland Birds. Fish and Wildlife Habitat Management Leaflet Number 8. USDA Natural Resources Conservation Service. 12 pp.

Wildlife Habitat Management Institute. 1999. Northern Bobwhite. Fish and Wildlife Habitat Management Leaflet Number 9. USDA Natural Resources Conservation Service. 12 pp.

Table 1. General food, cover, and water needs for select game and non-game species that may be considered when applying the standard.

Species	Home Range	General Food Needs	Home Range Amount	General Cover Needs	Home Range Amount	Distance Between Permanent Water
Whitetail Deer	600-1,000 acres	Forbs, Small Grains	25%	Woodland, Thickets, Idle Areas (Winter/Escape)	30%	½ mile
		Hard and Soft Mast	30%	Native Grasses, Tall Weeds (Fawning)	5%	
Northern Bobwhite Quail	40 acres	Seed from Various Forbs and Grasses, Soft Mast, Grains	50%	Native Warm Season Grasses/Forbs (Nesting, Brood)	30%	Not Applicable
				Low Shrubs and Woody Vines (Winter/Escape/Loafing)	20%	
Eastern Wild Turkey	350+ acres	Small Grains, Clovers, Forbs, Mast	25%	Woodland (Winter/Escape/Roosting)	50%	½ mile
				Native Warm Season Grasses, Tall Weeds (Nesting)	1%	
Gray/Fox Squirrel	3 acres	Hard/Soft Mast	50%	Over mature (Hollow) Trees (Denning)	< 1% (4 trees per acre)	¼ mile
Cottontail Rabbit	5-15 acres	Forbs and Grasses	4%	Low Shrubs and Thickets (Winter/Escape)	20%	Not Applicable
Ruffed Grouse	40 acres	Buds, Forbs, and Soft Mast	3%	Low Shrubs and/or Woody Vines; Young Hardwood Stands 0-5 years (Winter/Escape)	7%	½ mile
				Early to Mid Successional Hardwoods 5-25 years	28%	
				Mature Hardwoods (Roosting)	65%	
Nongame Grassland Birds	500 acres (breeding)	Seed or Grain Crops, Forbs (for insect habitat)	1%	Native Warm Season Grasses (at least 500 feet wide)	75%	Not Applicable

Table 2. List of treatments (manipulations) and length of time this practice may be considered as a recurring application due to enduring wildlife benefits associated with food, cover, or water under normal maintenance.

TREATMENT	DURATION OF ANNUAL BENEFITS EXPECTED AFTER APPLICATION (recurrence interval)
Strip Disking	3 years
Strip Herbiciding	3 years
Establishment of Native Warm Season Grasses at Lower Seeding Rates	10 years
Prescribed Burning (both dormant season; spring, and growing season; fall)	1-2 years (quail and grassland birds) 3 years (turkeys) 5 years (deer)
Leaving Standing (Unharvested) Grain in Crop Field	1 year
Forb (Legume) Interseeding	3 years
Annual Food Plot	1 year
Perennial Food Plot	3 years
Reforestation of Shrubs/Trees at Lower Densities with Multiple Species	15 years
Creating Small Openings in Forests	10 years
Fencing Livestock from Forests	10 years
Snag Creation 1/ acre of trees >20 inch DBH for larger animals 4/acre of trees 10-20 inch DBH - small mammals, flying squirrels 2/acre of trees 6-10 inch DBH – small songbirds	5 years
Brush Pile creation (3 to 5 per acre)	5 years
Water Development for Wildlife where Surface Water is Lacking	10 years (614 Practice) 20 years (378 Practice)
Thinning on Shorter than Normal Rotation (common rotations - pine 30 years; hardwoods 80 years)	5-7 years for pines 10-15 years for hardwoods
Thinning hardwoods to less than desired timber production Basal Area 70 for deer and turkey <50 for quail 20-40 for shrubland/early successional birds	10-15 years
Thinning Pines to Basal Area of Site Index minus 25	10 years
Prescribed Grazing that Rests Pastures 30-50 Days with no Grazing during the Nesting Season	1 year
Forest Edge Feathering	10 years
Small Group Selection in Forests where Openings are <3 acres	10 years

Table 3. Common commercially available herbaceous plant materials. ^{1/2/}

Plant Material (Perennial/Annual)	Seeding Rate (lbs./acre) ^{3/}	Optimum Seeding Date	Optimum pH	Shade Tolerance	Soil Preference
Cool-Season Legumes					
Alfalfa (P)	20	08/15-09/15 03/01-05/01	6.5-7.0	Low	Well Drained Loam
Birdsfoot trefoil (P)	10	08/15-10/01 02/20-04/01	6.0 – 7.0	Low	Well drained
Clover					
Alsike (P)	6	09/01-10/01	5.8-6.5	Low	Wet Bottomland
Arrowleaf (A)	10	08/15-10/01	6.0-6.5	Low	Well Drained Loam
Crimson (A)	20	08/15-10/01	6.0-6.5	Moderate	Widely Adapted
Ladino (P)	8	09/01-10/01 02/15-04/01	6.0-6.5	Moderate	Moist Bottomland
Red (Biennial)	15	09/01-10/01 02/15-04/01	6.0-7.0	Low	Sandy Loam to Clay Well Drained Loam
Subterranean (A)	20	08/15-10/01	5.5-7.0	Moderate	Widely Adapted
White Dutch (P)	5	09/01-10/01 02/15-04/01	6.0-6.5	Moderate	Widely Adapted
Pea, Austrian Winter (A)	50	08/15-10/01	6.0-7.0	Low	Widely Adapted
Cool-Season Grasses					
Oats, Forage (A)	100	09/01-10/15	5.8-6.5	Low	Well Drained Loam
Rye, Cereal (A)	100	09/01-10/15	5.8-6.5	Low	Well Drained Loam
Virginia Wildrye (P)	20	08/15-10/15	5.0-7.5	High	Widely Adapted
Wheat (A)	100	08/15-10/15	5.8-6.5	Low	Mod. Well Drained
Warm-Season Legumes					
Catjang Pea (A)	25	04/01-06/15	5.5-7.5	Low	Widely Adapted
Cowpea (A)	50	05/01-06/15	5.5-7.5	Low	Well Drained
Lablab (A)	15	05/01-06/15	5.5-7.5	Low	Well Drained
Soybean (A)	85	05/01-06/15	5.8-6.5	Low	Widely Adapted
Lespedeza (Common, Kobe, Korean) (A)	20	03/15-04/15	5.8-6.5	Moderate	Widely Adapted
Pea, Partridge (A) (Native)	10	03/01-06/01	6.0-6.5	Low	Widely Adapted
Bundleflower, Illinois (P) (Native)	10	03/01-06/01	5.8-6.5	Low	Widely Adapted
Reseeding Soybean (A)	20	04/15-06/15	5.8-6.5	Low	Widely Adapted
Warm-Season Grasses					
Corn (A)	13	04/01-05/15	5.8-6.5	Low	Well Drained
Grain Sorghum (A)	20	04/15-06/15	5.8-6.5	Low	Well Drained
Millets					
Browntop (A)	30	04/15-06/15	5.5-6.5	Low	Well Drained
German (Foxtail)(A)	25	04/15-06/15	5.5-6.5	Low	Well Drained
Japanese (A)	30	05/01-08/31	5.5-7.0	Low	Moist Soils
Pearl (A)	30	04/15-06/15	5.5-6.5	Low	Well Drained
White Proso (A)	35	04/15-06/15	6.0-6.5	Low	Well Drained
Egyptian Wheat (A)	10	04/01-06/01	5.8-6.5	Low	Well Drained Loam

Table 3. Continued.

Plant Material (Perennial/Annual)	Seeding Rate (lbs./acre) ^{3/}	Optimum Seeding Date	Optimum pH	Shade Tolerance	Soil Preference
Forb Plantings					
Buckwheat (A)	50	04/15-06/15	6.5-7.0	Low	Widely Adapted
Chicory (P)	6	04/01-05/15 08/15-10/01	5.8-6.5	Low	Widely Adapted
Chufa (A)	40	04/15-06/01	5.8-6.5	Low	Moist Sandy Loam
Rape, Forage Type	8	09/01-10/15	6.0-7.0	Low	Widely Adapted
Sunflower (A)	25	04/15-05/15	5.8-6.5	Low	Well Drained
Sunflower, Maximilian (P)	5	04/01-06/01	5.8-6.5	Low	Widely Adapted
Native Warm-Season Grasses					
Big Bluestem (P)	4	04/01-06/15	6.0-7.5	Moderate	Well Drained
Eastern Gamagrass (P)	4	04/01-06/15	5.5-6.5	Moderate	Widely Adapted
Indiangrass (P)	4	04/01-06/15	5.0-7.5	Moderate	Widely Adapted
Little Bluestem (P)	4	04/01-06/15	5.5-7.0	Moderate	Well Drained
Sideoats Grama (P)	4	04/01-06/15	5.5-7.5	Low	Well Drained
Switchgrass (P)	4	04/01-06/15	5.0-7.5	Moderate	Widely Adapted
Panicum, Deertongue (P)	10	02/15-04/01	5.0-7.5	Moderate	Moist loams

1/ This is not a complete list.

2/ Fertilization and liming needs for the establishment of these plant materials should always be based on a current soils test.

3/ Seeding rate for native warm-season grasses is based on planted/drilled seeding method. Increase seeding rate by 25 percent for broadcast seeding. For native plants, seeding rate reflects pounds of Pure Live Seed (PLS). For all other materials used in food plots, the seeding rate is based on broadcast seeding. Decrease seeding rate by 25 percent when drilling in food plots. Each listed seeding rate is based on a single species planting. When considering mixtures, the seeding rate for each species should be reduced according to the number of species in the mixture, the composition preferred, and the growth form and desired structure of the resulting stand.