

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

UPLAND WILDLIFE HABITAT MANAGEMENT

(Ac.)

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 provide shelter, cover, food in proper amounts, locations and times to sustain wild animals 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 that is capable of supporting the desired habitat.

CRITERIA

General Criteria Applicable to all Purposes

A Habitat Evaluation Procedure (HEP) approved by the NRCS state office, should be used to identify habitat-limiting factors in the planning area.

Application of this practice should remove or reduce limiting factor(s), as indicated by results of the habitat evaluation.

Application of this practice alone, or in combination with other supporting and facilitating practices, will result in a conservation system that will enable the planning area to meet or exceed a HEP score of 0.5, the minimum quality criteria for wildlife habitat

established in Section III of the FOTG and the National Biology Manual.

Criteria below include components of this practice that outline:

- vegetation establishment for shelter, food and to enable movement;
- structural measures to provide shelter, food or enable movement; and
- manipulation of vegetation to sustain desirable habitat conditions over time.

Only native or wildlife friendly non-native species that are not invasive can be used in support of this standard.

Site preparation, planting dates, and planting methods to optimize vegetation survival and growth are referenced in the "Establishing Vegetative Practices In Kentucky" document or the appropriate NRCS practice standard.

Equipment travel, mowing, and other disturbance to habitat shall be restricted during critical periods such as nesting, brood rearing, fawning or calving seasons. With the following exceptions, areas planned for 645 should not be mowed or otherwise disturbed between May 15th and August 1st. Mowing during the nesting season may be completed to:

- Control invasive species
- Ensure stand survival during the establishment period.
- Prescribed burning shall occur during the nesting season according to the Prescribed Burning section below.

Noxious weeds and invasive plants shall be controlled on areas managed under this standard. Herbicide use shall be on a spot basis

when possible. Brush Management (314) and/or Herbaceous Weed Control (315) once posted may be used to address this issue.

Grazing shall be completed according to a detailed written site specific grazing plan that ensures target wildlife requirements are being met.

The specific criteria for upland wildlife habitat management practices and supporting practices and components are given for the following land use types in this practice standard:

1. Cropland (pp. 2 - 4)
2. Grassland (pp. 4 - 7)
3. Woodland (pp. 7 - 9)
4. Idle Lands (pp. 9 -10)

All of the following practices, if established according to this standard, provide food and cover and can be used to create corridors. An adequate water source within 1,500 feet of the area being planned will be sufficient for most wildlife. If no water is present within 1,500 feet or if additional water is required for the species of management concern, see the NRCS Shallow Water Development and Management (646) practice standard.

CROPLAND

Cropland – Conservation Cover Planting

Conservation cover planned for this purpose shall be established according to the Additional Criteria For Enhancing Wildlife Habitat in the NRCS Conservation Cover (327) practice standard and the appropriate wildlife tables in the “Establishing Vegetative Practices In Kentucky” document.

Cropland - Wildlife Field Borders:

Field borders planned for this purpose shall be 30' wide and established according to the Additional Criteria To Provide Wildlife Food and Cover in the NRCS Field Border (386) practice standard and the appropriate wildlife tables in the “Establishing Vegetative Practices In Kentucky” document.

Cropland – Riparian Forest Buffer:

Riparian buffers planned for this purpose shall be established according to the Additional Criteria For Wildlife Habitat in the NRCS Riparian Buffer (391) practice standard.

Cropland - Filter Strips:

Filter strips planned when wildlife is a concern shall use wildlife friendly species and shall not be mowed during the nesting season and shall provide adequate winter vegetation heights.

Cropland - Contour Buffer Strips:

Contour buffer strips planned when wildlife is a concern shall use wildlife friendly species and should not be mowed during the nesting season and shall provide adequate winter vegetation heights.

Cropland – Hedgerow Plantings

Hedgerow plantings for this purpose should be established according to the Criteria to Provide Additional Wildlife Benefits in the NRCS Hedgerow Planting (422) practice standard.

Cropland - Tillage:

Use no-till planting methods whenever possible and avoided fall plowing in areas planned for upland wildlife habitat management. Plant non-fescue cover crops.

Cropland – Wildlife Corridors

Corridors should be established to connect isolated and fragmented habitat areas. Corridors can also be used to increase the number of connections between habitat areas.

Field borders, filter strips, riparian buffers, contour buffers and hedgerows can be used to create wildlife corridors. When one of the above practices does not apply, corridors can be established by planting trees, shrubs, grasses or combinations of these.

Corridors should be at least 30 feet wide but wider is better.

Grass/forb/legume plantings shall be completed according to the wildlife planting tables in the “Establishing Vegetative Practices In Kentucky” document.

Tree and shrub plantings should be completed according to the Additional Criteria For Wildlife in the NRCS Tree/Shrub Establishment (612) practice standard.

Corridors can also be established by backing off of an area and allowing it to naturally regenerate. These corridors cannot have fescue, bermudagrass, bromegrass, sericea lespedeza, reed canary grass, or old-world bluestems in excess of 20 percent of the total plant composition. These species must be suppressed to less than 20 percent of the plant composition in wildlife field borders.

When possible, vegetative composition of a corridor should be similar to the habitat areas that are being connected.

Livestock should be excluded from wildlife corridors or managed to achieve the desired habitat.

Corridors shall not be annually mowed for generic weed control since it greatly reduces habitat quality.

Cropland – Covey Headquarters

Covey headquarters (CHQ) should be located on every 5 to 40 acres if cover of this type does not already exist. To benefit quail and song birds, this habitat component should be placed next to early-successional vegetation such as managed wildlife friendly grasses/legumes, field borders, and/or cropped areas to be most effective.

Established between 0.1 and 1.0 acres of dense shrubby/woody cover per 5-40 acres of adjacent wildlife friendly grass/legumse/forbs.

This practice is completed by planting shrubs through direct seeding or seedling planting.

See the NRCS Quail Covey Headquarters Job Sheet for specific practice requirements.

Management of these areas will include livestock exclusion, removal of trees that overtop shrubby areas and control of invasive species.

Cropland – Fencerow and Woody Draw Rejuvenation

This practice applies to woody draws and fence rows where over and mid story trees have become to large shading out weeds and small

shrubs beneficial to early successional wildlife such as quail, rabbits, and song birds need.

Use only chainsaws, brush cutters, or mechanized tree saws to fell trees – no bulldozers. Trees are left where they fall or are windrowed along the fence or woody draw. Trees may also be deadened using TSI forestry techniques.

Native shrubs like dogwood, plum, hawthorn and an occasional mast producing species like oak or walnut should be maintained.

Stumps of undesirable trees that can coppice will be stump treated with an appropriate herbicide.

Wildlife unfriendly herbaceous species shall be controlled when in excess of 20 percent of the plant composition on the treatment area.

See the NRCS Fence Row/Woody Draw Rejuvenation Job Sheet for specific practice requirements.

Cropland - Unharvested Crops:

Unharvested crops can be left in the field to provide winter food and cover for wildlife.

To provide the most wildlife benefit, unharvested crops should be left as close as possible to good escape cover but no more than 200 feet from suitable cover.

To enhance nesting cover, unharvested crops can be left fallow or idle the following cropping season.

Areas of unharvested crops should be alternated in rotations from year to year, by leaving a strip along one field border one year and the opposite field border the next year.

See the Food Plots subsection for additional relevant information.

Cropland – Retaining Existing Habitat

Maintain any existing areas that provides habitat for species of concern.

Existing woodland, thickets, idle grassland, grown up fence rows, and other suitable habitat for species of concern or wildlife in general should be maintained and enhanced whenever possible.

Cropland – Cropland Fallow Field Rotation

Include a fallow field into the cropping rotation. This practice could be planned on part or all of a field. When possible, it should be planned in close proximity to existing cover. During the spring and summer period, the field shall remain idle to allow annual weeds to grow and provide habitat throughout fall and winter until the next spring.

Cropland – Food Plots

Food plots should not make up more than 5 percent of the open land acreage being managed for wildlife.

Small game food plots should be between ¼ to 5 acres in size. Food plots for deer and turkey should be between 1 and 5 acres in size. Food plots for doves and geese should be between 5 and 20 acres in size.

Food plots should be located within 300 feet of suitable cover to ensure better utilization.

Food plots should be at least 50 feet wide and as long as possible. When possible establish food plots in irregular shapes for increased habitat benefits.

Species selection, seeding rates, seeding and seedbed preparation should be completed according appropriate sections and wildlife seeding tables in the “Establishing Vegetative Practices In Kentucky” document.

Legume food plots may need to be clipped early in the spring or in late summer outside of the nesting season to ensure stand vigor. Periodic reseeding may also be required every 3 to 5 years for legumes.

When possible, annual grain food plots should be divided into thirds so that one third of the food plot is planted each year. This rotation method creates a mosaic of three different vegetative successional states.

GRASSLAND

Conservation Cover (327), Field Borders (386), Filter Strips (393), Hedgerow Planting (422), Riparian Forest Buffers (391), retaining existing habitat, corridors, covey headquarters, fence row rejuvenation, and food plots are practices that are applicable to grasslands that are discussed in the Cropland section. Refer to the cropland

section for details regarding the above practices. Also see the Woodland section below under Livestock Exclusion for field edge improvement.

Grassland - Pasture and Hayland Planting

When wildlife habitat is a concern along with forage production, pasture and hayland plantings shall be established using wildlife friendly species where possible.

Grassland – Prescribed Grazing

Prescribed grazing when wildlife habitat is a concern shall be done according to the NRCS Prescribed Grazing (528A) practice standard and job sheet using the following criteria to ensure pasturelands meet quality criteria for habitat by scoring at least a 0.5 on the Habitat Evaluation Procedure:

- Pastureland planned under this standard should be managed according to a prescribed grazing plan and detailed job sheet.
- Pastures should be rotationally grazed with minimum ending heights of 4 inch for introduced grass and 8 inch for native grasses. Grazing plans should be developed using these ending grazing heights.
- As many fields as possible should be converted from fescue, reed canary, bermudagrass, smooth brome, sericea lespedeza, or old world bluestems to forage species more beneficial to wildlife. Pastures should be reseeded as needed when these species compose more than 50 percent of a stand.
- Grazing can be deferred on 10 percent of pastureland between April and August 1st and on 10 percent of pastureland between September and March. The deferred acreage may be the same acreage for both the summer and winter deferment period however, the same acreage should not be deferred in two consecutive years. Deferred areas should only be grazed during the deferment period when additional forage is needed during a documented drought period. Acreage deferred from grazing should not be mowed during the deferment

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period. (Deferred areas should be areas that contain less than 50 percent fescue to maximize wildlife benefits.)

- After herbaceous cover establishment, pasture clipping shall be avoided except to control invasive species and woody plant encroachment. To avoid disturbing the entire field, mowing to control weeds should be done on a spot basis, when possible. Any mowing should occur outside the nesting season which is between May 15th and August 1st. Avoid clipping pastures too late in the fall as this can reduce winter habitat for wildlife.
- Between 20 and 25 percent of forages should be converted to native warm season grasses to improve grassland diversity and summer forages.

Grassland – Shrub Planting

Shrub plantings for wildlife should be done according to the Cropland – Hedgerow Planting section or Cropland – Cover Headquarters section of this standard or the Additional Criteria For Wildlife in the NRCS Tree/Shrub Establishment practice standard.

In addition to these criteria, in wildlife friendly grass/legume/forb fields, shrubs may be planted in clumps of 1 to 5 shrubs with a 5' x 5' spacing to benefit certain songbird species which require this type of habitat such as the Loggerheaded Shrike. For this species, the area being treated should have between one and 2 clumps per acre spaced at least 100' apart.

Grassland – Mowing/Hayland Management:

Grassland/Hayland where wildlife is the primary landuse should be managed according to the following information:

- After herbaceous cover establishment, mowing shall be avoided except to control invasive species and woody plant encroachment. To avoid disturbing the entire field, mowing to control weeds should be done on a spot basis, when possible. Except during the establishment period, mowing shall occur outside the nesting season which is between May 15th and August 1st.
- Annual mowing of an entire field or buffer for generic weed control shall be avoided since it greatly reduces habitat quality.
- The last mowing of the year shall be completed early enough in the late summer or fall to allow regrowth to occur so that suitable winter cover is present normally before August 15th for native grasses and before September 15th for introduced grasses.
- Minimum mowing heights are 6 inches for introduced grasses and 8 inches for native grasses.

Grassland/Hayland where wildlife is a secondary concern should incorporate the following management strategies into their operation:

- Mowing can be deferred on 10 percent of hayland between April and August 1st and on 10 percent of hayland between September and March. The deferred acreage may be the same acreage for both the summer and winter deferment period however, the same acreage should not be deferred in two consecutive years. Deferred areas should only be hayed during the deferment period when additional forage is needed during a documented drought period. (Deferred areas should be areas that contain less than 50 percent fescue, Bermuda grass, brome grass, old world bluestems, or sericea to maximize wildlife benefits.)
- Taking the last cutting of hay a little early will allow better regrowth to help ensure adequate winter cover for wildlife normally before August 15th for native grasses and before September 15th for introduced grasses.

Grassland – Strip Mowing:

Strips should be between 20 and 50 feet wide and as long as possible, with 40 to 100 feet left unmowed in between the mowed strips.

Strip mowing for wildlife should be implemented on a rotational basis.

Mowed areas for wildlife should be allowed to grow for one to three years so that, within any field, a mosaic of vegetation exists (i.e., a third

of the area 0-1 years old, a third of the area 1-2 years old, and a third of the area 2-3 years old).

Do not let any area of the field go more than 3 years without management.

Strip mowing should be conducted outside the nesting season which is between May 15th and August 1st.

Additional habitat benefits can be gained by conducting any disturbance activities during March or September for introduced grasses and during March or August for native grasses.

Grassland – Strip Disking:

It is best for habitat to implement strip disking in thirds so that strips will be between 20 and 50 feet wide and as long as possible, with 40 to 100 feet left undisked between the disked strips.

When implementing strip disking in thirds, disked areas for wildlife shall be allowed to grow for two to three years so that, within any field, a mosaic of vegetation exists (i.e., a third of the area 0-1 years old, a third of the area 1-2 years old, and a third of the area 2-3 years old).

While strip disking in thirds provides the best habitat results, strip disking may also be completed in halves where 20 to 50 feet are disked with 40 to 100 feet left undisked in between the disked strips setting up a pattern of 1 and 2 year old strips.

For buffer practices where widths are limiting, disking may be completed in blocks so that 1/2 to 1/3 of the buffers length is disked each year on a 2 year or 3 year rotation respectively.

Strip disking on native grasses should only be done once the stand is well established or as recommended by an NRCS or KDFWR biologist.

See the NRCS Strip Disking Job Sheet for specific practice requirements.

Grassland – Prescribed Burning:

Prescribed burning can be used to restore native plant communities and to maintain suitable successional states for the desired species.

Prescribed burning must be planned and completed according to the NRCS Prescribed Burning (338) practice standard.

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Prescribed burning should occur outside the nesting season of May 15 through August 1st. However, burning may occur during this period when needed to restore suitable plant communities and structure for targeted wildlife species. Nesting season burns shall be planned to ensure reserve areas are left unburned and that wildlife impacts are minimized.

Grassland – Controlling Undesirable Species

Use appropriate measures to control the undesirable species. Herbicide application, grazing, prescribed burning, mowing, timber stand improvement techniques or a combination of these may be used.

Multiple treatments may be necessary to eradicate a population from an area. Infested areas should be scouted annually to treat plants as they recolonize the area.

Species that can be controlled under this criteria may be invasive species or may just be species that do not provide suitable habitat for the species of concern.

Fields that contain >20 percent of a species not suitable for wildlife habitat (ie. fescue, bermudagrass, bromegrass, sericea lespedeza, or old-world bluestems) should be treated under this criteria. The area treated should be allowed to naturally regenerate. If the site will be planted the appropriate NRCS practice standard should be planned.

See the NRCS Controlling Undesirable Species Job Sheet for specific practice requirements.

Brush Management (314) and/or Herbaceous Weed Control (315) once posted may be used to address this issue.

Grassland – Native Forb and Non-native Legume Interseeding

Native forb mixtures and legume seeding rates should be according to the appropriate sections and tables in the “Establishing Vegetative Practices In Kentucky” document.

See the NRCS Native Forb and Non-native Legume Interseeding Job Sheet for specific practice requirements.

Grassland – Strip Herbicide Application

Set back succession and control more aggressive species in grass/forb/legume stands to increase plant diversity and improve habitat through herbicide use.

This practice may apply to whole fields or in strips completed in halves or thirds.

See the NRCS Strip Herbicide Application Job Sheet for specific practice requirements.

Grassland – Brush Pile Creation

Existing brush piles, wind rowed cut trees, rock piles should be maintained for habitat whenever possible.

Created brush piles may be placed in field borders at the edge of hay or crop fields or within pastures, woodland, thickets, or idle areas.

When possible, livestock should be excluded from brush piles and rock piles created for wildlife.

Brush piles may be made of small trees, tree limbs, brush, rocks or a combination of these.

Brush piles made of tree limbs and brush should be constructed by:

- ◆ Placing 4 or 5 large 6” to 12” diameter limbs on the ground parallel to one another with about 12” of space between each limb.
- ◆ Criss-cross similar sized and number of limbs on top.
- ◆ Continue adding smaller limbs and brush until the final product is between 15 and 20 feet in diameter and 3 to 4 feet high.
- ◆ Brush piles may also be created by partially cutting through a cedar tree with a 4 to 6 inch diameter. This will allow the top of the tree to rest on the ground. When possible cut several trees so they are touching once they fall.

Rock piles may also be constructed to provide wildlife shelter especially in areas where prescribed burning will be used as a management practice. Rock piles should be constructed according to the following :

- ◆ Rock may be used to create cover between 4 and 15 feet in diameter.
- ◆ Rocks should be placed so that 4 or 5 exits exist that are 4 to 5 inches wide.
- ◆ Stack the second layer of rocks so the exits and hollow areas in the first layer are covered leaving open spaces beneath the second layer. A third and fourth layer should also be added for additional protection.
- ◆ Small limbs and brush can also be added to the top of rock piles if prescribed burning is not planned.

WOODLAND

Brush pile creation, prescribed burning, and controlling undesirable species are practices that are applicable in woodland that are discussed in the Grassland section. Refer to the grassland section as applicable for details regarding the above practices.

Woodland – Woodland Planting

Tree plantings for wildlife should be done according to the Additional Criteria For Wildlife in the NRCS Tree/Shrub Establishment (612) practice standard.

Woodland – Livestock Exclusion and Access Control

This practice shall be completed according to the Access Control (472) and/or Fence (382) practice standard with the following requirements when planned for wildlife purposes.

Livestock shall be excluded from woodland when forest succession is reliant upon natural regeneration of seedlings. Livestock grazing in planted even aged stands may be allowed when managed with a short duration low intensity, grazing plan. The plan shall ensure that sufficient rest periods are incorporated to develop and maintain good herbaceous and shrub understory.

Also see the Silvopasture (381) practice standard for information on establishing a silvopasture grazing system. See the

Prescribed Grazing (528) practice standard for information on grazing silvopasture.

To improve woodland edge habitat and adjacent grassland habitat, install the fence with at least a 30' setback from the woodland edge. Additional benefits can be achieved by setting back 30' from the woodland drip line.

Woodland – Forest Stand Improvement

Forest stand improvement to enhance wildlife habitat shall be completed according to the following criteria:

- Maintain maximum overstory and understory diversity. White oaks and red oaks shall be maintained in a good balance. Hickories and berry producing shrubs and trees shall also be maintained with good distribution.
- Thin woodlands to 60 percent stocking or less to encourage increased mast production and heavier herbaceous understory development.
- Maintain as many cavity trees as possible but at least 5 cavity trees per acre if present. If less than 5 cavity trees are present create 5 according to the Woodland – Creation and Maintenance of Snags and Cavity Trees section of this standard.
- Maintain non-invasive native vines to the maximum extent possible. Leave at least 4-6 live native vines on trees per acre if present. When possible, favor vines in trees that will be left as den trees.
- A Kentucky Division of Forestry (KDF) Forest Stewardship Plan 2 (FSP2) shall be developed and followed when wildlife is a primary objective of a Timber Stand Improvement. Requirements in this standard and highlighted in the "NRCS Forest Stand Improvement for Wildlife Job Sheet" shall be followed for development of the FSP2.

Woodland – Edge Feathering

Edge feathering can be completed along any woodland edge including along logging roads, landings, or fields. Edge feathering shall not be used along streams.

Edge feathering where invasive species such as Tree-Of-Heaven, Bush Honeysuckle, Privet,

Royal Princess Paulonia, Chinese Silver Grass, or Multiflora Rose are present should be completed by planting a feathered edge according to option 2 below. Option 1, the thinning option, shall not be used in areas where these invasive species are present unless the species are controlled prior to the edge feathering. In addition, a plan outlining how to maintain control of the invasive species shall be developed and followed.

Below are two methods to feather the edge of woodland:

Option 1 - Thinning of Over and Mid Story Trees In One Zone

- Edge feathering shall be completed by conducting thinning in and along the woodland edge in one zone.
- Thin the area within 50 to 75 feet of the woodland edge to a 25 – 35% stocking. Thinning should begin at the midstory and move up. Remaining trees and shrubs shall be composed of a good diversity of hard mast and berry producers.
- See the NRCS Edge Feathering Job Sheet for specific practice requirements.

Option 2 – Planting A Feathered Edge

- Edge feathering can also be completed by planting native small trees, shrubs, and grasses along the woodland edge.
- Each zone should be 1/2 of the total feathered edge. For instance, a 50-foot feathered edge would have two 25-foot zones.
- In the zone closest to the woods, small fruit, seed, and nut bearing shrubs and trees that are native should be planted on a 6' x 6' or 8' x 8' spacing.
- The outside zone should be planted to native grasses and forbs according to the appropriate sections and wildlife tables in the "Establishing Vegetative Practices In Kentucky" document.
- Trees and shrubs should be planted according to the Additional Criteria For Wildlife in the NRCS Tree/Shrub Establishment (612) practice standard.

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Woodland – Forest Trails and Landings

For the purposes of this standard, this practice applies when the forest trail and/or landing is being closed or where only light vehicle traffic will occur. Once posted, the Roads/Trails/Landings Closure and Treatment (654) practice standard will also be used for this purpose.

This practice should be done according to the NRCS Forest Trails and Landings (655) practices standard which refers to the “Kentucky Forest Practice Guidelines for Water Quality Management” technical reference document in the NRCS Technical Guide.

After the installation of any needed erosion control practices, grasses and legumes beneficial to wildlife should be established. The use of tall fescue, bermudagrass, old world bluestems, sercia lespedeza, reed canary grass, and smooth brome are not permitted when wildlife is a concern.

The species and seeding rates for forest trails and landings when wildlife is a concern shall be according the appropriate sections and wildlife tables in the “Establishing Vegetative Practices In Kentucky” document. Temporary cover should also be planned as needed according to this document.

Woodland – Forest Regeneration Areas

Forest Regeneration Areas (FRA) may be planned for oak regeneration and to benefit woodland birds.

FRAs planned primarily for woodland bird habitat should be located at least 300 meters from significant woodland edges such as field boundaries, four lane highways, open residential areas or areas where a significant break in the forest canopy is present.

When possible, plan FRAs in areas where oak regeneration will occur.

FRAs should be created in irregular shape and should be at least 1½ times as wide as the height of the adjacent trees up to 1.5 acres in size.

Trees shall be deadened using typical TSI methods or removed using harvest methods. Stumps shall remain in place or cut even with

the ground. Stumps of unwanted regeneration shall be treated as needed to prevent coppice.

Openings shall be left to naturally regenerate and should not be planted. However, if sufficient oak regeneration is not expected, a hard mast planting may be completed according to the Additional Criteria For Wildlife in the NRCS Tree/Shrub Establishment (612) practice standard.

Woodland – Creation and Maintenance of Snags and Cavity Trees

Snags and cavity trees can be created but it is best to maintain existing snags and cavity trees, especially large cavity trees, during timber harvest and stand improvement activities.

Between 5 and 30 cavity trees and snags should be maintained or created per acre to provide adequate nesting and foraging sites for woodland species.

When more snags or cavity trees are desired they can be created by deadening trees using two commonly applied forest stand improvement techniques, frilling or girdling spaced cuts and injection. See the NRCS Controlling Undesirable Trees and Shrubs Information Sheet for details on these methods.

Suitable trees for cavity creation are at least 8 inches DBH and preferably larger that are not merchantable or hard mast producers.

IDLE LANDS

Many practices in the Cropland, Grassland, and Woodland sections apply to Idle Lands. Refer to these sections as needed for applicable practice details.

Idle Lands – Old Field Regeneration

Old fields are areas that are composed predominately of herbaceous species that are being encroached upon by woody species. To maintain quality early successional habitat, these areas are in need of a successional set back. See Grassland - Undesirable Species Control section above when control of undesirable herbaceous vegetation is also needed to achieve the desired habitat effect.

Treatments include mowing, prescribed burning, herbicide applications, or combinations of these methods.

If shrubs and saplings are too large to mow, they can be cut. After being cut, saplings and shrubs may be removed from the site if necessary to facilitate further treatments that may include mowing, herbicide treatment and/or prescribed burning. After mowing or cutting, herbicide application or prescribed burning should be used to address stumps of species that coppice.

See the NRCS Old Field Regeneration Job Sheet for specific practice requirements.

Followup maintenance practices to maintain early successional vegetation should include prescribe burning, strip disking, or strip mowing.

Idle Land – Cave Gates

Cave gates should be planned when federally listed threatened/endangered bats or Kentucky State Nature Preserve Commission listed bats occur or have historically occurred in a cave or mine. Cave gates should be installed according to an approved design by USFWS, KDFWR and/or Bat Conservation International, Incorporated. Contact the NRCS State Biologist for assistance in planning cave gates.

CONSIDERATIONS

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 problems of habitat fragmentation when using this practice. Create large blocks of

habitat when possible. Use habitat corridors to connect habitat blocks.

PLANS AND SPECIFICATIONS

The specification within and job sheets that accompany this standard were prepared by persons with adequate training in the fields of wildlife management, biology or ecology.

Written specifications, detailed job sheets, schedules and maps shall be prepared for each planning area.

These specifications and job sheets shall:

- Identify the amounts and kinds of habitat elements, locations and management actions necessary to achieve the client's management objectives.
- Describe the appropriate method, timing and intensity of management needed to produce the desired habitat conditions and sustain them over time.

Specifications included in conservation plans shall be transmitted to clients using NRCS approved specifications sheets, job sheets, customized narrative statements, and corresponding plan maps.

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 on a regular basis in order to adapt the conservation plan and schedule of implementation.
- Annually inspect and repair structural or vegetative components of this practice.

REFERENCES

Bolen, Eric and William 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

Rayne, Neil F. and Fred 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, DC.

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

United States Department of Agriculture, Natural Resource Conservation Service. Technical Notes. Washington, DC.

Kentucky Department of Fish and Wildlife Resources. Habitat How-To's, Frankfort, KY.