

ILLINOIS SUPPLEMENT TO CSP 2021 ENHANCEMENTS

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CPS 314 – Brush Management

E314A – Brush management to improve wildlife habitat

- Refer to Conservation Practice Code 314 – Brush Management for techniques to manage brush and invasive species with biological suppression.
- Refer to Conservation Practice Code 314 Attachment 1 and Information Sheet – Prescribed Grazing with Goats Conservation Practice Information Sheet (IS-MO528gg).
http://efotg.sc.egov.usda.gov/references/public/MO/PrescribedGrazingGoats12_05.pdf
- Utilize reference Targeted Grazing: A Natural Approach to Vegetative Management and Landscape Enhancement <http://www.webpages.uidaho.edu/rx-grazing/handbook.htm>
- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop a grazing management plan.
- Use methods in Appendix A.1 to evaluate habitat conditions.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.

CPS 315 – Herbaceous Weed Treatment

E315A – Herbaceous weed treatment to create desired plant communities consistent with the ecological site

- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.
- Utilize reference Targeted Grazing: A Natural Approach to Vegetative Management and Landscape Enhancement <http://www.webpages.uidaho.edu/rx-grazing/handbook.htm> where applicable.
- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop a grazing management plan for biological control using livestock

CPS 327 – Conservation Cover

E327A – Conservation cover for pollinators and beneficial insects

- List of suitable plants for pollinator habitat:
 - All species in the Native Seed Calculator used to meet the 327 criteria for pollinator and monarch seed mixtures as indicated on the Pollinator and Monarch Check Sheet. Links to known pollinator and beneficial insect use of a species can be found in the ForbsLegumes, Grasses, and Woody tabs near the end of the tables.
- Use methods in Appendix A.1 to evaluate habitat conditions.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.

E327B – Establish Monarch butterfly habitat

- Habitat conditions to be evaluated using Illinois Biology Technical Note No. 24 – Wildlife Habitat Evaluation Guide Datasheet for the Monarch Butterfly Midwest Edition 2 (September 2018). The minimum planned rating must be “excellent”.
- Document implementation requirements on 327 IL IR Conservation Cover Monarch Habitat.
List of monarch preferred plants: All species in the IL Native Seed Calculator used to meet the 327 criteria for pollinator and monarch seed mixtures as indicated on the Pollinator and Monarch Check Sheet.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.

CPS 328 – Conservation Crop Rotation

The following table will be used for any Crop Rotation (328) enhancement that requires the inclusion of “Resource Conserving Crops”.

Enhancements include: E328A, and E328B

| Resource Conserving Crops | | | |
|----------------------------------|--------------------------|---------------------|--------------------------------|
| Perennial Grasses | Perennial Legumes | Small Grains | Green Manure Crops |
| Kentucky Bluegrass | Birdsfoot Trefoil | Barley | Annual Ryegrass |
| Orchardgrass | White Clover | Oats | Crimson Clover |
| Perennial Ryegrass | Kura Clover | Rye | Hairy Vetch |
| Redtop | Alfalfa | Triticale | Red Clover |
| Smooth Brome | Crimson Clover | Wheat | Alfalfa |
| Tall Fescue | Hairy Vetch | Spelt | Cowpeas |
| Timothy | Alsike Clover | Rice | Sudangrass, Sorghum-Sudangrass |
| Canada Wildrye | Red Clover | Barley | Balansa Clover |
| Virginia Wildrye | | | Berseem Clover |
| Big Bluestem | | | |
| Eastern Gamagrass | | | |
| Indiangrass | | | |
| Little Bluestem | | | |
| Sideoats Grama | | | |
| Switchgrass | | | |

E328D – Leave standing grain crops unharvested to benefit wildlife

- Must meet Practice Standard 328.
- For a list of suitable grain crops for wildlife food and cover, refer to Wildlife Food Plot Illinois Conservation Practice 645A Implementation Requirements
- Habitat conditions to be evaluated using Biology Technical Note No. 18 - Illinois Wildlife Habitat Evaluation Guide. Note the target species on the WHEG along with existing and planned treatment scores.

The following table will be used for any Crop Rotation (328) enhancement that requires the inclusion of “High Residue Producing Crops”.

Enhancements include: E328E and E328G

| High Residue Producing Crops |
|--|
| <ul style="list-style-type: none"> • Corn • Grain Sorghum or Milo • Small Grains: <ul style="list-style-type: none"> ○ Wheat ○ Oats ○ Rye ○ Triticale ○ Spelt ○ Rice ○ Barley |

E328F – Modifications to improve soil health and increase soil organic matter

- Crop rotations will consist of 4 different crops consisting of the following crop types: warm season grass, cool season grass, warm season broadleaf, and cool season broadleaf. Cover crops maybe inserted in the crop rotation to satisfy the crop type requirement.
- A soil health assessment will be obtained on all acres for year 1 and year 3. At a minimum, the soil health assessment must include a measurement of soil organic matter. If there are other soil health resource concerns (Soil Organism Habitat Loss or Degradation; Aggregate Instability), several alternative indicators should be evaluated. These can be found in the criteria of Soil Testing (216) Conservation Activity. It is highly recommended in Illinois to include at least the following three indicators, but preferable to include all five from the Soil Testing Conservation Activity:
 - Soil organic carbon content measured by dry combustion (Equivalent to soil organic matter)
 - Wet macro-aggregate stability measured using ARS or NRCS methods or by sprinkle infiltrometer.
 - Active carbon measured by permanganate oxidation
- To improve ability to compare and interpret results of the soil health assessment, year 1 and year 3 indicators should be the same and analyzed by the same laboratory. Additional tests may be included in year 3, but without a baseline in year 1, they may not be interpretable on their own.
- Details about sampling conditions in year 1 should be recorded in the Sampling Details Form, available with the Soil Testing (216) Conservation Activity, and efforts should be made in year 3 to match those conditions as best as possible. This will improve the value and usefulness of the assessment to evaluate need for management changes if assessment indicates soil health has not improved.
- The current and modified rotation will have a positive Organic Matter (OM) subfactor of the SCI. The SCI must be greater than 0. The crop rotation will need to be modified after year 3 if the year 3 SOM test decreases. Crop rotation modifications may include changes in rotation, increasing the use of cover crops and/or reducing tillage.

E328G – Crop rotation on recently converted CRP grass/legume cover for soil organic matter improvement

- This enhancement involves crop diversity, minimal disturbance, and providing for living root systems for all but the coldest portions of the year. Continuous living root systems will be achieved by including perennials in the rotation and/or establish overwintering cover crops after each annual cash crop in the rotation.

E328I – Forage harvest to reduce water quality impacts by utilization of excess soil nutrients

- Perennial grass or grass/legume mixtures are to be established using species and seed rates found in Forage and Biomass Planting (Practice Code 512) or overwintering small grain cover crop species found in Cover Crop (Practice Code 340). Perennial grasses or overwintering small grains will be harvested no earlier than the boot stage to achieve near maximum biomass and nutrient uptake.

E328J – Improved crop rotation to provide benefits to pollinators

| Pollinator Friendly Crop and Cover Crop Species |
|--|
| Sunflowers |
| Rapeseed/Canola |
| Clovers (Red, Ladino, Crimson) |
| Alfalfa |
| Buckwheat |
| Hairy Vetch |
| Mustard, Oriental |
| Cowpeas |
| Forage Brassicas (e.g. forage turnip, forage radish) |
| Note: Spring planted and allowed to bolt and flower. |

E328K – Multiple crop types to benefit wildlife

- Must meet Practice Standard 328.
- Crop residue left after harvest will not be tilled or grazed, and stalks will not be chopped or removed, between harvest and March 15th.
- For a list of suitable grain crops for wildlife food and cover, refer to Wildlife Food Plot Illinois Conservation Practice 645A Implementation Requirements
(Continued on next page)

- Habitat conditions to be evaluated using Biology Technical Note No. 18 - Illinois Wildlife Habitat Evaluation Guide. Note the target species on the WHEG along with existing and planned treatment scores.
- If pollinators are a target species, select a pollinator friendly crop species from the table below.

| Pollinator Friendly Crop and Cover Crop Species |
|--|
| Sunflowers |
| Rapeseed/Canola |
| Clovers (Red, Ladino, Crimson) |
| Alfalfa |
| Buckwheat |
| Hairy Vetch |
| Mustard, Oriental |
| Cowpeas |
| Forage Brassicas (e.g. forage turnip, forage radish) |
| Note: Spring planted and allowed to bolt and flower. |

E328L – Leaving tall crop residue for wildlife

- Eligible Crops
 - Corn
 - Grain sorghum/milo
 - Sunflowers
 - Small grains
 - Any other crops capable of being harvested while leaving 14 inch stubble height.
- Stubble must remain until March 15 of the following spring.

E328M – Diversify crop rotation with canola or sunflower to benefit pollinators

- Select a pollinator friendly crop species from the table below

| Pollinator Friendly Crop and Cover Crop Species |
|--|
| Sunflowers |
| Rapeseed/Canola |
| Clovers (Red, Ladino, Crimson) |
| Alfalfa |
| Buckwheat |
| Hairy Vetch |
| Mustard, Oriental |
| Cowpeas |
| Forage Brassicas (e.g. forage turnip, forage radish) |
| Note: Spring planted and allowed to bolt and flower. |

CPS 329 – Residue and Tillage Management, No-Till

E329E – No till to reduce energy

- Benchmark Energy Value = 10 gallons diesel/acre.

CPS 338 – Prescribed Burning

E338A – Strategically planned, patch burning for grazing distribution and wildlife habitat

- Apply all General Criteria and the following additional criteria sections from IL CPS 338 that are appropriate to the enhancement objective identified.
 - Additional Criteria to Improve Wildlife Habitat.
 - Additional Criteria to Facilitate Distribution of Grazing and Browsing Animals.
 - Follow all General Criteria from IL CPS 528 and the additional criteria to Improve or Maintain the Quantity and Quality of Food and/or Cover Available for Wildlife
 - Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop and implement a grazing management plan.
 - Utilize IL-528-1 Grazing Management Record or like information to document grazing management.
- (Continued on next page)*

- Follow all General Criteria for CPS 647 that are appropriate to the enhancement objective.
- Refer to the following wildlife related guidance for additional information in planning the activity:
 - IL Biology Technical Note 21 Establishment and Maintenance of Forbs in Grass Plantings
 - IL 647 Implementation Requirements – Early Successional Habitat Development and Management Prescribed Burn
 - IL 647 Implementation Requirements – Early Successional Habitat Development and Management Grassland Management for Wildlife
- Use methods in Appendix A.1 to evaluate habitat conditions.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.

E338B – Short-interval burns to promote a healthy herbaceous plant community

- Apply all General Criteria and the following additional criteria sections from IL CPS 338 that are appropriate to the enhancement objective identified.
 - Additional Criteria to Restore and Maintain Ecological Sites.
 - Additional Criteria to Improve Wildlife Habitat.
 - Additional Criteria to Control Undesirable Vegetation
- Use methods in Appendix A.1 to evaluate habitat conditions.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.

E338C – Sequential patch burning

- Apply all General Criteria and the following additional criteria sections from IL CPS 338 that are appropriate to the enhancement objective identified.
 - Additional Criteria to Control Undesirable Vegetation.
 - Additional Criteria to Improve Wildlife Habitat.
- Use methods in Appendix A.1 to evaluate habitat conditions.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.

CPS 340 – Cover Crop

E340A – Cover crop to reduce erosion

- Utilize species in the “Cover Crop Species and Mixtures” table below.

E340B – Intensive cover cropping to increase soil health and soil organic matter content

- Utilize species in the “Cover Crop Species and Mixtures” table below.

E340C – Use of multi-species cover crops to improve soil health and increase soil organic matter

- Utilize species in the “Cover Crop Species and Mixtures” table below.
- The cover crop mix must include at least 4 species and additionally must include the plant types missing from the rotation. e.g. If the current crop rotation is Corn – Soybeans (a warm season grass and a warm season broadleaf), the cover crop mix must at a minimum include a cool season grass, a cool season broadleaf, plus two additional cover crop species of any plant type to meet both the plant type and multi-species requirements of the activity.

E340D – Intensive orchard/vineyard floor cover cropping to increase soil health

- Utilize species in the “Cover Crop Species and Mixtures” table below.

E340E – Use of soil health assessment to assist with development of cover crop mix to improve soil health

- Utilize species in the “Cover Crop Species and Mixtures” table below.
A soil health assessment will be obtained on all acres for year 1 and year 3. At a minimum, the soil health assessment must include a measurement of soil organic matter. If there are other soil health resource concerns (Soil Organism Habitat Loss or Degradation; Aggregate Instability), several alternative indicators should be evaluated. These can be found in the criteria of Soil Testing (216) Conservation Activity. It is highly recommended in Illinois to include at least the following three indicators, but preferable to include all five from the Soil Testing Conservation Activity:
 - Soil organic carbon content measured by dry combustion (Equivalent to soil organic matter)

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- Wet macro-aggregate stability measured using ARS or NRCS methods or by sprinkle infiltrometer.
- Active carbon measured by permanganate oxidation
- To improve ability to compare and interpret results of the soil health assessment, year 1 and year 3 indicators should be the same and analyzed by the same laboratory. Additional tests may be included in year 3, but without a baseline in year 1, they may not be interpretable on their own.
- Details about sampling conditions in year 1 should be recorded in the Sampling Details Form, available with the Soil Testing (216) Conservation Activity, and efforts should be made in year 3 to match those conditions as best as possible. This will improve the value and usefulness of the assessment to evaluate need for management changes if assessment indicates soil health has not improved.
- The current and **modified** rotation will have a positive Organic Matter (OM) subfactor of the SCI. The SCI must be greater than 0. The crop rotation will need to be modified after year 3 if the year 3 soil organic matter test decreases. Crop rotation modifications may include changes in rotation, increasing the use of cover crops and/or reducing tillage.

Cover Crop Species and Mixtures¹

| Cover Crop Species | Full Seeding Rate Drilled ² (lbs. PLS/acre) | Full Seeding Rate Broadcast (lbs. PLS/acre) | Full Seeding Rate Aerial (lbs. PLS/acre) |
|----------------------------------|---|--|---|
| Barley | 30-90 | 60-100 | 60-100 |
| Buckwheat | 20-35 | 25-40 | 25-40 |
| Clover, Balansa | 5-8 | 6-10 | 6-10 |
| Clover, Berseem | 8-15 | 9-17 | 10-18 |
| Clover, Crimson | 10-20 | 12-25 | 12-24 |
| Clover, Red | 8-10 | 8-10 | 10-12 |
| Collards or Kale | 2-4 | 2-4 | 2-4 |
| Cowpeas | 50-90 | 60-100 ³ | NR ³ |
| Flax | 3 | 4 | 4 |
| Millet, Japanese | 10-12 | 12-25 ³ | NR ³ |
| Millet, Pearl | 10-12 | 12-25 ³ | NR ³ |
| Mustard, Oriental | 2-4 | 2-4 | NR ³ |
| Oats, Spring | 50-70 | 60-90 | 60-90 |
| Pea, Field/Winter | 25-50 | 30-60 ³ | NR ³ |
| Phacelia | 3 | 4 | 4 |
| Radish, Oilseed/Forage | 4-8 | 5-10 | 5-10 |
| Rapeseed/Canola | 2-5 | 2-5 | 2-6 |
| Rye, Cereal | 30-90 | 60-100 | 60-100 |
| Ryegrass, Annual | 10-15 | 12-15 | 12-18 |
| Sorghum, Grain | 5-8 | 8-10 | NR |
| Sorghum, Forage | 4-8 | 6-12 | NR |
| Sorghum X Sudangrass | 15-20 | 17-25 ³ | NR ³ |
| Sudangrass | 15-20 | 17-25 ³ | NR ³ |
| Sunflower, Black Oil | 10 | 15 | NR ³ |
| Sunn Hemp | 15 | 20 | 20 |
| Sweetclover | 6-10 | 7-15 | 7-12 |
| Triticale, Winter | 30-90 | 60-100 | 60-108 |
| Turnip, Forage | 2-4 | 2-4 | 2-5 |
| Vetch, Hairy | 15-20 | 17-25 | 18-24 |
| Wheat, Winter | 30-90 | 60-100 | 60-108 |
| Mixtures | | | |
| Cereal Rye + Hairy Vetch | 30-50/7-10 | 35-60/8-12 | 40-70/10-15 |
| Cereal Rye + Rapeseed | 30-50/2-5 | 35-60/2-5 | 40-70/3-5 |
| Winter Pea + Oilseed Radish | 12-25/2-4 | 14-29/2-4 ³ | NR ³ |
| Annual Ryegrass + Oilseed Radish | 8-12/1.5-3.5 | 9-14/2-4 | 10-15/2-4 |
| Annual Ryegrass+ Crimson Clover | 8-12/4-6 | 9-14/5-7 | 10-15/5-7 |
| Winter Barley + Crimson Clover | 32-48/6-12 | 36-48/7-14 | 36-48/7-14 |
| Oats + Oilseed Radish | 32-40/1.5-3 | 50-70/1.5-3 | 50-70/1.5-3 |

1. Source: Midwest Cover Crop Decision Tool <http://mccc.msu.edu/covercroptool/covercroptool.php>

2. The mixtures provided are examples that may be used. Seed rates for components of a custom mixture may be formulated by multiplying the full seed rate by the desired percentage in the mixture.

E340F – Cover crop to minimize soil compaction

| Cover Crop Species | Full Seeding Rate Drilled (lbs. PLS/acre) | Full Seeding Rate Broadcast (lbs. PLS/acre) | Full Seeding Rate Aerial (lbs. PLS/acre) |
|--|---|---|--|
| Root Systems for the Near Surface (0-4") Compaction | | | |
| Cool Season | | | |
| Ryegrass, Annual | 10-15 | 12-15 | 12-18 |
| Wheat, Winter | 30-90 | 60-100 | 60-100 |
| Triticale, Winter | 30-90 | 60-100 | 60-100 |
| Rye, Cereal | 30-90 | 60-100 | 60-100 |
| Barley, Winter | 30-90 | 60-100 | 60-100 |
| Warm Season | | | |
| Sorghum X Sudangrass | 15-20 | 17-25 | Not Recommended |
| Sudangrass | 15-20 | 17-25 | Not Recommended |
| Millet, Japanese | 10-12 | 12-25 | Not Recommended |
| Millet, Pearl | 10-12 | 12-25 | Not Recommended |
| Buckwheat | 20-35 | 23-40 | 24-40 |
| Root Systems for the Deeper (>4") Compaction | | | |
| Radish, Oilseed/Forage | 4-8 | 5-10 | 5-10 |
| Rapeseed/Canola | 2-5 | 2-5 | 2-5 |
| Turnip, Forage | 2-4 | 2-4 | 2-5 |

E340G – Cover crop to reduce water quality degradation by utilizing excess soil nutrients

| Cover Crop Species | Full Seeding Rate Drilled (lbs. PLS/acre) | Full Seeding Rate Broadcast (lbs. PLS/acre) | Full Seeding Rate Aerial (lbs. PLS/acre) |
|----------------------------------|--|--|---|
| Millet, Japanese | 10-12 | 12-25 | Not Recommended |
| Millet, Pearl | 10-12 | 12-25 | Not Recommended |
| Mustard, Oriental | 2-4 | 2-4 | Not Recommended |
| Oats, Spring | 50-70 | 60-90 | 60-90 |
| Radish, Oilseed/Forage | 4-8 | 5-10 | 5-10 |
| Rapeseed/Canola | 2-5 | 2-6 | 2-6 |
| Rye, Cereal | 30-90 | 60-100 | 60-100 |
| Ryegrass, Annual | 10-15 | 12-15 | 12-18 |
| Sorghum X Sudangrass | 15-20 | 17-25 | Not Recommended |
| Sudangrass | 15-20 | 17-25 | Not Recommended |
| Triticale, Winter | 30-90 | 60-100 | 60-100 |
| Turnip, Forage | 2-4 | 2-4 | 2-5 |
| Wheat, Winter | 30-90 | 60-100 | 60-100 |
| Barley, Winter | 30-90 | 60-100 | 60-100 |
| Mixtures (%/%) | Full Seeding Rate Drilled (lbs. PLS/acre) | Full Seeding Rate Broadcast (lbs. PLS/acre) | Full Seeding Rate Aerial (lbs. PLS/acre) |
| Annual Ryegrass + Oilseed Radish | 8-12/1.5-3.5 | 9-14/2-4 | 10-15/2-4 |
| Annual Ryegrass + Crimson Clover | 8-12/4-6 | 9-14/5-7 | 10-15/5-7 |
| Oats + Oilseed Radish | 32-40/1.5-3.5 | 50-70/1.5-3 | 50-70/1.5-3 |

**E340H – Cover crops to suppress excessive weed pressures and break pest cycles
(Use the mid to upper limit of the seed rate range listed)**

| Cover Crop Species | Full Seeding Rate Drilled (lbs. PLS/acre) | Full Seeding Rate Broadcast (lbs. PLS/acre) | Full Seeding Rate Aerial (lbs. PLS/acre) |
|--|---|---|--|
| Buckwheat | 20-35 | 25-40 | 25-40 |
| Millet, Japanese | 10-12 | 12-25 | Not Recommended |
| Millet, Pearl | 10-12 | 12-25 | Not Recommended |
| Mustard, Oriental | 2-4 | 2-4 | Not Recommended |
| Oats, Spring | 50-70 | 60-90 | 60-90 |
| Radish, Oilseed/Forage | 4-8 | 5-10 | 5-10 |
| Rapeseed/Canola | 2-5 | 2-5 | 2-6 |
| Rye, Cereal | 30-90 | 60-100 | 60-100 |
| Ryegrass, Annual | 10-15 | 12-15 | 12-18 |
| Sorghum X Sudangrass | 15-20 | 17-25 | Not Recommended |
| Sudangrass | 15-20 | 17-25 | Not Recommended |
| Triticale, Winter | 30-90 | 60-100 | 60-100 |
| Turnip, Forage | 2-4 | 2-4 | 2-5 |
| Wheat, Winter | 30-90 | 60-100 | 60-100 |
| Barley, Winter | 30-90 | 60-100 | 60-100 |
| Mixtures (%/%) | Full Seeding Rate Drilled (lbs. PLS/acre) | Full Seeding Rate Broadcast (lbs. PLS/acre) | Full Seeding Rate Aerial (lbs. PLS/acre) |
| Annual Ryegrass + Oilseed Radish (60/40) | 8-12/1.5-3.5 | 9-14/2-4 | 10-15/2-4 |
| Crimson Clover + Annual Ryegrass (60/40) | 6-12/4-6 | 7-14/5-7 | 7-14/5-7 |

E340I – Using cover crops for biological strip till

- This enhancement requires the use of a split row planter or two seeding passes with non-split row planters. Every other crop row will be a different species. One row will be seeded to a high residue producing cover crop (Soil Health Row) and one row will be seeded to a winter killed crop that will provide bio-till functions (Biological Strip Till Row) and will be the row where the subsequent crop will be planted. This enhancement will require the precision guidance capability.

| Soil Health Row | | Bio-Strip Till Row | |
|------------------|---------------------------|--------------------|---------------------------|
| Species | Seed Rate (lbs. PLS/acre) | Species | Seed Rate (lbs. PLS/acre) |
| Cereal Rye | 30 | Forage Radish | 1.5-2 |
| Winter Barley | 30 | Forage Radish | 1.5-2 |
| Winter Triticale | 30 | Forage Radish | 1.5-2 |
| Winter Wheat | 30 | Forage Radish | 1.5-2 |

CPS 345 – Residue and Tillage Management, Reduced Till

E345E – Reduced tillage to reduce energy use

- Benchmark Energy Value = 10 gallons diesel/acre.

CPS 374 – Farmstead Energy Improvement

E374A – Install variable frequency drive(s) on pump(s)

- Engineering job approval authority for Farmstead Energy Improvement (CPS 374) applies.
- A Type 2 energy audit containing information about the proposed variable frequency drive (VFD) is required. The CAP 128 Ag Energy Management Plan will satisfy this requirement, or the client may obtain a Type 2 energy audit independently. The energy audit must pass review by the State Office engineering team prior to finalizing the I&E for this enhancement.
- For I&E, the client will need to supply NRCS with feasibility information from the manufacturer of the proposed equipment, to ensure that the motor on which a VFD is proposed is compatible with the VFD (some are not). If the existing motor is not compatible, the client needs to be aware that a new motor will be required as part of the project.
- For I&E, the client will need to ensure that the energy utility provider has reviewed and approved the use of a VFD on the proposed site.
- The client will be required to hire a licensed Professional Engineer qualified to work in this area to do the design and certification. NRCS will do a functional review for design acceptance prior to installation, and for certification of completion.

E374B – Switch fuel source for pump motor(s)

- Engineering job approval authority for Farmstead Energy Improvement (CPS 374) applies.
- A Type 2 energy audit containing information about the proposed replacement or retrofit is required. The CAP 128 Ag Energy Management Plan will satisfy this requirement, or the client may obtain a Type 2 energy audit independently. The energy audit must pass review by the State Office engineering team prior to finalizing the I&E for this enhancement.
- For I&E, the client will need to supply NRCS with feasibility information from the manufacturer of the proposed equipment, to ensure that the motor proposed for retrofit will be compatible. If the existing motor is not compatible, the client needs to be aware that a new motor will be required as part of the project.
- The client will be required to hire a licensed Professional Engineer qualified to work in this area to do the design and certification. NRCS will do a functional review for design acceptance prior to installation, and for certification of completion.

CPS 381 – Silvopasture

E381A – Silvopasture to improve wildlife habitat

- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop forage balance.
- Utilize IL-528-1 Grazing Management Record or like information to document grazing management.
- Refer to the Silvopasture Illinois Forestry Technical Note No. 3.
- Use methods in Appendix A.1 to evaluate habitat conditions.
- For wildlife friendly grasses, forbs, shrubs and trees use Appendix A.3.

CPS 382 – Fence

E382A– Incorporating “wildlife friendly” fencing for connectivity of wildlife food resources

- Where fences border grassland in Jasper and Marion Counties, or anywhere in the State where fences are within 300 feet of wetlands and bodies of water used by waterfowl and wading birds, methods to both improve passage and improve visibility must be used. Otherwise, only criteria to improve passage must be met.
- Habitat conditions to be evaluated using Biology Technical Note No. 18 - Illinois Wildlife Habitat Evaluation Guide. Note the target species on the WHEG along with existing and planned treatment scores.
- Meet improved passage criteria by:
 - Selecting known wildlife travel corridors for wildlife friendly fences.
 - Installing multi-strand barbed wire and permanent electric fences with a top wire 54” or less for property line fences and 42” or less for interior fences, and a bottom wire 18” high or higher, with the top wire at least a 12-inch spacing between the top two wires.
 - If existing multi-strand barbed wire and permanent electric fences do not meet the above specifications, modify sections 16 feet wide that meet the above specifications every ¼ mile.
 - Removing and replacing chain link fences with multi-strand barbed wire, permanent electric fencing, or woven wire fences.

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- Modifying woven wire fences so that the bottom wire is at least 6 inches above the ground and modifying 16 foot wide sections every ¼ mile so that the bottom of the woven wire is 18 inches high for smaller animals to cross under. Place the top wire, if present, at least 12 inches above the woven wire for larger animals to cross over safely.
- For fence marking, refer to Fence Marking for Wildlife Friendly Fences Illinois Conservation Practice 649E Implementation Requirements.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.

E382B – Installing electrical fence offsets and wire to facilitate cross-fencing for improved grazing management

- Offset electric fence will meet permanent electric minimum quality as referenced in Conservation Practice code 382 Construction Specifications Electric Fence
- Utilize Illinois Fencing Design version 1.5
- Offset electric fence will meet one of the following:
 - Located as high as possible on posts AND on the opposite side of posts as the existing non-electric fence

OR

 - Offset must place electric wire a minimum of 12 inches from the existing fence and be connected to the post

CPS 384 – Woody Residue Treatment

E384A - Biochar production from woody residue

- No additional State criteria exists in addition to the National Conservation Practice Standard. Utilize IL 384 Implementation Requirements as applicable.

CPS 386 – Field Border

E386D – Enhanced field borders to increase food for pollinators along the edge(s) of a field

- List of suitable plants for pollinator habitat: All species in the Native Seed Calculator used to meet the 327 criteria for pollinator and monarch seed mixtures as indicated on the Pollinator and Monarch Check Sheet. Links to known pollinator and beneficial insect use of a species can be found in the Forbs/Legumes, Grasses, and Woody tabs near the end of the tables.
- Use methods in Appendix A.1 to evaluate habitat conditions.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.

E386E – Enhanced field borders to increase wildlife food and habitat along the edge(s) of a field

- For wildlife friendly grasses, forbs, shrubs and trees use Appendix A.3.
- Use methods in Appendix A.1 to evaluate habitat conditions.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.

CPS 390 – Riparian Herbaceous Cover

E390A – Increase riparian herbaceous cover width for sediment and nutrient reduction

- Use plant species found in Conservation Practice Standard 327 Conservation Cover, or the IL Native Seed Calculator, that are adapted to site conditions. To achieve the erosion reduction, sediment trapping and nutrient reduction objective, seeding rates shall be those listed in 327 Conservation Cover for slopes 5% or greater.

E390B – Increase riparian herbaceous cover width to enhance wildlife habitat

- Where existing filter strips are adequate to address the water quality issues for the site, seed mixtures consisting of grasses, legumes and/or forbs can be developed using the IL NRCS Native Seed Calculator.
- Habitat conditions to be evaluated using the NRCS Stream Visual Assessment Protocol 2 paying attention to Element 4 - Riparian Area Quantity, Element 5 - Riparian Area Quality, and Element 6 - Canopy Cover.
- Use methods in Appendix A.1 to evaluate habitat conditions.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.
- For wildlife friendly grasses, forbs, shrubs and trees use Appendix A.3.

CPS 391 – Riparian Forest Buffer

E391A – Increase riparian forest buffer width for sediment and nutrient reduction

- Apply all General Criteria and the following additional criteria sections from IL CPS 391.
 - Additional Criteria to Reduce Excess Amounts of Sediment, Organic Material, Nutrients and Pesticides in Surface Runoff and Reduce Excess Nutrients and Other Chemicals in Shallow Ground Water Flow.
- Conditions to be evaluated using the NRCS Stream Visual Assessment Protocol 2 paying attention to Element 4 - Riparian Area Quantity, Element 5 - Riparian Area Quality, and Element 6 - Canopy Cover.
- For wildlife friendly grasses, forbs, shrubs and trees use Appendix A.3 and all species ranked as High or Medium merit for wildlife in Table 1 of the Conservation Practice Standard 391- Riparian Forest Buffer (Exclude all ash species from planting if found in referenced lists).

E391B – Increase stream shading for stream temperature reduction

- Apply all General Criteria and the following additional criteria sections from IL CPS 391.
 - Additional Criteria to Create Shade to Lower or Maintain Water Temperatures to Improve Habitat for Aquatic Organisms.
- Conditions to be evaluated using the NRCS Stream Visual Assessment Protocol 2 paying attention to Element 4 - Riparian Area Quantity, Element 5 - Riparian Area Quality, and Element 6 - Canopy Cover.
- Use methods in Appendix A.1 to evaluate habitat conditions.
- For wildlife friendly grasses, forbs, shrubs and trees use Appendix A.3 and all species ranked as High or Medium merit for wildlife in Table 1 of the Conservation Practice Standard 391- Riparian Forest Buffer (Exclude all ash species from planting if found in referenced lists).

E391C – Increase riparian forest buffer width to enhance wildlife habitat

- Apply all General Criteria and the following additional criteria sections from IL CPS 391.
 - Additional Criteria to Create or Improve Riparian Habitat and Provide a Source of Detritus and Large Woody Debris.
- Use methods in Appendix A.1 to evaluate habitat conditions.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.
- For wildlife friendly grasses, forbs, shrubs and trees use Appendix A.3 and all species ranked as High or Medium merit for wildlife in Table 1 of the Conservation Practice Standard 391- Riparian Forest Buffer (Exclude all ash species from planting if found in referenced lists).

CPS 393 – Filter Strip

E393A – Extend existing filter strip to reduce water quality impacts

- If wildlife is a secondary objective, use methods in Appendix A.1 to evaluate habitat conditions.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements
- For wildlife friendly grasses, forbs, shrubs and trees use Appendix A.3

CPS 395 – Stream Habitat Improvement and Management

E395A – Stream habitat improvement through placement of woody biomass

- Habitat conditions to be evaluated using the NRCS Stream Visual Assessment Protocol 2 paying attention to Element 12 - Fish Habitat Complexity and Element 13 - Aquatic Invertebrate Habitat.
- Consult with an individual who has adequate Engineering Job Approval Authority for CPS 580 – Streambank and Shoreline Protection during the I&E phase to ensure that the stream is not actively incising or down cutting (and to determine feasibility of any proposal involving wood placement that could affect bank erosion.)

CPS 399 – Fishpond Management

E399A – Fishpond management for native aquatic and terrestrial species

- This activity requires that the pond meet the requirements of CPS 378 – Pond. This will not be possible to accomplish unless NRCS did the design of the pond, or if the design documents created by a consultant for the pond are available for review. Involve an individual with adequate engineering job approval for CPS 378 during the I&E phase.

CPS 449 – Irrigation Water Management

E449A – Complete pumping plant evaluation for water savings

- The client needs to have an Irrigation Water Management (IWM) plan prior to implementation of this enhancement. The CAP 118 Irrigation Water Management Plan will satisfy this requirement, or the client may obtain the IWM plan independently, meeting the requirements of Conservation Practice Standard 449
- The client is responsible for securing the services of a qualified technician to evaluate the pumps and provide the required report.

E449C – Advanced automated IWM – year 2-5, soil moisture monitoring

- This enhancement is to be planned in conjunction with E449D.

E449D – Advanced automated IWM – Year 1, Equipment and soil moisture or water level monitoring

- The client needs to have an Irrigation Water Management (IWM) plan prior to implementation of this enhancement. The CAP 118 Irrigation Water Management Plan will satisfy this requirement, or the client may obtain the IWM plan independently, meeting the requirements of Conservation Practice Standard 449.
- The client is responsible for identifying monitoring equipment and/or monitoring subscription service information and submitting to NRCS for approval, prior to implementation.

E449F – Intermediate IWM – Year 1, Equipment with soil or water level monitoring

- The client needs to have an Irrigation Water Management (IWM) plan prior to implementation of this enhancement. The CAP 118 Irrigation Water Management Plan will satisfy this requirement, or the client may obtain the IWM plan independently, meeting the requirements of Conservation Practice Standard 449.

E449G – Intermediate IWM – Years 2-5, soil or water level monitoring

- Either this enhancement or enhancement E449H is to be planned in conjunction with E449F.

E449H – Intermediate IWM— Years 2 -5, using soil moisture or water level monitoring

- Either this enhancement or enhancement E449G is to be planned in conjunction with E449F.

E449I – IWM - Year 1, Retrofit Equipment with Speed Control on Sprinkler Irrigation System

- The client needs to have an Irrigation Water Management (IWM) plan prior to implementation of this enhancement. The CAP 118 Irrigation Water Management Plan will satisfy this requirement, or the client may obtain the IWM plan independently, meeting the requirements of Conservation Practice Standard 449.
- The client is responsible for identifying equipment and submitting to NRCS for approval, prior to implementation.

CPS 484 – Mulching

E484A – Mulching to improve soil health

- Mulching materials with carbon to nitrogen ration less than 30:1
 - Legume hay
 - Compost

E484B - Reduce particulate matter emissions by using orchard or vineyard generated woody materials as mulch

- Follow guidance in CPS 484

E484C - Mulching with natural materials in specialty crops for weed control

- Follow guidance in CPS 484

CPS 511 – Forage Harvest Management

E511A– Harvest of crops (hay or small grains) using measures that allow desired species to flush or escape

- Minimum height, stage of maturity, moisture content and frequency for harvested crops (hay & small grains) cut shall follow Conservation Practice Standard 511 Forage Harvest Management.
- Use methods in Appendix A.1 to evaluate habitat conditions.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements

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- Examples of target wildlife species in need of action within the [Illinois Wildlife Action Plan](#) include but are not limited to: northern bobwhite, northern harrier, bobolink, grasshopper sparrow, dickcissel, ornate box turtle, and Blanding's Turtle.
- If applicant is managing for a species not listed above, reference the Illinois Wildlife Action Plan, and contact the Area Natural Resource Specialist for assistance.

E511B – Forage harvest management that helps maintain wildlife habitat cover, shelter or continuity

- Minimum height, stage of maturity, moisture content and frequency for harvested crops cut shall follow Conservation Practice Standard 511 Forage Harvest Management
- Use methods in Appendix A.1 to evaluate habitat conditions.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements
- Examples of target wildlife species in need of action within the [Illinois Wildlife Action Plan](#) include but are not limited to northern bobwhite, northern harrier, bobolink, grasshopper sparrow, dickcissel, ornate box turtle, and Blanding's Turtle.
- If applicant is managing for a species not listed above, reference the Illinois Wildlife Action Plan, and contact the Area Natural Resource Specialist for assistance.

E511C – Forage testing for improved harvesting methods and hay quality

- Utilize the Forage Harvest Management (511) Implementation Requirements for information related to harvesting the forage
- Utilize National Forage Testing Association www.foragetesting.org for list of available forage testing labs
- Additional guidance for forage quality is located in publications:
 - Alfalfa Management Guide and is acceptable for hay [alfalfa-management-guide.pdf \(agronomy.org\)](#)
 - Understanding Forage Quality [FQ/sept \(uvm.edu\)](#)

CPS 512 – Forage and Biomass Planting

E512A – Cropland conversion to grass-based agriculture to reduce soil erosion

- Refer to the Conservation Practice Code 512 – Forage and Biomass Planting. If converting to native plants, also use the IL NRCS Native Seed Calculator.
- Before initial grazing of a new seeding, test the establishment of existing plants and newly seeded plants by pulling on them. This will determine if the roots are established or not.
- Grazing inter-seeded legumes is not recommended until the legumes have reached at least the three leaf stage.
- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop a grazing management plan
- Refer to Bloat and Pasture Fact Sheet located in the Illinois Grazing Manual for additional information: [Grazing Fact Sheets - Animal Health | NRCS Illinois \(usda.gov\)](#)
- Non-bloating legumes – Lespedeza and Birdsfoot Trefoil.
- Utilize Conservation Practice Standard 511 - Forage Harvest Management if applicable.

E512B – Forage plantings that help increase organic matter in depleted soils

- Refer to the Conservation Practice Code 512 – Forage and Biomass Planting. For native plantings, also use the IL NRCS Native Seed Calculator.
- Use Appendix A.4 for selection of deep rooted forage species
- Before initial grazing of a new seeding, test the establishment of existing plants and newly seeded plants by pulling on them. This will determine if the roots are established or not.
- Grazing inter-seeded legumes is not recommended until the legumes have reached at least the three leaf stage.
- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop a grazing management plan
- Utilize IL-528-1 Grazing Management Record or like information to document grazing management.
- Utilize Conservation Practice Standard 511 - Forage Harvest Management if applicable.

E512C – Cropland conversion to grass for soil organic matter improvement

- Refer to the Conservation Practice Code 512 – Forage and Biomass Planting. For native plantings, also use the IL NRCS Native Seed Calculator.
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- Refer to Table 3, Conservation Practice Code 512 – Forage and Biomass Planting for tolerance level of forage species.
- Use Appendix A.4 for selection of deep rooted forage species
- Before initial grazing of a new seeding, test the establishment of existing plants and newly seeded plants by pulling on them. This will determine if the roots are established or not.
- Grazing inter-seeded legumes is not recommended until the legumes have reached at least the three leaf stage.
- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop a grazing management plan.
- Utilize Conservation Practice Standard 511 - Forage Harvest Management if applicable.
- Refer to Bloat and Pasture Fact Sheet located in the Illinois Grazing Manual for additional information: [Grazing Fact Sheets - Animal Health | NRCS Illinois \(usda.gov\)](#)
- Non-bloating legumes – Lespedeza and Birdsfoot Trefoil.

E512D – Forage plantings that can help increase organic matter in depleted soils

- Refer to the Conservation Practice Code 512 – Forage and Biomass Planting. For native plantings, also use the IL NRCS Native Seed Calculator.
- Use Appendix A.4 for selection of deep rooted forage species
- Before initial grazing of a new seeding, test the establishment of existing plants and newly seeded plants by pulling on them. This will determine if the roots are established or not.
- Grazing inter-seeded legumes is not recommended until the legumes have reached at least the three leaf stage.
- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop a grazing management plan Utilize IL-528-1 Grazing Management Record or like information to document grazing management.
- PCS will be conducted in July or August.
- Utilize Conservation Practice Standard 511 - Forage Harvest Management if applicable.

E512E – Forage and biomass planting that produces feedstock for biofuels or energy production

- Refer to the Conservation Practice Code 512 – Forage and Biomass Planting. For native plantings, also use the IL NRCS Native Seed Calculator.
- Before initial grazing of a new seeding, test the establishment of existing plants and newly seeded plants by pulling on them. This will determine if the roots are established or not.
- Grazing inter-seeded legumes is not recommended until the legumes have reached at least the three leaf stage.
- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop a grazing management plan.
- Utilize Conservation Practice Standard 511 - Forage Harvest Management if applicable.
- Refer to Bloat and Pasture Fact Sheet located in the Illinois Grazing Manual for additional information: [Grazing Fact Sheets - Animal Health | NRCS Illinois \(usda.gov\)](#)
- Non-bloating legumes – Lespedeza and Birdsfoot Trefoil.

E512F – Establishing native grass or legumes in forage base to improve the plant community

- Refer to the Conservation Practice Code 512 – Forage and Biomass Planting and the IL NRCS Native Seed Calculator for grass species selection and rates.
- Utilize Illinois Agronomy Technical Note No. 22 - Converting Pasture and Hayland from Toxic Endophyte Infected Fescue to Non-Toxic Grasses if seeding into existing introduced forage.
- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop a grazing management plan.
- Utilize IL-528-1 Grazing Management Record or like information to document grazing management.
- Use methods in Appendix A.1 to evaluate habitat conditions.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.
- For wildlife friendly grasses, forbs, shrubs and trees use Appendix A.3.

E512G – Native grasses or legumes in forage base

- Refer to the Conservation Practice Code 512 – Forage and Biomass Planting and the IL NRCS Native Seed Calculator for grass species selection and rates.
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- Utilize Illinois Agronomy Technical Note No. 22 - Converting Pasture and Hayland from Toxic Endophyte Infected Fescue to Non-Toxic Grasses if seeding into existing introduced forage.
- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop a grazing management plan.
- Utilize IL-528-1 Grazing Management Record or like information to document grazing management.
- Utilize Conservation Practice Standard 511 - Forage Harvest Management if applicable.
- Use methods in Appendix A.1 to evaluate habitat conditions.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.
- For wildlife friendly grasses, forbs, shrubs and trees use Appendix A.3.

E512H – Forage plantings that enhance bird habitat cover and shelter or structure and composition

- Refer to the Conservation Practice Code 512 – Forage and Biomass Planting. For native plantings, also use the IL NRCS Native Seed Calculator.
- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop a grazing management plan.
- Utilize IL-528-1 Grazing Management Record or like information to document grazing management.
- Use methods in Appendix A.1 to evaluate habitat conditions.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.
- For wildlife friendly grasses, forbs, shrubs and trees use Appendix A.3.

E512I – Establish pollinator and/or beneficial insect and/or monarch habitat

- Refer to the Conservation Practice Code 512 – Forage and Biomass Planting. For native plantings, also use the IL NRCS Native Seed Calculator.
- Establish forbs using 327 Conservation Cover seeding rates.
- Suitable pollinator habitat plants: all species in the IL Native Seed Calculator used to meet the 327 criteria for pollinator and monarch seed mixtures as indicated on the Pollinator and Monarch Check Sheet. Links to known pollinator and beneficial insect use of a species can be found in the ForbsLegumes, Grasses, and Woody tabs near the end of the tables.
- Use methods in Appendix A.1 to evaluate habitat conditions.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.
- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop a grazing management plan
- Utilize IL-528-1 Grazing Management Record or like information to document grazing management

E512J – Establish wildlife corridors to provide habitat continuity or access to water

- Refer to the Conservation Practice Code 512 – Forage and Biomass Planting. For native plantings, also use the IL NRCS Native Seed Calculator.
- Forbs and legumes will be established using 327 Conservation Cover seeding rates.
- Use methods in Appendix A.1 to evaluate habitat conditions.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.
- For wildlife friendly grasses, forbs, shrubs and trees use Appendix A.3.
- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop a grazing management plan.
- Utilize IL-528-1 Grazing Management Record or like information to document grazing management.

CPS 528 – Prescribed Grazing

E528A – Maintaining quantity and quality of forage for animal health and productivity

- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop and implement a grazing management plan.
- Utilize IL-528-1 Grazing Management Record or like information to document grazing management.
(Continued on next page)

- Prior to implementation, obtain a written plan for collecting samples, sample analysis, and corresponding
- Management recommendations as developed and provided by a Certified Range Management Consultant, Certified Professional in Range Management, Certified Forage and Grassland Professional, NRCS Technical Service Provider certified for CAP 110, or a non-affiliated consultant with a bachelor or higher level degree in forage agronomy, range science or other closely-related plant science discipline and a minimum of five years' experience in grazing lands conservation planning and grazing animal nutrition
- NUTBAL GANLAB monitoring should start from July 15th through August 15th and continue on a monthly cycle until at least 6 samples are taken. The results should be used to meet the livestock's nutritional requirements. If a change in the forage diet occurs (crop residue or stockpiled forage use) then sample 3 days (72 hours) after the change in diet. Then sample 3 days after the first frost and sample again in 14 to 21 days. Sample 7 days after a major winter rainfall event and then 14 days after further major rainfall periods to monitor forage quality. Sample in mid-January and mid-February to establish a forage trend line.
- Samples must be submitted for analysis within 7 business days.
- Refer to: <http://cnrit.tamu.edu/index.php/ganlab/>

E528B - Grazing management that improves monarch butterfly habitat

- Refer to the Conservation Practice Code 512 – Forage and Biomass Planting. For native plantings, also use the IL NRCS Native Seed Calculator.
- Habitat conditions to be evaluated using Illinois Biology Technical Note No. 24 – Wildlife Habitat Evaluation Guide Datasheet for the Monarch Butterfly Midwest Edition 2 (September 2018).
- Establish forbs using 327 Conservation Cover seeding rates and document implementation requirements on 327 IL IR Conservation Cover Monarch Habitat
- Monarch nectar producing forbs that are identified in the:
 - Monarch Planting List (pages 13-16) and Monarch WHEG Habitat Inventory List (pages 17-18) in the *Important Plants of the Monarch Butterfly (Danaus plexippus) Ver. 2.0 Midwest Region, February 2018*: https://www.nrcs.usda.gov/wps/PA_NRCSConsumption/download?cid=nrcseprd1381428&ext=pdf.
 - The September 2019 *Addendum to Important Plants of the Monarch Butterfly*: https://www.nrcs.usda.gov/wps/PA_NRCSConsumption/download?cid=nrcseprd1491218&ext=pdf
- Use methods in Appendix A.1 to evaluate habitat conditions.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.
- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop a grazing management plan
- Utilize IL-528-1 Grazing Management Record or like information to document grazing management

E528C – Incorporating wildlife refuge areas in contingency plans for wildlife.

- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop and implement a grazing management plan.
- Utilize IL-528-1 Grazing Management Record or like information to document grazing management.
- The prescribed grazing plan includes 12 months (or longer) deferment of a pasture that consists of native grasses and/or legumes and/or perennial forbs for meeting the needs for drought/disaster contingency plans that will also provide wildlife habitat for a period of time.
- Utilize Conservation Practice Code 649 – Structures for Wildlife, 649D JS, standard drawing IL-ENG-879, Watering Facility Wildlife Escape Ramp, and 649E JS.
- Use methods in Appendix A.1 to evaluate habitat conditions.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.

E528D – Grazing management for improving quantity and quality of food or cover and shelter for wildlife

- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop and implement a grazing management plan.
- Utilize IL-528-1 Grazing Management Record or like information to document grazing management.
- Utilize Conservation Practice Code 649 – Structures for Wildlife, 649D JS, standard drawing IL-ENG-879, Watering Facility Wildlife Escape Ramp, and 649E JS.
- Use methods in Appendix A.1 to evaluate habitat conditions.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.

E528E – Improved grazing management for enhanced plant structure and composition for wildlife

- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop and implement a grazing management plan.
- Utilize IL-528-1 Grazing Management Record or like information to document grazing management.
- Deferment (non-grazing period less than one year) and/or rest (non-grazing period equal or greater than one year) critical periods of plant needs (such as post-planting or renovation, severe drought, etc.).
- Use methods in Appendix A.1 to evaluate habitat conditions.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.

E528F – Stockpiling cool season forage to improve structure and composition or plant productivity and health

- Acreage needed for stockpiled forage (i.e. ration of one acre per animal unit).
- Months eligible for extending the grazing season include November, December, January, February and March.
- Refer to *How to Stockpile Perennial Forages* Fact Sheet located in the Illinois Grazing Manual for additional information: nrcseprd366071.pdf (usda.gov)
- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop and implement a grazing management plan.
- Utilize IL-528-1 Grazing Management Record or like information to document grazing management.

E528G – Improved grazing management on pasture for plant productivity and health with monitoring activities

- Utilize Certified Forage and Grassland Professional (CFGP) or other consultants as referenced in the Conservation Enhancement Activity Sheet to develop recommendations.
https://www.afgc.org/i4a/memberDirectory/index.cfm?directory_id=22&pageID=3380
- Utilize NRCS Pasture Condition Score Sheet (January 2020).
- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop and implement a grazing management plan.
- Utilize IL-528-1 Grazing Management Record or like information to document grazing management.
- Stocking rates will be managed to ensure that adequate live cover and residual is maintained at all times. Utilize Conservation Practice Code 528, **TABLE 1: Minimum Heights of Forage Species for Initiating and Terminating Grazing.** “Minimum Regrowth Before Killing Frost” will be followed on 80% or more of the enrolled acres based on Table 1. Livestock will be removed from enrolled acreage once minimum grazing heights are present or the overwintering height is reached if grazed
- Riparian and or sensitive areas around other water bodies (including sinkholes), will be deferred until mature forage growth is present prior to any grazing activities or access and then restricted to no more than 2 days per grazing period and managed to prevent any adverse impacts from grazing. All livestock access is controlled.
- Deferment (non-grazing period less than one year) and/or rest (non-grazing period equal or greater than one year) critical periods of plant needs (such as post-planting or renovation, severe drought, etc.).

E528H - Prescribed grazing to improve/maintain riparian and watershed function-elevated water temperature

- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop and implement a grazing management plan.
- Utilize IL-528-1 Grazing Management Record or like information to document grazing management.
- Utilize Conservation Practice Code 528, **TABLE 1: Minimum Heights of Forage Species for Initiating and Terminating Grazing.** “Minimum Regrowth Before Killing Frost” will be followed on 80% or more of the enrolled acres based on table 1. Livestock will be removed from enrolled acreage once minimum grazing heights are present or the overwintering height is reached if grazed
- Riparian and or sensitive areas around other water bodies (including sinkholes), will be deferred until mature forage growth is present prior to any grazing activities or access and then restricted to no more than 2 days per grazing period and managed to prevent any adverse impacts from grazing. All livestock access is controlled.
- Stocking rates will be managed to ensure that adequate live cover and residual is maintained at all times.

E528I – Grazing management that protects sensitive areas -surface or ground water from nutrients

- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop and implement a grazing management plan.
- Utilize IL-528-1 Grazing Management Record or like information to document grazing management.

E528J – Prescribed grazing on pastureland that improves riparian and watershed function.

- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop and implement a grazing management plan.
- Utilize IL-528-1 Grazing Management Record or like information to document grazing management.
- Stream conditions may be evaluated using the NRCS Stream Visual Assessment Protocol 2 paying attention to Element 4 - Riparian Area Quantity, Element 5 - Riparian Area Quality, Element 6 - Canopy Cover, Element 7 - Water Appearance, and Element 15 - Riffle Embeddedness.

E528K – Improved grazing management for soil compaction through monitoring activities

- Utilize Certified Forage and Grassland Professional (CFGF) or other consultants as referenced in the Conservation Enhancement Activity Sheet to develop recommendations.
https://www.afgc.org/i4a/memberDirectory/index.cfm?directory_id=22&pageID=3380
- Assessments will be conducted using the National Pasture Condition Scoring (PCS) tool (2020 version).
- Narrative management recommendations for each forage type (or forage mixture) on enrolled acreage. An additional PCS is to be completed following the implementation of the management recommendations that must result in a minimum score of 35. If the PCS is below 35 then additional recommendations are to be implemented followed by another PCS until the target score of 35 is reached. If the initial PCS is greater than or equal to 35, then the initial PCS must be improved by at least 5 percent.
- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop and implement a grazing management plan.
- Utilize IL-528-1 Grazing Management Record or like information to document grazing management.
- Deferment (non-grazing period less than one year) and/or rest (non-grazing period equal or greater than one year) critical periods of plant needs (such as post-planting or renovation, severe drought, etc.).

E528L – Prescribed grazing that improves or maintains riparian and watershed function-erosion

- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop and implement a grazing management plan.
- Utilize IL-528-1 Grazing Management Record or like information to document grazing management.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.
- For wildlife friendly grasses, forbs, shrubs and trees use Appendix A.3.

E528M – Grazing management that protects sensitive areas from gully erosion

- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop and implement a grazing management plan.
- Utilize IL-528-1 Grazing Management Record or like information to document grazing management.

E528O – Clipping mature forages to set back vegetative growth for improved forage quality.

- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop and implement a grazing management plan.
- Utilize IL-528-1 Grazing Management Record or like information to document grazing management

E528P – Implementing Bale or Swath Grazing to increase organic matter and reduce nutrients in surface water

- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop and implement a grazing management plan.
- Utilize IL-528-1 Grazing Management Record or like information to document grazing management
- When spacing bales for grazing, leave 30 feet between bales.
- Riparian and or sensitive areas around other water bodies (including sinkholes), shall be restricted from this method of feeding to prevent any adverse impacts from grazing.
- If hay bales are fed in field, soil conditions will be favorable and not cause excessive compaction or soil disturbance and ideally on frozen or dry ground.
- Any hay fed in the field will not be fed in such a manner or in such an amount to hinder desired species growth the subsequent season.
- Any hay fed in the field will not be fed when access or delivery of hay or baleage will cause rutting or erosion.

E528Q – Use of body condition scoring for livestock on a monthly basis to keep track of herd health

- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop and implement a grazing management plan.
- Utilize IL-528-1 Grazing Management Record or like information to document grazing management
- Utilize University of Nebraska *Body Condition Scoring for Beef Cows*:
<http://extensionpublications.unl.edu/assets/pdf/ec281.pdf>

E528R - Management Intensive Rotational Grazing

- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop and implement the grazing management plan.
- Follow IL Conservation Practice Standard 511, Forage Harvest Management if mechanically harvested.
- The system will require existing paddocks to be split at least once.
- No grazing period will exceed 4 days. If multiple herds in a leader-follower system, total of all herds is limited to 4 days also.
- Riparian and or sensitive areas around other water bodies (including sinkholes), will be restricted to no more than 2 days per grazing period and managed to prevent any adverse impacts from grazing. All livestock access is controlled.
- Minimum rest between grazing events:
 - Cool Season Pastures is 14 days in April and May, 30 days in June, July and September, 40 days in August
 - Warm Season Pasture is 45 days in April, May and June and 30 days in July, August and September
- Adequate water quantity, quality, and distribution is required in every paddock offered for this enhancement.
- Utilize IL-528-1 Grazing Management Record or like information to document grazing management.
- Annually monitoring will be recorded on a Pasture Condition Scoring sheet (2020 version) for each enrolled pasture.

CPS 533 – Pumping Plant

E533A – Advanced Pumping Plant Automation

- Engineering job approval authority for Pumping Plant (CPS 533) applies.
- The client needs to have an Irrigation Water Management (IWM) plan prior to implementation of this enhancement. The CAP 118 Irrigation Water Management Plan will satisfy this requirement, or the client may obtain the IWM plan independently, meeting the requirements of Conservation Practice Standard 449.

E533B – Complete pumping plant evaluation for energy savings

- Engineering job approval authority for Pumping Plant (CPS 533) applies.
- The client is responsible for securing the services of a qualified technician to evaluate the pumps and provide the required report.

CPS 570 – Stormwater Runoff Control

E570A - Enhanced rain garden for wildlife

- An existing rain garden is required for this enhancement. During the I&E phase, NRCS is responsible for confirming that the rain garden meets NRCS standards and specs and that the enhancement is feasible. If the original design and construction information for the rain garden is not available, do not plan this enhancement. Engineering job approval authority for Stormwater Runoff Control (CPS 570) applies.
- Habitat conditions to be evaluated using Illinois Biology Technical Note No. 24 – Wildlife Habitat Evaluation Guide Datasheet for the Monarch Butterfly Midwest Edition 2 (September 2018).
- Use Illinois 327 IL IR Conservation Cover Monarch Habitat to document implementation requirements
- Monarch host and nectar plants are identified in the:
 - Monarch Planting List (pages 13-16) and Monarch WHEG Habitat Inventory List (pages 17-18) in the *Important Plants of the Monarch Butterfly (Danaus plexippus) Ver. 2.0 Midwest Region, February 2018*:
https://www.nrcs.usda.gov/wps/PA_NRCSCconsumption/download?cid=nrcseprd1381428&ext=pdf.
 - The September 2019 *Addendum to Important Plants of the Monarch Butterfly*:
https://www.nrcs.usda.gov/wps/PA_NRCSCconsumption/download?cid=nrcseprd1491218&ext=pdf
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.

CPS 578 – Stream Crossing

E578A – Stream crossing elimination

- Engineering job approval authority for Stream Crossing (CPS 578) applies.
- Include CPS 580 Streambank and Shoreline Protection if the proposed project has the potential to affect bank stability.
- The NRCS Conservation Planner will evaluate habitat conditions using the NRCS Stream Visual Assessment Protocol 2 paying particular attention to Element 1 - Channel Condition, Element 2 - Hydrologic Alteration, Element 3 - Bank Condition, and Element 11 - Barriers to Movement. If the assessment shows that stream crossing(s) to be eliminated are impeding movement of aquatic species or otherwise negatively affecting stream habitat, refer to CPS 396 Aquatic Organism Passage for information about returning the stream to a condition to provide passage for aquatic species.
- NRCS will provide technical assistance for engineering design.
- Use methods in Appendix A.1 to evaluate habitat conditions.

CPS 580 – Streambank and Shoreline Protection

E580A – Stream corridor bank stability improvement

- Plan this enhancement only where the existing streambank is stable. During the I&E phase, consult an individual with adequate engineering job approval authority for Streambank and Shoreline Protection (CPS 580) to determine bank stability.
- Grazing exclusion during establishment of vegetative treatments and appropriate grazing practices applied after establishment to maintain the plant community will be identified in the in the Prescribed Grazing plan if grazed.
- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528WS, 528JS) to develop a grazing management plan if grazed.

E580B – Stream corridor bank vegetation improvement

- Plan this enhancement only where the existing streambank is stable. During the I&E phase, consult an individual with adequate engineering job approval authority for Streambank and Shoreline Protection (CPS 580) to determine bank stability.
- Requires a site-specific assessment or management plan
- Habitat conditions to be evaluated using the NRCS Stream Visual Assessment Protocol 2 paying particular attention to Element 1 - Channel Condition, Element 2 - Hydrologic Alteration, Element 3 - Bank Condition, Element 4 - Riparian Area Quantity, Element 5 - Riparian Area Quality, Element 6 - Canopy Cover, Element 11 - Barriers to Movement, element 12 - Fish Habitat Complexity, and Element 13 - Aquatic Invertebrate Habitat.
- Use methods in Appendix A.1 to evaluate habitat conditions.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.
- For wildlife friendly grasses, forbs, shrubs and trees use Appendix A.3.
- Grazing exclusion during establishment of vegetative treatments and appropriate grazing practices applied after establishment to maintain the plant community will be identified in the in the Prescribed Grazing plan if grazed.
- Utilize Conservation Practice Code 528 – Prescribed Grazing and additional documentation (Graze4, 528SW, 528JS) to develop a grazing management plan if grazed.

CPS 590 – Nutrient Management

E590A – Improving nutrient uptake efficiency and reducing risk of nutrient losses

- Use Enhance Efficiency Fertilizer (EEF) products with 1 or more nutrient application applications.
 - Presently only coated urea products are available.
- Use in-season soil nitrate sampling for sidedressing nitrogen.
 - <https://store.extension.iastate.edu/Product/5259>
- Use in-season plant tissue sampling and analysis as a complement to soil testing.
 - There are no plant tissue tests that provide recommendations for Nitrogen and Phosphorus therefore this option is **NOT available in Illinois**.
- Split nutrient applications
 - Follow instructions described in the implementation sheet.

(Continued on next page)

- Time nutrient application timing to match nutrient uptake timing.
 - Follow instructions described in the implementation sheet.
- Nutrient application placement below soil surface
 - Follow instructions described in the implementation sheet.
- Use of nitrification inhibitors to delay the nitrification process by eliminating the bacteria *Nitrosomonas* in the area where ammonium is to be present.
 - Nitrification inhibitor active ingredients:
 - Nitrapyrin
 - DCD (dicyandiamide)
 - Pronitridine
- Use of urease inhibitors to temporarily reduce the activity of the urease enzyme and slow the rate at which urea is hydrolyzed.
 - NBPT N-(n-butyl) thiophosphoric triamide
 - NPPT N-(n-propyl) thiophosphoric triamide
 - Duromide

E590B – Reduce risks of nutrient loss to surface water by utilizing precision agriculture technologies.

- Soil sampling methods may be based on grids or established management zones. (See Illinois Agronomy Technical Note No. 23 “Soil Sampling Guidelines for Immobile Plant Nutrients”.) Phosphorus and Potassium will be applied according to the Illinois Agronomy Handbook. The University of Illinois does not have any guidelines or published recommendations for implementing variable rate applications for Nitrogen.

E590C – Improving nutrient uptake efficiency and reducing risk of nutrient losses on pasture

- For pastures where legumes are less than 30% of the stand, the recommended soil test levels for grazed pastures are found in the table below. Select the recommendations based on the targeted or existing primary legume species.

| Legume | pH | P1 | K |
|-------------------|-----|----|-----|
| Alfalfa | 6.5 | 30 | 300 |
| Red Clover | 6.0 | 25 | 250 |
| Ladino Clover | 5.5 | 25 | 250 |
| Birdsfoot Trefoil | 5.5 | 20 | 225 |
| Lespedeza | 5.0 | 20 | 200 |

- Lime recommendations will be derived from Table 8.3, page 97 of the Illinois Agronomy Handbook. <http://extension.cropsciences.illinois.edu/handbook/>
- Lime application rates for pastures will be 1/3 of the rates specified in Table 8.3.
- **The split application strategy for nitrogen applies only to pastures with less 30% legumes. No nitrogen is needed where legumes comprise 30% or more of the stand.**
- If legumes comprise less than 30% of the stand:
 - For introduced species stand, apply 50 lbs. N/acre in June when the spring flush of grass growth is over. Apply 50 lbs. N/acre in Late July to early August.
 - For native warm season grass pastures, apply 40-50 lbs. N/acre in early-mid May and 40-50 lbs. N/acre in early July.
- For the application below the soil surface strategy, inject N, P, K on spacings 30 inches or less.
- For the Variable Rate Technology for nutrient application strategy yield monitoring systems are not realistic for pastures. Instead use soils data and current soil test results to develop nutrient prescriptions

CPS 612 – Tree/Shrub Establishment

E612A – Cropland conversion to trees or shrubs for long term improvement of water quality

- Apply all General Criteria and the following additional criteria sections from IL CPS 612.
 - Additional Criteria for Providing Long-Term Erosion Control and Improving Water Quality.

E612B – Planting for high carbon sequestration rate

- Apply all General Criteria and the following additional criteria sections from IL CPS 612.
 - Additional Criteria for Storing Carbon in Biomass.
- Use Biomass/Biofuels planting rate found in IL CPS 612 Specifications. Plant 50% hard mast species and 50% soft mass species that are adapted to the site.

E612C – Establishing tree/shrub species to restore native plant communities

- Identify and document native species that have been eliminated or reduced on the site (according to forest cover types or historical documentation) and their suitability for restoration.
- Apply all General Criteria and the following additional criteria sections from IL CPS 612.
 - Additional Criteria for Improving and Restoring Natural Diversity.

E612D – Adding food-producing trees and shrubs to existing plantings.

- Apply all General Criteria and the following additional criteria sections from IL CPS 612.
 - Additional Criteria to Improve Wildlife Habitat **NOTE:** All of the plants listed in the reference provided in the Wildlife Criteria Section produce food for wildlife, however many are not safe for human consumption. *For plants not listed in the IL Biology Technical Note No. 22, contact the IL NRCS State Forester for approval prior to plan development.

E612E – Cultural plantings

- Apply all General Criteria from IL CPS 612.
 - When planting in Forested Sites follow Additional Criteria for Improving and Restoring Natural Diversity (*Underplanting in Existing Forestland*).
 - Identify and document cultural use and significance. Contact IL NRCS State Forester for approval prior to plan development.

E612F – Sugarbush management

- Apply all General Criteria and the following additional criteria sections from IL CPS 612.
 - Additional Criteria to Improve Wildlife Habitat.
 - When planting in Forested Sites follow Additional Criteria for Improving and Restoring Natural Diversity (*Underplanting in Existing Forestland*).

E612G – Tree/shrub planting for wildlife food

- Apply all General Criteria from IL CPS 612.
- For planting in Forested Sites follow Additional Criteria for Improving and Restoring Natural Diversity (*Underplanting in Existing Forestland*).
- Use methods in Appendix A.1 to evaluate habitat conditions.
- For wildlife friendly shrubs and trees use:
 - Woody species listed in Conservation Practice Code 643 – Restoration and Management of Declining Habitats.
 - Woody species in the Illinois Native Seeding Calculator
 - Woody species listed in Illinois Biology Technical Note No. 23 – Pollinator Biology and Habitat Tables 2a, 2b and 2c.
 - All species in Illinois Biology Technical Note No. 22 – Planning Tree and Shrub Planting for Wildlife.
 - Woody species listed in the:
 - Monarch Planting List (pages 13-16) and Monarch WHEG Habitat Inventory List (pages 17-18) in the *Important Plants of the Monarch Butterfly (Danaus plexippus) Ver. 2.0 Midwest Region, February 2018:*
https://www.nrcs.usda.gov/wps/PA_NRCSConsumption/download?cid=nrcseprd1381428&ext=pdf.
 - September 2019 Addendum to Important Plants of the Monarch Butterfly:
https://www.nrcs.usda.gov/wps/PA_NRCSConsumption/download?cid=nrcseprd1491218&ext=pdf

CPS 643 – Restoration and Management of Declining Habitats

E643B – Restoration and management of rare or declining habitat

- Contact the Area Natural Resource Specialist for assistance in developing a restoration and management plan for the enhancement area.
- The restoration plan is to be based on a high quality reference community (reference ESD's, [NatureServe Community Associations](#), nearby remnants, etc.).
- For a statewide list of Illinois Endangered and Threatened Animals and Plants visit https://www.dnr.illinois.gov/ESPB/Documents/2015_ChecklistFINAL_for_webpage_051915.pdf
- For a list of Illinois Endangered and Threatened Animals and Plants near a Project location visit <http://dnr.illinois.gov/EcoPublic/>
- For a list of ESA Federally Endangered and Threatened Species near a Project location visit <https://ecos.fws.gov/ipac/>

E643C – Restore glade habitat to benefit threatened and endangered species and state species of concern

- Contact the Area Natural Resource Specialist for assistance in developing a restoration and management plan for the enhancement area.
- Habitat conditions to be evaluated using Biology Technical Note No. 18 - Illinois Wildlife Habitat Evaluation Guide. Note the target species on the WHEG along with existing and planned treatment scores.
- Refer to the [Illinois Wildlife Action Plan](#) for target species and glade restoration and management goals.
- The restoration plan is to be based on a high quality reference community (reference ESD's, [NatureServe Community Associations](#), nearby remnants, etc.).
 - There are three basic types of glades present in Illinois.
 - Central Shale Glade
 - Shawnee Sandstone Glade
 - Central Limestone Glade
 - NatureServe Explorer provides planners with Community Association reports that describe the typical plant community in a glade, including the composition and structure, at-risk species associations, and processes that maintain each of these communities, such as fire, drought, grazing, etc.
 - To access the Community Association reports, click on the [NatureServe](#) link, type in a community name from the list above in the "Search for species and ecosystems" box, then select the Association name from the list of returned community associations.
- Planners will work with local experts in developing appropriate restoration and management plans utilizing the best available science.
- For a statewide list of Illinois Endangered and Threatened Animals and Plants visit https://www.dnr.illinois.gov/ESPB/Documents/2015_ChecklistFINAL_for_webpage_051915.pdf
- For a list of Illinois Endangered and Threatened Animals and Plants near a Project location visit <http://dnr.illinois.gov/EcoPublic/>
- For a list of ESA Federally Endangered and Threatened Species near a Project location visit <https://ecos.fws.gov/ipac/>
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.

CPS 644 – Wetland Wildlife Management

E644A – Managing Flood – Irrigated Landscapes for Wildlife

- Habitat conditions to be evaluated using Biology Technical Note No. 18 - Illinois Wildlife Habitat Evaluation Guide. Note the target species on the WHEG along with existing and planned treatment scores.
- For a statewide list of Illinois Endangered and Threatened Animals and Plants visit https://www.dnr.illinois.gov/ESPB/Documents/2015_ChecklistFINAL_for_webpage_051915.pdf
- For a list of Illinois Endangered and Threatened Animals and Plants near a Project location visit <http://dnr.illinois.gov/EcoPublic/>
- For a list of ESA Federally Endangered and Threatened Species near a Project location visit <https://ecos.fws.gov/ipac/>
- Refer to the [Illinois Wildlife Action Plan](#) for target species.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.

CPS 645 – Upland Wildlife Habitat Management

E645A – Reduction of attractants to human-subsidized predators in sensitive wildlife species habitat

- Contact the Area Natural Resource Specialist for assistance.
- Target species are those with a community stress level of 1-3 for predators in Appendix 4, Appendix 5, Appendix 6, Appendix 7, Appendix 8, and Appendix 9 of the *2015 Implementation Guide to the Illinois Wildlife Action Plan* at: <https://www.dnr.illinois.gov/conservation/IWAP/Pages/default.aspx>
- For a statewide list of Illinois Endangered and Threatened Animals and Plants visit https://www.dnr.illinois.gov/ESPB/Documents/2015_ChecklistFINAL_for_webpage_051915.pdf
- For a list of Illinois Endangered and Threatened Animals and Plants near a project location visit <http://dnr.illinois.gov/EcoPublic/>
- For a list of ESA Federally Endangered and Threatened Species near a project location visit <https://ecos.fws.gov/ipac/>
- Use methods in Appendix A.1 to evaluate habitat conditions.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.

CPS 646 – Shallow Water Development and Management

E646B – Extend retention of captured rainfall for migratory waterfowl and wading bird late winter habitat

- Target Species = shorebirds, waterfowl and wading birds.
- Refer to Practice Standard 646 Shallow Water Development and Management for criteria by target species guild.
- This activity requires water control structures to already be in existence. If structures need to be added, utilize CPS 587 – Structure for Water Control and the assistance of an individual with adequate engineering job approval authority for that practice.
- Habitat conditions to be evaluated using Biology Technical Note No. 18 - Illinois Wildlife Habitat Evaluation Guide. Note the target species or suite of species on the WHEG along with existing and planned treatment scores.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.

E646C – Manipulate vegetation and maintain closed structures for shorebirds mid-summer habitat

- Target Species = shorebirds.
- Refer to Practice Standard 646 Shallow Water Development and Management for criteria for shorebird habitat.
- This activity requires water control structures to already be in existence. If structures need to be added, utilize CPS 587 – Structure for Water Control and the assistance of an individual with adequate engineering job approval authority for that practice.
- Habitat conditions to be evaluated using Biology Technical Note No. 18 - Illinois Wildlife Habitat Evaluation Guide. Note the target species or suite of species on the WHEG along with existing and planned treatment scores.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.

E646D – Manipulate vegetation and maintain closed structures for shorebird late summer habitat

- Target Species = shorebirds.
- Refer to Practice Standard 646 Shallow Water Development and Management for criteria for shorebird habitat.
- This activity requires water control structures to already be in existence. If structures need to be added, utilize CPS 587 – Structure for Water Control and the assistance of an individual with adequate engineering job approval authority for that practice.
- If implementing macro and microtopography restoration, see Illinois Biology Technical Note #20 “Using Micro and Macrotopography in Wetland Restoration.”
- Habitat conditions to be evaluated using Biology Technical Note No. 18 - Illinois Wildlife Habitat Evaluation Guide. Note the target species or suite of species on the WHEG along with existing and planned treatment scores.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.

CPS 647 – Early Successional Habitat Development/Management

E647A – Manipulate vegetation on fields with captured rainfall for waterfowl & wading bird winter habitat

- Target Species = shorebirds, waterfowl and wading birds.
- Refer to Practice Standard 646 Shallow Water Development and Management for criteria by target species guild.
- Refer to Practice Standard 647 Early Successional Habitat Development/management and applicable implementation requirements.
- Habitat conditions to be evaluated using Biology Technical Note No. 18 - Illinois Wildlife Habitat Evaluation Guide. Note the target species or suite of species on the WHEG along with existing and planned treatment scores.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.

E647B – Provide early successional shorebird habitat between first crop and ratoon crop

- Target Species = shorebirds, waterfowl and wading birds.
- Refer to Practice Standard 646 Shallow Water Development and Management for criteria by target species guild.
- Refer to Practice Standard 647 Early Successional Habitat Development/management and applicable implementation requirements.
- Habitat conditions to be evaluated using Biology Technical Note No. 18 - Illinois Wildlife Habitat Evaluation Guide. Note the target species or suite of species on the WHEG along with existing and planned treatment scores.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.

E647C – Maintain most soil vegetation on cropland edges to enhance waterfowl and shorebird habitat

- Target Species = shorebirds, waterfowl and wading birds.
- Refer to Practice Standard 646 Shallow Water Development and Management for criteria by target species guild.

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- Refer to Practice Standard 647 Early Successional Habitat Development/management and applicable implementation requirements.
- Habitat conditions to be evaluated using Biology Technical Note No. 18 - Illinois Wildlife Habitat Evaluation Guide. Note the target species or suite of species on the WHEG along with existing and planned treatment scores.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements. This activity may require water control structures.
- If structures need to be added, utilize CPS 587 – Structure for Water Control and the assistance of an individual with adequate engineering job approval authority for that practice.

E647D – Establish and maintain early successional habitat in ditches and bank borders

- Target Species = shorebirds, waterfowl, wading birds, and amphibians.
- Refer to Practice Standard 646 Shallow Water Development and Management for criteria by target species guild.
- Refer to Practice Standard 647 Early Successional Habitat Development/management and applicable implementation requirements.
- Habitat conditions to be evaluated using Biology Technical Note No. 18 - Illinois Wildlife Habitat Evaluation Guide. Note the target species or suite of species on the WHEG along with existing and planned treatment scores.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.

CPS 666 – Forest Stand Improvement**E666D – Forest management to enhance understory vegetation**

- Apply all General Criteria and the following additional criteria sections from IL CPS 666.
 - Additional Criteria to Improve and Sustain Forest Health and Productivity

E666F – Reduce forest stand density to create open stand structure

- Apply all General Criteria from IL CPS 666.

E666H – Increase on-site carbon storage

- Apply all General Criteria and the following additional criteria sections from IL CPS 666 during management activities.
 - Additional Criteria to Increase Carbon Storage.
- Develop, update or modify a Forest Management Plan (FMP) in consultation with NRCS personnel and a professional forester to direct the management of the property.

E666I – Crop tree management for mast production

- Apply all General Criteria and the following additional criteria sections from IL CPS 666.
 - Additional Criteria to Improve and Sustain Forest Health and Productivity (*Crop Tree Management*).
- Develop, update or modify a Forest Management Plan (FMP) in consultation with NRCS personnel and a professional forester to direct the management of the property.

E666J – Facilitating oak forest regeneration

- Apply all General Criteria from IL CPS 666.

E666K – Creating structural diversity with patch openings

- Apply all General Criteria from IL CPS 666.
- Forested acres must contain one or more of the following tree species native to Illinois and must be identified in the Forest Management Plan as a regeneration objective.

| Hard Mast Producing: | Soft Mass or Light Seeded Species: |
|--------------------------|------------------------------------|
| white oak group | persimmon |
| red oak group | yellow poplar (tuliptree) |
| hickory / pecan | black gum / water tupelo |
| black walnut / butternut | cottonwood |
| Kentucky coffeetree | sycamore |
| | silver maple |

* For plants not listed here, contact the IL NRCS State Forester for approval prior to plan development.

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- Develop, update or modify a Forest Management Plan (FMP) in consultation with NRCS personnel and a professional forester to direct the management of the property.
- For acres treated for wildlife, use methods in Appendix A.1 to evaluate habitat conditions.

E666L – Forest Stand Improvement to rehabilitate degraded hardwood stands

- Apply all General Criteria and the following additional criteria sections from IL CPS 666.
 - Additional Criteria to Improve and Sustain Forest Health and Productivity (*Crop Tree Management*)
- Develop, update or modify a Forest Management Plan (FMP) in consultation with NRCS personnel and a professional forester to direct the management of the property.

E666O – Snags, den trees, and coarse woody debris for wildlife habitat

- Apply all General Criteria and the following additional criteria sections from IL CPS 666 during management activities.
 - Additional Criteria to Improve Wildlife and Pollinator Habitat (*Wildlife as a Primary Objective*).
- Use methods in Appendix A.1 to evaluate habitat conditions.
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.
- Target species/guilds include woodpeckers, chickadees, wood duck, American kestrel, barn owl, screech owl, titmouse, house and Carolina wrens, great crested flycatcher, tree swallow, purple martin, white-breasted nuthatch, eastern bluebird, prothonotary warbler, squirrels, opossum, reptiles and amphibians, bats and other small mammals.
- Refer to the following Practice Standard 649 Structures for Wildlife implementation requirements when planning wildlife structures in association with this practice:
 - Wildlife Brush Piles (649B) Implementation Requirements.
 - Downed Tree Structure (649D) Implementation Requirements.

E666P – Summer roosting habitat for native forest-dwelling bat species

- Apply all General Criteria and the following additional criteria sections from IL CPS 666 during management activities.
 - Additional Criteria to Improve Wildlife and Pollinator Habitat (*Wildlife as a Primary Objective*).
- When treating overstocked areas of the stand follow *Forest Stand Improvement and Prescribed Burning Conservation Measures for Indiana, Gray, and Northern Long-eared Bats in Illinois*.
- Use methods in Appendix A.1 to evaluate habitat conditions.
Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.

E666Q – Increase diversity in pine plantation monocultures

- Apply all General Criteria from IL CPS 666.
- Use methods in Appendix A.1 to evaluate habitat conditions.
- Forested acres must contain one or more of the following pine species native to Illinois. Adequate quantities and distribution to regenerate the created forest openings should exist for all created openings. Note: these sites are unique in Illinois and historically occur in limited geographical areas. Sites will be assessed to determine if they remain the appropriate species for the site.

| Pine Species Native to Illinois |
|---------------------------------|
| white pine |
| red pine |
| jack pine |
| shortleaf pine |

* For naturalized species not listed here, contact the IL NRCS State Forester for approval prior to plan development.

E666R – Forest songbird habitat maintenance

- Contact the Area Natural Resource Specialist for assistance in developing specifications for the enhancement area.
- Habitat conditions to be evaluated using Biology Technical Note No. 18 - Illinois Wildlife Habitat Evaluation Guide. Note the target species on the WHEG along with existing and planned treatment scores.
- Refer to the [Illinois Wildlife Action Plan](#) for target species and migratory neotropical bird habitat restoration and management goals.
- The plan is to be based on a high quality reference community (reference ESD's, [NatureServe Community Associations](#), nearby remnants, etc.).
- For a statewide list of Illinois Endangered and Threatened Animals and Plants visit https://www.dnr.illinois.gov/ESPB/Documents/2015_ChecklistFINAL_for_webpage_051915.pdf
- For a list of Illinois Endangered and Threatened Animals and Plants near a Project location visit <http://dnr.illinois.gov/EcoPublic/>
- For a list of ESA Federally Endangered and Threatened Species near a Project location visit <https://ecos.fws.gov/ipac/>
- Use Appendix A.2 for nesting/fawning dates for guidance on accommodating reproduction and other life-cycle requirements.
- Creation of snags, den trees, etc., will be in accordance with Illinois Conservation Practice 649 Structures for Wildlife.

APPENDIX A

A.1 Wildlife Habitat Evaluations

Evaluate habitat conditions using the most appropriate method with a score of 0.50 required to adequately address a wildlife resource concern:

- Biology Technical Note No. 18 - Illinois Wildlife Habitat Evaluation Guide. Note the target species on the WHEG along with existing and planned treatment scores.
- If monarch is the target species, use Illinois Biology Technical Note No. 24 – Wildlife Habitat Evaluation Guide Datasheet for the Monarch Butterfly Midwest Edition 2 (September 2018).
- Xerces Pollinator Habitat Assessment Guides (divide score by total points possible): <https://xerces.org/pollinator-conservation/habitat-assessment-guides/>
- Farmstead Wildlife Habitat Evaluation Guide.

A.2 State Nesting/fawning Dates

- April 15 through August 1, or with State Biologist approval, as specified in a site-specific wildlife management plan for a targeted wildlife species.
- For probability of presence and breeding season dates for specific migratory bird species, planners may utilize
 - The USFWS IPaC interactive mapper to obtain a resource list: <https://ecos.fws.gov/ipac/>
 - eBird Bar Charts for a region or location: <https://ebird.org/explore>

A.3 Wildlife Friendly Grasses, Forbs, Shrubs and Trees.

For wildlife friendly grasses, forbs, shrubs and trees use one or more of the following in accordance with the respective implementation requirements' criteria:

- All native species listed in the IL NRCS Native Seed Calculator for the respective standard (see check sheets).
- All species listed in Conservation Practice Code 327 Conservation Cover Table 2.

A.4 Deep rooted and not deep rooted forage species.

Utilize deep rooted plant species where best suited for site, class of livestock, and wildlife

| Deep Rooted Species | Not-Deep Rooted Species |
|---|--------------------------------|
| Alfalfa | Birdsfoot Trefoil |
| Alsike clover | Crown vetch |
| Birdsfoot Trefoil | Hairy vetch |
| Kura Clover | Lespedezas |
| Red clover | White clover |
| Sweet clover | Kentucky bluegrass |
| Ladino clover | Perennial Ryegrass |
| Canada wildrye | Prairie Dropseed |
| Intermediate wheatgrass | Timothy |
| Smooth brome grass | |
| Tall fescue | |
| Big bluestem | |
| Eastern Gamagrass | |
| Indiangrass | |
| Little bluestem | |
| Red top | |
| Sideoats grama | |
| Switchgrass | |
| For all other species considered for enhancement seedings, consult with Area Livestock Specialist or the ARC | |