United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E612B

CONSERVATION STEWARDSHIP PROGRAM

Planting for carbon sequestration and storage

CONSERVATION PRACTICE: 612 - Tree/Shrub Establishment

APPLICABLE LAND USE: Forest

RESOURCE CONCERN: Air

ENHANCEMENT LIFE SPAN: 15 years

Enhancement Description

Plant tree species and/or shrubs to sequester and store carbon. Forest stands will be managed for longer rotations and/or enhanced composition diversity to improve carbon storage.

Criteria

- States will apply criteria from the NRCS National Conservation Practice Standard Tree/Shrub Establishment (Code 612), and any additional criteria as required by the NRCS State Office.
- Species will be selected for their rate of growth, lifespan, historic range, mature size, suitability for retention as wildlife or legacy species, and/or suitability for use in long-lived sustainable wood products as well as their adaptability to current and future site conditions, including soil type.
- To support forest-level carbon sequestration and storage, native plant communities, soil organic matter, standing and down woody material should be properly maintained.
- Selection of species should also be chosen according to the site's natural disturbance regime. Species should be selected based on traits, successional status, structure, and composition.
- Build forest resilience by favoring existing species that are better adapted to projected future climate conditions, and by enhancing relative compositional and structural diversity.
- Do not plant species on the Federal or State invasive species or noxious weed lists.

- Only viable, high-quality, and site-adapted planting stock or seed will be used.

- A precondition for tree/shrub establishment is appropriately prepared sites. Refer to criteria in NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490).

- Implementation and timing of planting will be appropriate for the site and ensure successful establishment.

- Planting must be protected from unacceptable adverse impacts from insects, disease, wildlife, and/or fire. Apply supporting practices and treatments to protect establishing trees and shrubs, as necessary.

- Each site will be evaluated to determine if mulching, supplemental water, or other treatments (e.g., tree protection devices, shade cards, weed mats) will be needed to assure adequate survival and growth.

- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.

Documentation and Implementation Requirements

Participant will:

☐ Prior to implementation:
- provide an updated Forest Management Plan that documents intended objectives for carbon sequestration and storage.
- select a combination of species with longer life spans that are suitable for their rate of growth, historical range, mature size, suitability for retention as wildlife or legacy species, and/or suitability for use in long-lived sustainable wood products as well as their adaptability to current and future site conditions, including soil type.
- select planting technique, arrangement and spacing design, and timing appropriate for the site conditions.

Species	Note selected species characteristic(s)

☐ During implementation:
- install and maintain erosion control measures as needed for the site.
- protect the planting(s) from plant and animal pests and fire.
- notify NRCS in writing of any planned changes to verify changes meet NRCS enhancement criteria.

TASK	Species	Species	Species
Planting date			
Planting Technique			
Arrangement/Spacing			

NRCS will:

☐ Prior to implementation:
- provide and explain NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490) as it relates to implementing this enhancement. Verify the enhancement is planned for acres that have been appropriately prepared for tree/shrub establishment.
- verify the enhancement is planned for the appropriate land use.
- provide and explain NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612) as it relates to implementing this enhancement.
- verify no plants on the Federal or state noxious weeds list are included.
- NRCS will provide Technical Assistance, as needed, in the following:
  - Selecting a combination of species to meet enhancement criteria.
  - Selecting planting techniques, arrangement and spacing design, and timing appropriate for the site and soil conditions.
  - Planning the use of additional erosion control, as needed for the site.

☐ During implementation:
- evaluate any planned changes to verify they meet the enhancement criteria.

☐ After implementation:
- verify the planned trees and shrub species were established to specifications developed for the site.
- verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

OHIO SUPPLEMENT TO

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E612B

Additional Criteria for Ohio

In addition to the criteria specified in the National job sheet E612B the following additional criteria apply in Ohio:

- Tree species used for this enhancement must be species with a mature height of at least 40 feet. Shrubs are not to be used for this enhancement.
- Consider planting species that are predicted to survive given potential climate change. The USFS Climate Change Tree Atlas can be used to help select species.
- Refer to Appendix B Tree/Shrub Recommendations found in Ohio EFOTG, Section IV, Appendices for additional information on species site suitability, characteristics and planting specifications.

Additional Documentation Requirements for Ohio

There are not any additional documentation requirements that apply in Ohio.

USDA United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E612C

CONSERVATION STEWARDSHIP PROGRAM

Establishing tree/shrub species to restore native plant communities

CONSERVATION PRACTICE: 612 - Tree/Shrub Establishment

APPLICABLE LAND USE: Forest

RESOURCE CONCERN: Animals, Plants

ENHANCEMENT LIFE SPAN: 15 years

Enhancement Description

Establish trees and/or shrubs to restore elements of plant communities and diversity that have been lost. Restoring stand-level diversity and function improves health and vigor through planting resilient and/or resistant native plant communities. Additional benefits include providing diversity in wildlife habitat and forage.

Criteria

- States will apply criteria from the NRCS National Conservation Practice Standard Tree/Shrub Establishment (Code 612), and any additional criteria as required by the NRCS State Office.
- Species selected for planting will be native to the site and will create a successional state that progresses toward the identified target plant community.
- To enhance native plant diversity, select a minimum of three different species of trees and/or shrubs to be planted. An exception is in situations where a native lost species is being restored to a fully-stocked forest stand. (i.e., American chestnut). Selection of species should also be chosen according to the site's natural disturbance regime. Species should be selected based on traits, successional status, structure, and composition.
- Selection of species should also be chosen according to the site’s natural disturbance regime. Species should be selected based on traits, successional status, structure, and composition.

- Build forest resilience by favoring existing species that are better adapted to projected future climate conditions, and by enhancing relative compositional and structural diversity.
- Do not plant species on the Federal or State invasive species or noxious weed lists.
- Only viable, high-quality and site-adapted planting stock or seed will be used.
- A precondition for tree/shrub establishment is appropriately prepared sites. Refer to criteria in NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490).
- Implementation and timing of planting will be appropriate for the site and ensure successful establishment.
- Planting must be protected from unacceptable adverse impacts from insects, disease, wildlife, and/or fire. Apply supporting practices and treatments to protect establishing trees and shrubs, as necessary.
- Each site will be evaluated to determine if mulching, supplemental water, or other treatments (e.g., tree protection devices, shade cards, weed mats) will be needed to assure adequate survival and growth.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.

Documentation and Implementation Requirements

Participant will:

☐ Prior to implementation:
- provide an updated Forest Management Plan that documents intended objectives for restoring native plant communities.
- select a combination of at least three native tree/shrub species that will increase plant and stand diversity.

Species	Note selected species characteristic(s)

☐ During implementation:
- install and maintain erosion control measures as needed for the site.
- protect the planting(s) from plant and animal pests and fire.
- notify NRCS in writing of any planned changes to verify changes meet NRCS enhancement criteria.

TASK	Species	Species	Species
Planting Date			
Planting Technique			
Arrangement/Spacing			

NRCS will:

☐ Prior to implementation:
- provide and explain NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490) as it relates to implementing this enhancement.
- verify the enhancement is planned for the appropriate land use.
- provide and explain NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612) as it relates to implementing this enhancement.
- verify no plants on the Federal or state noxious weeds list are included.
- NRCS will provide Technical Assistance, as needed, in the following:
    - Selecting a combination of species to meet enhancement criteria.
    - Selecting planting techniques, arrangement and spacing design, and timing appropriate for the site and soil conditions.
    - Planning the use of additional erosion control for the site, as needed.
    - Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.

☐ During implementation:
- evaluate any planned changes to verify they meet the enhancement criteria and were established to specifications developed for the site.

- ☐ After implementation:
  - verify the plantings were protected from plant and animal pests and fire.
  - verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

OHIO SUPPLEMENT TO

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E612C

Additional Criteria for Ohio

In additon to the criteria specified in the National job sheet E612C the following additional criteria apply in Ohio:

- Elm and chestnut are species that have been functionally eliminated from most forest communities in Ohio due to disease problems; disease resistant varieties continue to be developed. Although these are good candidates for use in this enhancement, the avaialbility of suitable disease resistant varieties is still very low.

- The amount of oak trees in appropriate forest communties has beeen declining for decades due to management and other issues. The establishment of oak species in appropriate sites is recommended under this enhancement.

- Refer to Appendix B Tree/Shrub Recommendations found in Ohio EFOTG, Section IV, Appendices for additional information on species site sutability, charcteristics and planting specifications.

Additional Documentation Requirements for Ohio

There are not any additional documentation requirements that apply in Ohio.

USDA United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E612D

CONSERVATION STEWARDSHIP PROGRAM

Adding food-producing trees/shrubs to an agroforestry system

CONSERVATION PRACTICE: 612 - Tree/Shrub Establishment

APPLICABLE LAND USE: Crop (Annual & Mixed), Crop (Perennial), Pasture, Range, Forest, Associated Ag Land, Farmstead

RESOURCE CONCERN: Animals, Plants

ENHANCEMENT LIFE SPAN: 15 years

Enhancement Description

Plant food producing trees/shrubs for wildlife or human consumption within an agroforestry system (windbreaks/shelterbelts, alley cropping, forest farming, silvopasture, and/or riparian forest buffer).

Criteria

- States will apply criteria from the NRCS National Conservation Practice Standard Tree/Shrub Establishment (Code 612), and any additional criteria as required by the NRCS State Office.

- Species selected will be able to produce food and/or culinary items to create an edible landscape. See States list for suitable woody plants.

- Apply at least one of the following activities to improve edible food production:
  - Add at least one edible, food producing row to existing linear plantings.
  - Add clusters of food-producing plants to existing plantings, so that food plants occupy at least 10% of the total area established in an agroforestry practice.
  - Add food-producing plants to occupy idle areas of the operation, such as field corners adjacent to existing plantings.

- Plant a variety of tree, shrub, and-or bramble species (3 or more, using native species whenever possible) with varying flowering times to favor pollinator species and to provide an extended time frame for available food.

- Further considerations are visual appeal, proximity to farmsteads, proximity to areas of wildlife use or viewing, or other locations depending on landowner objectives.
- Minimize herbicide use. Use spot weed treatments and avoid spraying when flowers are present.
- Selection of species should also be chosen according to the site's natural disturbance regime. Species should be selected based on traits, successional status, structure, and composition.
- Build forest resilience by favoring existing species that are better adapted to projected future climate conditions, and by enhancing relative compositional and structural diversity.
- Do not plant species on the Federal or State invasive species or noxious weed lists.
- Only viable, high-quality and site-adapted planting stock or seed will be used.
- A precondition for tree/shrub establishment is appropriately prepared sites. Refer to criteria in NRCS CPS Tree/Shrub Site Preparation (Code 490).
- Implementation and timing of planting will be appropriate for the site and ensure successful establishment.
- Plantings must be protected from unacceptable adverse impacts from insects, disease, wildlife, livestock, and/or fire. Apply supporting practices and treatments as necessary to protect establishing trees and shrubs.
- Each site will be evaluated to determine if mulching, supplemental water, or other treatments (e.g., tree protection devices, shade cards, weed mats) will be needed to assure adequate survival and growth.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.

Documentation and Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

Participant will:

☐ Prior to implementation:

- provide an updated Forest Management Plan that documents intended objectives for adding food-producing trees/shrubs for wildlife or human consumption.
- prepare the planned acres for trees and shrub establishment. Refer to NRCS Conservation Practice Standard Tree-Shrub Site Preparation (490).
- select the required number and diversity of tree and shrub species (preference for native edible food plants) that will increase food and forage production for wildlife and humans.
- select planting technique, arrangement and spacing design, and timing appropriate for the site conditions.

Species	Note selected species characteristic(s)

☐ During implementation:

- install and maintain erosion control measures as needed for the site.
- protect the planting(s) from plant and animal pests and fire.
- notify NRCS in writing of any planned changes to verify changes meet NRCS enhancement criteria.

TASK	Species	Species	Species
Planting Date			
Planting Technique			
Arrangement/Spacing			

NRCS will:

☐ Prior to implementation:

- provide and explain NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612) as it relates to implementing this enhancement.

- verify the enhancement is planned for the appropriate land use.
- verify no plants on the Federal or state noxious weeds list are included.
- NRCS will provide Technical Assistance, as needed, in the following:
  - Selecting a combination of species to meet enhancement criteria.
  - Selecting planting techniques, arrangement and spacing design, and timing appropriate for the site and soil conditions.
  - Planning the use of additional erosion control for the site, as needed.
  - Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
  - During implementation, evaluate any planned changes to verify they meet the enhancement criteria and were established to specifications developed for the site.
  - After implementation, verify the plantings were protected from plant and animal pests and fire.
  - After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.

☐ During implementation:

- evaluate any planned changes to verify they meet the enhancement criteria and were established to specifications developed for the site.

☐ After implementation:

- verify the plantings were protected from plant and animal pests and fire.
- verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

OHIO SUPPLEMENT TO

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E612D

Additional Criteria for Ohio

In addition to the criteria specified in the National job sheet E612D the following additional criteria apply in Ohio:

- Recommended species for human consumption are:

American hazelnut	Wild plum
Black walnut	Serviceberry
Sugar maple	Blueberry
Apple	Huckleberry
Pear	Currant/gooseberry
Apricot	Raspberry/blackberry
Peach	Elderberry
Pawpaw	Persimmon

- Recommended species for wildlife food are:

Hazelnut	Oak species
Chokeberry	Serviceberry
Blackberry/raspberry	Crabapple
Dogwood species	Hawthorn
Viburnum species	Wild plum
Elderberry	Black cherry
Black Walnut	Blackgum
Hickory species	Persimmon

- Refer to Appendix B Tree/Shrub Recommendations found in Ohio EFOTG, Section IV, Appendices for additional information on species site suitability, characteristics and planting specifications.

- If using non-native species, choose species/cultivars/varieties that are non-invasive.

Additional Documentation Requirements for Ohio

There are not any additional documentation requirements that apply in Ohio.

CONSERVATION ENHANCEMENT ACTIVITY

E612E

CONSERVATION STEWARDSHIP PROGRAM

Cultural plantings

CONSERVATION PRACTICE: 612 - Tree/Shrub Establishment

APPLICABLE LAND USE: Forest, Associated Ag Land, Farmstead

RESOURCE CONCERN: Plants

ENHANCEMENT LIFE SPAN: 15 years

Enhancement Description

Planting trees/shrubs that are of cultural significance, such as those species utilized by Tribes in traditional practices, medicinal plants, species used in basket-making, etc. (e.g., paper birch, slippery elm, witch hazel).

Criteria

- States will apply criteria from the NRCS National Conservation Practice Standard Tree/Shrub Establishment (Code 612), and any additional criteria as required by the NRCS State Office.
- Species will be selected for their cultural importance.
- Build forest resilience by favoring existing species that are better adapted to projected future climate conditions, and by enhancing relative compositional and structural diversity.
- Do not plant species on the Federal or State invasive species or noxious weed lists.
- Only viable, high-quality and site-adapted planting stock or seed will be used.
- A precondition for tree/shrub establishment is appropriately prepared sites. Refer to criteria in NRCS CPS Tree/Shrub Site Preparation (Code 490).
- Implementation and timing of planting will be appropriate for the site and ensure successful establishment.

- Plantings must be protected from unacceptable adverse impacts from insects, disease, wildlife, and/or fire. Apply supporting practices and treatments as necessary to protect establishing trees and shrubs.

- Each site will be evaluated to determine if mulching, supplemental water, or other treatments (e.g., tree protection devices, shade cards, weed mats) will be needed to assure adequate survival and growth.

- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.

Documentation and Implementation Requirements

Participant will:

☐ Prior to implementation:
- provide an updated Forest Management Plan that documents intended objectives for cultural plantings.
- prepare the planned acres for trees and/or shrub establishment. Refer to NRCS Conservation Practice Standard Tree-Shrub Site Preparation (490).
- select a combination of tree and shrub species selected for their cultural importance and their adaptability to site conditions.
- select planting technique, arrangement and spacing design, and timing appropriate for the site conditions.

Species	Note selected species characteristic(s)

☐ During implementation:
- install and maintain erosion control measures for the site, as needed.
- protect the planting(s) from plant and animal pests and fire.
- notify NRCS in writing of any planned changes to verify changes meet NRCS enhancement criteria.

CONSERVATION STEWARDSHIP PROGRAM

TASK	Species	Species	Species
Planting Date			
Planting Technique			
Arrangement/Spacing			

NRCS will:

☐ Prior to implementation:

- provide and explain NRCS Conservation Practice Standard Tree/Shrub Site Preparation (CPS 490) as it relates to implementing this enhancement. Verify the enhancement is planned for acres that have been appropriately prepared for tree/shrub establishment.
- provide and explain NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612) as it relates to implementing this enhancement.
- verify the enhancement is planned for the appropriate land use.
- verify no plants on the Federal or state noxious weeds list are included in the planning combination.
- verify cultural significance and use is documented.
- NRCS will provide Technical Assistance, as needed, in the following:
    - Selecting a combination of species to meet enhancement criteria.
    - Selecting planting techniques, arrangement and spacing design, and timing appropriate for the site and soil conditions.
    - Planning the use of additional erosion control for the site, as needed.
    - Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.

☐ During implementation:

- evaluate any planned changes to verify they meet the enhancement criteria and were established to specifications developed for the site.

☐ After implementation:

- verify the plantings were protected from plant and animal pests and fire.
- verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

OHIO SUPPLEMENT TO

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E612E

Additional Criteria for Ohio

In additon to the criteria specified in the National job sheet E612E the following additional criteria apply in Ohio:

- A list of potential culturally significant plants can be found on the NRCS Plants Database website at https://plants.sc.egov.usda.gov/java/factSheet?cultural=yes
- This enhancement is only for woody species (trees, shrubs)
- Refer to Appendix B Tree/Shrub Recommendations found in Ohio EFOTG, Section IV, Appendices for additional information on species site sutability, charcteristics and planting specifications.

Additional Documentation Requirements for Ohio

There are not any additional documentation requirements that apply in Ohio.

USDA United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E612F

CONSERVATION STEWARDSHIP PROGRAM

Sugarbush management

CONSERVATION PRACTICE: 612 - Tree/Shrub Establishment

APPLICABLE LAND USE: Forest

RESOURCE CONCERN: Animals, Plants

ENHANCEMENT LIFE SPAN: 15 years

Enhancement Description

Establish or maintain tree/shrub species diversity in a sugar maple (Acer saccharum) stand to enhance pollinator and wildlife needs.

Criteria

- States will apply criteria from the NRCS National Conservation Practice Standard Tree/Shrub Establishment (Code 612), and any additional criteria as required by the NRCS State Office.

- Maintain the sugarbush in a fully stocked condition based on an appropriate stocking guide. Maintain at least 20% of basal area in species other than sugar maple (or other species used in syrup production (e.g., red maple or paper birch)) to promote species diversity. Half of that 20 percent of basal area should be in mast producing species (hard or soft mast).

- Thin the sugarbush stand to achieve correct stocking levels (e.g. 80 percent sugar maple/20 percent other species), and/or allow space for planting new trees/shrubs. Use NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) to identify characteristics of trees to remove and to remove trees.

- When the existing sugarbush does not have 20% of basal area in other species not used for syrup production, selection of species to be planted should be chosen according to the site's natural disturbance regime. Species should be selected based on traits, successional status, structure, and composition.

- Use tree tapping guidelines that minimize tree damage. Tap trees should be tapped sustainably, minimizing impact to the trees and the forest, using appropriate equipment and methods for the geographic area.
- Build forest resilience by favoring existing species that are better adapted to projected future climate conditions, and by enhancing relative compositional and structural diversity.
- Do not plant species on the Federal or State invasive species or noxious weed lists.
- Only viable, high-quality and site-adapted planting stock or seed will be used.
- A precondition for tree/shrub establishment is appropriately prepared sites. Refer to criteria in NRCS CPS Tree/Shrub Site Preparation (Code 490).
- Implementation and timing of planting will be appropriate for the site and ensure successful establishment.
- Plantings must be protected from unacceptable adverse impacts from insects, disease, wildlife, and/or fire. Apply supporting practices and treatments as necessary to protect establishing trees and shrubs.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.

Documentation and Implementation Requirements

Participant will:

☐ Prior to implementation:
- provide an updated Forest Management Plan that documents intended objectives for sugarbush management.
- prepare the planned acres for trees and/or shrub establishment. Refer to NRCS Conservation Practice Standard Tree-Shrub Site Preparation (490).
- select tree species to plant based on adaptation to climatic region, soil properties and capabilities, and light requirements for establishment, if existing sugarbush does not have 20% of basal area in species that are not sugar maple. Remove the necessary number of trees to achieve the correct stocking level and/or allow space for new tree planting, as needed.
- select planting technique, arrangement and spacing design, and timing appropriate for the site conditions.

Species	Note selected species characteristic(s)

☐ During implementation:

- install and maintain erosion control measures for the site, as needed.
- protect the planting(s) from plant and animal pests and fire.
- notify NRCS in writing of any planned changes to verify changes meet NRCS enhancement criteria.

TASK	Species	Species	Species
Planting Date			
Planting Technique			
Arrangement/Spacing			

NRCS will:

☐ Prior to implementation:

- provide and explain NRCS Conservation Practice Standard Tree/Shrub Site Preparation (CPS 490) as it relates to implementing this enhancement. Verify the enhancement is planned for acres that have been appropriately prepared for tree/shrub establishment.
- provide and explain NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612) as it relates to implementing this enhancement.
- verify the enhancement is planned for the appropriate land use.
- verify no plants on the Federal or state noxious weeds list are included in the planning combination.
- NRCS will provide Technical Assistance, as needed, in the following:
  - Selecting a combination of species to meet enhancement criteria.
  - Selecting planting techniques, arrangement and spacing design, and timing appropriate for the site and soil conditions.
  - Planning the use of additional erosion control for the site, as needed.

- Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.

☐ During implementation:

- evaluate any planned changes to verify they meet the enhancement criteria and were established to specifications developed for the site.

☐ After implementation:

- verify the plantings were protected from plant and animal pests and fire.
- verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

OHIO SUPPLEMENT TO

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E612F

Additional Criteria for Ohio

In additon to the criteria specified in the National job sheet E612F the following additional criteria apply in Ohio:

- To meet the requirement for half of the non-sugar maple trees being mast-producing species, use the following species:

Hard Mast	Soft Mast
American Beech	Black Cherry
Ohio Buckeye	Black Gum
Black Walnut	Maples
Butternut	Sweetgum
Hickories	Tuliptree
Oaks	

- Because most of the planting will be below the canopy of existing maple trees, the use of shade tolerant species is necessary. Recommended shade tolerant species for this enhancement are:

Trees	Shrubs
Red and Silver Maple	Spicebush*
American Beech	Dogwoods*
Hornbeam*	Redbud*
Ironwood*	Pawpaw*
Basswood	Witchhazel*
Eastern Hemlock	Serviceberry*
Ohio Buckeye	

*The use of smaller trees and shrubs may make it difficult to achieve the 20% basal area requirement

USDA United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E612G

CONSERVATION STEWARDSHIP PROGRAM

Tree/shrub planting for wildlife habitat

CONSERVATION PRACTICE: 612 - Tree/Shrub Establishment

APPLICABLE LAND USE: Forest; Associated Ag Land

RESOURCE CONCERN: Animals, Plants

ENHANCEMENT LIFE SPAN: 15 years

Enhancement Description

Tree/shrub planting will provide the plant diversity, structure, and composition needed to enhance habitat and forage for identified wildlife species.

Criteria

- States will apply criteria from the NRCS National Conservation Practice Standard Tree/Shrub Establishment (Code 612), and any additional criteria as required by the NRCS State Office.
- Select a minimum of five species of trees and shrubs to be planted, with at least one tree species and one shrub species. (i.e., one tree and four shrubs; two trees and three shrubs; three trees and two shrubs; four trees and one shrub).
- Groupings of trees and shrubs will be managed for best growth, visual appeal, proximity to areas of wildlife use.
- Selection of species should also be chosen according to the site's natural disturbance regime. Species should be selected based on traits, successional status, structure, and composition.
- Build forest resilience by favoring existing species that are better adapted to projected future climate conditions, and by enhancing relative compositional and structural diversity.
- Do not plant species on the Federal or State invasive species or noxious weed lists.

- Only viable, high-quality and site-adapted planting stock or seed will be used.
- A precondition for tree/shrub establishment is appropriately prepared sites. Refer to criteria in NRCS CPS Tree/Shrub Site Preparation (Code 490).
- Implementation and timing of planting will be appropriate for the site and ensure successful establishment.
- Plantings must be protected from unacceptable adverse impacts from insects, disease, wildlife, and/or fire. Apply supporting practices and treatments as necessary to protect establishing trees and shrubs.
- Each site will be evaluated to determine if mulching, supplemental water, or other treatments (e.g., tree protection devices, shade cards, weed mats) will be needed to assure adequate survival and growth.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.

Documentation and Implementation Requirements

Participant will:

☐ Prior to implementation:
- provide an updated Forest Management Plan that documents intended objectives for wildlife habitat.
- prepare the planned acres for trees and/or shrub establishment. Refer to NRCS Conservation Practice Standard Tree-Shrub Site Preparation (490).
- select a combination of five trees and shrubs for their importance in providing food for native wildlife, and their adaptability to site conditions.
- select planting technique, arrangement and spacing design, and timing appropriate for the site conditions.

Species	Note selected species characteristic(s)

☐ During implementation:
- install and maintain erosion control measures for the site, as needed.
- protect the planting(s) from plant and animal pests and fire.
- notify NRCS in writing of any planned changes to verify changes meet NRCS enhancement criteria.

TASK	Species	Species	Species
Planting Date			
Planting Technique			
Arrangement/Spacing			

NRCS will:

☐ Prior to implementation:
- provide and explain NRCS Conservation Practice Standard Tree/Shrub Site Preparation (CPS 490) as it relates to implementing this enhancement. Verify the enhancement is planned for acres that have been appropriately prepared for tree/shrub establishment.
- provide and explain NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612) as it relates to implementing this enhancement.
- verify the enhancement is planned for the appropriate land use.
- verify no plants on the Federal or state noxious weeds list are included in the planning combination.
- NRCS will provide Technical Assistance, as needed, in the following:
  - Selecting a combination of species to meet enhancement criteria.
  - Selecting planting techniques, arrangement and spacing design, and timing appropriate for target native wildlife, the site and soil conditions.
  - Planning the use of additional erosion control for the site, as needed.
  - Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.

☐ During implementation:
- evaluate any planned changes to verify they meet the enhancement criteria and were established to specifications developed for the site.

☐ After implementation:

- verify the planned trees and shrub species were established to specifications developed for the site.
- verify the plantings were protected from plant and animal pests and fire.
- verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

USDA United States Department of Agriculture

OHIO SUPPLEMENT TO

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E612G

Additional Criteria for Ohio

In additon to the criteria specified in the National job sheet E612G the following additional criteria apply in Ohio:

- Plant species from the table below; these species have been selected based on their value for providing food for a variety of Ohio wildlife species; all listed tree and shrub species are native to Ohio.
- Plant at recommended rates in the table below; this enhancement is based on planting at full recommended rates not a partial interplanting among exisiting trees.
- Refer to Appendix B Tree/Shrub Recommendations found in Ohio EFOTG, Section IV, Appendices for additional information on species site suitability, characteristics and planting specifications.

Additional Documentation Requirements for Ohio

There are not any additional documentation requirements that apply in Ohio.

RECOMMENDED SPECIES

Species	Type of Food Provided	Recommended Spacing (feet)	
		Within rows	Between rows
Shrubs			
Common Juniper *Juniperus communis*	Fruit	4-6	8-10
Coralberry *Symphiocarpos orbiculatus*	Fruit	4-5	8-10
Hazelnut *Corylus americana*	Nut	4-6	8-10
Hazel (Common) Alder *Alnus serrulata*	Browse (twigs)	5-6	8-10
Black Chokeberry *Aronia melanocarpa*	Fruit	5-6	8-10
Blackberry/Raspberry *Rubus sp.*	Fruit	3-4	5-6
Staghorn Sumac *Rhus hirta*	Fruit, Browse (twigs)	5-6	8-10
Smooth Sumac *Rhus glabra*	Fruit, Browse (twigs)	5-6	8-10
Winterberry *Ilex verticillata*	Buds, browse(twigs)	5-6	8-10
Silky Dogwood *Cornus amomum*	Browse (twigs)	5-6	6-8
Gray Dogwood *Cornus racemosa*	Fruit	5-6	8-10
Red-osier Dogwood *Cornus sericiea*	Fruit, Browse (twigs)	5-6	6-8
American Cranberrybush *Viburnum trilobum*	Fruit	5-6	9-12
Nannyberry *Viburnum lentago*	Fruit	5-6	9-12
Arrowwood *Viburnum recognitum*	Fruit	5-6	9-12
Blackhaw *Viburnum prunifolium*	Fruit	5-6	9-12
Pawpaw *Asimina triloba*	Fruit	6-8	10-12
Spicebush *Lindera benzoin*	Fruit, Browse (twigs)	3-4	6-8
American Elderberry *Sambucus canadensis*	Fruit	4-6	8-10

Species	Type of Food Provided	Recommended Spacing (feet)	
		Within rows	Between rows
Coniferous Trees Note: Coniferous trees shall not account for more than 10% of planted trees			
Eastern Hemlock *Tsuga canadensis*	Seeds	10-12	10-12
Eastern Red Cedar *Juniperus virginiana*	Fruits	6-10	8-12
Eastern White Pine *Pinus strobus*	Seeds	10-12	10-12
Red Pine *Pinus resinosa*	Seeds	10-12	10-12
Deciduous Trees			
Black Walnut *Juglans nigra*	Hard mast – nut	10-12	10-12
Butternut *Juglans cinerea*	Hard mast – nut	10-12	10-12
Shagbark Hickory *Carya ovata*	Hard mast – nut	10-12	10-12
American Beech *Fagus grandifolia*	Hard mast – nut	10-12	10-12
White Oak *Quercus alba*	Hard Mast - acorn	10-12	10-12
Swamp White Oak *Quercus bicolor*	Hard Mast - acorn	10-15	10-15
Bur Oak *Quercus macrocarpa*	Hard Mast - acorn	10-15	10-15
Chinkapin Oak *Quercus muehlenbergii*	Hard Mast - acorn	10-12	10-12
Northern Red Oak *Quercus rubra*	Hard Mast - acorn	10-12	10-12
Black Oak *Quercus velutina*	Hard Mast - acorn	10-12	10-12
Shumard Oak *Quercus shumardii*	Hard Mast - acorn	10-12	10-12
Pin Oak *Quercus palustris*	Hard Mast - acorn	10-15	10-15
Yellow Poplar *Liriodendron tulipfera*	Soft mast - seed	10-12	10-12
Sweet Gum *Liquidambar styraciflua*	Soft mast - seed	10-12	10-12
Serviceberry *Amelanchier canadensis*	Soft mast - fruit	8-12	10-12

Species	Type of Food Provided	Recommended Spacing (feet)	
		Within rows	Between rows
Crabapple *Malus sp.*	Soft mast - fruit	10-12	10-12
Washington Hawthorn *Crataegus phaenopyrum*	Soft mast - fruit	8-12	10-12
Cockspur Hawthorn *Crataegus crus-galli*	Soft mast - fruit	8-12	10-12
Green Hawthorn *Crataegus viridis*	Soft mast - fruit	8-12	10-12
Wild Plum *Prunus americana*	Soft mast - fruit	8-12	8-12
Wild Black Cherry *Prunus serotina*	Soft mast - fruit	10-12	10-12
Red Maple *Acer rubrum*	Soft mast - seed	8-12	10-12
Silver Maple *Acer saccharinum*	Soft mast - seed	8-12	10-12
Sugar Maple *Acer saccharum*	Soft mast - seed	10-12	10-12
Ohio Buckeye *Aesculus glabra*	Hard mast - nut	10-12	10-12
Black Gum *Nyssa sylvatica*	Soft mast - fruit	10-12	10-12
Flowering Dogwood *Cornus florida*	Soft mast - fruit	8-12	10-12
Persimmon *Diospyros virginiana*	Soft mast - fruit	10-10	10-12

Average shrub spacing of 5’ x 9’ = 970 plants per acre

Average tree spacing of 10’ x 12’ = 363 plants per acre

USDA United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E643A

CONSERVATION STEWARDSHIP PROGRAM

Restoration of sensitive coastal vegetative communities

Conservation Practice 643: Restoration & Management of Rare or Declining Habitats

APPLICABLE LAND USE: Range, Forest

RESOURCE CONCERNS: Plants

PRACTICE LIFE SPAN: 5 Years

Enhancement Description:

Enhance the level of restoration in unique and diminishing coastal ecosystems by establishing native herbaceous and woody plants. Protect established vegetation and manage to maintain floristic quality and the provision of environmental services. This enhancement is applied on unique areas with rare and declining habitat conditions, where vegetation has been detrimentally altered by human or natural events. Targeted sites are those that formerly supported vegetative communities that are now declining and/or becoming rare. The sites will vary across the continent. The enhancement will expand and elevate the process of restoring these unique areas, increasing their ecological value and benefits to wildlife. It re-establishes a select group of trees and/or shrubs that are key components in this ecosystem.

Criteria:

States will apply general criteria from the NRCS National Conservation Practice Standard Restoration of Rare or Declining Natural Communities (Code 643) as listed below, and additional criteria as required by the NRCS State Office.

- When feasible, plant only tree and shrub seedlings grown from local seed sources. These plants should be the most adapted plants for the site.
- Place protection around each tree or shrub, or groups of trees and/or shrubs, to prevent damage and allow the plant to become established.

CONSERVATION STEWARDSHIP PROGRAM

- Plant desired trees or shrubs at the time of year to give the plants the optimum chance of survival.
- All necessary local, state, and federal permits shall be obtained by the landowner (or designee) prior to the restoration.
- Methods used shall be designed to protect the soil resource from erosion and compaction.
- Invasive plant and animal species and noxious weeds shall be controlled. When possible, control will be limited to that necessary to control undesirable species while still protecting habitat that benefit native pollinators and other fish and wildlife species that depend on the site for food, cover, and water.
- Undisturbed areas, if present, shall be conserved on a sufficient extent of the area to sustain disturbance-intolerant species.
- Plant species and seeding rate specifications will be prepared to achieve desired habitat condition.
- Only high quality and ecologically adapted plant materials will be used. When feasible, only local ecotypes will be used.
- Site preparation, planting dates and methods, and plant material care and handling shall optimize vegetation survival and growth.
- A pre-treatment assessment of the targeted habitat will be documented to provide a baseline for comparison with post-treatment habitat conditions. Use the appropriate State specific habitat assessment tool(s). Goals or success criteria will be established using reference sites for guidance and comparison. Where no such reference site exists, use ecological site description or historic data to establish restoration goals.
- The enhancement will comply with state required Wildlife Habitat Evaluation Guide (WHEG) or other state approved tool. Post treatment WHEG assessment must indicate improved conditions as compared with the pre-treatment WHEG assessment.
- Use of fertilizers, pesticides and other chemicals shall not compromise the intended purpose of this practice
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.
- If the area has been grazed, or if grazing will occur within the target area, a grazing management plan must be in place.
- Inspection documentation of the protective devices to ensure that they are in place and functioning, and monitoring data on survival of the trees and/or shrubs.

CONSERVATION STEWARDSHIP PROGRAM

- Documentation that invasive species and noxious weeds are being controlled. When possible, control will be done on a “spot” basis to protect native forbs and legumes that benefit native pollinators and other wildlife. Vegetation may be treated by chemical methods such as spraying or single stem treatments.

Documentation and Implementation Requirements:

CONSERVATION STEWARDSHIP PROGRAM

Participant will:

- ☐ Prior to implementation, an evaluation must be conducted on the landscape targeted for treatment. Assess habitat condition using a Wildlife Habitat Evaluation Guide, or other state approved assessment tool to calculate current benchmark Habitat score and anticipated Habitat score after implementation of Enhancement.
  Benchmark score = _____ Planned Post Implementation score = _____
- ☐ If applicable ,prior to implementation, obtain any permits required to work in the coastal areas.
- ☐ Prior to implementation, if the site is, or will be grazed, a grazing management plan must be developed for the operation.
- ☐ Prior to implementation, survey the area and identify any invasive plants that maybe present on the site. If chemical treatments are necessary to control invasive plants, obtain recommendations for appropriate treatments from an approved source.
- ☐ Prior to implementation, identify appropriate sources of trees suited for the site.
- ☐ Prior to implementation, determine the appropriate method of tree planting following NRCS Conservation Practice Standard Tree and Shrub Establishment (Code 612) specifications.
- ☐ During implementation, ensure that trees are planted following NRCS Conservation Practice Standard Tree and Shrub Establishment (Code 612) specifications.
- ☐ During implementation, ensure that trees selected for planting are in good condition.
- ☐ During implementation, protect desirable vegetation.
- ☐ After implementation, notify and provide NRCS with completion date(s), methods used, and representative photos of the treated area.

NRCS will:

- ☐ Prior to implementation, review and confirm the findings of the Wildlife Habitat Evaluation Guide (WHEG) and how this information will help improve wildlife habitat.
  Benchmark score = _____ Planned Post Implementation score = _____
- ☐ Prior to implementation, provide technical assistance in identifying appropriate trees for this unique habitat and the proper method of planting these trees. Provide and explain NRCS Conservation Practice Standard Tree and Shrub Establishment (Code 612) and specifications.

CONSERVATION STEWARDSHIP PROGRAM

- ☐ Prior to implementation, if the site is, or will be grazed, provide technical assistance as needed in the development of a grazing management plan for the operation.
- ☐ If applicable, prior to implementation, provide technical guidance on the management and control of invasive plants. If chemical treatments are used, be sure that the participant obtains appropriate recommendations for an approved source.
- ☐ During implementation, provide technical assistance if requested by the participant.
- ☐ After implementation, certify that the enhancement was completed according to the NRCS Conservation Practice Standard Tree and Shrub Establishment (Code 612) specifications.
- ☐ After implementation, assess post treatment habitat condition using a Wildlife Habitat Evaluation Guide or other state approved assessment tool to score after implementation of enhancement. Assessment must indicate improved conditions as compared with the pre-treatment WHEG assessment. **Post Implementation score = _____**

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

OHIO SUPPLEMENT TO

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E643A

Additional Criteria for Ohio

In additon to the criteria specified in the National job sheet E643A the following additional criteria apply in Ohio:

- Use of this enhancement is limited to forested sites that are adjacent to Lake Erie, directly hydrologically connected to Lake Erie or along streams flowing directly into Lake Erie and within one mile of the mouth of the stream.
- Typical sites will be floodplain or swamp forests.
- Species selected for establishment shall be species with high Coefficient of Conservatism (found in Andreas, B. K. and J. J. Mack, J. S. McCormac, 2004. Floristic Quality Assessment Index for Vascular Plants and Mosses for the State of Ohio) or recommended in Characteristic Ohio Plant Species for Wetland Restoration Projects v. 1.0, Ohio EPA Technical Report WET/2007-1
- Consultation with the NRCS State Biologist is required for this enhancement.

Additional Documentation Requirements for Ohio

There are not any additional documentation requirements that apply in Ohio.

United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E643B

CONSERVATION STEWARDSHIP PROGRAM

RESTORATION AND MANAGEMENT OF RARE OR DECLINING HABITAT

Conservation Practice 643: Restoration and Management of Rare or Declining Habitats

APPLICABLE LAND USE: Forest

RESOURCE CONCERNS: Animals

PRACTICE LIFE SPAN: 5 year

Enhancement Description

Provide protection from adverse environmental conditions to create refugia for documented occurrences of sensitive plant communities.

Criteria

- States will apply general criteria from the NRCS National Conservation Practice Standard Restoration and Management of Rare or Declining Habitats (Code 643) as listed below, and additional criteria as required by the NRCS State Office.
- All necessary local, state, and federal permits shall be obtained by the landowner (or designee) prior to the constructing the refugia.
- Sites where refugia will be designated are those that: 1) currently harbor plant species listed by the State as State Endangered, State Threatened, State Sensitive (or similar designation), or other native plant species determined to be in decline, or, 2) provide an appropriate ecological site for rescuing these plant species if relocation is needed.
- Specific location, size, shape, and number of refugia will be based on occurrences of sensitive plants or plant communities, and/or on the existence of environmental conditions suitable for the rescue of sensitive plants whose habitat will be destroyed. The size of refugia is also affected by site features (e.g., slope, rock outcrops, water bodies, etc.).

- Refugia sites will be protected from adverse environmental impacts, including trampling by humans, using an 8-foot-high woven wire fence and appropriate signage, with a locked gate to provide access for management. Each installation shall be at least ¼ acre in size.
- A forested area surrounding refugia will be large enough to provide a buffer from wind and temperature effects of adjacent non-forested areas.
- Methods used during refugia construction shall be designed to protect the soil resource from erosion and compaction, and to protect the plant community from adverse impacts.
- Invasive plant and animal species and noxious weeds shall be controlled in and around the refugia. When possible, control will be limited to that necessary to control undesirable species while still protecting habitat that benefit native pollinators and other fish and wildlife species that depend on the site for food, cover, and water.
- Undisturbed areas shall be conserved on a sufficient extent of the area surrounding refugia to sustain typical plant communities and help protect the refugia.
- Plants rescued and brought to refugia for protection will be those species ecologically adapted to site conditions, in quantities appropriate for best survival, which will not displace desired existing vegetation.
- Site preparation, planting dates, methods, plant care, and handling shall optimize vegetation survival and growth.
- A pretreatment assessment of the targeted habitat will be conducted to provide a baseline for comparison with post-treatment habitat conditions. Goals or success criteria will be established using reference sites for guidance and comparison. Where reference sites do not exist, use ecological site descriptions or historic data to establish goals.
- Use of fertilizers, pesticides and other chemicals shall not compromise the intended purpose of this practice.

- Use criteria in other NRCS Conservation Practice Standards to facilitate the restoration and management of rare and declining habitats as appropriate for the site. Depending on site conditions and natural disturbance regimes, these may include: Fence (Code 382); Access Control (Code 472); Brush Management (Code 314); Herbaceous Weed Control (Code 315); and Tree and Shrub Establishment (Code 612).

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- ☐ Prior to implementation, acquire all necessary approvals and permits (i.e. local, state, or federal, as applicable).
- ☐ Prior to implementation, obtain documentation from the appropriate State agency that the site:
  - has plant species listed by the State as State Endangered, State Threatened, State Sensitive (or similar designation), or other native plant species determined to be in decline, or,
  - provides an appropriate ecological setting for rescuing such plants that need relocation due to imminent threat(s).
- ☐ Prior to implementation, obtain site-specific designs for refugia, including locations, dimensions, timing of construction, and appropriate routes for bringing materials to the site. Coordinate the design with the appropriate State agency and obtain documentation that the design will provide protection for the intended plant species. Have documentation available for NRCS review.
- ☐ Prior to implementation, develop a monitoring plan in cooperation with the responsible State agency and obtain documentation, that the monitoring plan is designed to address knowledge gaps in managing the planned species. Have documentation available for NRCS review.
- ☐ Prior to implementation, develop a plan for protecting resources during refugia construction. The plan will address resource concerns including potential soil damage, introduction of invasive species, and water quality related to road and trail use.
- ☐ Prior to implementation, arrange workers and materials for refugia construction.
- ☐ During implementation, follow the plan for protecting resources during refugia construction.
- ☐ After implementation, follow the monitoring plan.
- ☐ After implementation, maintain other suitable areas within the forest stand, and/or in adjacent stands, to allow the desired plant species to expand their populations.
- ☐ After implementation, if the use of pesticides or other chemicals are being considered, coordinate with the appropriate State agency to ensure that refugia plants will not be harmed.

CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- ☐ Prior to implementation, verify the enhancement is planned for the appropriate land use.
  - Prior to implementation, verify participant documentation has plant species listed by the State as State Endangered, State Threatened, State Sensitive (or similar designation), or other native plant species determined to be in decline, or,
  - Provides an appropriate ecological setting for rescuing such plants that need relocation due to imminent threat(s).
  - Verify that any additional state NRCS requirements have been met.
- ☐ Prior to implementation, verify documentation that the responsible State agency has approved refugia design as providing appropriate protection for the intended plant species.
- ☐ Prior to implementation, verify documentation that the responsible State agency has approved a monitoring plan.
- ☐ As needed, prior to implementation, NRCS will provide technical assistance in:
  - Selecting suitable locations for refugia location.
  - Protecting site resources during construction.
  - Preparing specifications for applying this enhancement for each site using NRCS approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- ☐ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- ☐ After implementation, verify the planned refugia were constructed according to specifications developed for the site.
- ☐ After implementation, verify any erosion control and/or invasive plant treatment needed for the site is functioning and is maintained to specifications developed for the site.

CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

OHIO SUPPLEMENT TO

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E643B

Additional Criteria for Ohio

In additon to the criteria specified in the National job sheet E643B the following additional criteria apply in Ohio:

- State listed plants may be found on the ODNR, Natural Areas and Preserves, Rare Plants website at http://naturepreserves.ohiodnr.gov/rareplants
- The presence of the listed species must be verified by qualified persons such as ODNR Natural Areas and Preserves staff, university professors, or professional botanists.
- Details on means of protection, appropriate buffers, relocation and re-establishment methods will be developed with the assistance of ODNR Natural Areas and Preserves staff.
- Areas will be protected with strict access control to exclude livestock, wildlife, vehicles and people as appropriate.

Additional Documentation Requirements for Ohio

In additon to the documentation requirements specified in the National job sheet E643B the following additional criteria apply in Ohio:

- NRCS will identify specific requirements for each site after an evaluation of the site conditions and provide approved specifications, job sheets or other documents with appropriate information.
- Details on how the area (including protective buffer) will be managed and protected will be developed.

USDA United States Department of Agriculture

CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E643C

Restore glade habitat to benefit threatened and endangered species and state species of concern

Conservation Practice 643: Restoration and Management of Rare or Declining Habitats

APPLICABLE LAND USE: Forest, Associated Ag Land

RESOURCE CONCERNS: Animal

PRACTICE LIFE SPAN: 5 years

Enhancement Description

Restore Glade natural communities as shown by the Ecological Site Description to conserve biodiversity. Enhancement requires reducing woody canopy cover and applying at least one prescribed fire to treated acres. Restoration of glade communities provide habitat for rare and declining species. Sites that previously or currently support the rare and declining habitat will be targeted for restoration.

Criteria

- States will apply general criteria from the NRCS National Conservation Practice Standard Restoration and Management of Rare or Declining Habitats (Code 643) as listed below, and additional criteria as required by the NRCS State Office.
- All necessary local, state, and federal permits shall be obtained by the landowner (or designee) prior to restoration activities.

- Applied to sites where the Ecological Site Description designates "glade" habitat or as determined appropriate by site evaluation that considers all glade criteria.
- A pre-treatment habitat assessment, such as a WHEG, of the affected area will be documented to provide a baseline for comparison with post-treatment conditions.
- A restoration and management plan covering a ten-year period shall be developed by a restoration specialist, based on inventory information from the WHEG, and using glade criteria from the Ecological Site Description as the desired future condition (DFC). The plan will identify practices, monitoring, and maintenance activities to be implemented throughout the ten-year period beginning with initial enhancement implementation, to achieve and maintain the DFC.
- Prior to prescribed burning, invasive plant and animal species, and noxious weeds shall be controlled (if present) on the treated area. When possible, control will be limited to that necessary to control undesirable species, while still protecting habitat that benefit native pollinators and other fish and wildlife species that depend on the site for food, cover, and water.
- A written burn plan must be developed, and all necessary approvals secured prior to conducting the prescribed burn. Use the Prescribed Burning (338) conservation practice standard and posted supporting documents to complete the written burn plan.
- Use criteria in other NRCS Conservation Practice Standards to facilitate the restoration and management of rare and declining habitats as appropriate for the site. Depending on site conditions and natural disturbance regimes, these may include: Prescribed Burning (Code 338); Fence (Code 382); Access Control (Code 472); Brush Management (Code 314); Herbaceous Weed Control (Code 315); and Upland Wildlife Habitat Management (Code 645).

- Where planting and/or seeding is needed to achieve restoration goals, on sites where effects of prescribed burning in stimulating the growth of desired vegetation have been evaluated and determined to be inadequate:
  - Site preparation, planting dates and methods, and plant material care and handling shall optimize vegetation survival and growth.
  - Prepare species and seeding rate specifications to achieve desired habitat condition.
  - Adapt vegetation to the Ecological Site Description and the planned purpose.
- Management practices and activities shall not disturb cover during the primary nesting period.
- Only use chainsaws or other hand methods (hack and squirt, basal spraying, etc.) to remove unwanted woody vegetation. The use of clippers, bulldozers or other mechanical equipment is not an acceptable restoration method for glades.
- The site shall be excluded from grazing.

Documentation and Implementation Requirements:
Participant will:

- ☐ Use the Restoration and Management of Rare or Declining Habitats (Code 643) conservation practice and posted supporting documents to meet the criteria of this enhancement.
- ☐ Prior to implementation, use appropriate Ecological Site Description to determine glade habitat for restoration.
- ☐ Prior to implementation, obtain site-specific designs, including locations and dimensions, and timing of activities.
- ☐ Prior to implementation, conduct a pre-treatment habitat assessment of the affected area using the appropriate Wildlife Habitat Evaluation Guide.
- ☐ Follow restoration methods as outlined in the Restoration and Management of Rare or Declining Habitats Standard and supporting jobsheets, implementation requirements, or other documents.
- ☐ Obtain a Prescribed Burn Plan written by a certified burn planner that meets NRCS criteria and provide a copy to the NRCS field office.
- ☐ Conduct at least one prescribed burn after tree and shrub removal.
- ☐ If seeding is required, appropriate species will be selected as described in the Ecological Site Description.
- ☐ After implementation, conduct a post-treatment habitat assessment of the affected area using the appropriate Wildlife Habitat Evaluation Guide. The score must result in a 0.5 or greater.

NRCS will:

- ☐ Prior to implementation, verify that the enhancement is planned for the appropriate land use and is applicable to the site.
- ☐ Prior to implementation, provide assistance with the development of a Prescribed Burn Plan or refer to an appropriate burn planner.
- ☐ Prior to implementation, provide technical assistance in preparing specifications for applying this enhancement for each site using NRCS approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.

- ☐ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- ☐ After implementation certify that the prescribed burn was completed according to the burn plan and Prescribed Burning (338) practice specifications.
- ☐ After implementation, verify the habitat was restored according to specifications developed for the site.
- ☐ After implementation, verify any erosion control and/or invasive plant treatment needed for the site is functioning and is maintained to specifications developed for the site.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

OHIO SUPPLEMENT TO

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E643C

Additional Criteria for Ohio

In additon to the criteria specified in the National job sheet E643C the following additional criteria apply in Ohio:

- The term 'glade' may cover a variety of plant communities. For the purposes of this enhancement, it is limited to plant communties typically occuring on sites with very shallow soils over limestone (or sometimes shale). They are ofetn characterized by open tree canopies with a variety of herbaceous species underneath. They are often subject to summer drought and fire. Ohio examples include limestone glades, shale glades, post oak openings, and alvars.

- Full Ecological Site Descriptions (ESD) are not avialable in Ohio; the use of the provisional site descriptions is not sufficient for the identification of glades in Ohio.

- Identification of potential glades should be confirmed by qualified persons such as ODNR Natural Areas and Preserves staff, university professors, or professional botanists.

- These experts may also be used to develop recommended actions for restoration.

- Restoration must include the use of prescribed burning to help restore the community. **NOTE**: NRCS will not prepare or assist in the preparation of burn plan for this enhancement. NRCS will provide information such as the 338-Prescribed Burning Ohio CPS to the applicant.

- Areas will be protected with strict access control to exclude livestock, vehicles and people as appropriate.

Additional Documentation Requirements for Ohio

There are no additional documentation requiremnts that apply in Ohio.

CONSERVATION ENHANCEMENT ACTIVITY

E643D

CONSERVATION STEWARDSHIP PROGRAM

Low-tech process-based restoration to enhance floodplain connectivity

Conservation Practice 643: Restoration of Rare or Declining Natural Communities

APPLICABLE LAND USE: Range, Pasture, Forest, Associated Ag Land

RESOURCE CONCERN: Animal

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Beaver Dam Analogues (BDAs) and/or Post-Assisted Log Structures (PALS) are low-tech structures used to facilitate process-based restoration of rare and declining 'Stage 0' stream conditions. These structures are used to mimic, promote, and sustain the natural processes of beaver dam activity and wood accumulation that lead to more fully connected floodplains. BDAs and PALS are hand-built with a mixture of woody debris and on-site soils and vegetation. This enhancement is intended primarily to kick-start natural ecological, geomorphic, and hydrologic processes required for maintenance of healthy and functioning streams and associated floodplains.

Criteria

- Implement a series (complex) of Beaver Dam Analogues (BDAs) and/or Post-Assisted Log Structures (PALS) within stream reaches where the state approved evaluation tool identifies that the current condition meets planning criteria but restoration or enhancement is desired to improve floodplain connectivity, riparian condition, and move towards Stage 0 stream conditions.

- Document current condition as meeting planning criteria using the state approved evaluation tool and explain how implementation of the enhancement is expected to improve upon current condition (e.g., an increase in wetted area after

implementation).

CONSERVATION STEWARDSHIP PROGRAM

- Follow the conservation planning process and stream restoration guidance outlined in the Low-Tech Process-Based Restoration of Riverscapes Design Manual and Pocket Field Guide (Wheaton et al. 2019; available at: http://lowtechpbr.restoration.usu.edu/).

- Complete Low-Tech Restoration Risk Considerations Checklist. Apply enhancement only on1st - 3rd order wadeable streams where all other risks are low-to-moderate. (See pg. 22 of Low-Tech Process-Based Restoration of Riverscapes Design Manual for checklist).

- Provide project design package that includes: 1) map showing stream reach(es) affected, 2)objectives for each reach, and 3) estimated number, type, and location of structures in each reach.

- Obtain all necessary Clean Water Act, Section 404 permits, and other federal, state, or local permits, as required.

- Structures should consist of native materials, such as woody debris (branches, limbs, small logs, brush) and on-site soils and vegetation. Where posts are required for structure stability, use only untreated wooden posts. Structures should be hand-built and avoid the use of heavy equipment (tractors, dozers, etc.).

- Recommend annual monitoring, maintenance, and adaptive management until stream condition objectives are achieved. Typical maintenance activities should include replacing posts, refilling structure with woody material, and extending structure length.

- Estimated application rate to achieve the appropriate depth of cover is 270 cubic yards per acre.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- ☐ Prior to implementation, provide project design package that includes:
  - Map showing stream reach(es) affected,
  - Objectives for each reach, and
  - Estimated number, type, and location of structures in each reach. (NRCS will provide technical assistance, as needed.)
- ☐ Prior to implementation, obtain all necessary Clean Water Act, Section 404 permits, and other federal, state, or local permits, as required.
- ☐ Prior to implementation, document pre-treatment conditions of the area including the use of representative digital images/photos.
- ☐ During implementation, install BDAs and/or PALS using appropriate methods as per the plan and specifications.
- ☐ During implementation, notify NRCS of any planned changes to verify the planned system meets the enhancement criteria.
- ☐ After implementation, document post-treatment conditions of the area including the use of representative digital images/photos.
- ☐ After implementation, annual monitoring, maintenance, and adaptive management is recommended.

CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- ☐ As needed, provide technical assistance to meet the criteria of the enhancement.
- ☐ During implementation, evaluate any planned changes in the mulching plan to ensure enhancement criteria are met.
- ☐ If changes were made after implementation, use information provided from the participant to verify the applied system meets the enhancement criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

Restoration of Rare or Declining Natural Communities:

USDA United States Department of Agriculture
Natural Resources Conservation Service

Beaver Dam Analogues and Post-Assisted Log Structures for Low-Tech Stream Restoration

Conservation Practice 643 - OH Specification Sheet

Client:		**Date:**	
Location:		**County:**	
Contract #:		**Tract/Field:**	
Planner:		**Acres:**	

Practice Description

Beaver Dam Analogues (BDAs) and Post-Assisted Log Structures (PALS) are low-tech woody structures designed to facilitate process-based restoration of streams and riparian areas. BDAs mimic and promote the processes of beaver activity, while PALS mimic and promote the processes of wood accumulation. Structures are low, semi-permeable, and hand-built using native materials (wood, sod, etc.) with untreated wooden fence posts added where necessary for extra stability. Structures are designed to be short-lived and used primarily as a temporary tool to promote natural process recovery. Typically, 'complexes' consisting of multiple structures are used within a stream reach to meet project objectives. The desired outcome is to initiate restoration of natural processes that self-sustain healthy valley bottoms and riparian habitats. For more details, reference: Low-Tech Process-Based Restoration of Riverscapes: Pocket Field Guide

Reach Conditions/Complex-Scale Objectives (complex = group of structures designed to work together)

Reach/ Complex Name	Length	Baseline Conditions	Goals & Objectives	Target Conditions
Stony Creek	*500 ft*	*Channel incision (~3 feet) limits regular floodplain access. Riparian vegetation minimal and only where inset floodplains have developed.*	*Improve floodplain connectivity, expand riparian vegetation to improve native fish and wildlife habitat*	*The desired outcome is to widen incision trench by one active channel width, expand inset floodplain, and increase riparian vegetation extent by 50% within 5 years.*

Treatment Specifications

Reach/ Complex Name	Structure No.	Structure Type	Approximate Dimensions (ft) (L x W x H)	Site-Specific Notes
Stony Creek	*1*	*Bank-attached PALS*	*7x2x3*	*Use bank blaster to force high flows into cutbank*

Conservation Practice 643 – Specification Sheet

Design drawings and maps	See Appendix A for standard structure drawings and installation instructions. Refer to conservation plan map for layout of structures.
Permits and consultations (List stipulations, timing restrictions, conservation measures, and notifications required by permitting/consultations.)	
Risk mitigation measures and additional notes (Complete risk considerations checklist and describe any measures needed to reduce risks)	

Operation, Maintenance, and Adaptive Management

BDAs and PALS are intended to be short-term structures to mimic and promote natural processes. The design life is minimally one year, but the functional life of structures is often 5+ years. Maintenance and repair will likely be required until objectives and desired conditions for the complex are achieved. Structures should be inspected annually after peak runoff events but more frequent monitoring is encouraged. The amount and type of maintenance needed depends on project objectives. The failure of an individual structure may not be problematic if undesired impacts are not occurring and management objectives are still being achieved across the whole complex of structures.

Typical maintenance activities include:

- Replacing posts
- Refilling structure with woody material
- Plugging leaks in ponds (BDAs)
- Extending structure length

Since the long-term goal is to restore self-sustaining processes (e.g., wood accumulation and/or beaver dam activity), adaptive management should include regular evaluation to determine if additional treatments are needed through time.

CLIENT'S ACKNOWLEDGEMENT STATEMENT:

The Client acknowledges that:

a. They have received a copy of the specification and understand the contents and requirements.
b. It shall be the responsibility of the client to obtain all necessary permits and/or rights, and to comply with all ordinances and laws pertaining to the application of this practice.

Accepted by: _____ Date: _____

Conservation Practice 643 – Specification Sheet

CERTIFICATION:

I have completed a review of the information provided by the client or have conducted a site visit and certify this practice has been applied according to NRCS standards and specifications.

Certified by: _____ Job title: _____ Date: _____

INCLUDE SITE PHOTOS BELOW: Pre-construation & Post-construction

Please include any additional photos as an attachment with appropriate labels

Appendix A: Structure schematics and installation instructions. From Wheaton et al. 2019. Low-Tech Process-Based Restoration of Riverscapes: Pocket Field Guide. Utah State University Restoration Consortium. Logan, UT.

LOW-TECH STRUCTURE DEFINITIONS

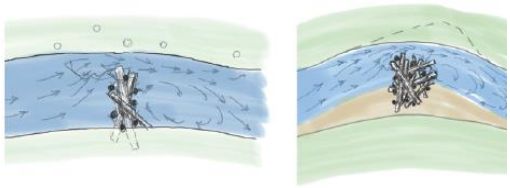
PALS
POST-ASSISTED LOG STRUCTURES

- PALS are handbuilt structures that mimic and promote the processes of **wood accumulation.**
- Woody material of various sizes pinned together with untreated wooden posts driven into the substrate.

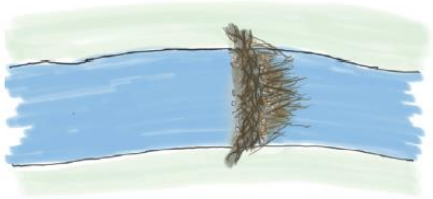
BDAs
BEAVER DAM ANALOGUES

- BDAs are handbuilt structures that mimic and promote the processes of **beaver dam activity.**
- BDAs are a permeable, channel-spanning structure with a constant crest elevation, constructed with a mixture of woody debris and fill material to promote temporary ponding of water.

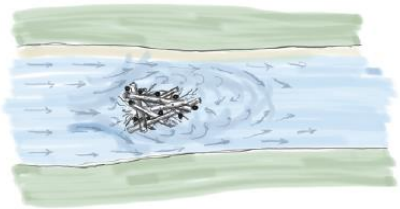
BANK-ATTACHED PALS



POSTLESS BDA

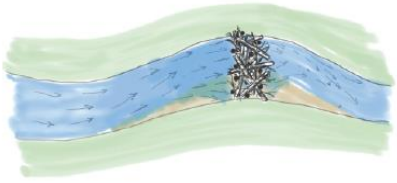


MID-CHANNEL PALS



POST-ASSISTED BDA

CHANNEL-SPANNING PALS

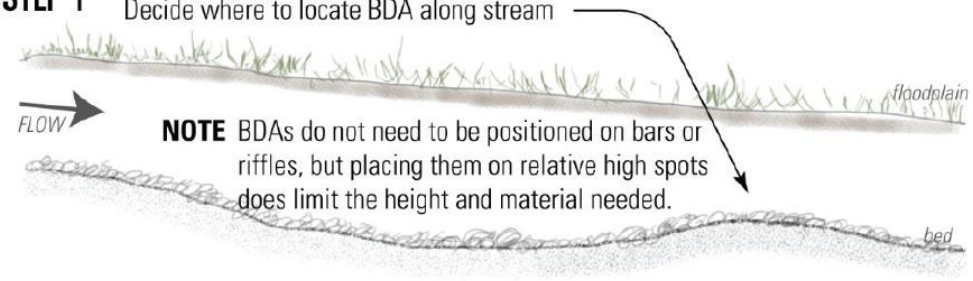


POST-LINE WICKER WEAVE

BEAVER DAM ANALOGUES

STEP 1

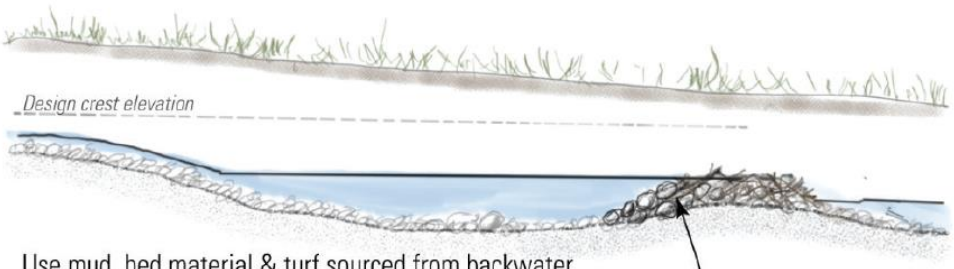
Decide where to locate BDA along stream



NOTE BDAs do not need to be positioned on bars or riffles, but placing them on relative high spots does limit the height and material needed.

STEP 2

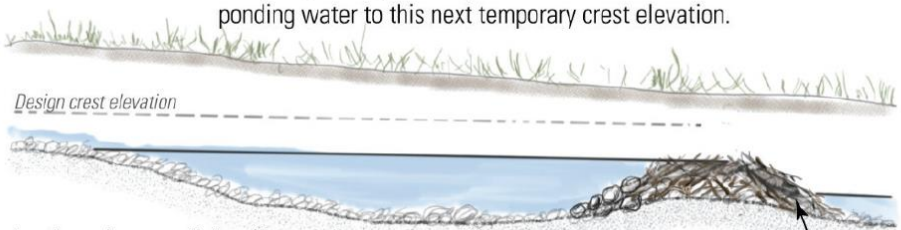
Build up first layer only to just above existing water surface and make sure crest is level across bed and its pooling water upstream to this temporary crest elevation



Use mud, bed material & turf sourced from backwater area combined with sticks of various sizes to build wide base. Make sure base is wide enough to accommodate designed height.

STEP(S) 3

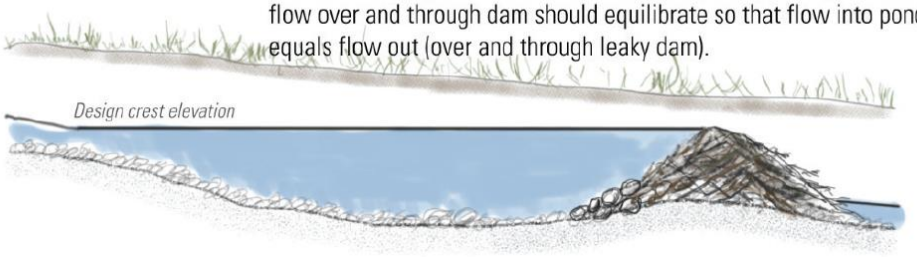
Build up subsequent layer(s) in 6 to 12" lifts, packing well with mud, turf, leaves, needles, sediment and other material until ponding water to this next temporary crest elevation.



Lay branches parallel to flow on downstream side and build up a mattress to dissipate overflow

FINISHING STEP

Bring dam up to desired design crest elevation. Make sure crest of dam is perfectly level (so no preferential flow or weir exists). If stream is flowing, water should be backed up and ponding, but flow over and through dam should equilibrate so that flow into pond equals flow out (over and through leaky dam).



HOW TO BUILD BDAs

1. Decide location of BDA dam crest orientation, configuration (e.g., straight or convex downstream), and crest elevation (use landscape flags if necessary). Position yourself with your eye-level at the proposed crest elevation of the dam (make sure it is < 5' in height). Look upstream to find where the pond will backwater to. Adjust crest elevation as necessary to achieve desired size of pond, inundation extent, and overflow patterns. If concerned about head drop (water surface elevation difference) over BDA, build a secondary BDA downstream with a crest elevation set to backwater into base of this BDA (and lessen head drop or elevation difference between water surface in pond and water surface downstream of BDA).

2. Build up first layer or course by widening base upstream and downstream of crest to flat height of 6 to 12" above existing water surface, and make sure it holds back water.

   a. If larger key pieces (i.e., larger logs, cobble or small boulders) are locally abundant, these can be used to lay out the crest position across the channel. Optionally, they can be 'keyed' in by excavating a small trench (no need to be deeper than ~1/3 of the height of key piece diameter) and place key pieces in and pack with excavated material.

   b. Lay out first layer of larger fill material, being careful not to go to higher than 6" to 12" above existing water surface. The first layer should be just high enough to backwater a flat water surface behind it.

   c. Using mud, bed material & turf (typically sourced from backwater area of pond) as fine fill material to plug up leaks, combine with sticks and branches of various sizes to build a wide base. Make sure base is wide enough to accommodate anticipated dam height (most dams will have a 1.5:1 to 3:1 (horizontal : vertical) proportions.

   d. Build up first layer only to top of key pieces from first layer. Make sure the crest is level across the channel and water is pooling to this temporary crest elevation.

continued >>

3. Build up subsequent layer(s) in 6" to 12" lifts, packing well with fine fill material until ponding water to its next temporary crest elevation.

> Repeat step 3 as many times as necessary to build up to design crest elevation.

> Work a overflow mattress (laying branches parallel to flow) into dam on downstream side and build to provide energy dissipation to overtopping flows.

> If desired, and time permits, attempt to plug up BDA with mud and organic material (small sticks and turf) to flood pond to crest elevation. Optionally, you can leave this for maintenance by beaver or for infilling with leaves, woody debris and sediment.

NOTES

- The temptation is always to build up (in height) quickly without making sure each layer is holding back water well and is stable. A better dam results in building up to the design crest elevation slowly.
- Overall dam height is best not to exceed the height of the people constructing it.
- It is easier to build in systems that already have a perennial water source and flowing water, as you can see instantly how well your structure backs up water. It is possible to build in intermittent channels or areas you expect to receive water in the future, but you will not immediately mimic a beaver pond in such situations.
- Much of the 'strength' of the dam comes from the messy carbon fiber matrix you are building with a mix of size and type of materials combined. Similar to concrete, the cement by itself is not strong, but the aggregate and/or reinforcing rebar is what gives the structure its strength.
- Resist the temptation to overbuild the BDA.
- A BDA that 'breaches' or 'blows out', just like natural beaver dams do, is not a 'failure' if designed to accommodate such a response. Often, BDAs that blow out or breach provide improved and more complex habitat.
- If upstream fish passage is a concern, consider building features that make for flow variability that facilitate typical pathways through, over and around natural beaver dams. These can include ensuring overflow side channels that act as fish ladders, sloppier mattresses with micro pools, more branches in the mattress laid parallel to the flow, decreasing head drop for crest elevation of large dams, by building secondary dam(s) downstream that backwater up to base, leaving some porous pathways through dam for fish (and water) to get through.
- Design life: < 1 year (note actual life may last many years or even decades).

OPTIONS, CONSIDERATIONS & VARIATIONS

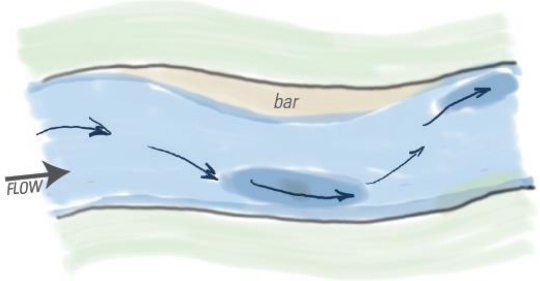
- For **Step 2a,** it is not necessary to build with larger key pieces. Often building with a mix of smaller woody material and fine fill material is stronger. If woody key pieces are used, consider limbing (cut off branches) on side in contact with bed.
- For **Step 2b**, if key pieces are limbed on the side that is in contact with bed, the branches removed from the other side can be used to help weave and wedge material in subsequent layers in. If this is done, make sure that limbs are trimmed at completion to design crest elevation.
- Just like natural beaver dams, there are a huge number of variations in the woody fill material and fine fill material. In some riverscapes that lack woody riparian vegetation, or nearby woody material, beaver build very strong beaver dams out of nothing more than fine fill material.

- If building a 'primary' dam (larger dam that tends to be deep enough to support an underwater entrance to a beaver lodge, consider backwater inundation extents relative to good bank-lodging opportunities (e.g., overhanging banks, vegetation and cover from predation).
- If building multiple dams (typically secondary) in series, the dams within a complex tend to be positioned (spacing downstream) and built to heights that support flatwater from the crest of the downstream dam all the way upstream to the base of the next dam upstream *(see page 22).*

DAM CREST ORIENTATIONS

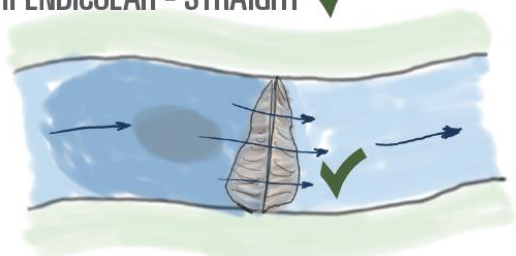
UNDAMMED REACH

At low flows, and in the absence of dams, flow paths within the bankfull channel follow the thalweg and are shunted by bars.



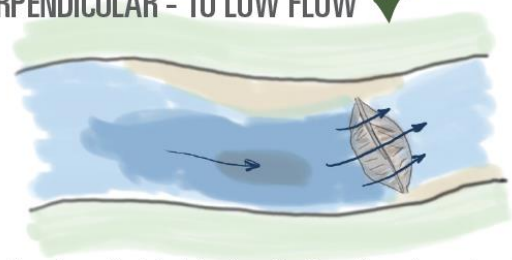
Since dams are built to a constant crest elevation, they essentially are a contour. Water flows perpendicular to the contour and over the dam crest, when the dam is maintained and/or intact.

PERPENDICULAR - STRAIGHT ✔



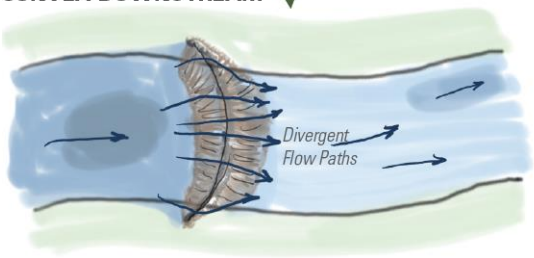
When dam crests span the bankfull channel, but are lower elevation than the adjacent floodplain, low flows are contained within the channel. Perpendicular orientations will back water up, and alter the flow paths to that of bankfull flows.

PERPENDICULAR - TO LOW FLOW ✔



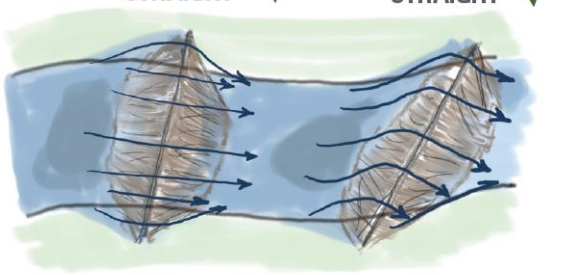
Smaller dams that just backup the low-flow channels often have an orientation perpendicular to the low flow, but at an angle to the bankfull flow patterns.

CONVEX DOWNSTREAM ✔



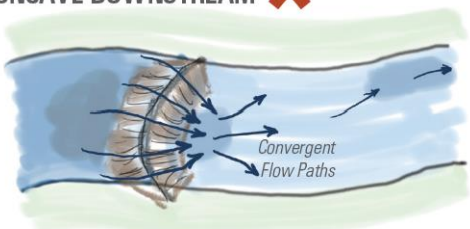
Beaver dams are sometimes curved in a convex downstream orientation across the channel, which creates divergent flow paths over the dam. This flow pattern is effective at dissipating energy.

PERPENDICULAR-STRAIGHT ✔ ANGLED-STRAIGHT ✔



When dam crests are higher than bankfull and extend out onto floodplains,they can direct overflow onto those floodplains. However, a perpendicular, straight dam will direct most flow straight downstream. By contrast an angled dam will direct flow to one side of the channel (however the head drop tends to dissipate most of the flow energy).

CONCAVE DOWNSTREAM ✖

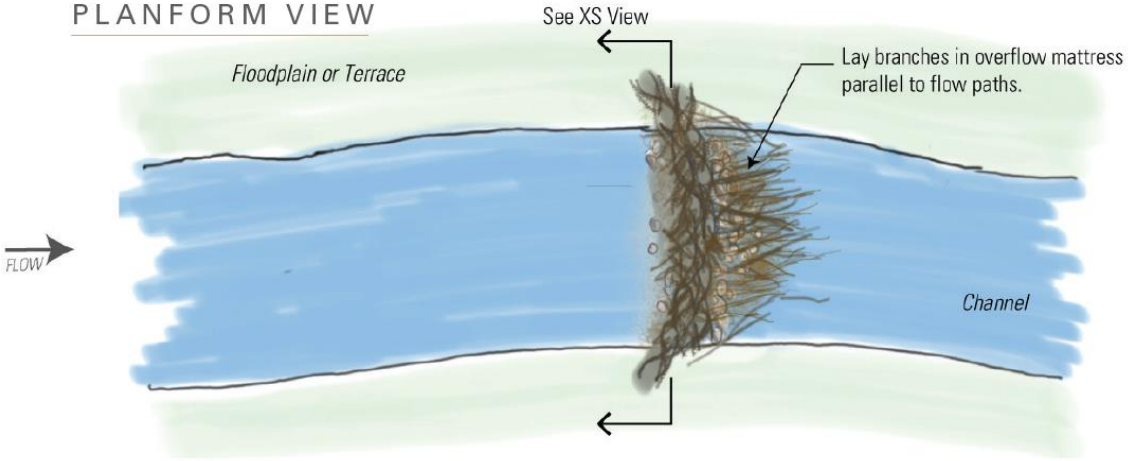


Beavers rarely build dams like Hoover Dam (and Hoover was not designed to withstand spill over the top). Concave downstream crests concentrate flow at the base of the dam, scouring out a deep pool, but also potentially undermining the dam integrity.

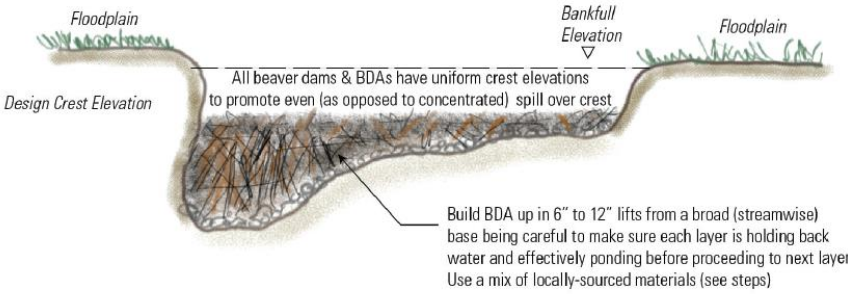
POSTLESS BDA

- BDAs are built to initially mimic a natural beaver dam (i.e., backwater upstream, such that a pond is created), but most BDAs are intended to promote beaver dam activity at some point thereafter.
- Many of the benefits of natural beaver dams, come from their ephemeral nature, and whether dams are actively maintained, blown-out, breached, filled in and/or abandoned.
- Postless BDA design are inspired by how beavers build dams; without fence posts, a hydraulic post pounder or heavy equipment. Like natural beaver dams, the postless BDA is appropriate in areas that can already support beaver dams.

PLANFORM VIEW

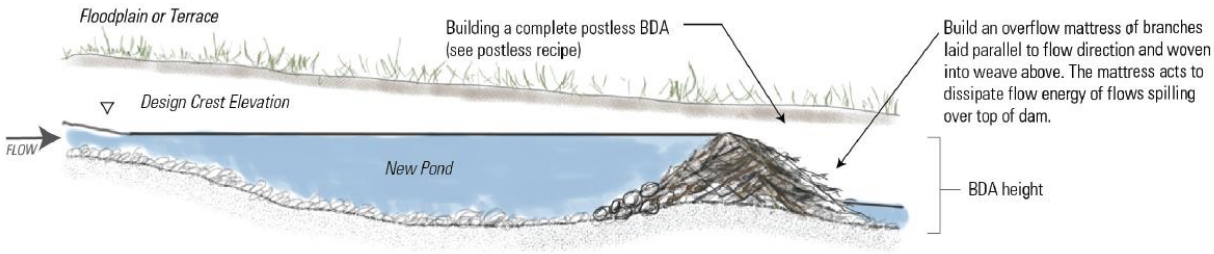


CROSS SECTION VIEW



NOTE
The crest elevation is a critical consideration. In general, primary dams are taller than secondary dams, and usually wider (either extending onto bars, inset benches or floodplains, as to lower unit stream power). Secondary dams tend to just be tall enough to back-water up to the base of the next upstream dam. Secndary dams can be built higher to lower the head (elevation) drop of an upstream dam.

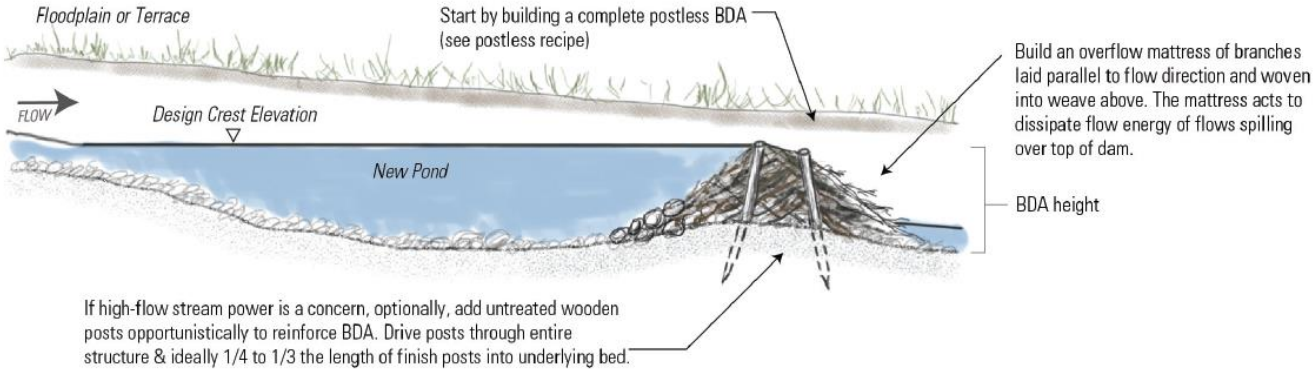
PROFILE VIEW



POST-ASSISTED BDA

- Posts can provide some temporary anchoring and stability to help with initial dam stability during high flows in systems with flashier flow regimes or that produce larger magnitude floods.
- For situations where additional support during high flows is deemed necessary, our suggested practice is to start out following the instructions to build a postless BDA, and then simply add posts as extra reinforcement after the fact.

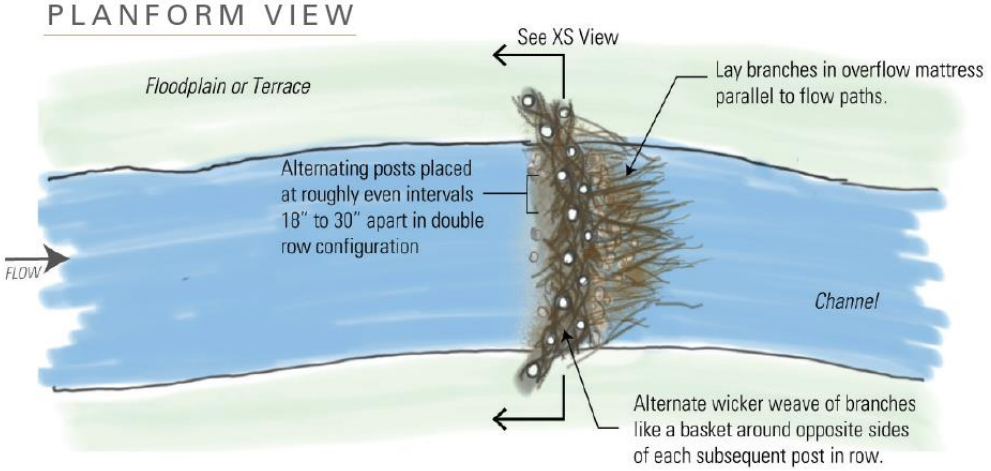
PROFILE VIEW WITH POSTS



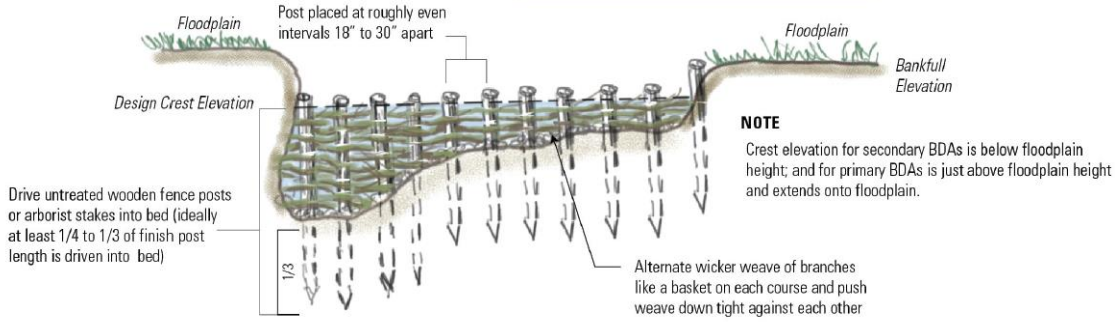
POST-LINE WICKER WEAVE

- BDAs can be constructed using post-line wicker weaves, to initially mimic beaver dam activity and later promote it.
- Posts used to layout a crestline, and long branches are woven between the posts to provide most of the structure.
- Post-line wicker weaves have been used for at least 150 years as instream structures, but have most often been used in check-dam or weir designs, which have higher crest elevations along the banks, and concentrate flow over the middle of the structure. By contrast, post-line wicker weave BDAs have a constant crest elevation as to not concentrate flow at any point.

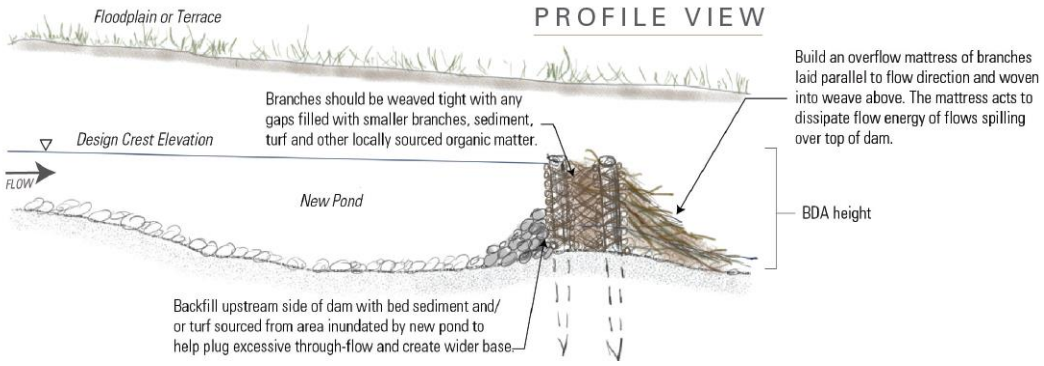
PLANFORM VIEW



CROSS SECTION VIEW



PROFILE VIEW



POST-ASSISTED LOG STRUCTURES

HOW TO BUILD PALS

1. Decide location of PALS, configuration (e.g., orientation and type of PALS) as part of the design of a complex of structures (multiple structures working together).
2. Position larger logs on the base of the structure to make the general shape of structure.
3. Limb branches from one side of the logs so that much of the log comes in contact with the bed to increase interaction between the flow and the structure, even at low flows.
4. Pin large pieces in place with posts; drive posts at angles and downstream to help hold wood in place at high flows.
5. Add more logs, and pack and wedge smaller material to fill spaces in the structure.
6. Build up the structure to desired crest elevation, but crest elevation need not be uniform.

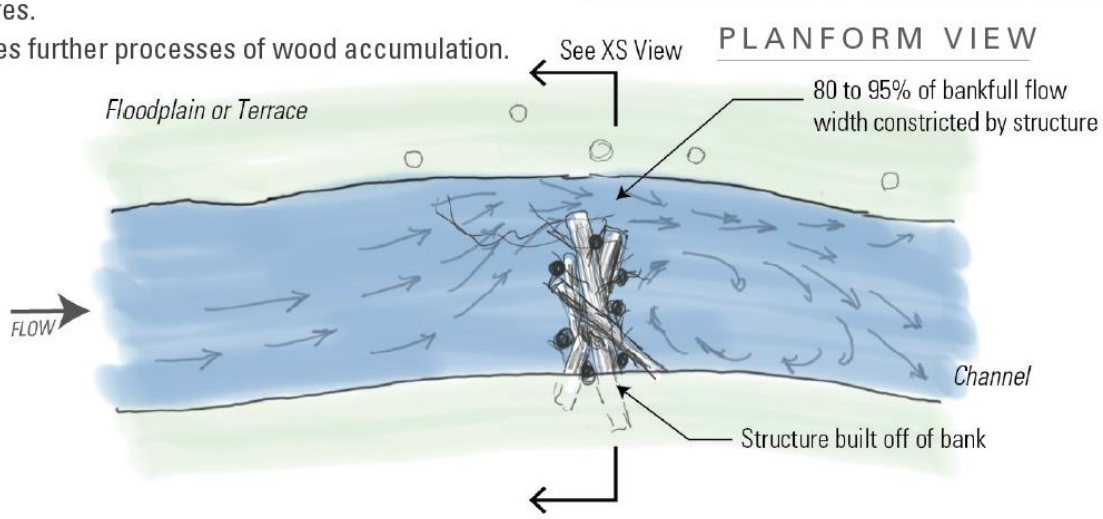
OPTIONS & CONSIDERATIONS

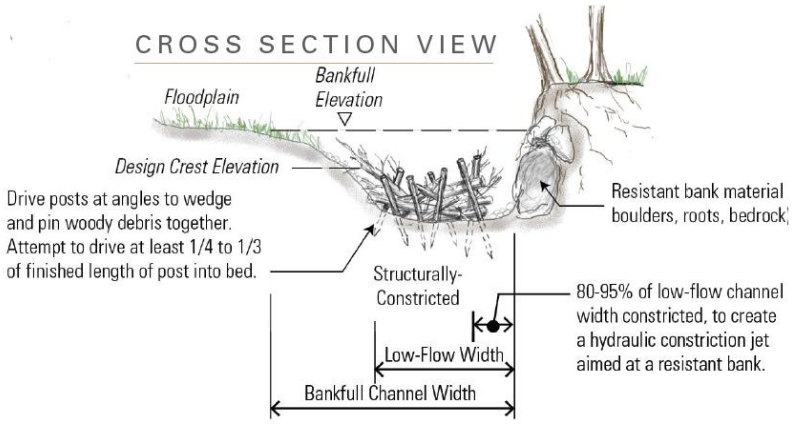
- Consider how much hydraulic purchase (interaction with flow) you want the structure to have and what flows (e.g., baseflows, typical floods, rare floods) it should engage with.
- Build PALS with irregular shapes and branches and small debris sticking out in multiple directions (i.e., make a mess).
- For PALS where flow over the top is anticipated, consider constructing a mattress of woody material on downstream side to dissipate pour over flow energy over-top of structure. Alternatively, if the intention is to encourage formation of a plunge pool, maybe build mattress incompletely, or not at all.
- When building bank-attached and channel-spanning PALS, extend the structures onto the floodplain by wedging structure material into existing vegetation, trunks, roots or boulders on the floodplain.Build bank-attached PALS with a broader base (streamwise) where the structure attaches to the bank, to better shunt flows to the opposite bank
- Locate bank-attached PALS across from hard features like boulders or roots to force a scour pool.
- Build a broad base (streamwise) for channel-spanning structures relative to channel width so that the structure is not narrow and "wall like". Use multiple lines of offset posts to build it wide.
- Build mid-channel PALS with large and wide logs perpendicular to the flow on the upstream end of the structure to act like a natural root wad.
- In general, the larger the structure relative to the channel width (i.e., constriction width), the larger effect it will have on hydraulics, and subsequently geomorphic change during high flows.
- Not all woody structures need to have posts (i.e., ALS – assisted log structures). Large cobble and boulders, or wedging key pieces between existing trees, roots, can all serve the 'temporary pinning' function of posts if available.

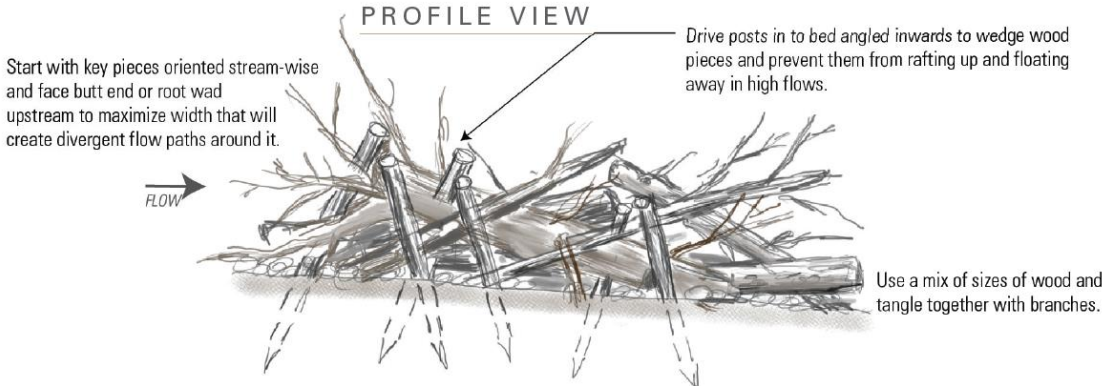
BANK-ATTACHED PALS

VARIATION 1: TO FORCE A CONSTRICTION JET

- Creates convergent jet of flow between bank- or margin-attached structure and a resistant feature (e.g., bedrock bank, roots, wood) on opposite bank.
- Forces more variable hydraulics, which typically create a backwater eddy upstream of the structure, a large eddy in the wake of the structure, and divergent flow paths where the jet weakens.
- Promotes structurally-forced pool, riffle growth at the divergent jet, and eddy bar formation in the eddies. Upstream deposition stabilizes and grows the structures.
- Promotes further processes of wood accumulation.





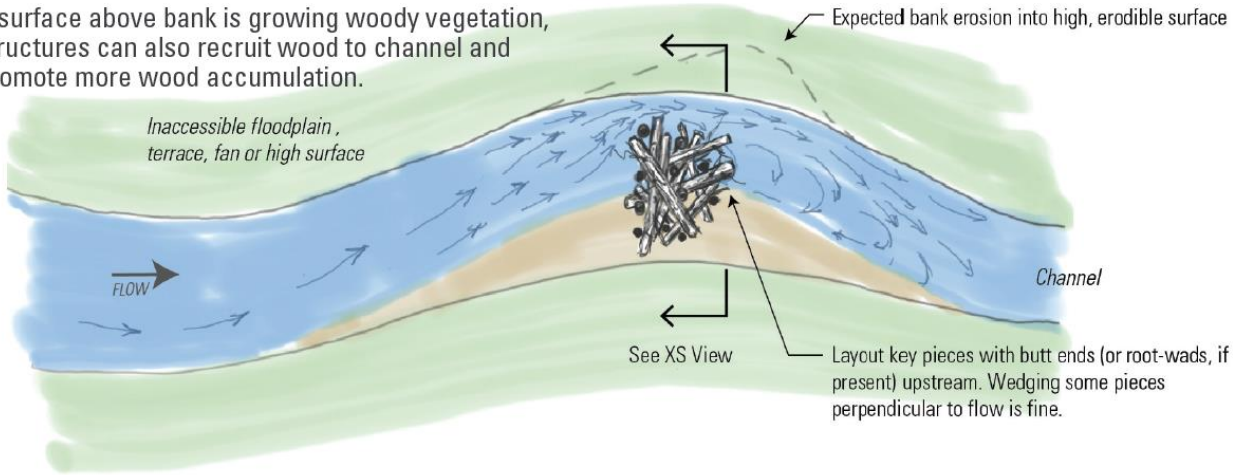


BANK-ATTACHED PALS:

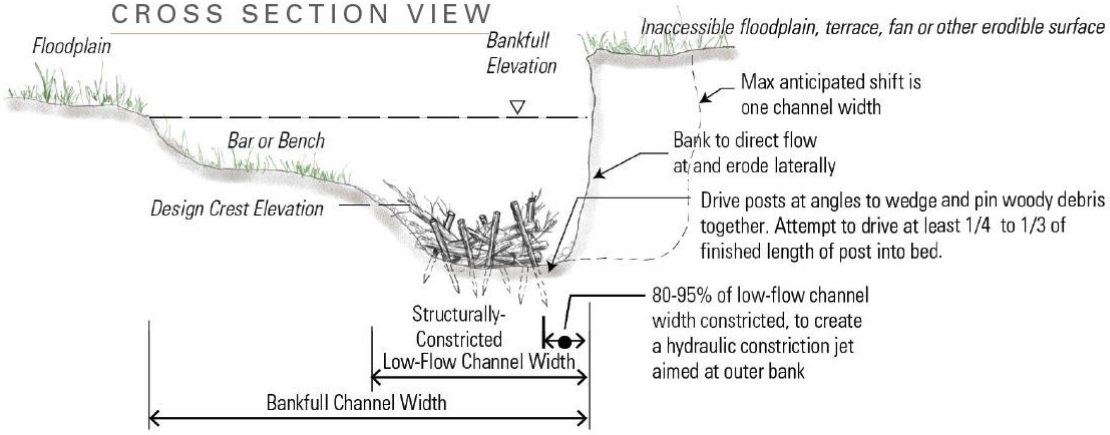
VARIATION 2: BANK BLASTER

- Accelerates lateral widening via bank erosion of an erodible bank opposite of the structure.
- Shunting of flow forces more variable hydraulics, which typically create a backwater eddy upstream of the structure, an eddy downstream of structure, and temporary jet aimed at opposite erodible bank.
- Leads to lateral shift of channel (no more than one channel width typically). Further lateral migration occurs if bar growth continues on inside bend, further natural woody debris accumulates on structure, or subsequent treatment is extended off structure.
- If surface above bank is growing woody vegetation, structures can also recruit wood to channel and promote more wood accumulation.

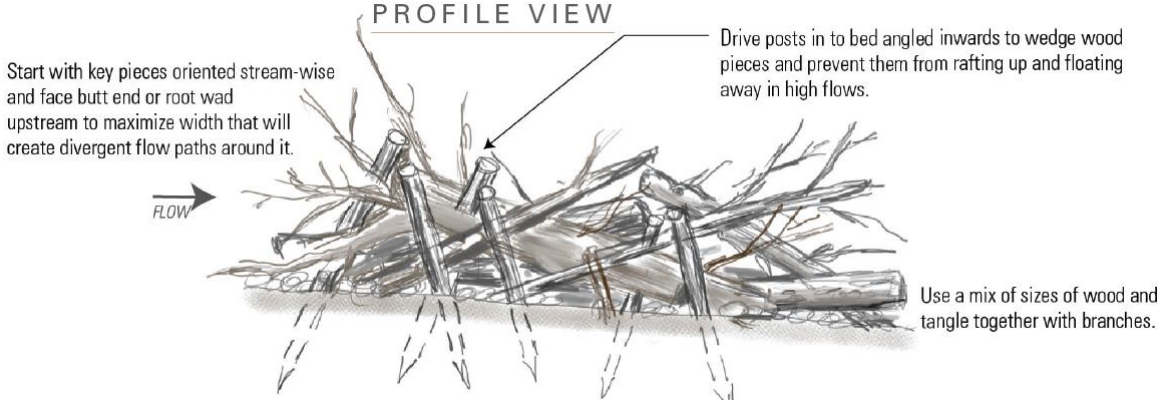
PLANFORM VIEW



CROSS SECTION VIEW



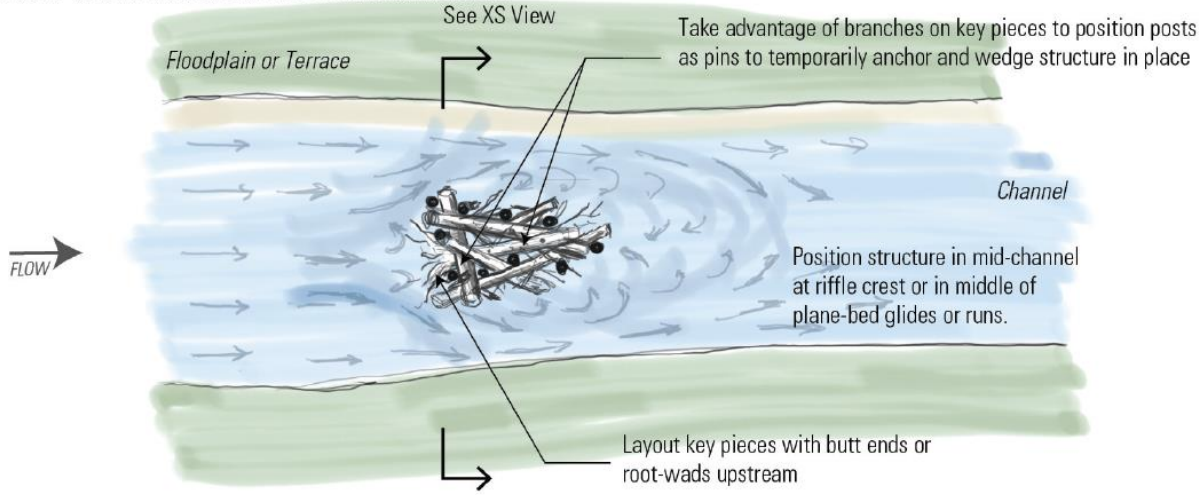
PROFILE VIEW



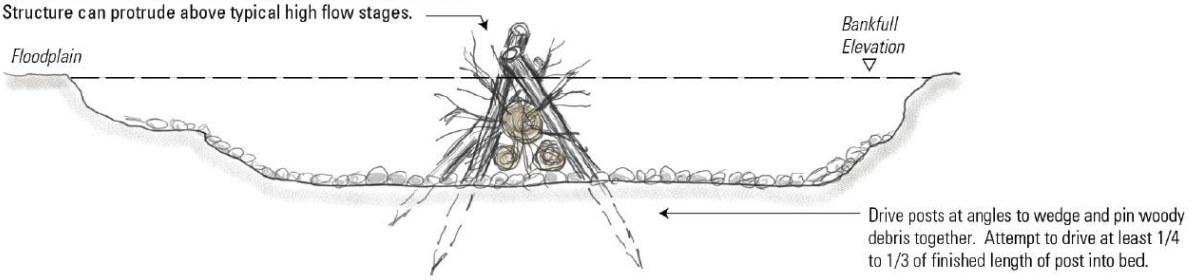
MID-CHANNEL PALS

- Installed mid-channel to split flow around the structure.
- Forces more variable hydraulics, which creates an eddy downstream of structure.
- Can promote mid-channel bar development in place of planebed morphologies, encourage or promote diffluences, convert riffles into mid-channel bars and/or to dissipate flow energy.
- In larger channels, multiple mid-channel PALS can be used in close proximity and are often more effective than a single large structure.
- In all cases, the mid-channel PALS can promote the process of wood accumulation on the structure itself.

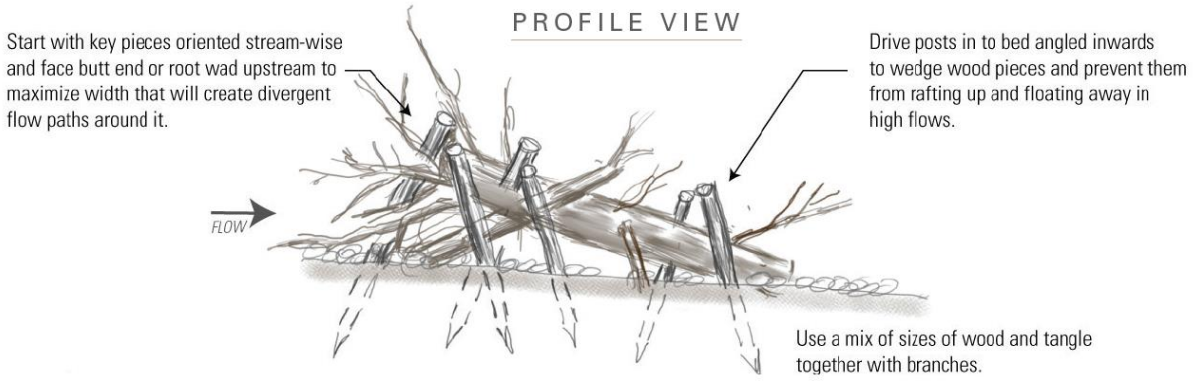
PLANFORM VIEW



CROSS SECTION VIEW



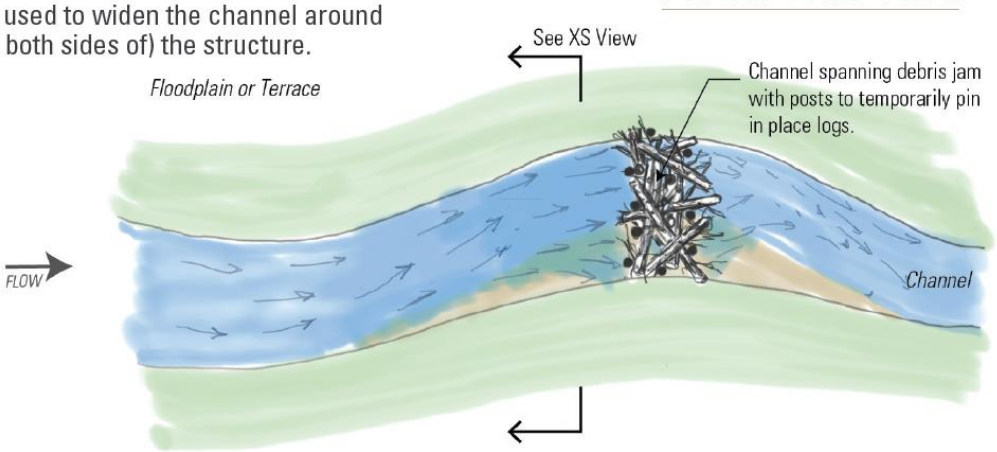
PROFILE VIEW



CHANNEL-SPANNING PALS

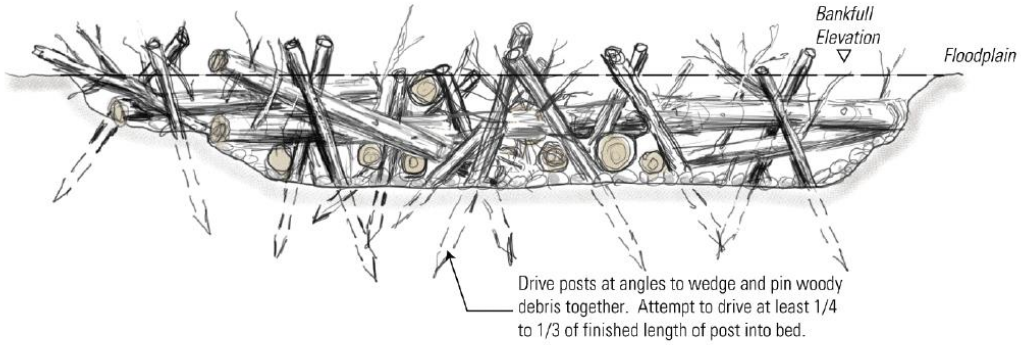
- Bank-attached on both sides, such that even at low-flow there is some hydraulic purchase across most of the channel, acting to back-water flow behind it. Unlike a beaver dam (with a uniform crest elevation), channel-spanning PALS can have a variable crest elevation and rougher finish, and are generally built with much greater porosity.
- Over time, increased water depth and decreased velocity upstream of PALS encourages more wood accumulation, organic accumulation and sediment deposition, all of which can act to stabilize the structure.
- If crest elevations are higher than adjacent floodplain(s), it can increase frequency of floodplain inundation, force new diffluences, and/or promote avulsions.
- Can be used to widen the channel around (one or both sides of) the structure.

PLANFORM VIEW



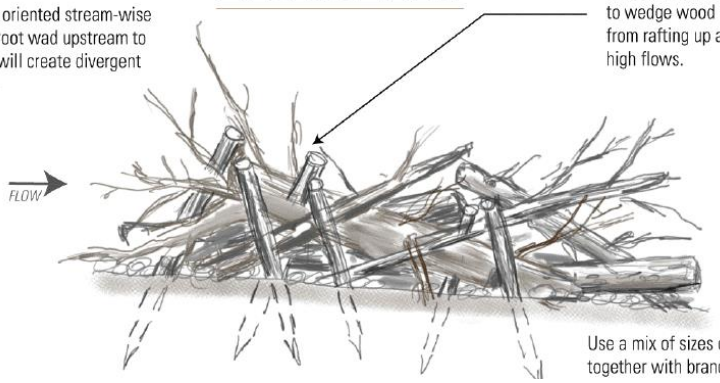
Design height for channel-spanning structures is important. If it is intended Structure can protrude above typical high flow stages.

CROSS SECTION VIEW



PROFILE VIEW

Start with key pieces oriented stream-wise and face butt end or root wad upstream to maximize width that will create divergent flow paths around it.



TOOLS TYPICALLY USED

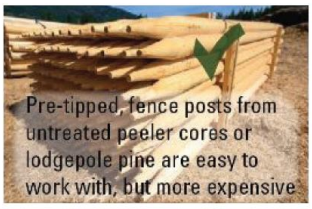
- PPE (personal protective equipment): closed-toe work boots, full pants, gloves, hardhat, eye protection and ear protection; optionally: dry suit or waders
- Cutting tools: loppers; optionally: chainsaw, hand saw(s), and pruning shears – for sourcing, trimming and cutting to size woody fill material
- Digging tools: shovel(s); optionally: pick-axe and/or digging bars – for sourcing finer fill material
- Five-gallon buckets: for filling and moving finer fill material from source areas to BDA
- Cam straps (optional): helpful to bundle together branches for easier hauling

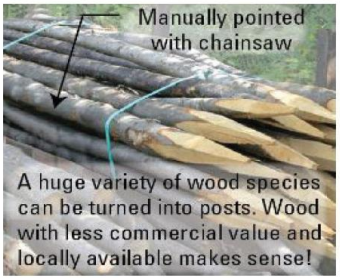
POST DRIVER OPTIONS

	Sledge Hammer	Post Driver Manual Powered	Hand Operated Gas Powered	Hand Operated Hydraulic Powered
				
Equipment Cost	$	$	$$	$$$
Operator Expertise	Unskilled	Unskilled	Moderate	Moderate
Ease of Deployment	Easy	Easy	Easy	Moderate
Max Diameter of Post	0.5 - 2"	0.5 to 2.5"	1" to 2.5"	1" to 4"
Effectiveness / Scalability	Low	Low	Moderate	High

POST OPTIONS

Posts are used to provide temporary stability or pins when building many low-tech restoration structures. There are many commercially-available post options (e.g., fence posts), but a premium price is charged for consistency, larger diameter, and straight poles (e.g., peeler cores and lodge pole). Smaller diameter (e.g., 2" to 3") posts and/or tree stakes (1.5" to 2" diameter) are cheaper, and often available from fuels reduction or non-commercially viable slash from timber harvest operations. Since posts are driven into substrate, they need to be pointed at tips. Pointing can be done by supplier or by an experienced chainsaw operator with four cuts.





United States Department of Agriculture

Conservation Enhancement Activity

E644A

CONSERVATION STEWARDSHIP PROGRAM

Managing Flood-Irrigated Landscapes for Wildlife

Conservation Practice 644: Wetland Wildlife Habitat Management

APPLICABLE LAND USE: Crop (Annual & Mixed), Crop (Perennial), Pasture

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Developing and implementing a conservation plan that supports maintenance of flood-irrigation in key landscapes to provide important foraging habitat for local breeding and migratory waterfowl and waterbirds.

Criteria

- Develop a conservation plan for the targeted species suite.
- As identified in the conservation plan, flood-irrigation will be applied in an amount and at a time to meet the targeted wildlife need.
- States will apply general criteria from the NRCS National Conservation Practice Standard Wetland Wildlife Habitat Management (Code 644) and additional criteria as required by the NRCS State Office
- Targeted species must be listed on the State Wildlife Action Plan or as State Endangered, State Threatened, State Sensitive (or similar designation).
- Appropriate locations for this enhancement will be provided by the NRCS State Office (NRCS State Office will base locations on current distribution of the targeted species and potential expansion into adjacent habitat for the target species. Other agencies

(e.g. State Department of Fish and Game, USFWS) and organizations (e.g. Ducks Unlimited, The Nature Conservancy) will provide input to NRCS concerning instances where the enhancement is used to provide habitat outside of the current distribution of the target species.)

- Use of fertilizers, pesticides, and other chemicals shall not compromise the intended purpose of this practice.
- Use criteria in other NRCS Conservation Practice Standards to facilitate the management of wetland wildlife habitat as appropriate for the site.
- Depending on site conditions, facilitative practices may be used to implement this enhancement. The NRCS Conservation Practice Standards may include, but are not limited to: Dam, Diversion (Code 348), Diversion (Code 362), Fence (Code 382), Field Border (Code 386), Filter Strip (code 393), Grade Stabilization Structure (Code 410), Irrigation Canal or Lateral (Code 320), Irrigation Field Ditch (Code 388), Irrigation Pipeline (Code 430), Irrigation Storage Reservoir (Code 436), Irrigation System, Surface and Subsurface (Code 443), Irrigation Water Management (Code 449), Nutrient Management (Code 590), Pumping Plant (Code 533), Riparian Herbaceous Cover (Code 390), Shallow Water Development and Management (Code 646), Stream Crossing (code 578), Structure for Water Control (Code 587), and Wetland Enhancement (Code 659).
- A Wildlife Habitat Evaluation Guide (WHEG) specific to wildlife habitat within a flood-irrigated landscape on perennial cropland or pasture must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than or equal to 0.6).

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant Will:

- ☐ Prior to implementation, meet with NRCS to review results of the wildlife habitat assessment conducted by NRCS, and discuss range of management alternatives that would improve wildlife habitat conditions.
- ☐ Prior to implementation, meet with NRCS to obtain and review the Wildlife Habitat Management Plan.
- ☐ During implementation, follow the Wildlife Habitat Management Plan.
- ☐ During implementation, maintain field log to include:
  - o Date/time of each field visit and observed water levels or percent holding capacity and average water depths;
  - o Digital photographs documenting the habitat provided
- ☐ After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS will:

- ☐ As needed, provide additional technical assistance to the participant.
- ☐ Prior to implementation, provide and explain state NRCS Conservation Practice Standard Wetland Wildlife Habitat Management (Code 644) as it relates to implementing this enhancement.
- ☐ Prior to implementation, assess habitat condition using the Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement; **Existing WHEG score = _____ Planned Post Implementation WHEG score = _____**
- ☐ Prior to implementation, review results of the wildlife habitat evaluation with participant, and discuss range of management alternatives that would improve wildlife habitat conditions
- ☐ Prior to implementation, develop a Wildlife Habitat Management Plan for targeted suite of species.
- ☐ Prior to implementation, review and explain the Wildlife Habitat Management Plan to the participant.
- ☐ After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide; **Post Implementation WHEG score = _____**

☐ After implementation, review field log to verify enhancement was implemented to meet criteria.

CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

OHIO SUPPLEMENT TO

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E644A

Additional Criteria for Ohio

In additon to the criteria specified in the National job sheet E644A the following additional criteria apply in Ohio:

- For purposes of scoring the site use the attached Shallow Water Management Wildlife Habitat Evaluation Guide.

Additional Documentation Requirements for Ohio

There are not any additional documentation requirements that apply in Ohio.

Wildlife Habitat Evaluation Guide (WHEG)
Shallow Water Management
Conservation Stewardship Program

CONSERVATION STEWARDSHIP PROGRAM

This Wildlife Habitat Evaluation Guide is to be used when assessing habitat conditions on flooded cropland for several CSP enhancements. The goal of managing shallow water on flooded cropland is to improve habitat for migratory birds such as waterfowl, shorebirds, and wading birds.

In order to implement these enhancements, areas must be annual cropland and have the capacity to manage seasonal hydrology. Hydrology is managed through the use of a water control structure to manipulate the timing, duration and depth of saturation or soil ponding. The areas managed may be depressional areas or large flat areas with associated drainage that can be managed. Flat areas typically will require the presence of embankments to contain the water. The soils, topography and water control structures must be such that the area can managed to retain water saturated to the surface or ponded to depths of 2-18 inches for at least 30 days.

To meet the baseline 0.5 score, shallow water management areas must meet **all** the following conditions:

- ☐ Annual cropland established with no-till or mulch-tillage
- ☐ Managed to have saturation to the surface or at least 1 inch of ponded water for a minimum period of 30 days
- ☐ Crop residue undisturbed after harvest and throughout flooded period
- ☐ Have a water level management plan for wildlife species of interest

Once the conditions listed above have been met, the following actions may be implemented to increase the score above 0.5. Check all that apply (in no case shall the total score exceed 1.0)

- ☐ Manage water levels so that there is an average depth of at least 6 inches on the flooded acreage (0.1 point)
- ☐ Close water control structures within one week after harvest and maintain flooded conditions until February 15 (0.1 point)
- ☐ Close water control structures within one week after harvest and maintain flooded conditions until April 15 (0.1 point)
- ☐ Close structures and flood area beginning by April 1 and maintain flooding until June 30 (0.1 point)
- ☐ Manipulate area by light discing, burning or rolling to encourage the growth of early successional habitat particularly moist soil vegetation (0.1 point)
- ☐ Manage area so that flooding and drawdown occur over a period of 2-3 weeks (0.1 point)

Existing Score:_____ Planned Score:_____

United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E645A

CONSERVATION STEWARDSHIP PROGRAM

Reduction of attractants to human-subsidized predators in sensitive wildlife species habitat

Conservation Practice 645: Upland Wildlife Habitat Management

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial); Pasture; Range; Forest; Associated Ag Land; Farmstead

RESOURCE CONCERN: Animals

PRACTICE LIFE SPAN: 1 Year

Enhancement Description

Reduction of artificial perching sites ,nest sites, food, and water available to subsidized predators in areas where human-subsidized predators are a threat to sensitive wildlife species. Human-subsidized predators may include ravens, crows, magpies, coyotes, foxes, skunks, raccoons, and other species. Activities under this enhancement may include removal of non-native or invasive trees; removal of unused power poles, corrals, windmills, buildings, and other vertical structures; and/or removal or management of watering facilities, dead livestock, road kill, garbage, animal feed, dumps, and other non-natural food sources.

Criteria

- Identify the targeted sensitive wildlife species.
- Identify the subsidized predator(s).
- Coordinate planned activities with a NRCS or partner biologist.
    - Coordination with US Fish and Wildlife Service and the State Wildlife Agency may be required.

- Treat only artificial, human caused attractants.
    - This activity shall not be used to remove or modify natural water sources, natural perching and nesting sites, or natural food sources for native predators.
- Develop an assessment of the predator attractants, including:
    - Each individual subsidy with a point on a map,
    - A description of the subsidy,
    - Effects to non-target wildlife species, especially raptors and other native predators, and
    - Potential effects to all sensitive as well as threatened and endangered (T&E) species.
- Conduct attractant removal activities in a manner to avoid direct mortality and outside of the nesting season.
- Lethal control shall not be performed as a component of this activity.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- ☐ Prior to implementation, meet with NRCS to review results of predator attractant assessment conducted by NRCS and to discuss predator attractants to be removed.
- ☐ During implementation, maintain a field log to include:
  - o Map of the assessed and removed predator attractants with point locations and descriptions of each item.
  - o Dates when the attractant was removed.
  - o Before and after photographs of each removed attractant.
- ☐ After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS will:

- ☐ Prior to implementation, identify targeted sensitive species and conduct an assessment of subsidized predator attractants on site .
- ☐ Prior to implementation, provide and explain state NRCS Conservation Practice Standard Upland Wildlife Habitat Management (Code 645) as it relates to implementing this enhancement.
- ☐ Prior to implementation, develop technical specifications for attractant removal needed to improve habitat for the targeted sensitive species consistent with NRCS Conservation Practice Standard Upland Wildlife Habitat Management (Code 645).
- ☐ Prior to implementation, assess effects on non-target wildlife species and complete any required coordination with US Fish and Wildlife Service and the State Wildlife Agency.
- ☐ After implementation, review field log to verify enhancement was implemented to meet criteria.

CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

OHIO SUPPLEMENT TO

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E645A

Additional Criteria for Ohio

In additon to the criteria specified in the National job sheet E645A the following additional criteria apply in Ohio:

- Predation typically has a significant impact only where there is generally poor habitat; presence of good habitat (adequate cover food, etc) will usually minimize the amount of predation losses. Utilize this enhancement where, despite the presence of goood habitat, predation is identified as an important factor in maintaining populations of targetted species. This enhancement should be implemented in coordination with habitat improvements designed for the benefit of the targetted sensitive species.

- Trees may be considered a human-caused attractant if they are part of a planted stand of non-native trees or are non-native, invasive species that have spread from another area.

- This enhancement is not intended for the removal of hazardous materials such as batteries, tires, or pesticide/herbicide containers.

Additional Documentation Requirements for Ohio

There are not any additional documentation requirements that apply in Ohio.

CONSERVATION ENHANCEMENT ACTIVITY

E645B

CONSERVATION STEWARDSHIP PROGRAM

Manage existing shrub thickets to provide adequate shelter for wildlife

Conservation Practice 645 Upland Wildlife Habitat

APPLICABLE LAND USE: Crop (Annual & Mixed), Crop (Perennial), Range, Pasture, Associated Ag Land, Farmstead, Forest

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 5 year

Enhancement Description

Existing shrub thickets provide an instant and important cover for wildlife. Various wildlife species may use shrubs as winter/thermal cover, summer shade, roosting, or as escape cover from predators. Proper management ensures that these shrubs will continue to provide the desired benefits for the local wildlife. A combination of herbicide treatments, cutting and trimming branches, and removal of other competing vegetation will occur. An eligible existing shrub thicket needs to have a canopy cover of 750 square feet, with an end goal of expanding to 1500 square feet. Any existing shrub thicket (not hand planted within the last 5 years) are eligible for this enhancement. Shrub thickets found within fence rows may now be very wide, but still meet the 750 square feet, are eligible.

Criteria

Multiple activities may need to occur to properly manage existing shrubs. Any activities involving tree removal will be coordinated with a Forester. Options for management of existing shrubs are described below:

A. Encouraging new growth on existing plants

1. Pruning and cutting back of plants is best done when the shrubs are dormant. Cutting back shrubs close to the ground encourages growth of new stems at ground level, which provides more protection for animals using the interior of the shrub. Leaving

the cut branches on the ground adjacent to the thicket, will provide cover until new branches grow back .

2. Cutting back dead limbs is best done when the plants are actively growing, in order to observe which branches are alive, and which branches are dead. Leaving the dead branches on the ground and adjacent to the shrub thicket can provide additional cover at ground level.

3. Before cutting branches and leaving them adjacent to the thicket, prepare the ground by creating bare ground for the branches to lay on.

B. Creating bare ground for easier access by wildlife and encourage suckering of new growth.

1. Applying herbicide underneath and adjacent to shrub thicket(s) will create bare ground, which encourages suckering of new plant growth by eliminating vegetation and opening the canopy. Also, bare ground will allow smaller wildlife species to move more freely under the shrubs.

2. Application of herbicide should be timed and applied carefully in order to not harm shrub plants. Pre-emergent or post-emergent herbicides may be desired.

3. Herbicide usage on adjacent agricultural lands should be applied carefully to prevent drift and harm to shrub thickets.

4. Utilization of a slow creeping fire through the shrub thickets will have similar effects and stimulate new growth. Some plants may be killed at the ground level, but new branches and stems will be created.

C. Eliminating predator perches and opening escape paths in and near shrub thickets.

1. All trees found growing within, or close to shrub thickets create predator perches, and eliminates escape routes for bird species which may flush from the shrub thicket.

2. Any trees found growing within shrub thickets shall be removed. Immediate stump treatment to prevent regrowth may be desired for some species.

3. Undesirable trees found adjacent to shrubs (within 50 feet) will also be removed. Stump treatment to prevent regrowth may be desired for some species.

4. Hinge-cutting trees with numerous branches adjacent to thickets can provide additional shrubby type cover. Prepare the ground by creating bare ground prior to dropping and leaving trees. Large tall trees with few branches are not desirable for hinge cutting, and should be removed from the site to prevent creating predator habitat.

D. Additional maintenance activities

1. Exclusion of livestock may be warranted immediately following management activities.

2. Avoid damage (chemical and mechanical) done by adjacent agricultural practices.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- ☐ Prior to implementation, provide a map showing the location of proposed shrub thickets to be managed with notes on land use adjacent to proposed areas to discuss with NRCS staff.
- ☐ During implementation, follow management guidance provided by NRCS in the state specifications for NRCS Conservation Practice Standard Cover Upland Wildlife Habitat (Code 645).
- ☐ After implementation, provide a list of management and/or maintenance activities carried out to manage the habitat areas and the dates on which those activities occurred.

NRCS will:

- ☐ Prior to implementation, assess habitat condition using the appropriate state Wildlife Habitat Evaluation Guide (WHEG) to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement. **Benchmark WHEG score = _____ Planned Post Implementation WHEG score = _____**
- ☐ Prior to implementation, identify target wildlife species and appropriate desired conditions for existing shrub thickets for target species. Document on the state approved Wildlife Habitat Management Plan.
- ☐ Prior to implementation, provide and explain State specifications for NRCS Conservation Practice Standard Upland Wildlife Habitat (Code 645).
- ☐ After implementation, verify successful completion of management (per criteria above).

NRCS Documentation Review:

CONSERVATION STEWARDSHIP PROGRAM

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

Conservation Enhancement Activity

E645C

CONSERVATION STEWARDSHIP PROGRAM

Edge feathering for wildlife cover

Conservation Practice: 645 Upland Wildlife Habitat

APPLICABLE LAND USE: Crop (Annual & Mixed), Crop (Perennial), Range, Pasture, Forest, Associated Ag Land, Farmstead

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Selected trees are cut, and brush clipped along the border between a wooded area and a grassland, cropland, or idle land, creating a dense woody cover of interlocking branches at ground level. The feathered edge will be an average of 30 feet wide and a minimum of 50 feet long, resulting in an area of 1500 square feet. The width of the strip will vary to follow topographic features and to create a wavy border; the design will also consider aesthetics. Vegetative composition and cover will vary within the edge, ranging from areas with no trees and shrubs to areas with scattered trees and extensive shrub cover. The variation in vegetation structure along with variable width of the edge will create feathering. The edge may include shrub plantings for wildlife food and aesthetics.

Criteria

- Select an area to edge-feather where many of the existing trees can be cut without damaging the ecological or economic value of the property.
- Design the configuration of the edge to correspond with topographic variation, so that the edge may be wider on ridgetops, narrower in valleys, and discontinuous to allow for forested riparian buffers.
- Treat invasive plant and animal species and noxious weeds if present on the area to be edge feathered. Where possible, control will be limited to that necessary to

control undesirable species while still protecting habitat that benefit native pollinators and other fish and wildlife species that depend on the site for food, cover, and water.

CONSERVATION STEWARDSHIP PROGRAM

- Limit disturbance during wildlife nesting and rearing seasons.
- Mark trees to retain in the feathered edge, selecting from among mast producing species, wolf trees, trees with cavities and/or loose bark, or other trees with desirable habitat or aesthetical characteristics. Consider the location of retained trees so they blend gradually with the adjacent forest, being taller and more closely spaced on the side toward the forest. Cut all other trees over 12 feet tall in the area to be edge feathered using hand tools such as chainsaws. Woody residue will be left lying in the feathered edge to provide wildlife cover.
- Treat cut stumps of undesirable hardwood trees with an approved herbicide. Leave native shrub species if they are less than 12 feet tall. If they are taller than 12 feet, cut them at ground level but DO NOT treat the shrub stumps.
- Exclude livestock from edge feathered areas. Use prescribed fire to manage and maintain feathered edges in appropriate forest types.
- Inspect edge feathered areas on an annual basis to determine maintenance activities. Treat invasive and/or undesirable plant species and noxious weeds as needed. Add woody debris to the site as the wood decomposes and is worn down.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

☐ Prior to implementation, provide a map showing the location and design of proposed edge-feathering.

☐ Prior to implementation, select a suite of desired wildlife species that benefit from feathered edges, with the aid of NRCS or a biologist.

☐ Mark trees to be retained in the feathered edge with the assistance of NRCS, or a biologist and/or forester.

☐ During implementation, follow management guidance provided by NRCS in the state specifications for NRCS Conservation Practice Standard Upland Wildlife Habitat (Code 645).

☐ During implementation, follow and document progress on the state approved Implementation Requirements sheet.

☐ Following implementation, provide NRCS with photo documentation.

☐ Following implementation, inspect edge feathered area on an annual basis and carry out maintenance activities as needed.

NRCS will:

☐ Prior to implementation, identify a desired suite of wildlife species and appropriate desired conditions for edge feathered areas. Document on the state approved Implementation Requirement sheets.

☐ Prior to implementation provide technical assistance on site selection, tree species selection, design, and other specifics.

☐ Prior to implementation, provide and explain State specifications for NRCS Conservation Practice Standard Upland Wildlife Habitat (Code 645).

☐ Prior to implementation, provide and explain the state approved Implementation Requirements sheet for this practice.

☐ After implementation, verify successful completion of management (per criteria above).

CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

USDA United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E645D

CONSERVATION STEWARDSHIP PROGRAM

Enhanced Wildlife Habitat Management for Upland Landscapes

CONSERVATION PRACTICE: 645 - Upland Wildlife Habitat Management

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial); Pasture; Range; Forest; Associated Ag Land; Farmstead

RESOURCE CONCERN: Animals (Inadequate Fish & Wildlife Habitat)

ENHANCEMENT LIFE SPAN: 1 years

Enhancement Description

Enhance existing upland wildlife foraging, breeding or overwintering habitat (currently meeting minimum wildlife habitat planning criteria) for locally breeding and migratory wildlife species.

Criteria

- Appropriate locations for this enhancement will be provided by the NRCS State Office who will base locations on current distribution of the targeted species and potential expansion into adjacent habitat for the target species.

- Create a supplement to an existing Wildlife Habitat Management Plan listing management actions that will provide locally breeding or migratory wildlife species with enhanced foraging, breeding, or overwintering habitat. The supplement will identify management activities, locations where they will be applied, the amount in which they'll be applied and the time they will be applied to meet the targeted wildlife needs.

- Use a Wildlife Habitat Evaluation Guide (WHEG), appropriate to target species and land use, to document that implementation of the Enhancement will improve wildlife habitat value above minimum planning criteria. The following may be used to meet this criterion:
    - [For circumstances where planning criteria for wildlife habitat is equal to 0.5] Post implementation, planning criteria for wildlife habitat is equal to or greater than 0.6.
    - [For circumstances where planning criteria for wildlife habitat is greater than 0.5] Post implementation, planning criteria for wildlife habitat increases at least 0.1.

- States will apply general criteria from NRCS National Conservation Practice Standard (NCPS) Upland Wildlife Habitat Management (Code 645) as well as additional criteria either already contained in the State's Specification or determined by the NRCS State Office. Examples of State criteria are:
    - No nitroguanidine neonicotinoids (clothianidin, dinotefuran, imidacloprid, and thiamethoxam) will be applied in any manner to the acres covered by this enhancement.
    - No insecticides allowed from February 1 – September 30th or while resident plants are in bloom on cropland, orchard, or vineyards.
    - All existing or newly installed vertical pipes used for any purpose, will be capped (e.g., fence post construction, vents for irrigation or water storage, wildlife structure placement).
    - Disturbance to key migratory, nesting, rearing, or hiding locations are controlled, almost eliminated, when target wildlife species are using locations.
    - To assess efficacy and support adaptive management, contracted areas are monitored using NRCS State Office approved monitoring approaches.

- Operations and Maintenance actions will include:
    - Regular use of a WHEG to evaluate habitat conditions and to adapt the habitat management supplement and schedule of implementation if necessary. If planned habitat conditions do not materialize as expected explore additional alternatives to reach desired wildlife habitat conditions.
    - Follow all required Operations and Maintenance actions required by NCPS Upland Wildlife Habitat Management (Code 645) and all facilitating practices planned/contracted to address the limiting habitat elements/ factors.
    - Annually inspect and repair structural or vegetative components associated with this enhancement.

- Use of fertilizers, pesticides and other chemicals shall not compromise the habitat management objectives and will adhere to the State's Upland Wildlife Habitat Management (Code 645) specifications.

- Use criteria in other NRCS Conservation Practice Standards to facilitate the management of wetland wildlife habitat associated with the uplands as appropriate for the site.

- Depending on site conditions, facilitating practices may be used to implement this enhancement. The NRCS Conservation Practice Standards may include, but are not limited to: Wildlife Habitat Planting (Code 420), Hedgerow Planting (Code 422), Fence (Code 382), Restoration of Rare or Declining Plant Communities (Code 643), Field Border (Code 386),

Filter Strip (code 393), Grade Stabilization Structure (Code 410), Riparian Herbaceous Cover (Code 390), Shallow Water Development and Management (Code 646), Stream Crossing (code 578), Structure for Water Control (Code 587).

Documentation and Implementation Requirements

Participant will:

- ☐ Prior to implementation, review NRCS Conservation Practice Standard Upland Wildlife Habitat Management (Code 645), including any State approved implementation requirements, job sheets or work sheets.

- ☐ Prior to implementation, provide NRCS with any relevant information related to onsite operations and management for inclusion in the Wildlife Habitat Management Plan.

- ☐ Prior to implementation, meet with NRCS to review results of wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.

- ☐ Prior to implementation, meet with NRCS to obtain and review Wildlife Habitat Management Plan.

- ☐ During implementation, follow the Wildlife Habitat Management Plan.

- ☐ During implementation, maintain field log to include:
  - Date/time of each field visit and document any required monitoring activities from the supplement
  - Digital photographs to document habitat provided through the management actions intended to reduce the impacts of human disturbance.

- ☐ After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS will:

- ☐ As needed, provide additional technical assistance to the participant.

- ☐ Prior to implementation, provide and explain State NRCS Conservation Practice Standard Upland Wildlife Habitat Management (Code 645) as it relates to implementing this enhancement.

CONSERVATION STEWARDSHIP PROGRAM

- ☐ Prior to implementation, assess habitat condition using Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement; **Existing WHEG score =_____Planned Post Implementation WHEG score =_____.**
- ☐ Prior to implementation, review results of wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions.
- ☐ Prior to implementation, develop Wildlife Habitat Management Plan for wildlife habitat on land type for targeted suite of species using those habitats.
- ☐ Prior to implementation, review and explain the Wildlife Habitat Management Plan to the participant.
- ☐ After implementation, reassess habitat condition using the Wildlife Habitat Evaluation Guide; **Post Implementation WHEG score =_____.**
- ☐ After implementation, review field log to verify enhancement was implemented to meet criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

OHIO SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E645D

Additional Criteria for Ohio

In addition to the criteria specified in the National job Sheet E645D the following criteria apply to Ohio:

- Current habitat condition WHEG score must be at least 0.5. Planned condition must be a minimum of 0.6 OR increased by a minimum of 0.1 points from the current score.
- At a minimum, practice(s) or enhancement(s) that will raise the WHEG score by at least 0.1 point must be implemented.
- Completion of the Implementation Requirements (IR) for OH CPS (645) Upland Wildlife Habitat Management, OR a management plan that includes the same information.
- Implementation requirements for any supporting practices will be also be incorporated into the management plan.
    - Suitable supporting practices include, but are not limited to:
        - 647 Early Successional Habitat Development and Management
        - 338 Prescribed Fire
        - 420 Wildlife Habitat Planting- Interseeding
        - 422 Hedgerow Planting
        - 612 Tree and Shrub Planting
        - 649 Structures for Wildlife

Notes and comments on the National Enhancement:

- At least one year of monitoring is also required.
- This includes maintenance of a field log showing the implementation of the practices.

United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E646A

CONSERVATION STEWARDSHIP PROGRAM

Close structures to capture and retain rainfall for waterfowl and wading bird winter habitat

Conservation Practice 646: Shallow Water Development and Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERNS: Animals

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description:

When flooded to shallow depths during fall and winter, agricultural fields provide ideal foraging habitat for myriad species of waterfowl and wading birds . In addition, flooded conditions promote establishment of aquatic invertebrate populations, thus providing protein-rich food sources for shorebirds as well as waterfowl and wading birds.

Criteria:

This enhancement applies to crop land use acres with leveed fields capable of holding water at an average depth of 6 to 18 inches for the duration of the activity.

- Develop a wildlife habitat management plan for the targeted species suite.
- Water control structures that affect applicable fields will be closed by mid-fall and remain closed through February 15. For fields where harvest of the crop occurs after mid-fall (e.g., ratoon rice), structures must be closed within 2 days following harvest and remain closed through February 15.
- Applicable fields must be flooded to an average depth of 6 to 18 inches.
  - Water depths of 6 to 10 inches provide maximum benefit to targeted species.
  - Water depths shall not exceed 18 inches for any extended period.

- Manipulation can occur prior to holding water. Manipulation should not affect more than 80 percent of the field to which the activity is applied.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).

Note: This Enhancement may be paired with E647A - Manipulate vegetation on fields with captured rainfall for waterfowl and wading bird winter habitat. If not paired with E647A, this Enhancement may also be paired with E646C – Manipulate vegetation and maintain closed structures for shorebird mid-summer habitat or E646D – Manipulate vegetation and maintain closed structures for shorebird late summer habitat.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant Will:

- ☐ Prior to implementation, ensure all water control structures are in proper working order.
- ☐ Prior to implementation, meet with NRCS to review the results of the wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- ☐ Prior to implementation, meet with NRCS to obtain and review the Wildlife Habitat Management Plan.
- ☐ During implementation, follow the Wildlife Habitat Management Plan including opening / closing water control structures as specified, to hold water at the proper time and at the proper depth.
- ☐ During implementation, maintain field log to include:
  - o Crops grown and the harvest date for the crops grown on the applicable acres;
  - o Date/time the water control structure was closed;
  - o Date/time of each field visit and observed water levels or percent holding capacity and average water depths;
  - o Date/time when the water control structures were opened
  - o Digital photographs documenting the condition of the structures and the habitat provided
- ☐ After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS Will:

- ☐ As needed, provide additional technical assistance to the participant.
- ☐ Prior to implementation, verify the enhancement will be applied to cropland acres with leveed fields capable of holding water at an average depth of 6 to 18 inches for the duration of the activity.
- ☐ Prior to implementation, assess habitat condition using the Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of

CONSERVATION STEWARDSHIP PROGRAM

Enhancement. **Existing WHEG score = _____**
Planned Post Implementation WHEG score = _____

- ☐ Prior to implementation, review results of the wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions.
- ☐ Prior to implementation, develop a Wildlife Habitat Management Plan for targeted suite of species.
- ☐ Prior to implementation, meet with the participant to review the Wildlife Habitat Management Plan.
- ☐ After implementation, reassess habitat condition using the Wildlife Habitat Evaluation Guide; **Post Implementation WHEG score = _____**
- ☐ After implementation, review completed field log to verify enhancement was implemented to meet criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____
NRCS Technical Adequacy Signature Date

United States Department of Agriculture

OHIO SUPPLEMENT TO

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E646A

Additional Criteria for Ohio

In additon to the criteria specified in the National job sheet E646A the following additional criteria apply in Ohio:

- For purposes of scoring the site use the attached Shallow Water Management Wildlife Habitat Evaluation Guide.

Additional Documentation Requirements for Ohio

There are not any additional documentation requirements that apply in Ohio.

Wildlife Habitat Evaluation Guide (WHEG)
Shallow Water Management
Conservation Stewardship Program

CONSERVATION STEWARDSHIP PROGRAM

This Wildlife Habitat Evaluation Guide is to be used when assessing habitat conditions on flooded cropland for several CSP enhancements. The goal of managing shallow water on flooded cropland is to improve habitat for migratory birds such as waterfowl, shorebirds, and wading birds.

In order to implement these enhancements, areas must be annual cropland and have the capacity to manage seasonal hydrology. Hydrology is managed through the use of a water control structure to manipulate the timing, duration and depth of saturation or soil ponding. The areas managed may be depressional areas or large flat areas with associated drainage that can be managed. Flat areas typically will require the presence of embankments to contain the water. The soils, topography and water control structures must be such that the area can managed to retain water saturated to the surface or ponded to depths of 2-18 inches for at least 30 days.

To meet the baseline 0.5 score, shallow water management areas must meet **all** the following conditions:

- ☐ Annual cropland established with no-till or mulch-tillage
- ☐ Managed to have saturation to the surface or at least 1 inch of ponded water for a minimum period of 30 days
- ☐ Crop residue undisturbed after harvest and throughout flooded period
- ☐ Have a water level management plan for wildlife species of interest

Once the conditions listed above have been met, the following actions may be implemented to increase the score above 0.5. Check all that apply (in no case shall the total score exceed 1.0)

- ☐ Manage water levels so that there is an average depth of at least 6 inches on the flooded acreage (0.1 point)
- ☐ Close water control structures within one week after harvest and maintain flooded conditions until February 15 (0.1 point)
- ☐ Close water control structures within one week after harvest and maintain flooded conditions until April 15 (0.1 point)
- ☐ Close structures and flood area beginning by April 1 and maintain flooding until June 30 (0.1 point)
- ☐ Manipulate area by light discing, burning or rolling to encourage the growth of early successional habitat particularly moist soil vegetation (0.1 point)
- ☐ Manage area so that flooding and drawdown occur over a period of 2-3 weeks (0.1 point)

Existing Score:_____ Planned Score:_____

United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E646B

CONSERVATION STEWARDSHIP PROGRAM

Extend retention of captured rainfall for migratory waterfowl and wading bird late winter habitat

Conservation Practice 646: Shallow Water Development and Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERNS: Animals

PRACTICE LIFE SPAN: 5 years

Enhancement Description:

When flooded to shallow depths during fall and winter, agricultural fields provide ideal foraging habitat for myriad species of waterfowl and wading birds. Harvested and idled agricultural lands, notably those occurring within rice rotations, contain high densities of residual (i.e., waste) grain and natural seeds following harvest. In addition, flooded conditions promote establishment of aquatic invertebrate populations, a protein-rich food source for shorebirds as well as waterfowl and wading birds. Flooded conditions across the broader landscape promote a network or continuity of habitat that is available to migratory waterfowl and wading birds. Benefits may become greatest during late winter and early spring as birds are assimilating nutrient and fat reserves in preparation for northward migration. However, agricultural fields flooded during fall-winter are typically drained during late January or February in advance of spring planting. This often results in a rapid reduction in available habitat and may constrain ability of migratory birds to adequately prepare for migration, with greatest impacts likely occurring during years of low winter precipitation. Retention of water on agricultural lands into early spring will produce maximum benefits to migratory waterfowl and shorebirds by providing high quality habitat during a time when habitat may otherwise be in low abundance.

CONSERVATION STEWARDSHIP PROGRAM

Criteria:

This enhancement applies to crop land use acres with leveed fields capable of holding water at an average depth of 6 to 18 inches for the duration of the activity.

- Develop a wildlife habitat management plan for the targeted species suite.
- Water control structures affecting the subject land use are to be closed by mid-fall and remain closed until late winter to early spring.
    - Water depths of 6 to 10 inches provide maximum benefit to targeted species.
    - Water depths shall not exceed 18 inches for any extended period.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).

Note: This Enhancement may be grouped with E647A - Manipulate vegetation on fields with captured rainfall for waterfowl and wading bird winter habitat. If not grouped with E647A, this Enhancement may also be grouped with E646C – Manipulate vegetation and maintain closed structures for shorebird mid-summer habitat or E646D – Manipulate vegetation and maintain closed structures for shorebird late summer habitat.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant Will:

- ☐ Prior to implementation, ensure water control structures are in proper working order.
- ☐ Prior to implementation, meet with NRCS to review results of the wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- ☐ Prior to implementation, meet with NRCS to obtain and review the Wildlife Habitat Management Plan.
- ☐ During implementation, follow the Wildlife Habitat Management Plan including opening / closing water control structures as specified in order to hold water at the proper time and at the proper depth.
- ☐ During implementation, maintain a field log to include:
  - o Crops grown and the harvest date for the crops grown on the applicable acres;
  - o Date/time the water control structure was closed;
  - o Date/time of each field visit and observed water levels or percent holding capacity and average water depths;
  - o Date/time when the water control structures were opened
  - o Digital photographs documenting the condition of the structures and the habitat provided.
- ☐ After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS Will:

- ☐ As needed, provide additional technical assistance to the participant.
- ☐ Prior to implementation, verify this enhancement will be applied to cropland acres with leveed fields capable of holding water at an average depth of 6 to 18 inches for the duration of the activity.
- ☐ Prior to implementation, assess the habitat condition using the Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of

CONSERVATION STEWARDSHIP PROGRAM

Enhancement; **Existing WHEG score = _____**
Planned Post Implementation WHEG score = _____

- ☐ Prior to implementation, review the results of the wildlife habitat evaluation with the participant, and discuss range of management alternatives that would improve wildlife habitat conditions.
- ☐ Prior to implementation, develop a Wildlife Habitat Management Plan for targeted suite of species.
- ☐ Prior to implementation, meet with participant to review the Wildlife Habitat Management Plan.
- ☐ After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide; **Post Implementation WHEG score = _____**
- ☐ After implementation, review field log to verify enhancement was implemented to meet criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____
NRCS Technical Adequacy Signature Date

United States Department of Agriculture

OHIO SUPPLEMENT TO

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E646B

Additional Criteria for Ohio

In additon to the criteria specified in the National job sheet E646B the following additional criteria apply in Ohio:

- For purposes of scoring the site use the attached Shallow Water Management Wildlife Habitat Evaluation Guide.

Additional Documentation Requirements for Ohio

There are not any additional documentation requirements that apply in Ohio.

Wildlife Habitat Evaluation Guide (WHEG)
Shallow Water Management
Conservation Stewardship Program

CONSERVATION STEWARDSHIP PROGRAM

This Wildlife Habitat Evaluation Guide is to be used when assessing habitat conditions on flooded cropland for several CSP enhancements. The goal of managing shallow water on flooded cropland is to improve habitat for migratory birds such as waterfowl, shorebirds, and wading birds.

In order to implement these enhancements, areas must be annual cropland and have the capacity to manage seasonal hydrology. Hydrology is managed through the use of a water control structure to manipulate the timing, duration and depth of saturation or soil ponding. The areas managed may be depressional areas or large flat areas with associated drainage that can be managed. Flat areas typically will require the presence of embankments to contain the water. The soils, topography and water control structures must be such that the area can managed to retain water saturated to the surface or ponded to depths of 2-18 inches for at least 30 days.

To meet the baseline 0.5 score, shallow water management areas must meet **all** the following conditions:

- ☐ Annual cropland established with no-till or mulch-tillage
- ☐ Managed to have saturation to the surface or at least 1 inch of ponded water for a minimum period of 30 days
- ☐ Crop residue undisturbed after harvest and throughout flooded period
- ☐ Have a water level management plan for wildlife species of interest

Once the conditions listed above have been met, the following actions may be implemented to increase the score above 0.5. Check all that apply (in no case shall the total score exceed 1.0)

- ☐ Manage water levels so that there is an average depth of at least 6 inches on the flooded acreage (0.1 point)
- ☐ Close water control structures within one week after harvest and maintain flooded conditions until February 15 (0.1 point)
- ☐ Close water control structures within one week after harvest and maintain flooded conditions until April 15 (0.1 point)
- ☐ Close structures and flood area beginning by April 1 and maintain flooding until June 30 (0.1 point)
- ☐ Manipulate area by light discing, burning or rolling to encourage the growth of early successional habitat particularly moist soil vegetation (0.1 point)
- ☐ Manage area so that flooding and drawdown occur over a period of 2-3 weeks (0.1 point)

Existing Score:_____ Planned Score:_____

United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E646C

CONSERVATION STEWARDSHIP PROGRAM

Manipulate vegetation and maintain closed structures for shorebirds mid-summer habitat

Conservation Practice 646: Shallow Water Development and Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERNS: Animals

PRACTICE LIFE SPAN: 5 years

Enhancement Description:

Suitable shorebird habitat is limited during the summer and fall as birds migrate south post-breeding. Providing shallow water and mud flat habitat will benefit a variety of shorebird species. Optimal conditions are created when water levels are slowly reduced through evaporation, which allows for propagation of invertebrates (typically insect larvae) used as food by shorebirds. Manipulation of vegetation, preferably through rolling, creates open conditions required by this suite of birds as a means to detect and avoid predators, and provides nutrient inputs for invertebrate production.

Criteria:

This enhancement applies to crop land use acres with leveed fields that are capable of holding 8 to 18 inches of water in early spring, can retain that water until July 31 and will have less than 25 percent woody cover.

- Develop a wildlife habitat management plan for the targeted species suite.
- Water control structures affecting the subject land use acre are to remain closed catching and holding all available precipitation, until mid-summer (i.e. July 31).

- Sites must contain 8 to 18 inches of water.
- Manipulate vegetation on the site, if after late spring to early summer, the site becomes dry with emergent vegetation covering 50 percent or more, at a height of 6 inches or more. Manipulate by rolling or disking to bring the majority (75 percent or more) of the vegetation at or below the soil surface. Rolling is the preferred method of manipulation to maintain soil quality.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).

  Note: This Enhancement may be grouped with E646B – Extend retention of captured rainfall for migratory waterfowl and wading bird late winter habitat.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant Will:

- ☐ Prior to implementation, ensure water control structures are in proper working order.
- ☐ Prior to implementation, meet with NRCS to review results of the wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- ☐ Prior to implementation, meet with NRCS to obtain and review the Wildlife Habitat Management Plan.
- ☐ During implementation, follow the Wildlife Habitat Management Plan including opening / closing water control structures as specified in order to hold water at the proper time and at the proper depth.
- ☐ During implementation, maintain a field log to include:
  - o Crops grown and the harvest date for the crops grown on the applicable acres;
  - o Date/time the water control structure was closed;
  - o Date/time of each field visit and observed water levels or percent holding capacity and average water depths;
  - o Date/time when the water control structures were opened;
  - o Digital photographs documenting the condition of the structures and the habitat provided.
- ☐ After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS Will:

- ☐ As needed, provide additional technical assistance to the participant.
- ☐ Prior to implementation, verify this enhancement will be applied to cropland acres with leveed fields capable of holding 8 to 18 inches of water in early spring, can retain that water until July 31 and will have less than 25 percent woody cover.
- ☐ Prior to implementation, assess habitat condition using the Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of

CONSERVATION STEWARDSHIP PROGRAM

Enhancement; **Existing WHEG score = _____**
Planned Post Implementation WHEG score = _____

- ☐ Prior to implementation, review results of the wildlife habitat evaluation with participant, and discuss range of management alternatives that would improve wildlife habitat conditions.
- ☐ Prior to implementation, develop a Wildlife Habitat Management Plan for targeted suite of species.
- ☐ Prior to implementation, meet with participant to review the Wildlife Habitat Management Plan.
- ☐ After implementation, reassess habitat condition using the Wildlife Habitat Evaluation Guide; **Post Implementation WHEG score = _____**
- ☐ After implementation, review the field log to verify enhancement was implemented to meet criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____
NRCS Technical Adequacy Signature Date

United States Department of Agriculture

OHIO SUPPLEMENT TO

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E646C

Additional Criteria for Ohio

In additon to the criteria specified in the National job sheet E646C the following additional criteria apply in Ohio:

- For purposes of scoring the site use the attached Shallow Water Management Wildlife Habitat Evaluation Guide.

Additional Documentation Requirements for Ohio

There are not any additional documentation requirements that apply in Ohio.

Wildlife Habitat Evaluation Guide (WHEG)
Shallow Water Management
Conservation Stewardship Program

CONSERVATION STEWARDSHIP PROGRAM

This Wildlife Habitat Evaluation Guide is to be used when assessing habitat conditions on flooded cropland for several CSP enhancements. The goal of managing shallow water on flooded cropland is to improve habitat for migratory birds such as waterfowl, shorebirds, and wading birds.

In order to implement these enhancements, areas must be annual cropland and have the capacity to manage seasonal hydrology. Hydrology is managed through the use of a water control structure to manipulate the timing, duration and depth of saturation or soil ponding. The areas managed may be depressional areas or large flat areas with associated drainage that can be managed. Flat areas typically will require the presence of embankments to contain the water. The soils, topography and water control structures must be such that the area can managed to retain water saturated to the surface or ponded to depths of 2-18 inches for at least 30 days.

To meet the baseline 0.5 score, shallow water management areas must meet **all** the following conditions:

- ☐ Annual cropland established with no-till or mulch-tillage
- ☐ Managed to have saturation to the surface or at least 1 inch of ponded water for a minimum period of 30 days
- ☐ Crop residue undisturbed after harvest and throughout flooded period
- ☐ Have a water level management plan for wildlife species of interest

Once the conditions listed above have been met, the following actions may be implemented to increase the score above 0.5. Check all that apply (in no case shall the total score exceed 1.0)

- ☐ Manage water levels so that there is an average depth of at least 6 inches on the flooded acreage (0.1 point)
- ☐ Close water control structures within one week after harvest and maintain flooded conditions until February 15 (0.1 point)
- ☐ Close water control structures within one week after harvest and maintain flooded conditions until April 15 (0.1 point)
- ☐ Close structures and flood area beginning by April 1 and maintain flooding until June 30 (0.1 point)
- ☐ Manipulate area by light discing, burning or rolling to encourage the growth of early successional habitat particularly moist soil vegetation (0.1 point)
- ☐ Manage area so that flooding and drawdown occur over a period of 2-3 weeks (0.1 point)

Existing Score:_____ Planned Score:_____

United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E646D

CONSERVATION STEWARDSHIP PROGRAM

Manipulate vegetation and maintain closed structures for shorebird late summer habitat

Conservation Practice 646: Shallow Water Development and Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERNS: Animals

PRACTICE LIFE SPAN: 5 years

Enhancement Description:

Suitable shorebird habitat is limited during the summer and fall as birds migrate south post-breeding. Providing shallow water and mud flat habitat will benefit a variety of shorebird species. Optimal conditions are created when water levels are slowly reduced through evaporation, which allows for propagation of invertebrates (typically insect larvae) used as food by shorebirds. Manipulation of vegetation, preferably through rolling, creates open conditions required by this suite of birds as a means to detect and avoid predators, and provides nutrient inputs for invertebrate production.

Criteria:

This enhancement applies to crop land use acres with leveed fields that are capable of holding 8 to 18 inches of water mid-spring with capabilities for retaining that water until August 31, and will have less than 25 percent woody cover.

- Develop a wildlife habitat management plan for the targeted species suite.
- Water control structures are to remain closed in order to catch and hold all available precipitation until late-summer (i.e., August 31).

- Sites must contain 8 to 18 inches of water.
- Manipulate vegetation on the site, if after June 15, the site becomes dry with emergent vegetation covering 50 percent or more, at a height of 6 inches or more. Manipulation by rolling or disking to bring the majority (75 percent or more) of the vegetation at or below the soil surface. Rolling is the preferred method of manipulation to maintain soil quality.
- The need for vegetative manipulation will be triggered by the above stated scenario. However, multiple manipulations may be needed to achieve the desired habitat response.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).

Note: This Enhancement may be grouped with E646B - Extend retention of captured rainfall for waterfowl and wading bird late winter habitat.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant Will:

- ☐ Prior to implementation, ensure water control structures are in proper working order.
- ☐ Prior to implementation, meet with NRCS to review results of the wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- ☐ Prior to implementation, meet with NRCS to obtain and review the Wildlife Habitat Management Plan.
- ☐ During implementation, follow the Wildlife Habitat Management Plan including opening / closing water control structures as specified to hold water at the proper time and at the proper depth.
- ☐ During implementation, maintain the field log to include:
  - Crops grown and the harvest date for the crops grown on the applicable acres;
  - Date/time the water control structure was closed;
  - Date/time of each field visit and observed water levels or percent holding capacity and average water depths;
  - Date/time when the water control structures were opened;
  - Digital photographs documenting the condition of the structures and the habitat provided.
- ☐ After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS Will:

- ☐ As needed, provide additional technical assistance to the participant.
- ☐ Prior to implementation, verify this enhancement will be applied to cropland acres with leveed fields capable of holding 8 to 18 inches of water mid-spring with capabilities for retaining that water until August 31, and will have less than 25 percent woody cover.
- ☐ Prior to implementation, assess habitat condition using the Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement; **Existing WHEG score = _____ Planned Post Implementation WHEG score = _____**

CONSERVATION STEWARDSHIP PROGRAM

- ☐ Prior to implementation, review results of the wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions.
- ☐ Prior to implementation, develop the Wildlife Habitat Management Plan for targeted suite of species.
- ☐ Prior to implementation, meet with participant to review the Wildlife Habitat Management Plan.
- ☐ After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide; **Post Implementation WHEG score = _____**
- ☐ After implementation, review the field log to verify enhancement was implemented to meet criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number_____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

OHIO SUPPLEMENT TO

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E646D

Additional Criteria for Ohio

In additon to the criteria specified in the National job sheet E646D the following additional criteria apply in Ohio:

- For purposes of scoring the site use the attached Shallow Water Management Wildlife Habitat Evaluation Guide.

Additional Documentation Requirements for Ohio

There are not any additional documentation requirements that apply in Ohio.

Wildlife Habitat Evaluation Guide (WHEG)
Shallow Water Management
Conservation Stewardship Program

CONSERVATION STEWARDSHIP PROGRAM

This Wildlife Habitat Evaluation Guide is to be used when assessing habitat conditions on flooded cropland for several CSP enhancements. The goal of managing shallow water on flooded cropland is to improve habitat for migratory birds such as waterfowl, shorebirds, and wading birds.

In order to implement these enhancements, areas must be annual cropland and have the capacity to manage seasonal hydrology. Hydrology is managed through the use of a water control structure to manipulate the timing, duration and depth of saturation or soil ponding. The areas managed may be depressional areas or large flat areas with associated drainage that can be managed. Flat areas typically will require the presence of embankments to contain the water. The soils, topography and water control structures must be such that the area can managed to retain water saturated to the surface or ponded to depths of 2-18 inches for at least 30 days.

To meet the baseline 0.5 score, shallow water management areas must meet **all** the following conditions:

- ☐ Annual cropland established with no-till or mulch-tillage
- ☐ Managed to have saturation to the surface or at least 1 inch of ponded water for a minimum period of 30 days
- ☐ Crop residue undisturbed after harvest and throughout flooded period
- ☐ Have a water level management plan for wildlife species of interest

Once the conditions listed above have been met, the following actions may be implemented to increase the score above 0.5. Check all that apply (in no case shall the total score exceed 1.0)

- ☐ Manage water levels so that there is an average depth of at least 6 inches on the flooded acreage (0.1 point)
- ☐ Close water control structures within one week after harvest and maintain flooded conditions until February 15 (0.1 point)
- ☐ Close water control structures within one week after harvest and maintain flooded conditions until April 15 (0.1 point)
- ☐ Close structures and flood area beginning by April 1 and maintain flooding until June 30 (0.1 point)
- ☐ Manipulate area by light discing, burning or rolling to encourage the growth of early successional habitat particularly moist soil vegetation (0.1 point)
- ☐ Manage area so that flooding and drawdown occur over a period of 2-3 weeks (0.1 point)

Existing Score:_____ Planned Score:_____

United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E647C

CONSERVATION STEWARDSHIP PROGRAM

Maintain most soil vegetation on cropland edges to enhance waterfowl and shorebird habitat

Conservation Practice 647: Early Successional Habitat Development /Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Animal

ENHANCEMENT LIFE SPAN: 5 year

Enhancement Description:

The wetter or more water saturated portions of cropland fields such as areas adjacent to field drains, have the potential to produce a significant amount of moist soil plants which are a tremendously valuable source of forage and cover for many waterfowl, shorebird and wading bird species, especially during a period when such plants may be limited. Under normal cropland production, the native vegetation is restricted on these sites through mechanical and/or chemical control. These maintained moist soil plants also will provide filtering and improve water quality.

Criteria:

This enhancement applies to cropland acres on soils that are hydric and/or significantly water saturated during the growing season and are located on the low side or down slope portion of a field that receives hydrologic surface flow from the remainder of the field. Surface flow could be a result of irrigation or rainfall. Selected areas should be capable of being flooded using a water control structure or other means.

- Develop a habitat management plan targeting waterfowl, shore birds and wading birds for the area enrolled under this enhancement.

CONSERVATION STEWARDSHIP PROGRAM

- Maintain naturally occurring vegetation on the appropriate, selected area (minimum 20 feet wide and 500 feet long) to provide forage and cover for waterfowl, shorebirds and wading birds.
- Manipulation (light disking, burning, mowing, or rolling) of the selected area will be allowed during early fall to increase attractiveness and use by targeted species. Otherwise, all mechanical disturbance and chemical treatments shall be excluded from the selected area and care should be taken to ensure that the area is not impacted by agricultural operations in the adjacent crop.
- Control of invasive species may be allowed with approval from local NRCS staff.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant Will:

- ☐ Prior to implementation, meet with NRCS to review results of wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- ☐ Prior to implementation, meet with NRCS to obtain and review Wildlife Habitat Management Plan.
- ☐ During implementation, follow Wildlife Habitat Management Plan.
- ☐ During implementation, maintain field log to include:
  - o Crops grown and the harvest date for the crops grown on the applicable acres;
  - o Date/time and description of all habitat management actions taken;
  - o Digital photographs documenting the condition of the habitat provided
- ☐ After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS Will:

- ☐ As needed, provide additional technical assistance to the participant.
- ☐ Prior to implementation, verify this enhancement will be applied to crop acres on soils that are hydric and/or significantly water saturated during the growing season and are located on the low side or down slope portion of a field that receives hydrologic surface flow from the remainder of the field. Surface flow could be a result of irrigation or rainfall. Selected areas should be capable of being flooded through the use of a water control structure or other means.
- ☐ Prior to implementation, assess habitat condition using Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement. **Existing WHEG score = _____ Planned Post Implementation WHEG score = _____**
- ☐ Prior to implementation, review results of wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions
- ☐ Prior to implementation, develop Wildlife Habitat Management Plan for targeted suite of species
- ☐ Prior to implementation, meet with participant to review Wildlife Habitat Management Plan

CONSERVATION STEWARDSHIP PROGRAM

- ☐ After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide; **Post Implementation WHEG score = _____**
- ☐ After implementation, review field log to verify enhancement was implemented to meet criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

OHIO SUPPLEMENT TO

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E647C

Additional Criteria for Ohio

In additon to the criteria specified in the National job sheet E647C the following additional criteria apply in Ohio:

- For purposes of scoring the site use the attached Shallow Water Management Wildlife Habitat Evaluation Guide.

Additional Documentation Requirements for Ohio

There are not any additional documentation requirements that apply in Ohio.

Wildlife Habitat Evaluation Guide (WHEG)
Shallow Water Management
Conservation Stewardship Program

CONSERVATION STEWARDSHIP PROGRAM

This Wildlife Habitat Evaluation Guide is to be used when assessing habitat conditions on flooded cropland for several CSP enhancements. The goal of managing shallow water on flooded cropland is to improve habitat for migratory birds such as waterfowl, shorebirds, and wading birds.

In order to implement these enhancements, areas must be annual cropland and have the capacity to manage seasonal hydrology. Hydrology is managed through the use of a water control structure to manipulate the timing, duration and depth of saturation or soil ponding. The areas managed may be depressional areas or large flat areas with associated drainage that can be managed. Flat areas typically will require the presence of embankments to contain the water. The soils, topography and water control structures must be such that the area can managed to retain water saturated to the surface or ponded to depths of 2-18 inches for at least 30 days.

To meet the baseline 0.5 score, shallow water management areas must meet **all** the following conditions:

- ☐ Annual cropland established with no-till or mulch-tillage
- ☐ Managed to have saturation to the surface or at least 1 inch of ponded water for a minimum period of 30 days
- ☐ Crop residue undisturbed after harvest and throughout flooded period
- ☐ Have a water level management plan for wildlife species of interest

Once the conditions listed above have been met, the following actions may be implemented to increase the score above 0.5. Check all that apply (in no case shall the total score exceed 1.0)

- ☐ Manage water levels so that there is an average depth of at least 6 inches on the flooded acreage (0.1 point)
- ☐ Close water control structures within one week after harvest and maintain flooded conditions until February 15 (0.1 point)
- ☐ Close water control structures within one week after harvest and maintain flooded conditions until April 15 (0.1 point)
- ☐ Close structures and flood area beginning by April 1 and maintain flooding until June 30 (0.1 point)
- ☐ Manipulate area by light discing, burning or rolling to encourage the growth of early successional habitat particularly moist soil vegetation (0.1 point)
- ☐ Manage area so that flooding and drawdown occur over a period of 2-3 weeks (0.1 point)

Existing Score:_____ Planned Score:_____

United States Department of Agriculture

Conservation Enhancement Activity

E647D

CONSERVATION STEWARDSHIP PROGRAM

Establish and maintain early successional habitat in ditches and bank borders

Conservation Practice 647: Early Successional Habitat Development /Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 5 year

Enhancement Description:

This enhancement is to encourage the establishment of early successional, naturally occurring vegetation in ditches, side slope and bank borders to provide cover, critical nesting and brood rearing habitat as well as filtering overland flow and improving water quality. Ditches perform the critical function of removing water from agricultural lands. Allowing naturally occurring vegetation to develop along ditches, including side slopes, banks and borders, will help provide food and cover for wildlife while enhancing aquatic habitat and improving water quality. Ditches and ditch borders provide a foundation that supports a diverse wildlife community including Northern Bobwhite (Colinus virginianus) and other birds preferring early successional cover. Rabbits, furbearers, amphibians and many other species that inhabit agriculture areas will use this vegetative cover. These areas can also provide critical nesting habitat for the Mottled Duck (Anas fulvigula).

Criteria:

This enhancement applies to crop, pasture, or range land use acres with existing ditches and ditch borders where adequate naturally occurring vegetation is not present.

- Develop a wildlife habitat management plan for the suite of species targeted.
- Allow ditches and bank borders to re-vegetate to naturally occurring vegetation.

- Ditch borders will be a minimum of 20 feet wide and a maximum 60 feet wide.
- In circumstances where woody vegetation exists immediately adjacent to a farm ditch (e.g., such as along a spoil bank), an adjoining minimum 20 feet early successional, native vegetative border will also be established.
- Once established, ditches and borders may not be treated more than once every two years and may not be mowed, disked, grazed, dredged, cleaned, or sprayed with broadcast herbicides, or otherwise disturbed between treatments.
- Encroaching undesired woody vegetation may be controlled between the two treatment periods through spot spraying with approved herbicides.
- For the two approved treatments, light disking, mowing or herbicides may be used to control vegetation next to designated ditches, along ditch banks and borders.
    - These treatments must be applied outside of the primary wildlife ground nesting season.
    - Only herbicides approved for appropriate site conditions shall be applied.
    - Herbicides shall be applied following manufacturers label requirements.
- Grazing is not permitted unless a grazing management plan is in effect.
- Multiple ditch borders on the same property must have varying maintenance schedules.
- Invasive species such as kudzu, cogongrass, Chinese tallow tree, etc. that may become established in the border area must be controlled by spot spraying with an approved herbicide.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland, must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant Will:

- ☐ Prior to implementation, meet with NRCS to review results of the wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- ☐ Prior to implementation, meet with NRCS to obtain and review the Wildlife Habitat Management Plan.
- ☐ During implementation, follow the Wildlife Habitat Management Plan.
- ☐ During implementation, maintain field log to include:
  - o Type of crop(s) grown.
  - o Harvest date of crops grown on the applicable acres.
  - o Date/time and description of all habitat management actions taken.
  - o Digital photographs documenting the condition of the habitat provided.
- ☐ After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS Will:

- ☐ As needed, provide additional technical assistance to the participant.
- ☐ Prior to implementation, verify this enhancement will be applied to crop, pasture, or range acres with existing ditches and ditch borders where adequate naturally occurring vegetation is not present.
- ☐ Prior to implementation, assess habitat condition using the Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement. **Existing WHEG score = _____ Planned Post Implementation WHEG score = _____**
- ☐ Prior to implementation, review results of the wildlife habitat evaluation with the participant and discuss range of management alternatives that would improve wildlife habitat conditions.
- ☐ Prior to implementation, develop a Wildlife Habitat Management Plan for targeted suite of species.
- ☐ Prior to implementation, meet with the participant to review the Wildlife Habitat Management Plan.

CONSERVATION STEWARDSHIP PROGRAM

- ☐ After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide; **Post Implementation WHEG score = _____**
- ☐ After implementation, review field log to verify enhancement was implemented to meet criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

OHIO SUPPLEMENT TO

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E647D

Additional Criteria for Ohio

In additon to the criteria specified in the National job sheet E647D the following additional criteria apply in Ohio:

- On sites that flood infrequently this habitat should be managed for ring-necked pheasant, cottontail rabbits, song sparrows, bobwhite quail, common yellowthroats and reptiles. Sites that flood more frequently can be managed for reptiles, amphibians, waterfowl, and yellow warblers.
- This enhancement is for the natural regeneration of vegetation on ditch banks or borders; seeding is not part of this enhancement.
- Areas dominated by invasive species (reed canarygrass, Phragmites, japanese knotweed, etc.) or non-wildlife friendly vegetation (fescue) that cannot be controlled by spot-spraying alone are not eligible for this enhancement.
- Management activities shall not increase the risk of erosion or bank instability.
- No more than ½ of the available habitat developed under this enhancement may be disturbed in a given year.
- Once established, management activities may not take place during the primary nesting season of April 1 though July 15.
- Calculation of WHEG scores will be done using the Cropland Wildlife Habitat Evaluation found in Ohio EFOTG, Section I, Assessment Procedures, 5. Wildlife Habitat, General Wildlife Habitat Evaluation. The change in score should reflect the value of increased vegetation providing concealment cover.

Additional Documentation Requirements for Ohio

There are no additional documentation requirements that apply in Ohio.

United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E666A

Maintaining and improving forest soil quality.

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest

RESOURCE CONCERN: Soil, Air

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description

Adopts guidelines for maintaining and improving soil quality on sites where forest management activities are practiced. These guidelines will increase soil organic matter content, improve nutrient cycling, and increase infiltration and retention of precipitation. Avoiding soil compaction will allow for greater root development and tree growth, limit windthrow, and reduce drought stress. Increasing carbon storage on site will maintain the soil microbial community and provide wildlife benefits.

Criteria

- States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.
- Update or modify the Forest Management Plan to include the following guidelines for forest soil quality management, as appropriate for the site.
    - Limit the area of compacted soils
        - Operate equipment on established roads and trails and minimize travel into the general forest area
        - Operate equipment on woody debris (slash) in areas with sensitive or wet soils
        - Sequence forest management activities (back to front) to limit the number of equipment passes

- Use smaller and lighter equipment, track equipment, low PSI tires, and lighter loads. Where appropriate, use mules, draft horses or other animals for moving harvested trees
- Restore heavily compacted areas (e.g., by sub-soiling or other mechanical method)

o Limit impacts of roads and landings

- Avoid disturbing natural drainage channels (e.g., design road locations to minimize stream crossings and diversions)
- Roads and landings occupy 5% or less of total wooded acreage
- Establish cover on roads and landings that are not in use

o Limit soil disturbance and control erosion

- Avoid disturbing forest litter and the soil surface
- Protect roads using water bars/rolling dips
- Establish cover on disturbed areas
- Retain downed tops and other unharvested materials for ground cover, nutrient recycling, and organic matter retention

o Maintain favorable conditions for forest growth

- Control the amount of road use, and off-road travel, to prevent erosion, compaction, and disturbance of the soil surface
- Establish cover on any disturbed areas
- Monitor the forest area for signs of insect damage, tree diseases, invasive plants, or other impacts on forest growth and health

o Retain and enhance carbon storage to support soil ecologic functions

- Follow stocking guidelines to maintain tree canopy cover (i.e., between the A and B lines of stocking guides at a minimum; preferably closer to the A line). See the stocking chart shown below.
- Add woody material to the soil by girdling or cutting non-merchantable trees or trees of undesired species
- Use extended rotations to keep carbon on the site for a longer period

CONSERVATION STEWARDSHIP PROGRAM

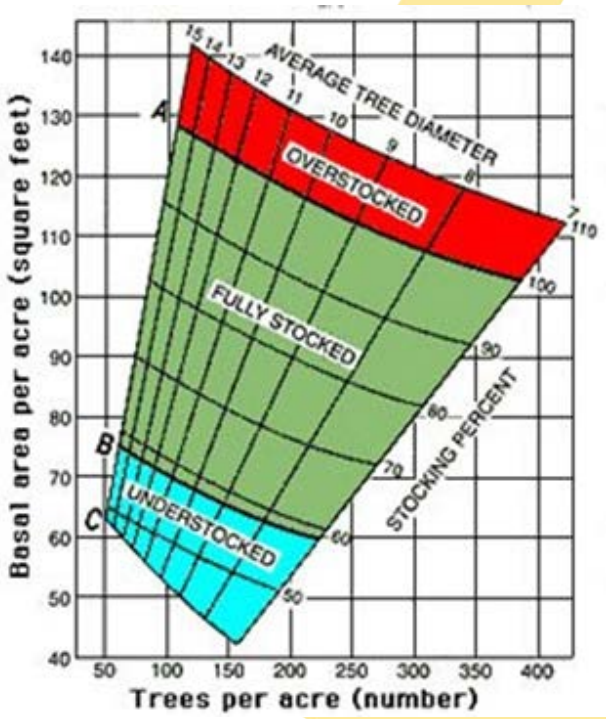
- Retain fallen trees, branches, snags, downed tops and other unharvested materials for ground cover, nutrient recycling, and organic matter retention, in quantities as specified below, or by the NRCS State Office.
  - For western conifer forests, maintain coarse woody residue:
    - that is greater than 3" in diameter,
    - left lying on the soil surface, and
    - which meets the post-harvest target levels of the following chart:

	Habitat Type	Target tons per acre of coarse woody debris
Dry Forests	Ponderosa pine types	5-13 tons/acre
⇕	Douglas-fir types	7-14 tons/acre
	Grand fir types	7-14 tons/acre
Moist Forests	Western hemlock types	16-33 tons/acre

- Maintain soil productivity by soil testing and fertilization if needed (including options for fertilizing with manure, biochar, or other organic materials).
- Identify and retain preferred tree and understory species to achieve all planned purposes and landowner objectives.
- Use available guidelines for species and species groups to determine spacing, density, size-class distribution, number of trees, and amount of understory species to be retained. Schedule treatments to avoid overstocked conditions using approved silvicultural/ stocking guides.
- Describe the current and desired future condition of each stand that will be treated. Include the species, cover type, and size-class distribution. Stocking will be described in terms of crop trees per acre, basal area per acre, trees per acre, between-tree spacing, or by any other appropriate and professionally accepted density or stocking protocol.

- Refer to WIN-PST criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595) and comply with applicable State and local laws if an herbicide will be used.
- Time tree girdling or felling to avoid buildup of insect or disease populations.
- Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions.
- Protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. For temporary access use NRCS Conservation Practice Standard Forest Trails and Landings (Code 655) to protect soil and site resources from vehicle impacts. Use NRCS Conservation Practice Standard Access Road (Code 560), for more heavily used roads associated with forest stand improvement activities.

Figure 1: Stocking Chart *showing tree size and density scales indicating when forests are overstocked (too crowded), fully stocked (providing good growth), and understocked (trees do not fully utilize the site). Stocking guides were developed by Gingrich (1967).*



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- ☐ Prior to implementation, review the NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) conservation practice standard or appropriate state Job Sheet and use this information to meet the criteria of this enhancement.

- ☐ Prior to implementation, have a current or updated Forest Management Plan (FMP) that includes activities required to implement this enhancement. The FMP will include guidelines for rehabilitating existing soil resource damage including compaction, ruts, puddling, erosion, downslope soil movement, exposed mineral soil, and depletion of the forest floor. It will also address rehabilitation for any water resource concerns such as diverted streams or intermittent flows. It will assess road layout and provide guidance on practices to correct any erosion or hydrologic impacts. Have the FMP available for NRCS review.

- ☐ Prior to implementation, arrange for soil tests to be conducted, one per each five acres. The FMP will include guidance for correcting any significant nutrient deficiencies.

- ☐ Prior to implementation, arrange for a forestry specialist to evaluate the stand and perform site-specific marking of areas to be seeded with cover plantings, locations where water control is needed, and trees that are to be girdled for snag creation.

- ☐ Prior to implementation, be aware of the state's Forestry Best Management Practices (BMP's) so they can be followed to protect the site and maintain soil and water quality.

- ☐ Prior to implementation, be aware of the current stocking level of trees on the site and the target level of stocking to maintain as part of this enhancement. This information should be detailed in the Forest Management Plan.

- ☐ During implementation, maintain the stand in a fully stocked condition using the appropriate stocking chart, between the A and B lines (see figure 1). The target stocking level should be between the A and B line, but closer to the A line.

- ☐ During implementation, follow state BMP guidelines and any additional guidance from the NRCS State Office to protect trails, roads and landings from soil loss or damage. Re-vegetate these disturbed areas or close them off to traffic to allow natural vegetation to grow on these areas.

- ☐ During implementation, spread tops and limbs across the site during any tree reduction operations to protect the soil.
- ☐ After implementation, provide the following information to NRCS; dates completed, methods used, representative post-treatment photos, and a map delineating the treated acres.

NRCS will:

- ☐ Prior to implementation, aid with interpretation of a current or updated FMP on acres targeted by this enhancement.
  - o Prior to implementation, provide and explain the following NRCS Conservation Practice Standards as they relate to implementing this enhancement.
  - o Forest Stand Improvement (Code 666)
  - o Integrated Pest Management (Code 595)
  - o Forest Trails and Landings (Code 655)
  - o Access Road (Code 560)
- ☐ As needed, prior to implementation, NRCS will provide technical assistance in:
  - o Preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation, and will discuss the details with the participant.
- ☐ Prior to implementation, discuss the requirement to follow the state's Forestry Best Management Practices (BMPs).
- ☐ During implementation, provide technical assistance if requested by the participant.
- ☐ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- ☐ After implementation, verify that the enhancement was completed according to the NRCS Conservation Practice Standard Forest Stand Improvement (CPS 666) specifications and the enhancement criteria.

CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

OHIO SUPPLEMENT TO

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E666A

Additional Criteria for Ohio

In addition to the criteria specified in the National job sheet E666A the following additional criteria apply in Ohio:

- Livestock must be excluded from all forested acres enrolled for this enhancement.

Additional Documentation Requirements for Ohio

In addition to the documentation requirements specified in the National job sheet E666A the following additional documentation requirements apply in Ohio:

- Soil testing (as described on page 5) is typically not needed for existing mature stands of trees, therefor the soil testing requirement is not applicable for mature stands. Soil testing may be applicable in young plantations where high mortality or other indicators suggest that significant nutrient deficiencies are suspected. Soil testing will be required if fertilization is planned or the application of other amendments (biochar, manure, sludge, etc.) is planned.

United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E666D

CONSERVATION STEWARDSHIP PROGRAM

Forest management to enhance understory vegetation

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest

RESOURCE CONCERN: Plants, Animals, Water

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description:

Forest stand improvement that manages the structure and composition of overstory and understory vegetation to:

- Reduce vulnerability to damage by insects and diseases of forest trees. Canopy gaps and open understory allow for air circulation that reduces the incidence of disease, and the improved health of the residual trees increases their ability to withstand insect attacks
- Managing the understory vegetation will also reduce the risk of wildfire and promote development of herbaceous plants that benefit wildlife.
- Capture additional moisture and filters the water through the vegetation and soil.
- Managing the understory vegetation will increase available water to plants, minimize run-off and erosion, improve water quality, and limit nutrient entry into ground water.
- Reducing the number of trees per acre provides canopy openings that allow sunlight to reach the forest floor and promote the growth of herbaceous plants, improving wildlife shelter and cover in the forest understory.

This enhancement provides for management of the understory vegetation in a forested area by mechanical, chemical and/or manual methods to improve the plant species mix and the health of the residual vegetation. Managing the understory vegetation increases available water to the plants, minimizes runoff and erosion, and improves water quality. An adequately stocked forest provides inputs of leaves, needles, and woody twigs and stems to the forest floor, adding to soil organic matter and contributing to forest soil health. Desirable tree species and understory vegetation, with spacing that allows ground cover to develop, will allow moisture to infiltrate and be stored in the soil, releasing moisture over longer periods of time.

Criteria:

CONSERVATION STEWARDSHIP PROGRAM

States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.

- The enhancement will be applied to sites which have an uncharacteristically dense understory of shrubs and small trees that limit development of ground cover.
- Develop or update a forest management plan in consultation with NRCS personnel and a professional forester to direct the management of the property.
- Describe the current and desired future condition of each stand that will be treated. Include the species, cover type, and size-class distribution. Stocking will be described in terms of crop trees per acre, basal area per acre, trees per acre, between-tree spacing, or by any other appropriate and professionally accepted density or stocking protocol.
- Identify and retain preferred tree and understory species to achieve all planned purposes and landowner objectives.
- Use available guidelines for species and species groups to determine spacing, density, size-class distribution, number of trees, and amount of understory species to be retained. Schedule treatments to avoid overstocked conditions using approved silvicultural/stocking guides.
- Vegetation may be treated by chemical methods such as spraying or single stem treatments, or mechanical methods like a heavy-duty brush cutter or similar equipment. Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595), Brush Management (Code 314), and Herbaceous Weed Control (Code315).
- Time tree felling to avoid buildup of insect or disease populations.
- Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions. Protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. For temporary access use NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.
- Where slash and debris will be generated, use NRCS Conservation Practice Standard Woody Residue Treatment (Code 384) to appropriately treat slash and debris, as necessary, to assure that it will not present an unacceptable fire, safety, environmental, or pest hazard.

CONSERVATION STEWARDSHIP PROGRAM

Remaining woody material will be placed so that it does not interfere with the intended purpose or other management activities. Do not burn vegetative residues except where fire hazard or threats from diseases and insects are of concern or when other management objectives are best achieved through burning. When slash and other debris will be burned onsite use NRCS Conservation Practice Standard Prescribed Burning (Code 338).

- The acres planned must have an "acceptable growing stock" level of at least the B line on an appropriate stocking chart.
- This enhancement requires implementation of the following activities (a through d) in the area where the enhancement applies.
    a. Excessive volatile live vegetation and woody debris –When volatile, live grasses and shrubs and/or woody debris are present, a reduction of these fuels may be accomplished by using heavy duty brush cutters or similar equipment.
    b. Closed canopy – When trees form a continuous closed canopy, thin the stand to allow for heat escape and to improve the health of residual trees and understory vegetation. Open the canopy by cutting or killing selected trees to allow sunlight to reach the forest floor. Reduce slash from the cut trees by cutting off the limbs as needed. An alternative is to use single tree injections to reduce the density of poor-quality trees and open up the canopy.
    c. Ladder fuels – When ladder fuels form connections between the ground and the higher levels of the canopy, thus increasing the risk of fire spreading into tree crowns, break the continuity of fuel between the ground and the upper canopy. Complete removal is not required provided the fuel continuity is disrupted.
    d. Undesirable Vegetation – Use control measures to reduce or eliminate undesirable vegetation and favor desirable vegetation for the site.
- Minimize damage to residual trees during the treatment process.
- If machinery is being used, operate under dry conditions when the machinery will not cause rutting and/or soil compaction.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.

Documentation and Implementation Requirements:

CONSERVATION STEWARDSHIP PROGRAM

Participant will:

- ☐ Prior to implementation, review NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) which contains information needed to meet criteria for this enhancement.
- ☐ Prior to implementation, develop an understanding of management practices that reduce a dense understory of small trees and brush, and the types of understory vegetation that will be encouraged by these practices. (Request NRCS technical assistance, as needed.)
- ☐ Prior to implementation, work with a professional forester to prepare or update a current Forest Management Plan (FMP) that includes activities required to implement this enhancement. The FMP will include guidelines for thinning the stand and maintaining fully stocked conditions as specified in enhancement criteria. Depending on the resource concern addressing the FMP will also include recommended practices for managing understory vegetation to:
  - o Minimize risks of insect and disease outbreaks.
  - o Include recommended practices for managing understory vegetation to favor moisture infiltration.
  - o The FMP will also include recommended practices for managing understory vegetation to favor wildlife cover and shelter.
  - o Include recommended practices for managing understory vegetation to capture nutrients.
- ☐ Prior to implementation, recognize that other NRCS Conservation Practice Standards may be needed to apply this enhancement. These may include:
  - o Brush Management (Code 314)
  - o Forest Trails and Landings (Code 655)
  - o Herbaceous Weed Control (Code 315)
  - o Integrated Pest Management (Code 595)
  - o Woody Residue Treatment (Code 384)
  - o Prescribed Burning (Code 338)
- ☐ Prior to implementation, acquire all necessary approvals and permits (i.e. local, state, or federal, as applicable).
- ☐ Prior to implementation, work with a professional forester who will mark trees and groups of trees to be removed or killed, and who will develop a strategy for controlling undesirable understory vegetation.

CONSERVATION STEWARDSHIP PROGRAM

- ☐ Prior to implementation, take pre-treatment photos of the site to show representative conditions.
- ☐ During implementation, follow FMP guidelines, criteria in NRCS Conservation Practice Standard Forest Stand Improvement (Code 666), and specifications provided by NRCS, to ensure that:
  - o Trees are removed, killed, or retained to achieve all planned purposes and landowner objectives.
  - o The desired spacing, density, size-class distribution, number of trees, and amount of understory is achieved.
  - o The operation avoids or minimizes damage to desirable vegetation.
- ☐ During implementation, follow state-approved Forestry Best Management Practices (BMPs) to protect streams, water quality, and minimize soil loss.
- ☐ During implementation, reduce stand stocking to correspond with the B-line of an appropriate stocking chart, retaining trees with larger, healthy crowns and undamaged trunks. If tree removal is not an option, reduce density by killing selected trees through girdling and/or chemically treatments.
- ☐ During implementation, control undesirable competing vegetation using appropriate methods for the tree species and site conditions. If prescribed burning will be used, work with NRCS and a professional forester or biologist to obtain a state approved prescribed burn plan. If using chemical methods, follow application and timing recommendations from an approved source.
- ☐ During implementation, limit the size of debris piles to minimize wildfire hazards.
- ☐ During implementation, as needed, evaluate and review with NRCS any planned changes to verify they meet the enhancement criteria.
- ☐ After implementation, take digital photos showing representative post-treatment conditions.
- ☐ After implementation, notify NRCS that the work has been completed and make treatment documentation records available for NRCS review and certification.

NRCS will:

- ☐ Prior to implementation, assist with interpretation of a current or updated FMP for sites where this enhancement will be applied.
- ☐ Prior to implementation, provide and explain the following NRCS Conservation Practice Standards as they relate to implementing this enhancement.

CONSERVATION STEWARDSHIP PROGRAM

- o Brush Management (Code 314)
- o Herbaceous Weed Control (Code 315)
- o Forest Stand Improvement (Code 666)
- o Woody Residue Treatment (Code 384)
- o Forest Trails and Landings (Code 655)
- o Integrated Pest Management (Code 595)
- o Prescribed Burning (Code 338)

- ☐ Prior to implementation, provide and explain the state's Forestry BMP guidelines.
- ☐ During implementation, provide technical assistance if requested by the participant.
- ☐ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- ☐ During implementation, provide technical assistance if requested by the participant.
- ☐ After implementation, review treatment documentation records and certify that the enhancement was completed according to specifications in this enhancement, and in NRCS Conservation Practice Standard Forest Stand Improvement (Code 666).

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

OHIO SUPPLEMENT TO

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E666D

Additional Criteria for Ohio

In additon to the criteria specified in the National job sheet E666D the following additional criteria apply in Ohio:

- This enhancement is not intended for the control of dense stands of invasive plant species. If significant cover of invasive species is present, it may be necessary to use Brush Management (314) or Herbaceous Weed Control (315) to control these species.

Additional Documentation Requirements for Ohio

There are not any additional documentation requirements that apply in Ohio.

United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E666E

CONSERVATION STEWARDSHIP PROGRAM

Reduce height of the forest understory to limit wildfire risk

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest

RESOURCE CONCERN: Plants

ENHANCEMENT LIFE SPAN: 10 Year

Enhancement Description

Forest stand improvement that manages forest structure to reduce the risk of wildfire and creates conditions that facilitate prescribed burning. The fire risk reduction is accomplished by reducing the height of the woody understory and midstory, creating space between the ground cover and the tree canopy. This enhancement provides for management of the understory vegetation in a forested area, using mechanical, chemical or manual methods to improve the plant species mix and the health of the residual vegetation, and reduce the risk of wildfire. In appropriate stands, the treatment creates conditions that favor prescribed burning. Forest stand improvement (FSI) activities are used to remove trees of undesirable species, form, quality, condition, or growth rate. The quantity and quality of forest for wildlife and/or timber production will be increased by manipulating stand density and structure. These treatments can also reduce wildfire hazards, improve forest health, restore natural plant communities, and achieve or maintain a desired native understory plant community for soil health, wildlife, grazing, and/or browsing.

Criteria

States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.

- The enhancement will be applied to sites which have an uncharacteristically dense understory of shrubs and small trees that limit development of ground cover.
- Develop or update a forest management plan in consultation with NRCS personnel and a professional forester to direct the management of the property.
- Describe the current and desired future condition of each stand that will be treated. Include the species, cover type, and size-class distribution. Stocking will be described in terms of crop trees per acre, basal area per acre, trees per acre, between-tree spacing, or by any other appropriate and professionally accepted density or stocking protocol.
- Identify and retain preferred tree and understory species to achieve all planned purposes and landowner objectives.
- Use available guidelines for species and species groups to determine spacing, density, size-class distribution, number of trees, and amount of understory species to be retained. Schedule treatments to avoid overstocked conditions using approved silvicultural/stocking guides.
- Vegetation may be treated by chemical methods such as spraying or single stem treatments, or mechanical methods like a heavy-duty brush cutter or similar equipment. Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595), Brush Management (Code 314), or Herbaceous Weed Control (315).
- Time tree felling to avoid buildup of insect or disease populations.
- Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions. Protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. For temporary access use NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.
- Where slash and debris will be generated, use NRCS Conservation Practice Standard Woody Residue Treatment (Code 384) to appropriately treat slash and debris, as necessary, to assure that it will not present an unacceptable fire, safety, environmental, or pest hazard. Remaining woody material will be placed so that it does not interfere with the intended purpose or other management activities. Do not burn vegetative residues except where fire hazard or threats from diseases and insects are of concern or when other management objectives are best achieved through burning. When slash and

other debris will be burned onsite use NRCS Conservation Practice Standard Prescribed Burning (Code 338).

CONSERVATION STEWARDSHIP PROGRAM

- The acres planned must have an "acceptable growing stock" level of at least the B line on an appropriate stocking chart.
- This enhancement requires implementation of the following activities (a through d) in the area where the enhancement applies.

    a) Excessive volatile live vegetation and woody debris – When volatile, live grasses and shrubs and/or woody a reduction of these fuels may be accomplished by using heavy duty brush cutters or similar equipment.

    b) Closed canopy – When trees form a continuous closed canopy, thin the stand to allow for heat escape and to improve the health of residual trees and understory vegetation. Open the canopy by cutting or killing selected trees to allow sunlight to reach the forest floor. Reduce slash from the cut trees by cutting off the limbs as needed. An alternative is to use single tree injections to reduce the density of poor-quality trees and open up the canopy.

    c) Ladder fuels – When ladder fuels form connections between the ground and the higher levels of the canopy, thus increasing the risk of fire spreading into tree crowns, break the continuity of fuel between the ground and the upper canopy. Complete removal is not required as long as the continuity is disrupted.

    d) Undesirable Vegetation – Use control measures to reduce or eliminate undesirable vegetation and favor desirable vegetation for the site.

- Minimize damage to residual trees during the treatment process.
- If machinery is being used, operate under dry conditions when the machinery will not cause rutting and/or soil compaction.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.

Documentation and Implementation Requirements:

CONSERVATION STEWARDSHIP PROGRAM

Participant will:

- □ Prior to implementation, work with a professional forester to develop or update a forestry management plan for the property.
- □ Prior to implementation, work with a professional forester to include species, cover type, and size class distribution for both **current and desired** stands to be treated in the plan.
- □ Prior to implementation, work with a professional forester to include crop trees per acre, basal area per acre, trees per acre, between-tree spacing, or by any other appropriate and professionally accepted density or stocking protocol for both **current and desired** stands to be treated in the plan.
- □ Prior to implementation, work with a professional forester to include in the updated or developed plan to identify and retain preferred tree and understory species to achieve all planned purposes and landowner objectives to get from **current to desired** conditions for the stands to be treated. This would be part the silviculture prescription.
- □ Prior to implementation, work with professional forester and NRCS to delineate on a map the treatment areas and dates.
- □ Prior to implementation, discuss with professional forester or NRCS if the following NRCS Conservation Practice Standards will be necessary for access or to reduce erosion from vehicles/equipment:
    - Forest Trails and Landings (Code 655), Woody Residue Treatment (Code 384) and/or Prescribed Burning (Code 338).
- □ During implementation, notify NRCS of any planned changes to verify they meet the enhancement criteria.
- □ During implementation, keep evidence to support the treatment activities were completed using representative photos. Location of representative photos must be indicated on the map delineating treated areas.
- □ After implementation, notify NRCS that treatment has been completed and submit pictures and map to support this.

CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- ☐ Prior to implementation, provide and discuss with participant, as needed, NRCS Conservation Practice Standards Forest Trails and Landings (Code 655), Woody Residue Treatment (Code 384), and Prescribed Burning (Code 338).
- ☐ Prior to Implementation, verify that participant plan has been developed or updated by a professional forester.
- ☐ Prior to implementation, verify that participant plan has been developed or updated by a professional forester to include species, cover type, and size class distribution for both **current and desired** stands to be treated.
- ☐ Prior to implementation, verify that participant plan has been developed or updated by a professional forester to include crop trees per acre, basal area per acre, trees per acre, between-tree spacing, or by any other appropriate and professionally accepted density or stocking protocol for both **current and desired** stands to be treated.
- ☐ Prior to implementation, verify that participant plan has been developed or updated by a professional forester and identifies and retains preferred tree and understory species to achieve all planned purposes and landowner objectives to get from **current to desired** conditions for the stands to be treated. This would be part the silviculture prescription.
- ☐ Prior to implementation, assist the landowner, as needed, to delineate on a map the treatment areas and dates of treatment.
- ☐ During Implementation, verify any planned changes in plan will meet the enhancement criteria.
- ☐ After Implementation, verify that the treatment has been completed and meets enhancement criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

USDA United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY
E666F

CONSERVATION STEWARDSHIP PROGRAM

Reduce forest stand density to create open stand structure

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest

RESOURCE CONCERN: Plant, Animal

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description:

Reducing forest stand density creates open forest conditions with a low basal area which promotes the health and vigor of the residual trees. The open stand structure allows a significant amount of sunlight to reach the forest floor and stimulates the growth of understory vegetation. Understory vegetation management, along with the wide spacing between trees or clumps of trees, provides visual appeal, lowers the risk of wildfire, and provides food, cover, and shelter for many at-risk and listed wildlife species. The enhancement creates conditions that facilitate a follow-up treatment with prescribed burning.

Criteria:

States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.

- Develop or update a forest management plan in consultation with NRCS personnel and a professional forester to direct the management of the property.
- Thin the stand to a target basal area of 50 to 60 square feet/acre. This creates an open stand and stimulates the growth of herbaceous vegetation on the forest floor. Preferentially remove unhealthy individual trees, undesirable species, and trees with visible defects including forked or broken tops, thin crowns or damaged trunks. Retain desired species and individual trees with large healthy crowns and undamaged trunks.

CONSERVATION STEWARDSHIP PROGRAM

- The stand may have been previously thinned or may be in need of thinning. Merchantable trees may be sold. Reduce stand density sufficiently to get light to the forest floor. The overstory thinning must be completed prior to the understory treatment.

- Trees that cannot be sold may be cut or killed to reduce the canopy and allow sunlight to reach the forest floor. Use NRCS Conservation Practice Standard Woody Residue Treatment (Code 384) as needed to treat felled wood.

- Minimize damage to residual trees during the thinning process.

- Time tree felling to avoid buildup of insect or disease populations.

- Understory vegetation in fire-adapted forest types will receive the greatest benefit from treatment with prescribed burning. Use NRCS Conservation Practice Standard Prescribed Burning (Code 338), and follow all applicable federal, state and local laws. If prescribed burning is not feasible or not appropriate for the site, understory vegetation may be treated with mechanical methods like mulching, mowing, chainsaws, or small dozers.

- Control measures should be used on undesirable competing vegetation, to favor the development of desirable vegetative communities on the site. Vegetation may be treated by chemical methods such as spraying or single stem treatments, or mechanical methods like a heavy-duty brush cutter or similar equipment. Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595) Brush Management (Code 314), or Herbaceous Weed Control (Code 315).

- Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions. Protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. For temporary access use NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.

- Where slash and debris will be generated, use NRCS Conservation Practice Standard Woody Residue Treatment (Code 384) to appropriately treat slash and debris, as necessary, to assure that it will not present an unacceptable fire, safety, environmental, or pest hazard. Remaining woody material will be placed so that it does not interfere with the intended purpose or other management activities. Do not burn vegetative residues except where fire hazard or threats from diseases and insects are of concern or when other management objectives are best achieved through burning. When slash and other debris will be burned onsite use NRCS Conservation Practice Standard Prescribed Burning (Code 338).

CONSERVATION STEWARDSHIP PROGRAM

- Where machinery is being used, operate under dry conditions when the machinery will not cause rutting and/or soil compaction.
- Do not conduct activities during the nesting season for ground nesting birds.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.

Documentation and Implementation Requirements:

CONSERVATION STEWARDSHIP PROGRAM

Participant will:

- ☐ Prior to implementation, use the NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) conservation practice standard or appropriate state approved NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) Job Sheet to meet the criteria of this enhancement.
- ☐ Prior to implementation, provide to NRCS a current or updated Forest Management Plan that includes activities addressing this enhancement.
- ☐ Prior to implementation, set guidelines to maintain the stand in a fully stocked condition along the B line on the site appropriate stocking chart. Reduce the overstory tree density to create open stand of trees allowing sunlight to the forest floor.
- ☐ Prior to implementation, develop a strategy to manage the understory vegetation to favor wildlife food producing plants using prescribed burning, chemical methods or mechanical methods. (If prescribed burning is used - have a prescribed burn plan in place, for chemical treatments – have recommendations from an approved source, and for mechanical methods follow state BMP guidelines).
- ☐ During implementation, thin the stand to the B line on the stocking chart to open the canopy while maintaining a fully stocked stand of trees. If thinning is not an option, reduce the canopy by chemically treating selected trees to open the canopy while maintaining a fully stocked stand of trees.
- ☐ During implementation, avoid making large areas of woody debris.
- ☐ During implementation, strive to minimize volatile vegetation and reduce ladder fuels if present.
- ☐ During implementation, control undesirable vegetation using prescribed burning, chemical treatments or mechanical methods. Follow the appropriate guidelines (prescribed burn plan, chemical recommendations or state BMP guidelines).
- ☐ After implementation, the participant will provide the date completed, acres treated, methods used and a map delineating treated acres.

NRCS will:

- ☐ Prior to Implementation, assist with interpretation and updates to the Forest Management Plan and activities recommended in the acres targeted for management.

CONSERVATION STEWARDSHIP PROGRAM

- ☐ Prior to implementation, provide and explain guidance in the NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) and how it relates to the use of this enhancement.
- ☐ Prior to implementation, provide assistance with the development of appropriate state approved NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) Job Sheets and discuss the details with the participant.
- ☐ Prior to implementation, discuss the need for managing the understory vegetation along with the overstory. The understory should be managed using prescribed burning, chemical or mechanical treatments. Be sure that there is a prescribed burn plan, chemical recommendations or mechanical treatments following state BMP guidelines in implementing this enhancement.
- ☐ Prior to implementation, provide and explain the following NRCS Conservation Practice Standards (CPSs) as they relate to implementing this enhancement.
  - o Brush Management (Code 314)
  - o Forest Stand Improvement (Code 666)
  - o Forest Trails and Landings (Code 655)
  - o Herbaceous Weed Control (Code 315)
  - o Integrated Pest Management (Code 595)
  - o Woody Residue Treatment (Code 384)
  - o Prescribed Burning (Code 338)
- ☐ During implementation, provide technical assistance as requested by the participant.
- ☐ After Implementation, verify the enhancement was completed according to the enhancement criteria and NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) practice specifications.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

CONSERVATION STEWARDSHIP PROGRAM

OHIO SUPPLEMENT TO

CONSERVATION ENHANCEMENT ACTIVITY

E666F

Additional Criteria for Ohio

In additon to the criteria specified in the National job sheet E666F the following additional criteria apply in Ohio:

- The season for ground nesting birds is April 1 until July 15; do not conduct activities during this period.
- Because of the potential for disturbance of endangered bat roost sites, follow guidance found in the attached document, Creation and Retention of Potential Roost Trees for Forest-Dwelling Bats

Additional Documentation Requirements for Ohio

- There are no additional documentation requirements for this enhancement in Ohio.

Creation and Retention of Potential Roost Trees for Forest Dwelling Bats

Summer habitat includes forested areas that have potential roost trees. Potential roost trees are live trees or standing snags > 3 inches dbh that have exfoliating bark, cracks, crevices or hollows. Loose or exfoliating bark may be slabs or plates of bark on dead, diseased or dying trees as well as naturally loose bark found on species such as shagbark and shellbark hickory. Live conifers are not considered potential roost trees for this guidance; however conifer snags with exfoliating or loose bark are considered potential roost trees. Although almost any woody species that gets large enough can be a potential roost tree if the right characteristics develop, the following species have been identified as having relatively high value as potential roost trees:

Silver Maple (Acer saccharinum)
Sugar Maple (Acer saccharum)
Shagbark Hickory (Carya ovata)
Shellbark Hickory (Carya lacinosa)
Green Ash (Fraxinus pennsylvanica)
White Ash (Fraxinus americana)
Eastern Cottonwood (Populus deltoides)
Northern Red Oak (Quercus rubra)
Post Oak (Quercus stellata)
White Oak (Quercus alba)
Black Locust (Robinia pseudoacacia)
Slippery Elm (Ulmus rubra)
American Elm (Ulmus americana)

In this guidance, reference to trees means trees or native woodland shrubs that are > 3 inches dbh; non-native, particularly invasive species, are not to be retained as roost trees. Because bats may use many different individual roost trees over the course of a season and important to try to maintain a diversity of potential roost trees within a forest stand.

1. Avoid removing live potential bat roost trees (defined above) if at possible. If they must be removed, removal must be done between October 1 and March 31.

2. Do not fell or remove standing snags (a tree with <10% live canopy) except when they pose a serious human safety hazard. If they must be felled for safety, only cut them between October 1 and March 31.

3. Generally bats prefer to use the largest trees for roost trees. These trees are more likely to develop the conditions for good roost trees such as presence of crevices, cracks or exfoliating bark. Especially important is that the trees have solar exposure to create desired roost conditons. Therefore the creation and retention of potential roost trees that are some of the larger trees in the stand, especially those extending above the canopy, is preferred.

4. Creation and enhancement of potential roost trees consists of both creating snags and improving use of live trees with exfoliating bark or other desirable characteriestics.

a. Snags are created by girdling or killing live trees; select trees witht he best potential for developing bat roost features; oaks, hickories and ashes are preferred.

b. Living trees with desirable roost chararacteristics may be improved by removing competing trees adjacent to the roost tree; this improves viability of the roost tree and increases solar exposure to the tree. Generally removing any trees with canopies touching the rooost tree should be removed. Shellbark and shagbark hickories are the preferred species but other large trees with suitable roost characteristics may also be good targets for enhancement.

5. The goal is to provide at least 15 potential roost tress per acre.

a. This should be a combination of standing snags and living potential roost trees.

b. Potential roost trees are to be at least 11” dbh; if trees of sufficent size are present, at least 3 of these should be greater than 20” dbh.

Additional information may be found in the ***Indiana Bat and Northern Long-ear Bat Conservation Measure for Ohio*** located in Ohio Field Office Technical Guide, Section II, Threatened and Endangered Species, Conservation Planning Guidance folder. You may also contact the Ohio NRCS State Biologist for assistance.

USDA United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E666G

CONSERVATION STEWARDSHIP PROGRAM

Reduce forest density and manage understory along roads to limit wildfire risk and improve habitat

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest

RESOURCE CONCERN: Plant, Animal

ENHANCEMENT LIFE SPAN: 10 YEARS

Enhancement Description:

Opening the tree canopy along roads ("daylighting") and providing space between ground vegetation and tree crowns minimizes the spread of wildfires that often start along roads and improves wildlife habitat and food sources for many species. Some trees near a forest road are removed through harvesting, cutting, mulching, or another option available at the site, with the objective of creating a partially open forest canopy bordering the road. A semi-open canopy allows more sunlight to reach the forest floor to promote herbaceous understory plants and reduces maintenance needs by allowing moisture to evaporate from roads. The reduced canopy and herbaceous understory limit woodland fuel buildup and reduce fire intensity.

Criteria:

States will apply general criteria from the NRCS National Conservation Practice Standard (CPS) Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.

- Apply the enhancement to sites where vegetation on roadsides presents a fire risk, is inadequate for wildlife habitat, or is detrimental to road maintenance. Treat a strip of forest on both sides of the road, as needed and if feasible. Implement the enhancement for a distance of at least 35 feet into the forest stand from the edge of the road, and extend the distance as needed up to 100 feet based on slope, aspect, soils, fuel type, etc. Use criteria in NRCS CPS Fuel Break (Code 383).

- Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions. Protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. For temporary access use NRCS Conservation

CONSERVATION ENHANCEMENT ACTIVITY

E666G

CONSERVATION STEWARDSHIP PROGRAM

Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.

CONSERVATION STEWARDSHIP PROGRAM

- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.
- Wetland compliance and highly erodible land regulations must be followed.
- Trees removed as part of the treatment process that have marketable quality may be sold. Retain desirable species with large healthy crowns, and trees and shrubs that provide a diversity of wildlife food sources. Remove trees that are:
    - At high risk of mortality or failure (unless retained as a wildlife tree at a safe distance from the road)
    - Of low crown vigor
    - Of poor stem form and quality
    - Less-desirable species.
- Trees that cannot be sold may be removed by cutting, mulching, firewood distribution, or other means to reduce the canopy and allow sunlight to reach the forest floor. Trees further away from the road may be killed and left standing as snags, if they will not fall onto the road.
- Minimize damage to residual trees during the daylighting process.
- Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595) Brush Management (Code 314), or Herbaceous Weed Control (Code 315) to assist with site-specific strategies for pest prevention, pest avoidance, pest monitoring, and pest suppression. Time tree felling to avoid buildup of insect or disease populations.
- Where slash and debris will be generated, use NRCS Conservation Practice Standard Woody Residue Treatment (Code 384), to appropriately treat slash and debris, as necessary, to assure that it will not present an unacceptable fire, safety, environmental, or pest hazard. Remaining woody material will be placed so that it does not interfere with the intended purpose or other management activities. Do not burn vegetative residues except where fire hazard or threats from diseases and insects are of concern or when other management objectives are best achieved through burning. When slash and other debris will be burned onsite use NRCS Conservation Practice Standard Prescribed Burning (Code 338).

CONSERVATION STEWARDSHIP PROGRAM

- The understory vegetation can be maintained by prescribed burning where appropriate. Use NRCS CPS Prescribed Burning (Code 338). If prescribed burning is not an option, alternative methods may be used to manage the understory vegetation, such as mowing or fall disking.

- The daylighted area may be treated with herbicides to control noxious and invasive plants and undesirable woody vegetation to promote herbaceous plants. Vegetation may be treated by chemical methods such as spraying or single stem treatments, or mechanical methods like a heavy-duty brush cutter or similar equipment. Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595), Brush Management (Code 314), or Herbaceous Weed Control (Code 315)

- No daylighting activities should take place during the nesting season for ground nesting birds.

Documentation and Implementation Requirements:

CONSERVATION STEWARDSHIP PROGRAM

Participant will:

- Prior to implementation, review NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) which contains information needed to meet criteria for this enhancement.
- Prior to implementation, develop an understanding of management practices that reduce tree density, and the types of understory vegetation that will be encouraged by these practices. (Request NRCS technical assistance, as needed.)
- Prior to implementation, recognize that other NRCS Conservation Practice Standards may be needed to apply this enhancement. These may include:
  - Brush Management (Code 314)
  - Herbaceous Weed Control (Code 315)
  - Integrated Pest Management (Code 595)
  - Woody Residue Treatment (Code 384)
  - Prescribed Burning (Code 338)
- Prior to implementation, acquire all necessary approvals and permits (i.e. local, state, or federal, as applicable).
- Prior to implementation, work with a professional forester who will mark trees and groups of trees to remove and will develop a strategy for controlling undesirable understory vegetation.
- Prior to implementation, if prescribed burning will be used, work with NRCS and a professional forester or biologist to obtain a prescribed burn plan. If chemical methods will be used, obtain recommendations from an approved source.
- Prior to implementation, take pre-treatment photos of the site to show representative conditions.
- During implementation, follow criteria in NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) and specifications provided by NRCS, to ensure that:
  - Overstory trees are removed or retained to achieve all planned purposes and landowner objectives.
  - The desired spacing, density, size-class distribution, number of trees, and amount of understory is achieved.
  - The operation avoids or minimizes damage to desirable vegetation.

CONSERVATION STEWARDSHIP PROGRAM

- During implementation, follow state-approved Forestry Best Management Practices (BMPs) to protect streams, water quality, and minimize soil loss.
- During implementation, treat a strip of forest on both sides of the road, if needed and feasible. Implement the enhancement for a distance of at least 35 feet into the forest stand from the edge of the road, and extend the distance as needed up to 100 feet from the road based on slope, aspect, soils, fuel type, etc.
- During implementation, focus on retaining healthy trees and when available retain trees that provide wildlife benefits such as oaks, hickories, etc.
- During implementation, remove trees that are at risk of mortality, trees with low crown vigor, trees with poor form and quality, and less-desirable species.
- During implementation, control undesirable competing vegetation using appropriate methods for the tree species and site conditions.
- During implementation, limit the size of debris piles to minimize wildfire hazards.
- During implementation, as needed, evaluate and review with NRCS any planned changes to verify they meet the enhancement criteria.
- After implementation, take digital photos showing representative post-treatment conditions.
- After implementation, notify NRCS that the work has been completed and make treatment documentation available for NRCS review and certification.

NRCS will:

- Prior to implementation, provide and explain the following NRCS Conservation Practice Standards as they relate to implementing this enhancement.
  - Fuel Break (Code 383)
  - Brush Management (Code 314)
  - Herbaceous Weed Control (Code 315)
  - Forest Stand Improvement (Code 666)
  - Woody Residue Treatment (Code 384)
  - Forest Trails and Landings (Code 655)
  - Integrated Pest Management (Code 595)
  - Prescribed Burning (Code 338)
- As needed, prior to implementation, NRCS will provide technical assistance in:

CONSERVATION STEWARDSHIP PROGRAM

- Interpreting enhancement criteria relative to tree species to retain and remove or kill, and strategy for controlling undesirable understory vegetation.
- Preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.

- Prior to implementation, ensure that the participant has an appropriate prescribed burn plan, herbicide recommendations from an approved source and an understanding of how these practices will be applied on the property.
- Prior to implementation, provide and explain the state's Forestry BMP guidelines.
- During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- During implementation, provide technical assistance if requested by the participant.
- After implementation, review documentation and photographs to verify the enhancement was completed according to specifications in this enhancement and NRCS Conservation Practice Standard Forest Stand Improvement (Code 666).

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name_____Contract Number _____

Total Amount Applied_____Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

CONSERVATION STEWARDSHIP PROGRAM

OHIO SUPPLEMENT TO

CONSERVATION ENHANCEMENT ACTIVITY

E666G

Additional Criteria for Ohio

In additon to the criteria specified in the National job sheet E666G the following additional criteria apply in Ohio:

- The season for ground nesting birds is April 1 until July 15; do not conduct activities during this period.
- Because of the potential for disturbance of endangered bat roost sites, follow guidance found in the attached document, Creation and Retention of Potential Roost Trees for Forest-Dwelling Bats

Additional Documentation Requirements for Ohio

- There are no additional documentation requirements for this enhancement in Ohio.

Creation and Retention of Potential Roost Trees for Forest Dwelling Bats

Summer habitat includes forested areas that have potential roost trees. Potential roost trees are live trees or standing snags > 3 inches dbh that have exfoliating bark, cracks, crevices or hollows. Loose or exfoliating bark may be slabs or plates of bark on dead, diseased or dying trees as well as naturally loose bark found on species such as shagbark and shellbark hickory. Live conifers are not considered potential roost trees for this guidance; however conifer snags with exfoliating or loose bark are considered potential roost trees. Although almost any woody species that gets large enough can be a potential roost tree if the right characteristics develop, the following species have been identified as having relatively high value as potential roost trees:

Silver Maple (Acer saccharinum)
Sugar Maple (Acer saccharum)
Shagbark Hickory (Carya ovata)
Shellbark Hickory (Carya lacinosa)
Green Ash (Fraxinus pennsylvanica)
White Ash (Fraxinus americana)
Eastern Cottonwood (Populus deltoides)
Northern Red Oak (Quercus rubra)
Post Oak (Quercus stellata)
White Oak (Quercus alba)
Black Locust (Robinia pseudoacacia)
Slippery Elm (Ulmus rubra)
American Elm (Ulmus americana)

In this guidance, reference to trees means trees or native woodland shrubs that are > 3 inches dbh; non-native, particularly invasive species, are not to be retained as roost trees. Because bats may use many different individual roost trees over the course of a season and important to try to maintain a diversity of potential roost trees within a forest stand.

1. Avoid removing live potential bat roost trees (defined above) if at possible. If they must be removed, removal must be done between October 1 and March 31.

2. Do not fell or remove standing snags (a tree with <10% live canopy) except when they pose a serious human safety hazard. If they must be felled for safety, only cut them between October 1 and March 31.

3. Generally bats prefer to use the largest trees for roost trees. These trees are more likely to develop the conditions for good roost trees such as presence of crevices, cracks or exfoliating bark. Especially important is that the trees have solar exposure to create desired roost conditons. Therefore the creation and retention of potential roost trees that are some of the larger trees in the stand, especially those extending above the canopy, is preferred.

4. Creation and enhancement of potential roost trees consists of both creating snags and improving use of live trees with exfoliating bark or other desirable characteriestics.

a. Snags are created by girdling or killing live trees; select trees witht he best potential for developing bat roost features; oaks, hickories and ashes are preferred.

b. Living trees with desirable roost chararacteristics may be improved by removing competing trees adjacent to the roost tree; this improves viability of the roost tree and increases solar exposure to the tree. Generally removing any trees with canopies touching the rooost tree should be removed. Shellbark and shagbark hickories are the preferred species but other large trees with suitable roost characteristics may also be good targets for enhancement.

5. The goal is to provide at least 15 potential roost tress per acre.

a. This should be a combination of standing snags and living potential roost trees.

b. Potential roost trees are to be at least 11” dbh; if trees of sufficent size are present, at least 3 of these should be greater than 20” dbh.

Additional information may be found in the ***Indiana Bat and Northern Long-ear Bat Conservation Measure for Ohio*** located in Ohio Field Office Technical Guide, Section II, Threatened and Endangered Species, Conservation Planning Guidance folder. You may also contact the Ohio NRCS State Biologist for assistance.

USDA United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E666H

CONSERVATION STEWARDSHIP PROGRAM

Increase on-site carbon storage

CONSERVATION PRACTICE: 666 - Forest Stand Improvement

APPLICABLE LAND USE: Forest; Associated Ag Land; Farmstead

RESOURCE CONCERN: Soil, Air

ENHANCEMENT LIFE SPAN: 10 years

Enhancement Description

Use forest management techniques to maintain and increase on-site carbon storage. These include, but are not limited to, applying uneven-aged management, using longer rotations, retaining cavity/den trees, snags, and down woody debris, and protecting or increasing soil organic matter.

Criteria

- Apply all of the following activities:
  - Retain all snags and downed woody debris of 6" diameter or larger at the base.
  - Identify leave-trees or clumps of trees that will be retained on site throughout their life span. These would ideally be trees that also provide wildlife habitat (e.g., future cavity/den trees, species that develop loose bark at older ages, mast producers, etc.).
  - Close unneeded roads and limit off-road vehicular traffic to avoid displacing the forest litter layer.

- Apply at least one activity from among the following as appropriate for the site:
  - Transition from even-aged to uneven-aged management.
  - Use regeneration methods (e.g., group selection, shelterwood, seed-tree, expanding gap) that call for retention of mature trees during the period when advanced regeneration develops.
  - Adopt techniques for maintaining and/or improving soil quality, specifically retention or organic carbon.
  - Maintain canopy cover to shade the forest floor and avoid hastening decomposition.

- During forest management activities, apply the following criteria:
    - Identify and retain preferred tree and understory species to achieve all planned purposes and landowner objectives.
    - Use available guidelines for species and species groups to determine spacing, density, size-class distribution, number of trees, and amount of understory species to be retained. Schedule treatments to maintain the stand, as much as possible, consistent with chosen regeneration method, in a fully stocked condition based on appropriate stocking guide.
    - Describe the current and desired future condition of each stand that will be treated. Include the species, cover type, and size-class distribution. Stocking will be described in terms of crop trees per acre, basal area per acre, trees per acre, between-tree spacing, or by any other appropriate and professionally accepted density or stocking protocol.
    - Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions. Refer to Conservation Practice Standard Forest Trails and Landings (Code 655) and Road/Trail/Landing Closure and Treatment (Code 654).
    - The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.

Documentation and Implementation Requirements

Participant will:

☐ Prior to implementation:

- develop a new or updated forest management plan (FMP) that may reflect a change in management objectives.
- review NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) that contains information needed to meet criteria for this enhancement.
- develop an understanding of the management that this is required to increase carbon storage appropriate for the resource setting to include the following activities:
    - implement forest management activities that begin a transition from even-aged to uneven-aged management.
    - retain dead wood and select trees or clumps of trees that are intended to be left on the site throughout their life span.
    - use regeneration methods (e.g., group selection, shelterwood, seed-tree, expanding gap) that require retention of mature trees during the period when advanced regeneration develops.
    - adopt techniques for maintaining and/or improving soil quality, specifically retention of organic carbon.

  - maintain canopy cover to shade the forest floor and avoid hastening decomposition.
- For forest lands, work with professional forester to prepare or update a current FMP that includes activities required to implement this enhancement. NRCS State Office will determine if a FMP will be required for Associated Ag Land or Farmstead settings. (Request NRCS technical assistance, as needed.)
- Arrange to have a professional forester or wildlife specialist, as part of developing or updating an FMP:
  - identify and map areas, selected trees, or groups of leave trees that can serve as wildlife habitat and that are intended to be left on site throughout their lifespan.
  - describe amounts and condition of standing snags and fallen woody debris with 6" or larger basal diameter.
  - identify and map trails or roads that can be planned for closure.
- Recognize that other NRCS Conservation Practice Standards may be needed to apply this enhancement. These may include:
  - Forest Trails and Landings (Code 655)
  - Road/Trial/Landing Closure and Treatment (Code 654)
  - Woody Residue Treatment (Code 384)
- Acquire all necessary approvals and permits (i.e., local, state, or federal, as applicable).

☐ During implementation:

- Follow FMP guidelines follow state-approved Forestry Best Management Practices (BMPs) to protect streams, water quality, and minimize soil loss.
- Follow FMP guidelines, criteria in NRCS Conservation Practice Standard Forest Stand Improvement (Code 666), and in specifications provided by NRCS, to ensure that:
  - overstory tree and understory species are retained to achieve all planned purposes and landowner objectives.
  - establish required spacing, density, size-class distribution, number of trees, and amount of understory species to be retained.
  - schedule treatments to maintain the stand, as much as possible, consistent with the chosen forest regeneration method, in a fully stocked condition based on appropriate stocking guide.
  - avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions.
- Evaluate and review with NRCS any planned changes to verify they meet the enhancement criteria, as needed.

☐ After implementation:

- Ensure that retained leave areas are properly protected.
- Update the FMP to documentation treatment acres, completion dates and methods, and document representative treatments with digital photos.

- Notify NRCS that the work has been completed and make treatment documentation available for NRCS review and certification.

CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

☐ Prior to implementation:

- Provide and explain the following NRCS Conservation Practice Standards as they relate to implementing this enhancement:
  - Forest Stand Improvement (Code 666)
  - Woody Residue Treatment (Code 384)
- Provide technical assistance in, as needed:
  - Guiding the proper sequence and timing of planned FMP treatment activities to meet requirements to maintain and increase on-site carbon storage.
  - Preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- Ensure that the participant has a current and complete FMP describing all treatment activities for the resource setting.

☐ During implementation:

- Provide technical assistance if requested by the participant.
- Evaluate any planned changes to verify they meet the enhancement criteria.

☐ After Implementation:

- Verify the enhancement was implemented according to the NRCS Conservation Practice Standard Forest Stand Improvement Standard (Code 666) specifications and meets enhancement criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

OHIO SUPPLEMENT TO

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E666H

Additional Criteria for Ohio

In additon to the criteria specified in the National job sheet E666H the following additional criteria apply in Ohio:

- Activities will be based on forest management plan developed for the site
- Leave trees should be large trees, typically dominant or co-dominant in the canopy
- When leaving clumps of trees during harvests, these must be at least 0.25 acre for every 5 acres of the stand
- Enhance carbon retention in soils by limiting disturbance, mainataining natural soil moisture and excluding livestock
- Activities under 3rd criteria bullet should include at least one of the two management options (transition from even-age or regeneration method)

Additional Documentation Requirements for Ohio

There are no additional documentation requirements that apply in Ohio.

United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E666I

CONSERVATION STEWARDSHIP PROGRAM

Crop tree management for mast production

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest, Associated Ag Land, Farmstead

RESOURCE CONCERN: Plant, Animal

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description

Forest stand improvement using crop tree management techniques to increase mast production.

Criteria

- States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.
- Identify the number of mast crop trees to be developed based on site productivity and spacing guidelines for the mast tree species. See State guidelines.
- Crop tree crowns should be in the upper level of the forest canopy (dominant and/or codominant trees), and not suppressed by other tree crowns.
- Cut or kill all trees whose crowns touch the crown of the crop tree on four sides (three sides if adjacent to another crop tree), and leave additional space for large crown development of mast crop trees. Crop trees will have >15 feet of space on all treated sides.
- Retain a diversity of tree species to reduce the potential impact of an epidemic event (e.g. insect outbreak) that may kill some/all trees.

- Trees that are below the crown of the crop tree or are not affecting crown development will be left to provide protection from wind damage, limit epicormic sprouting, and provide diversity for wildlife habitat.
- Trees removed that have marketable quality can be sold.
- All killed trees shall be left standing to provide wildlife habitat, except where snags will become a safety hazard (within 100 feet of a building, power line, road, etc.) or create a fire hazard. Snags that must be cut for safety reasons shall be left on site to become coarse woody debris on the forest floor (unless they create a fire hazard).
- As applicable, additional actions include:
    - Cutting damaging vines away from crop trees
    - Treatment of invasive plants that may be stressing crop trees
- Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595) to assist with site-specific strategies for pest prevention, pest avoidance, pest monitoring, and pest suppression. Time tree felling to avoid buildup of insect or disease populations.
- Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions. Protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. For temporary access use NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.
- Use NRCS Conservation Practice Standard Access Road (Code 560), for more heavily used roads associated with forest stand improvement activities.
- Where slash and debris will be generated, use NRCS Conservation Practice Standard Woody Residue Treatment (Code 384) to appropriately treat slash and debris, as necessary, to assure that it will not present an unacceptable fire, safety, environmental, or pest hazard. Remaining woody material will be placed so that it does not interfere with the intended purpose or other management activities. Do not burn vegetative residues except where fire hazard or threats from diseases and insects are of concern or

when other management objectives are best achieved through burning. When slash and other debris will be burned onsite use NRCS Conservation Practice Standard Prescribed Burning (Code 338).

- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.

Documentation and Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

Participant will:

- ☐ Prior to implementation, identify the number of dominant and/or codominant mast producing crop trees to be developed based on site productivity and spacing guidance for mast trees, as required in state specific guidelines. (NRCS will provide technical assistance, as needed.)
- ☐ During implementation, release all crop trees on all sides by killing competing trees within 15 feet of the crop tree's crown/canopy.
- ☐ During implementation, retain a diversity of tree species, cut damaging vines away from crop trees, and treat invasive plants that may stress crop trees.
- ☐ During implementation, leave all killed trees (unless removed as a merchantable product) standing to provide additional wildlife habitat, except where snags could become a safety hazard. Trees that must be cut for safety reasons will be left on site to become coarse woody debris on the forest floor.
- ☐ During implementation, protect the site from plant and animal pests, fire, and adverse impacts to the soil resource.

NRCS will:

- ☐ Prior to implementation, as needed, provide technical assistance in determining sites for enhancement implementation that meet specified criteria, including the number of crop trees per acre needed and the spacing of those trees.
- ☐ Prior to implementation, provide and explain the following NRCS Conservation Practice Standards as they relate to implementing this enhancement (as applicable for the site):
    - o Forest Stand Improvement (Code 666)
    - o Integrated Pest Management (Code 595)
    - o Forest Trails and Landings (Code 655)
    - o Access Road (Code 560)
    - o Woody Residue Treatment (Code 384)
    - o Prescribed Burning (Code 338)

CONSERVATION STEWARDSHIP PROGRAM

- ☐ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- ☐ After implementation, document the number of crop trees per acre and average spacing and verify the post treatment stand conditions meet the specifications developed for the crop tree release activity.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

OHIO SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY E666I

CONSERVATION STEWARDSHIP PROGRAM

Additional Criteria for Ohio

In additon to the criteria specified in the National job sheet E666I the following additional criteria apply in Ohio:

- The focus of mast production in woodlands should be the retention and improvement of high producing hard-mast species; oaks species are of particular value. Hard mast species include oaks, hickories, American beech, and black walnut.
- Maintain at least 20 hard-mast producing trees per acre; these should be large, actively growing, dominant or co-dominant trees.
- Maintain a balance between the red oak group and white oak groups; roughly 50-50 distribution is good, some experts recommend slightly more red oak species.
- Although not as critical in most Ohio woodlands, the maintenance of high producing soft-mast species (blackgum, black cherry, flowering dogwood, hackberry, serviceberry) is also recommended.
- Maintain a diversity of mast-producing species to reduce chances of low mast production due to species-specific seasonal failure or loss due to insects or disease.
- Identify potentially high producing mast trees through scouting and records of production.
- Because of the potential for disturbance of endangered bat roost sites, follow guidance found in the attached document, Creation and Retention of Potential Roost Trees for Forest-Dwelling Bats

Additional Documentation Requirements for Ohio

There are no additional documentation requirements for this enhancement that apply in Ohio.

Creation and Retention of Potential Roost Trees for Forest Dwelling Bats

Summer habitat includes forested areas that have potential roost trees. Potential roost trees are live trees or standing snags > 3 inches dbh that have exfoliating bark, cracks, crevices or hollows. Loose or exfoliating bark may be slabs or plates of bark on dead, diseased or dying trees as well as naturally loose bark found on species such as shagbark and shellbark hickory. Live conifers are not considered potential roost trees for this guidance; however conifer snags with exfoliating or loose bark are considered potential roost trees. Although almost any woody species that gets large enough can be a potential roost tree if the right characteristics develop, the following species have been identified as having relatively high value as potential roost trees:

Silver Maple (Acer saccharinum)
Sugar Maple (Acer saccharum)
Shagbark Hickory (Carya ovata)
Shellbark Hickory (Carya lacinosa)
Green Ash (Fraxinus pennsylvanica)
White Ash (Fraxinus americana)
Eastern Cottonwood (Populus deltoides)
Northern Red Oak (Quercus rubra)
Post Oak (Quercus stellata)
White Oak (Quercus alba)
Black Locust (Robinia pseudoacacia)
Slippery Elm (Ulmus rubra)
American Elm (Ulmus americana)

In this guidance, reference to trees means trees or native woodland shrubs that are > 3 inches dbh; non-native, particularly invasive species, are not to be retained as roost trees. Because bats may use many different individual roost trees over the course of a season and important to try to maintain a diversity of potential roost trees within a forest stand.

1. Avoid removing live potential bat roost trees (defined above) if at possible. If they must be removed, removal must be done between October 1 and March 31.

2. Do not fell or remove standing snags (a tree with <10% live canopy) except when they pose a serious human safety hazard. If they must be felled for safety, only cut them between October 1 and March 31.

3. Generally bats prefer to use the largest trees for roost trees. These trees are more likely to develop the conditions for good roost trees such as presence of crevices, cracks or exfoliating bark. Especially important is that the trees have solar exposure to create desired

roost conditons. Therefore the creation and retention of potential roost trees that are some of the larger trees in the stand, especially those extending above the canopy, is preferred.

4. Creation and enhancement of potential roost trees consists of both creating snags and improving use of live trees with exfoliating bark or other desirable characteriestics.

a. Snags are created by girdling or killing live trees; select trees witht he best potential for developing bat roost features; oaks, hickories and ashes are preferred.

b. Living trees with desirable roost chararacteristics may be improved by removing competing trees adjacent to the roost tree; this improves viability of the roost tree and increases solar exposure to the tree. Generally removing any trees with canopies touching the rooost tree should be removed. Shellbark and shagbark hickories are the preferred species but other large trees with suitable roost characteristics may also be good targets for enhancement.

5. The goal is to provide at least 15 potential roost tress per acre.

a. This should be a combination of standing snags and living potential roost trees.

b. Potential roost trees are to be at least 11” dbh; if trees of sufficent size are present, at least 3 of these should be greater than 20” dbh.

Additional information may be found in the ***Indiana Bat and Northern Long-ear Bat Conservation Measure for Ohio*** located in Ohio Field Office Technical Guide, Section II, Threatened and Endangered Species, Conservation Planning Guidance folder. You may also contact the Ohio NRCS State Biologist for assistance.

United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E666J

CONSERVATION STEWARDSHIP PROGRAM

Facilitating oak forest regeneration

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest, Associated Ag Land

RESOURCE CONCERN: Plants, Animals

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description

Facilitate oak regeneration following a forest stand improvement treatment for natural oak regeneration (e.g., a regeneration cut). After a regeneration cut, competition from invasive brush and undesirable tree and shrub species often suppresses successful establishment of oak seedlings and saplings. This enhancement will release seedling and sapling oaks from competing invasive plants and other undesirable species, and thin stump sprouts. A forester will monitor site conditions, treat competition, protect seedlings, and recommend additional follow-up treatments as needed. The enhancement protects investments in oak regeneration by providing for follow-up activities that require the expertise of a professional forester.

Criteria

States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.

- Develop or update a forest management plan (FMP) in consultation with NRCS personnel and a professional forester to direct the management of the property. The FMP will include guidelines for the amount of advanced oak regeneration needed to achieve the desired future condition. It will describe the types of competition or other stressors that threaten oak survival and recruitment in the area, and recommend facilitating controls such as prescribed burning, chemical, and mechanical treatments to achieve desired outcomes. The FMP will also include guidelines for future inspection and monitoring, types of forest health impacts or stand damage to look for during inspections, and potential supplementary activities that may be needed to achieve additional oak recruitment and regeneration.

This enhancement may be applied only to forest stands that have already had a seed tree, shelterwood, thinning, or other silvicultural treatment designed to regenerate oak. The stands must contain an adequate amount of oak regeneration in the seedling and/or sapling stages, sufficient to achieve stand objectives if they survive and become fully established. The stands must also have evidence that the oak regeneration is not "free to grow" due to the presence of competing species. This enhancement is not appropriate for stands that have reached the pole timber size class because they are considered fully established at that point and stand management activities will be different.

- A forestry specialist will inspect the stand and identify existing or potential species of harmful insects, tree diseases, and invasive plants, as well as other biotic and abiotic (i.e. ice storms, drought, flooding, etc.) impacts on forest growth, health, structure and/or composition.

- A forestry specialist will conduct regeneration surveys according to methods described in the NRCS National Forestry Handbook, Title 190, Section 636.2.

- The forestry specialist will make recommendations for short-term treatments as needed. A skilled laborer will implement appropriate activities such as applying mechanical and spot chemical treatments, and/or installing tree protection.

- In appropriate settings, prescribed burning may be used to control vegetative competition after oak root systems are sufficiently established to re-sprout after a fire. With the recommendation of a forestry specialist, use NRCS Conservation Practice Standard Prescribed Burning (Code 338), or CSP Enhancement E338B, Short-interval burn.

- The forestry specialist will recommend additional practices as needed to correct undesirable forest health conditions. Practices may include: NRCS Conservation Practice Standards Integrated Pest Management (Code 595), Brush Management (Code 314), Herbaceous Weed Control (Code 315).

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- Prior to implementation, the participant will obtain a new or updated Forest Management Plan (FMP) that includes activities required to implement this enhancement. The FMP will identify regeneration needs, competition that impedes oak regeneration and recruitment, other forest health concerns, and activities recommended for implementation. The participant will make the FMP available for NRCS review.
- Prior to implementation, arrange for a forestry specialist to inspect the stand and perform the tasks identified in this enhancement.
- Prior to implementation, review the NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) conservation practice standard and other applicable implementation documentation and use the information to meet the criteria of this enhancement.
- During implementation, the participant and the forestry specialist will ensure that regenerating oak trees are protected from any damage.
- During implementation, notify NRCS if there are any planned changes, to verify they meet the enhancement criteria.
- After implementation, notify NRCS that the work has been completed, and make the following information available to NRCS: dates that inspection was conducted, methods used, and the treatments applied to remove competition and protect young oaks.

NRCS will:

- Prior to implementation, verify the enhancement activity is planned for acres that meet the criteria within the enhancement guide sheet. Verify that a forest stand improvement treatment to initiate oak regeneration was previously applied, that regenerating seedling and/or sapling oaks are present, and that oak survival is threatened by competing species and/or other environmental stressors.
- Prior to implementation, provide assistance with interpretation of a new or updated FMP on acres targeted by this enhancement.
- Prior to implementation, provide and explain the following NRCS Conservation Practice Standards as they relate to implementing this enhancement:
    - Forest Stand Improvement (Code 666)

CONSERVATION STEWARDSHIP PROGRAM

- Integrated Pest Management (Code 595)
- Prescribed Burning (Code 338)
- Brush Management (Code 314)
- Herbaceous Weed Control (Code 315)
- Tree/Shrub Establishment (Code 612)
- Tree/Shrub Site Preparation (Code 490)

☐ As needed, prior to implementation, NRCS will provide technical assistance by:

- Preparing specifications for applying this enhancement for each site using approved guide sheets, implementation requirements, technical notes, and narrative statements in the conservation plan, or other acceptable documentation, and discussing the details with the participant.
- Providing methods for conducting regeneration surveys.

☐ During implementation, provide technical assistance if requested by the participant.

☐ During implementation, as needed, evaluate any planned changes to verify they meet the enhancement criteria.

☐ After implementation, certify that the enhancement was completed according to the NRCS Conservation Practice Standard Forest Stand Improvement (CPS 666) specifications and the enhancement criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name_____Contract Number _____

Total Amount Applied_____Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

USDA United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E666K

CONSERVATION STEWARDSHIP PROGRAM

Creating structural diversity with patch openings

CONSERVATION PRACTICE: 666 - Forest Stand Improvement

APPLICABLE LAND USE: Forest; Associated Ag Land; Farmstead

RESOURCE CONCERN: Animals, Plants

ENHANCEMENT LIFE SPAN: 10 years

Enhancement Description

Forest stand improvement that creates patch openings. Size, shape, location, and arrangement of patches will be based on natural features and emulate patches that would result from natural disturbance regimes of wind or fire, varying geographically by forest type and by tree species desired from natural regeneration. The treatment will create or maintain diversity in stand composition and structure, increase pest resistance, reduce wildfire risk, and enhance wildlife food availability. Openings may provide regeneration sites, restore natural plant communities, and achieve or maintain a desired understory plant community for wildlife habitat.

Criteria

- Develop or update a forest management plan in consultation with NRCS personnel and a professional forester to direct the management of the property.

- Apply treatment to one of the following forest stand conditions:
  - Existing stand is already at an "acceptable growing stock" level. For tree species with stocking charts, this is at the B line, the lowest level of a fully stocked stand. Must contain species for regeneration from the NRCS state list of suitable trees. Species on this list have the ability to regenerate from seed, sprouts, or other natural regeneration sources.
  - Dry Western forests that have been thinned in the last 5 years. Patch cutting seeks to restore variable and patchy structural conditions typical of benchmark ecological sites.

  - Closed canopy pine plantation monoculture with few native herbaceous or shrub plants in the understory. Select sites with >/= 50 square feet of basal area per acre and pine species included on the NRCS state list of pine species that have the ability to regenerate from seed.

- Create openings of varying sizes. Vary shapes of openings to correspond with land features (slope, aspect, soil moisture), or to utilize sunlight effectively to encourage regeneration within the opening, as needed.
  - The size of patches to be treated for wildlife can vary from .025 to 10 acres, be distributed throughout the forest, and cannot total more than 30% of the acres meeting the "acceptable growing stock" level.
  - Size of patches to be treated for degraded plant condition can vary from .025 to 10 acres, be distributed throughout the forest, and cannot total more than 50 percent of the acres meeting the "acceptable growing stock" level.

- Preferentially locate patch openings in areas that lack crop trees or wildlife trees. In dry western forests, locate patches in areas more open in the past due to higher fire frequency and intensity (on hills and knolls, and west- and south-facing slopes). Locate openings where there is an aggregation of trees that are:
  - At high risk of mortality or failure (unless retained as a wildlife tree)
  - Of low crown vigor
  - Of poor stem form and quality
  - Less-desirable species.

- Trees removed during patch development having marketable value can be sold.

- Where slash and debris will be generated, use NRCS Conservation Practice Standard Woody Residue Treatment (Code 384), to appropriately treat slash and debris, as necessary, to assure that it will not present an unacceptable fire, safety, environmental, or pest hazard. Remaining woody material will be placed so that it does not interfere with the intended purpose or other management activities. Do not burn vegetative residues except where fire hazard or threats from diseases and insects are of concern or when other management objectives are best achieved through burning. When slash and other debris will be burned onsite use NRCS Conservation Practice Standard Prescribed Burning (Code 338).

- Slash and cull trees must be managed if the material interferes with the production of wildlife food. The material may be managed as follows:
  - Windrowing or wildlife piles
  - Chipping or cutting for firewood

- In appropriate stands, prescribed burning may be used.

- Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595) to assist with site-specific strategies for pest prevention, pest avoidance, pest monitoring, and pest suppression. Time tree felling to avoid buildup of insect or disease populations.

- Control measures may be used on undesirable competing vegetation, to favor the development of desirable vegetative communities on the site. Vegetation may be treated by chemical methods such as spraying or single stem treatments, or mechanical methods like a heavy-duty brush cutter or similar equipment. Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595).

- For areas adjacent to patch openings, leave residual trees and shrubs that provide a diversity of wildlife food sources.

- Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions. Protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. For temporary access use NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.

- Use NRCS Conservation Practice Standard Access Road (Code 560), for more heavily used roads associated with forest stand improvement activities.

- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.

- If management of the remaining forest area (between patch openings) provides a conservation benefit, management can be accomplished at the same time as patch opening creation. Use applicable criteria from NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) when managing the general forest area.

Documentation and Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

Participant will:

☐ Prior to implementation:
- work with NRCS or your forester to develop or update a forest management plan which will include management practices to address the documented resource concerns.
- select areas for patch openings that contain species for regeneration from the NRCS state list of suitable trees that have the ability to regenerate from seed, sprouts, or other natural means. Document that the trees are present and vigorous enough to regenerate.
- determine the resource concern, size, shape, location, and distribution of openings throughout the forest. In dry western forests, locate patches in areas more open in the past due to higher fire frequency and intensity (on hills and knolls, and west- and south-facing slopes). The size of each opening ranges from 0.25-10 acres, and the total acreage in openings will be less than 30% of eligible forest acres for wildlife openings and less than 50% of eligible forest acres for degraded plant condition based on stocking. Locate openings in areas that lack crop trees or wildlife trees and where there is an aggregation of trees that are:
  - At high risk of mortality or failure
  - Of low crown vigor
  - Of poor stem form or quality
  - Less-desirable species

☐ During implementation:
- manage slash and cull trees by windrowing, creating wildlife piles, chipping, cutting for firewood, and/or prescribed burning if appropriate.
- protect the site from plant and animal pests, fire, and adverse impacts to the soil resource.
- notify NRCS if there are any planned changes, to verify they meet the enhancement criteria.

☐ After implementation:
- provide NRCS a map showing the location of patches and photos documenting that patch cuts were completed according to specifications.

NRCS will:

☐ Prior to implementation:
- verify the enhancement activity is planned for acres that meet the criteria within the enhancement guide sheet.

- provide technical assistance in:
  - preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation, and will discuss the details with the participant.
  - determining size, shape, location, and distribution of openings, including percentage of the stand that will be in openings, to meet the criteria within the enhancement guide sheet.
  - evaluating stocking and acceptable growing stock for both pre- and post-treatment stand conditions.
  - identifying desired species to be regenerated in the openings, as needed.
- provide and explain the following NRCS Conservation Practice Standards as they relate to implementing this enhancement (as applicable for the site):
  - Forest Stand Improvement (Code 666)
  - Woody Residue Treatment (Code 384)
  - Prescribed Burning (Code 338)
  - Integrated Pest Management (Code 595)
  - Forest Trails and Landings (Code 655)
  - Access Road (Code 560)

☐ During implementation:

- evaluate any planned changes to verify they meet the enhancement criteria.
- provide technical assistance if requested by the participant.

☐ After Implementation:

- verify the planned patch openings were established to specifications developed for the site and the enhancement criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

OHIO SUPPLEMENT TO

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E666K

Additional Criteria for Ohio

In additon to the criteria specified in the National job sheet E666K the following additional criteria apply in Ohio:

Under this enhancement, the following tree species are acceptable for regeneration; it is not necessary for all species to be present.

Native Oaks (*Quercus* species)
Native Hickories (*Carya* species)
Black Cherry (*Prunus serotina*)
Yellow Poplar (*Liriodendron tulipfera*)
Basswood (*Tilia americana*)

Species in **bold** are the most recommended species

Additional Documentation Requirements for Ohio

There are not any additional documentation requirements that apply in Ohio

United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E666L

CONSERVATION STEWARDSHIP PROGRAM

Forest Stand Improvement to rehabilitate degraded hardwood stands

Conservation Practice 666: FOREST STAND IMPROVEMENT

APPLICABLE LAND USE: Forest

RESOURCE CONCERN: Plant, Animal

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description

Hardwood forestland has been subject to poor logging practices ("high-grading") for decades. Without professional forestry assistance the best species and individual trees are removed, often before maturity ("diameter-limit cutting"), leaving the poorest species and individual trees to regenerate the stand. Reversing this process requires cutting or killing poor quality trees while retaining any desirable species that might still be present. A combination of 3 silvicultural methods are applied: crop tree release, group selection (all trees removed from an area 0.25 to 1.0 acre in size) and small clear-cuts (all trees removed from an area 1-3 acres in size).

Criteria

States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.

- Identify tree species (crop trees) that meet objectives for the stand (timber, wildlife, visual quality, etc.). Some crop tree species will meet multiple objectives (oak, cherry, black walnut, tulip-poplar, pine, spruce).
- Crop trees will receive a crown-touching release: any undesirable trees touching a crop tree crown will be cut or killed.

- Areas of 0.25 acre or more with no crop trees will be clear-cut, up to 3 acres in size.
- Forest stand improvement activities will be planned and applied in a manner to meet the habitat requirements for wildlife species of concern as determined by the state's NRCS Wildlife Habitation Evaluation Guide (WHEG) and will be managed to achieve or maintain a value of 0.75 or greater.
- Invasive species will be controlled before tree cutting begins or concurrently with the cut.
- Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595) to assist with site-specific strategies for pest prevention, pest avoidance, pest monitoring, and pest suppression. Time tree felling to avoid buildup of insect or disease populations.
- Treatment activities will be conducted during periods of the year that accommodate reproduction and other life-cycle requirements of the targeted wildlife and pollinator species.
- Retain a diversity of tree species, where possible, to reduce the potential impact of an epidemic event (e.g. insect outbreak) that may kill trees of some species.
- Trees removed that have marketable quality can be sold.
- Killed trees that do not interfere with tree regeneration shall be left standing to provide wildlife habitat, except where snags will become a safety hazard (within 100 ft. of a building, power line, road, etc.) or create a fire hazard. Snags that must be cut for safety reasons shall be left on site to become coarse woody debris on the forest floor (unless they create a fire hazard).
- As applicable, cut damaging vines away from crop trees
- Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions. Protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. For temporary access use NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.
- Use NRCS Conservation Practice Standard Access Road (Code 560), for more heavily used roads associated with forest stand improvement activities.

CONSERVATION STEWARDSHIP PROGRAM

- Where slash and debris will be generated, use NRCS Conservation Practice Standard Woody Residue Treatment (Code 384) to appropriately treat slash and debris, as necessary, to assure that it will not present an unacceptable fire, safety, environmental, or pest hazard. Remaining woody material will be placed so that it does not interfere with the intended purpose or other management activities. Do not burn vegetative residues except where fire hazard or threats from diseases and insects are of concern or when other management objectives are best achieved through burning. When slash and other debris will be burned onsite use NRCS Conservation Practice Standard Prescribed Burning (code 338).
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- ☐ Prior to implementation, work with professional forester to develop forest management plan documenting which of the three methods will be used (crop tree release, group selection, or clear cut) and in what stands they will be implemented.
- ☐ Prior to implementation, work with professional forester and/or NRCS to determine ways to implement the enhancement that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions.
- ☐ Prior to implementation, work with professional forester and/or NRCS to protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation.
- ☐ Prior to implementation, work with professional forester and/or NRCS if temporary access use NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.
- ☐ Prior to implementation, work with professional forester and/or NRCS to delineate areas to be treated on a map (s).
- ☐ Prior to implementation, work with professional forester and/or NRCS to complete an Implementation Requirements sheet for NRCS Conservation Practice Standard Forest Stand Improvement (Code 666). Depending on method(s) specified in the plan, address:
    - o Identify tree species (crop trees) that meet objectives for the stand (timber, wildlife, visual quality, etc.).
    - o Identify areas of 0.25 to 1 acre in size that will have group selection.
    - o Identify areas of 1-3 acres in size that will be clear cut.
    - o Specify how undesirable trees and shrubs will be cut or killed.

Stand #	Treatment Option

- ☐ Invasive species will be treated prior to implementation or concurrently with the cut.

- ☐ During implementation, notify NRCS of any planned changes to verify they meet the enhancement criteria.
- ☐ During implementation, verify that killed trees/snags that do not interfere with regeneration are left standing or cut and left on site (if safety hazard).
- ☐ During implementation, cut damaging vines away from crop trees.
- ☐ After implementation, notify NRCS that implementation has been completed.

NRCS will:

- ☐ Prior to implementation, provide and explain the following NRCS Conservation Practice Standards as they relate to implementing this enhancement.
  - o Integrated Pest Management (Code 595)
  - o Woody Residue Treatment (Code 384)
  - o Prescribed Burning (Code 338)
  - o Access Road (Code 560)

- ☐ Prior to Implementation, provide and explain, as needed, NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) and assist the participant in completing an Implementation Requirements sheet. Depending on method(s) specified in the plan address:
  - o Identify tree species (crop trees) that meet objectives for the stand (timber, wildlife, visual quality, etc.).
  - o Identify areas of 0.25 to 1 acre in size that will have group selection.
  - o Identify areas of 1-3 acres in size that will be clear cut.
- ☐ Prior to implementation, assist landowner to determine ways to implement the enhancement that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions.
- ☐ Prior to implementation, assist landowner to protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. Provide and document with Participant on NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) Implementation requirements sheet.
- ☐ Prior to implementation, if temporary access is needed, provide participant with NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.

CONSERVATION STEWARDSHIP PROGRAM

- ☐ Prior to implementation, as needed, provide assistance in delineating treatment area on a map(s).
- ☐ Prior to implementation, verify that invasive species have been treated or treating concurrently with cut.
- ☐ Prior to implementation, Wildlife Habitat Evaluation Guide (WHEG) or State equivalent must be completed. **Existing condition WHEG score:_____ Planned after implementation WHEG score:_____**
- ☐ During implementation, as needed, evaluate any planned changes to verify they meet the enhancement criteria.
- ☐ After implementation, verify that killed trees/snags that do not interfere with regeneration are left standing or cut and left on site (if safety hazard).
- ☐ After implementation verify that damaging trees have been removed from crop trees.
- ☐ After implementation, Wildlife Habitat Evaluation Guide (WHEG) or State equivalent must be completed and have a value of 0.75 or greater. **After implementation WHEG score:_____**
- ☐ After Implementation, verify the enhancement was implemented according to the NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) specifications and meets enhancement criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

CONSERVATION STEWARDSHIP PROGRAM

OHIO SUPPLEMENT TO

CONSERVATION ENHANCEMENT ACTIVITY

E666L

Additional Criteria for Ohio

In additon to the criteria specified in the National job sheet E666L the following additional criteria apply in Ohio:

- The species of concern are a general suite of forest-dependent species such as songbirds, squirrels, wild turkey, and ruffed grouse.
- Avoid forest management activities from April through July period to minimize disruptions during nesting or rearing periods.
- Use the Ohio Woodland Wildlife Habitat Evaluation found in Ohio EFOTG, Section I, Assessment Procedures, 5. Wildlife Habitat, General Wildlife Habitat Evaluation for the NRCS Wildlife Habitat Evaluation Guide (WHEG) required for completion
- Because of the potential for disturbance of endangered bat roost sites, follow guidance found in the attached document, Creation and Retention of Potential Roost Trees for Forest-Dwelling Bats

Additional Documentation Requirements for Ohio

There are not any additional documentation requirements that apply in Ohio.

Creation and Retention of Potential Roost Trees for Forest Dwelling Bats

Summer habitat includes forested areas that have potential roost trees. Potential roost trees are live trees or standing snags > 3 inches dbh that have exfoliating bark, cracks, crevices or hollows. Loose or exfoliating bark may be slabs or plates of bark on dead, diseased or dying trees as well as naturally loose bark found on species such as shagbark and shellbark hickory. Live conifers are not considered potential roost trees for this guidance; however conifer snags with exfoliating or loose bark are considered potential roost trees. Although almost any woody species that gets large enough can be a potential roost tree if the right characteristics develop, the following species have been identified as having relatively high value as potential roost trees:

Silver Maple (Acer saccharinum)
Sugar Maple (Acer saccharum)
Shagbark Hickory (Carya ovata)
Shellbark Hickory (Carya lacinosa)
Green Ash (Fraxinus pennsylvanica)
White Ash (Fraxinus americana)
Eastern Cottonwood (Populus deltoides)
Northern Red Oak (Quercus rubra)
Post Oak (Quercus stellata)
White Oak (Quercus alba)
Black Locust (Robinia pseudoacacia)
Slippery Elm (Ulmus rubra)
American Elm (Ulmus america)

In this guidance, reference to trees means trees or native woodland shrubs that are > 3 inches dbh; non-native, particularly invasive species, are not to be retained as roost trees. Because bats may use many different individual roost trees over the course of a season and important to try to maintain a diversity of potential roost trees within a forest stand.

1. Avoid removing live potential bat roost trees (defined above) if at possible. If they must be removed, removal must be done between October 1 and March 31.

2. Do not fell or remove standing snags (a tree with <10% live canopy) except when they pose a serious human safety hazard. If they must be felled for safety, only cut them between October 1 and March 31.

3. Generally bats prefer to use the largest trees for roost trees. These trees are more likely to develop the conditions for good roost trees such as presence of crevices, cracks or exfoliating bark. Especially important is that the trees have solar exposure to create desired roost conditons. Therefore the creation and retention of potential roost trees that are some of the larger trees in the stand, especially those extending above the canopy, is preferred.

4. Creation and enhancement of potential roost trees consists of both creating snags and improving use of live trees with exfoliating bark or other desirable characteriestics.

a. Snags are created by girdling or killing live trees; select trees witht he best potential for developing bat roost features; oaks, hickories and ashes are preferred.

b. Living trees with desirable roost chararacteristics may be improved by removing competing trees adjacent to the roost tree; this improves viability of the roost tree and increases solar exposure to the tree. Generally removing any trees with canopies touching the rooost tree should be removed. Shellbark and shagbark hickories are the preferred species but other large trees with suitable roost characteristics may also be good targets for enhancement.

5. The goal is to provide at least 15 potential roost tress per acre.

a. This should be a combination of standing snags and living potential roost trees.

b. Potential roost trees are to be at least 11” dbh; if trees of sufficent size are present, at least 3 of these should be greater than 20” dbh.

Additional information may be found in the ***Indiana Bat and Northern Long-ear Bat Conservation Measure for Ohio*** located in Ohio Field Office Technical Guide, Section II, Threatened and Endangered Species, Conservation Planning Guidance folder. You may also contact the Ohio NRCS State Biologist for assistance.

United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E666O

Snags, den trees, and coarse woody debris for wildlife habitat

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest, Associated Ag Land, Farmstead

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description

Improve wildlife habitat through creation and retention of snags, den trees, wolf trees, forest stand structural diversity, and coarse woody debris on the forest floor, to provide cover, shelter, and other habitat features for native wildlife species.

Criteria

- States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.
- Identify desired wildlife species that use snags, den trees, wolf trees, coarse woody debris, and/or brush piles for shelter, cover, perches, nest sites, rearing sites, etc.
- Manage for specific tree species, or a selected mix of species, size-classes, and stocking rates at the appropriate scale to meet desired wildlife habitat requirements.
- Create, recruit, and maintain sufficient snags, wolf trees, nest trees, cavity/den trees, and coarse woody debris to meet requirements of desired species. Arrange downed woody material into brush piles as appropriate for desired wildlife species. Refer to criteria in NRCS Conservation Practice Standard Upland Wildlife Habitat Management (Code 645) for manipulation of vegetation.

- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.

- When determining which trees will be killed for snag creation, and/or used to create cavities/dens or perches, consider effects on the remaining stand.
  - Identify and retain preferred tree and understory species to achieve all planned purposes and landowner objectives.
  - Use available guidelines for species and species groups to determine spacing, density, size-class distribution, number of trees, and amount of understory species to be retained.
  - Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595) to assist with site-specific strategies for pest prevention, pest avoidance, pest monitoring, and pest suppression.
  - Consider using downed woody material to create brush piles for additional wildlife habitat.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- Prior to implementation, participant will work with NRCS to identify the desired wildlife species that use snags, den trees, coarse woody debris, perches, and/or brush piles for shelter, cover, nest sites, and/or rearing sites, and are likely to benefit from the enhancement.

Desired Wildlife Species

- Prior to Implementation, participant will work with professional forester or NRCS to delineate on a map the acres that the enhancement would be applied.
- Prior to implementation, participant will work with professional forester or NRCS to estimate how many snags, wolf trees, den trees, coarse woody debris, and/or brush piles are present per acre on the acres identified.
- Prior to implementation, work with NRCS to determine how many snags per acre per size class would be needed in addition to those present that will benefit the wildlife species.

Snags and Woody Residue size classes	Estimated Snags/Den Trees per Acre	Desired Snags/Den Trees per Acre	# of Snags/Den Trees per Acre to be Created
Snags 6-10 inch diameter at breast height.		2 or more	
Snags 10-20 inch diameter at breast height		2 or more	
Snags >20 inch diameter at breast height		2 or more	
Large Woody Debris >20 inch diameter		1 or more	
Brush piles		1	

- During implementation, notify NRCS if any planned changes to verify they meet the enhancement criteria.
- During implementation, keep a written log and take digital photos of snag/den trees created and approximate locations on a map.
- After implementation, notify NRCS that the work has been completed; submit digital photos.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- Prior to implementation, participant will work with NRCS to identify the desired wildlife species that use snags, den trees, coarse woody debris,
- After implementation, retain digital photos for NRCS to verify practice has been completed.

CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- Prior to implementation, provide and explain the following NRCS Conservation Practice Standards as they relate to implementing this enhancement.
    - Forest Stand Improvement (Code 666)
    - Upland Wildlife Habitat Management (Code 645)
- Prior to implementation, assist participant in determining which wildlife species will benefit from snags, den trees, coarse woody debris, and/or brush piles for shelter, cover, nest sites, and/or rearing sites.
- Prior to implementation, assist the landowners to delineate on a map the acres that the enhancement would be applied.
    - Prior to implementation, assist the participant to determine the number of snags (by size class), den trees, coarse woody debris, and/or brush piles exist on the acres delineated by the enhancement. Determine the desired number, with the difference being the # of snags, den trees, coarse woody debris, and/or brush piles need to be created to meet criteria of the enhancement.
- During implementation, as needed, evaluate any planned changes to verify they meet the enhancement criteria.
    - After implementation, verify that the number of snags, den trees, coarse woody debris, and/or brush piles have been created.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name_____Contract Number _____

Total Amount Applied_____Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

OHIO SUPPLEMENT TO

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E666O

Additional Criteria for Ohio

In additon to the criteria specified in the National job sheet E666O the following additional criteria apply in Ohio:

- Standing snags and den trees may be used when targeting species such as owls, bats, woodpeckers, cavity nesting songbirds and squirrels. Woody debris on the ground will benefit salamanders, lizards, ruffed grouse and small mammals.

  - Snags are standing dead trees with a minimum diameter of 6”dbh and minimum height of 8 feet
  - Den trees areliving trees with appropriate form/cavities
  - Coarse/Large woody debris are logs lying on the ground; they must be a minimum of 8 feet in length;
  - These should be distributed through most of the forest stand.

Additional Documentation Requirements for Ohio

There are not any additional documentation requirements that apply in Ohio

USDA United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E666P

CONSERVATION STEWARDSHIP PROGRAM

Summer roosting habitat for native forest-dwelling bat species

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest, Associated Ag Land, Farmstead

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description

Create new potential roost trees within upland and riparian forests to achieve desired summer habitat for forest-dwelling bat species.

Criteria

- States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.
- These criteria and any tree removal activities will be coordinated with U.S. Fish and Wildlife Service (USFWS). This includes the establishment of minimum criteria to meet the habitat requirements of the bat species of concern while avoiding potentially detrimental disturbances during the maternity period.
- Create additional snags within the forested acres by girdling/killing live trees. When choosing trees to kill, consider that the majority of snag-roosting bats prefer the largest available snags, which often extend above the forest canopy and retain bark for a longer period of time. Also focus on killing trees that are undesirable for quality forest products due to species or form.
- Promote use of live trees with loose or exfoliating bark by killing all trees adjacent (canopies within 15 feet of habitat tree) to trees determined to have desired bark characteristics, as defined by NRCS state technical staff. Larger diameter trees should be considered as habitat trees, as desirable bark characteristics tend to improve with the

size and age of the tree. Large/mature trees also develop splits, breaks, dead limbs, and cavities that serve as roosting areas.

- Habitat trees should be distributed evenly across the treated acres.
- The combined snags and live, loose bark trees should be created or maintained at a combined rate as determined to be necessary to meet the habitat requirements of the bat species of concern and the specific forest type, as defined by the USFWS and NRCS state technical staff.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.
- When determining which trees will be killed for snag creation, and/or used to create loose/exfoliating bark, consider effects on the remaining stand.
    - Identify and retain preferred tree and understory species to achieve all planned purposes and landowner objectives.
    - Use available guidelines for species and species groups to determine spacing, density, size-class distribution, number of trees, and amount of understory species to be retained. Schedule treatments to avoid overstocked conditions using approved silvicultural stocking guides.
    - Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- ☐ Prior to implementation, work with NRCS to complete a wildlife habitat evaluation guide or State equivalent.
- ☐ Prior to implementation, obtain a wildlife habitat management plan for the targeted species suite which includes:
  - Wildlife Habitat Evaluation Guide scores for benchmark and desired conditions.
  - The minimum criteria to meet the targeted species habitat requirements.
  - A plan map indicating the stands and individual trees selected for the treatment.
  - A list of NRCS Conservation Practice Standards that will be applied to reach the desired habitat conditions
- ☐ During implementation, keep a field log which includes:
  - Treatment dates
  - Count of treated (girdled) trees and treatment actions completed (i.e. removal of canopies within 15 feet of habitat tree).
- ☐ During implementation, notify NRCS of any planned changes, notify NRCS of any planned changes to verify they meet the enhancement criteria.
- ☐ After implementation, notify NRCS that implementation has been completed.
- ☐ After implementation, make the follow items available for NRCS review to verify implementation of the enhancement:
  - Wildlife Habitat Management Plan.
  - Wildlife habitat plan treatment map.
  - Field log.
  - Digital photographs.

CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- ☐ Prior to implementation, assist the participant in completing the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG) or State equivalent. **Target Bat Species of concern: _____**
  Current/Existing Condition WHEG score:_____
  Planned WHEG score after implementation:_____
- ☐ Prior to implementation, provide participant assistance in the development of a wildlife habitat management plan.
- ☐ Prior to implementation, provide participant with additional technical assistance to the, as requested.
- ☐ During implementation, as needed, evaluate any planned changes to verify they meet the enhancement criteria.
- ☐ After implementation, verify implementation of the wildlife habitat management plan, by reviewing field log records kept and digital photographs taken during enhancement implementation.
- ☐ After implementation, complete the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG) or State equivalent. **WHEG score after implementation:_____**

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____
NRCS Technical Adequacy Signature Date

United States Department of Agriculture

CONSERVATION STEWARDSHIP PROGRAM

OHIO SUPPLEMENT TO

CONSERVATION ENHANCEMENT ACTIVITY

E666P

Additional Criteria for Ohio

In additon to the criteria specified in the National job sheet E666P the following additional criteria apply in Ohio:

- Follow guidance found in the attached document, Creation and Retention of Potential Roost Trees for Forest-Dwelling Bats

Additional Documentation Requirements for Ohio

- Use the Ohio Woodland Wildlife Habitat Evaluation found in Ohio EFOTG, Section I, Assessment Procedures, 5. Wildlife Habitat, General Wildlife Habitat Evaluation for the NRCS Wildlife Habitat Evaluation Guide (WHEG).

Creation and Retention of Potential Roost Trees for Forest Dwelling Bats

Summer habitat includes forested areas that have potential roost trees. Potential roost trees are live trees or standing snags > 3 inches dbh that have exfoliating bark, cracks, crevices or hollows. Loose or exfoliating bark may be slabs or plates of bark on dead, diseased or dying trees as well as naturally loose bark found on species such as shagbark and shellbark hickory. Live conifers are not considered potential roost trees for this guidance; however conifer snags with exfoliating or loose bark are considered potential roost trees. Although almost any woody species that gets large enough can be a potential roost tree if the right characteristics develop, the following species have been identified as having relatively high value as potential roost trees:

Silver Maple (Acer saccharinum)
Sugar Maple (Acer saccharum)
Shagbark Hickory (Carya ovata)
Shellbark Hickory (Carya lacinosa)
Green Ash (Fraxinus pennsylvanica)
White Ash (Fraxinus americana)
Eastern Cottonwood (Populus deltoides)
Northern Red Oak (Quercus rubra)
Post Oak (Quercus stellata)
White Oak (Quercus alba)
Black Locust (Robinia pseudoacacia)
Slippery Elm (Ulmus rubra)
American Elm (Ulmus americana)

In this guidance, reference to trees means trees or native woodland shrubs that are > 3 inches dbh; non-native, particularly invasive species, are not to be retained as roost trees. Because bats may use many different individual roost trees over the course of a season and important to try to maintain a diversity of potential roost trees within a forest stand.

1. Avoid removing live potential bat roost trees (defined above) if at possible. If they must be removed, removal must be done between October 1 and March 31.

2. Do not fell or remove standing snags (a tree with <10% live canopy) except when they pose a serious human safety hazard. If they must be felled for safety, only cut them between October 1 and March 31.

3. Generally bats prefer to use the largest trees for roost trees. These trees are more likely to develop the conditions for good roost trees such as presence of crevices, cracks or exfoliating bark. Especially important is that the trees have solar exposure to create desired roost conditons. Therefore the creation and retention of potential roost trees that are some of the larger trees in the stand, especially those extending above the canopy, is preferred.

4. Creation and enhancement of potential roost trees consists of both creating snags and improving use of live trees with exfoliating bark or other desirable characteriestics.

a. Snags are created by girdling or killing live trees; select trees witht he best potential for developing bat roost features; oaks, hickories and ashes are preferred.

b. Living trees with desirable roost chararacteristics may be improved by removing competing trees adjacent to the roost tree; this improves viability of the roost tree and increases solar exposure to the tree. Generally removing any trees with canopies touching the rooost tree should be removed. Shellbark and shagbark hickories are the preferred species but other large trees with suitable roost characteristics may also be good targets for enhancement.

5. The goal is to provide at least 15 potential roost tress per acre.

a. This should be a combination of standing snags and living potential roost trees.

b. Potential roost trees are to be at least 11” dbh; if trees of sufficent size are present, at least 3 of these should be greater than 20” dbh.

United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E666R

CONSERVATION STEWARDSHIP PROGRAM

Forest songbird habitat maintenance

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest, Associated Ag Land, Farmstead

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description

Adopts guidelines and methods developed by the Forest Bird Initiative of the Vermont Audubon Society, to preserve habitat features following a forest stand improvement treatment designed to create habitat for a suite of forest-dwelling neotropical migratory songbirds. It includes developing or updating a forest management plan, inspecting and tending forest habitat, and monitoring bird populations. It protects investments in habitat creation by providing for follow-up activities that require the expertise of a professional forester or biologist. This enhancement is appropriate for states in forest songbird flyways, and is applicable in middle-aged, older-aged, or all-aged forests.

Criteria

States will apply general criteria from the NRCS National Conservation Practice Standard (CPS) Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.

- This enhancement is used periodically following an initial treatment designed to create habitat elements specifically for neotropical migratory forest songbirds; habitat creation may include forest gaps, snags, cavities, supplemental plantings of trees or shrubs, removal of undesirable invasive species, etc. States will determine when to use the enhancement; one year following the initial treatment is the soonest it should be applied, and after that it should be used every three to five years to check for changed conditions.

CONSERVATION STEWARDSHIP PROGRAM

- Update the current Forest Management Plan (FMP) to include guidelines to maintain habitat for forest birds. The FMP will include guidelines for inspection and monitoring, identify the types of forest health impacts or stand damage to look for during inspections, and will describe the types of activities that may be needed to preserve existing habitat conditions.

- A forestry specialist will inspect the stand and identify species of harmful insects, tree diseases, invasive plants, as well as other biotic and abiotic (i.e. ice storms, drought, flooding, etc.) impacts on forest growth, health, structure and/or composition.

- The forestry specialist will make recommendations for short-term treatments as needed. A skilled laborer will implement appropriate activities, such as applying mechanical and spot chemical treatments.

- The forestry specialist will make recommendations for additional practices needed to correct undesirable forest health conditions. Practices may include: NRCS Conservation Practice Standards Integrated Pest Management (Code 595), Brush Management (Code 314), and Herbaceous Weed Control (Code 315).

- A forestry or wildlife specialist will evaluate and report on the condition of songbird habitat elements using protocols in "Bird Habitat Inventory Field Procedures" from Audubon Vermont (http://vt.audubon.org/sites/g/files/amh751/f/bidhab_protocol_web_0.pdf), or a similar set of protocols adopted by the respective state's wildlife management agency or equivalent state-level entity. The forestry specialist will recommend initial treatments and additional practices, if needed, to the participant(s) and NRCS.

- During the bird breeding season, a trained forestry or wildlife specialist will conduct a bird census according to protocols adopted by the respective state's wildlife management agency or equivalent state-level entity.

- The participant will control access to the stand as needed to prevent resource damage, and to reduce disturbance to songbirds and other wildlife.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- ☐ Prior to implementation, review the NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) or appropriate state guidance document and use the information to meet the criteria of this enhancement. Also review Forest Bird Initiative guidance from the Vermont Audubon Society at http://vt.audubon.org/conservation/working-lands/forest-bird-initiative-1, or equivalent state-level guidance provided by NRCS.

- ☐ Prior to implementation, the participant will obtain a current or updated Forest Management Plan (FMP) that includes activities required to implement this enhancement. The FMP will include guidelines for inspection and monitoring, the types of forest health impacts or stand damage to look for during inspections, and potential activities that may be needed to preserve existing habitat conditions. The participant will make the FMP available for NRCS review.

- ☐ Prior to implementation, make arrangements for a forestry and/or wildlife specialist to inspect the stand and complete a habitat monitoring report, conduct a bird survey, and accomplish other tasks called for in the enhancement.

- ☐ During implementation, notify NRCS if there are any planned changes, to verify that they meet enhancement criteria.

- ☐ During implementation, keep a written log and take digital photos.

- ☐ After implementation, retain a map showing the location of activities, and photos. Make the map and photos available to NRCS for verification.

- ☐ After implementation, notify NRCS that the work was completed, and make the following information available to NRCS: dates that inspection was conducted, methods used, reports on bird surveys and habitat monitoring, photos, and a map showing bird monitoring points.

- ☐ After implementation, control access to the stand as needed to prevent resource damage, and to reduce disturbance to songbirds and other wildlife.

CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- ☐ Prior to implementation, verify the enhancement activity is planned for acres that meet the criteria in the enhancement guide sheet, by reviewing the existing FMP or other documentation of treatment objectives and implementation, and through field verification.
- ☐ Prior to implementation, assist with the interpretation of a current or updated FMP on acres targeted by this enhancement.
- ☐ Prior to implementation, provide and explain the following NRCS Conservation Practice Standards as they relate to implementing this enhancement:
    - Forest Stand Improvement (Code 666)
    - Integrated Pest Management (Code 595)
    - Brush Management (Code 314)
    - Herbaceous Weed Control (Code 315)
- ☐ As needed, prior to implementation, NRCS will provide technical assistance by:
    - Providing and explaining the Forest Bird Initiative guidance from the Vermont Audubon Society at http://vt.audubon.org/conservation/working-lands/forest-bird-initiative-1, or equivalent state-level guidance on habitat for migratory forest-dwelling birds.
    - Providing methods to be used for conducting bird surveys, using protocols adopted by the state wildlife management agency or equivalent state-level entity.
    - Preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation, and will discuss the details with the participant.
- ☐ During implementation, provide technical assistance if requested by the participant.
- ☐ During implementation, evaluate any planned changes to verify they meet enhancement criteria.

- ☐ After implementation, certify that the enhancement was completed according to the NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) specifications and the enhancement criteria.

CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

CONSERVATION STEWARDSHIP PROGRAM

OHIO SUPPLEMENT TO

CONSERVATION ENHANCEMENT ACTIVITY

E666R

Additional Criteria for Ohio

In addition to the criteria specified in the National job sheet E666R the following additional criteria apply in Ohio:

- This enhancement requires the completion of detailed evaluation of habitat conditions meeting specific criteria and a census of bird populations in addition to completing any needed actions identified in the forest management plan . Fully discuss the requirements with participants including the need to have all actions done under this enhancement completed by the end of the CSP contract.

- NRCS planners and particiopants must consult with the NRCS State Biologist before implementing this enhancement.

- Management for forest songbirds will be based on information found in:

  Rodewald, A. 2013. Managing forest birds in southeast Ohio: A guide for land managers. Unpublished report to the Ohio Department of Natural Resources-Division of Wildlife. 33 pp.

- Habitat Evalution Protocol

  - Must address forest songbird habitat

  - The habitat evalution may be done using the ”Bird Habitat Inventory Field Procedures” by Audubon Vermont with any appropriate modifications needed for Ohio conditions.

- Ohio does not have any recognized protocol similar to this. A protocol based on recommendations from experts such as the Ohio Division of Wildlife, university professors or researchers, Ohio Audubon or the Ohio Bird Conservation Initiative may be used if approved by NRCS.

- Bird Census

  - A census of birds must be taken during the breeding season both before/during intial planning as well as after significant management actions have been implemented.

  - Ohio does not have any recognized protocol for this census. A census protocol based on recommendations from experts such as the Ohio Division of Wildlife, university professors or researchers, Ohio Audubon or the Ohio Bird Conservation Initiative may be used if approved by NRCS.

Additional Documentation Requirements for Ohio

There are no additional documentation requirements that apply in Ohio.