

Activity List For Participants
Enhancements

Enhancement Code	Resource Concern	Resource Concern Cause	Crop (Annual and Mixed)	Crop (Perennial)	Pasture	Range	Forest	Associated Ag Land	Farmstead	Full Enhancement Name	Short Enhancement Name (from CPDES and used in Toolkit)	Enhancement Description	Units	Enhancement Lifespan	Max years enh. can be contracted	Use Suitable for Land Conversion
E314133Z	DEGRADED PLANT CONDITION	Inadequate Structure and Composition			X	X	X			Brush management for improved structure and composition	Brush management for improved structure and composition	Brush management is employed to create a desired plant community, consistent with the related ecological site steady state, which will maintain or enhance the wildlife habitat desired for the identified wildlife species. It will be designed to provide plant structure, density and diversity needed to meet those habitat objectives. This enhancement does not apply to removal of woody vegetation by prescribed fire or removal of woody vegetation to facilitate a land use change.	acre	10	5	NA
E314134Z	DEGRADED PLANT CONDITION	Excessive Plant Pest Pressure			X	X	X			Brush management that maintains or enhances wildlife or fish habitat	Brush management that maintains or enhances wildlife or fish habitat	Brush management is employed to create a desired plant community, consistent with the related ecological site steady state, which will maintain or enhance the wildlife habitat desired for the identified wildlife species. It will be designed to provide plant structure, density and diversity needed to meet those habitat objectives. This enhancement does not apply to removal of woody vegetation by prescribed fire or removal of woody vegetation to facilitate a land use change.	acre	10	5	NA
E315132Z	DEGRADED PLANT CONDITION	Undesirable Plant Productivity and Health			X		X			Herbaceous weed treatment that helps create desired plant communities and habitats consistent with the ecological site	Herbaceous weed control for desired plant communities/habitats consistent with the ecological site	Mechanical, chemical, or biological, herbaceous weed treatment will be employed to control targeted, herbaceous weeds so as to create, release, or restore desired plant communities that are consistent with achievable, ecological site, steady state descriptions.	acre	5	5	NA
E315133Z	DEGRADED PLANT CONDITION	Inadequate Structure and Composition				X	X			Herbaceous weed treatment for inadequate structure and composition that helps create desired plant communities and habitats consistent with the ecological site	Herbaceous weed control (inadequate structure and comp) for desired plant communities/habitats	Mechanical, chemical, or biological, herbaceous weed treatment will be employed to control targeted, herbaceous weeds so as to create, release, or restore desired plant communities that are consistent with achievable, ecological site, steady state descriptions.	acre	5	5	NA
E315134Z	DEGRADED PLANT CONDITION	Excessive Plant Pest Pressure			X	X	X	X		Herbaceous weed treatment for plant pest pressures that helps create desired plant communities and habitats consistent with the ecological site	Herbaceous weed control (plant pest pressures) for desired plant communities/habitats	Mechanical, chemical, or biological, herbaceous weed treatment will be employed to control targeted, herbaceous weeds so as to create, release, or restore desired plant communities that are consistent with achievable, ecological site, steady state descriptions.	acre	5	5	NA
E327136Z1	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food	X	X			X	X	X	Conservation cover to provide food habitat for pollinators and beneficial insects	Conservation cover to provide food habitat for pollinators and beneficial insects	Seed or plug nectar and pollen producing plants in non-cropped areas such as field borders, vegetative barriers, contour buffer strips, grassed waterways, shelterbelts, hedgerows, windbreaks, conservation cover, and riparian forest and herbaceous buffers.	acre	5	1	NA
E327136Z2	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food	X	X				X	X	Establish Monarch butterfly habitat	Establish Monarch butterfly habitat	Seed or plug milkweed (Asclepias spp.), and high-value monarch butterfly nectar plants on marginal cropland, field borders, contour buffer strips, and similar areas.	acre	5	1	NA
E327137Z	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter	X	X			X	X	X	Conservation cover to provide cover and shelter habitat for pollinators and beneficial insects	Conservation cover to provide cover and shelter habitat for pollinators and beneficial insects	Seed or plug nectar and pollen producing plants in non-cropped areas such as field borders, vegetative barriers, contour buffer strips, grassed waterways, shelterbelts, hedgerows, windbreaks, conservation cover, and riparian forest and herbaceous buffers.	acre	5	1	NA
E327139Z	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Habitat Continuity (Space)	X	X			X	X	X	Conservation cover to provide habitat continuity for pollinators and beneficial insects	Conservation cover to provide habitat continuity for pollinators and beneficial insects	Seed or plug nectar and pollen producing plants in non-cropped areas such as field borders, vegetative barriers, contour buffer strips, grassed waterways, shelterbelts, hedgerows, windbreaks, conservation cover, and riparian forest and herbaceous buffers.	acre	5	1	NA
E328101I	SOIL EROSION	Sheet and Rill Erosion	X							Improved resource conserving crop rotation to reduce water erosion	Improved resource conserving crop rotation to reduce water erosion	Improve an existing Resource Conserving Crop Rotation. Must enrich an existing rotation which already includes AT LEAST one resource conserving crop as determined by the State Conservationist in a minimum three year crop rotation. The crop rotation will reduce soil erosion (water and wind), improve soil health, improve soil moisture efficiency, and reduce plant pest pressures.	acre	1	5	NA
E328101R	SOIL EROSION	Sheet and Rill Erosion	X							Resource conserving crop rotation to reduce water erosion	Resource conserving crop rotation to reduce water erosion	Establish a Resource Conserving Crop Rotation. Rotation must include AT LEAST one resource conserving crop as determined by the State Conservationist in a minimum three year crop rotation. The crop rotation will reduce soil erosion (water and wind), improve soil health, improve soil moisture efficiency, and reduce plant pest pressures.	acre	1	5	NA
E328101Z	SOIL EROSION	Sheet and Rill Erosion	X							Conservation crop rotation on recently converted CRP grass/legume cover for water erosion	Conservation crop rotation on recently converted CRP grass/legume cover for water erosion	Implement a crop rotation management system on crop land acres that have recently converted from CRP grass/legume conservation cover to annual planted crops. Crop rotation minimizes disturbance resulting in a Soil Tillage Intensity Rating (STIR) less than 10 and reduces soil erosion from water to below soil tolerance (T) level. The current NRCS wind and water erosion prediction technologies must be used to document the rotation, soil erosion estimate, and STIR calculations. *This enhancement is limited to acres where the conversion event took place not more than 2 years prior. Enhancement not applicable on hayland.	acre	1	5	NA
E328102I	SOIL EROSION	Wind Erosion	X							Improved resource conserving crop rotation to reduce wind erosion	Improved resource conserving crop rotation to reduce wind erosion	Improve an existing Resource Conserving Crop Rotation. Must enrich an existing rotation which already includes AT LEAST one resource conserving crop as determined by the State Conservationist in a minimum three year crop rotation. The crop rotation will reduce soil erosion (water and wind), improve soil health, improve soil moisture efficiency, and reduce plant pest pressures.	acre	1	5	NA
E328102R	SOIL EROSION	Wind Erosion	X							Resource conserving crop rotation to reduce wind erosion	Resource conserving crop rotation to reduce wind erosion	Establish a Resource Conserving Crop Rotation. Rotation must include AT LEAST one resource conserving crop as determined by the State Conservationist in a minimum three year crop rotation. The crop rotation will reduce soil erosion (water and wind), improve soil health, improve soil moisture efficiency, and reduce plant pest pressures.	acre	1	5	NA
E328102Z	SOIL EROSION	Wind Erosion	X							Conservation crop rotation on recently converted CRP grass/legume cover for wind erosion	Conservation crop rotation on recently converted CRP grass/legume cover for wind erosion	Implement a crop rotation management system on crop land acres that have recently converted from CRP grass/legume conservation cover to annual planted crops. Crop rotation minimizes disturbance resulting in a Soil Tillage Intensity Rating (STIR) less than 10 and reduces soil erosion from wind to below soil tolerance (T) level. The current NRCS wind and water erosion prediction technologies must be used to document the rotation, soil erosion estimate, and STIR calculations. *This enhancement is limited to acres where the conversion event took place not more than 2 years prior. Enhancement not applicable on hayland.	acre	1	5	NA

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E328106I	SOIL QUALITY DEGRADATION	Organic Matter Depletion	X							Improved resource conserving crop rotation for soil organic matter improvement	Improved resource conserving crop rotation for soil organic matter improvement	Improve an existing Resource Conserving Crop Rotation. Must enrich an existing rotation which already includes AT LEAST one resource conserving crop as determined by the State Conservationist in a minimum three year crop rotation. The crop rotation will reduce soil erosion (water and wind), improve soil health, improve soil moisture efficiency, and reduce plant pest pressures.	acre	1	5	NA
E328106R	SOIL QUALITY DEGRADATION	Organic Matter Depletion	X							Resource conserving crop rotation for soil organic matter improvement	Resource conserving crop rotation for soil organic matter improvement	Establish a Resource Conserving Crop Rotation. Rotation must include AT LEAST one resource conserving crop as determined by the State Conservationist in a minimum three year crop rotation. The crop rotation will reduce soil erosion (water and wind), improve soil health, improve soil moisture efficiency, and reduce plant pest pressures.	acre	1	5	NA
E328106Z1	SOIL QUALITY DEGRADATION	Organic Matter Depletion	X							Soil health crop rotation	Soil health crop rotation	Implement a crop rotation which addresses all four principle components of soil health: increases diversity of the cropping system; maintains residue throughout the year; keeps a living root; and minimizes soil chemical, physical and biological disturbance. The rotation will include at least 4 different crop and/or cover crop types (crop types include cool season grass, warm season grass, cool season broadleaf, warm season broadleaf) grown in a sequence that will produce a positive trend in the Organic Matter (OM) sub factor value over the life of the rotation, as determined by the Soil Conditioning Index (SCI). The current NRCS wind and water erosion prediction technologies must be used to document the rotation and SCI calculations.	acre	1	5	NA
E328106Z2	SOIL QUALITY DEGRADATION	Organic Matter Depletion	X							Modifications to improve soil health and increase soil organic matter	Modifications to improve soil health and increase soil organic matter	Use of soil health assessment to evaluate impact of current conservation crop rotation in addressing soil organic matter depletion (primary assessment made in Year 1). Modifications to the crop rotation and/or crop management will be made as a result of the assessment results (adding a new crop and/or cover crop to the rotation; making changes to planting and/or tillage system, harvest timing of crops, or termination timing of cover crops). During Year 3 a follow up assessment will be completed to allow time for the modifications to show increased soil organic matter. Modified system must produce a positive trend in the Organic Matter (OM) sub factor value over the life of the rotation, as determined by the Soil Conditioning Index (SCI). The current NRCS wind and water erosion prediction technologies must be used to document the rotation and SCI calculations.	acre	1	5	NA
E328106Z3	SOIL QUALITY DEGRADATION	Organic Matter Depletion	X							Conservation crop rotation on recently converted CRP grass/legume cover for soil organic matter improvement	Conservation crop rotation on recently converted CRP grass/legume cover for SOM improvement	Implement a crop rotation management system on crop land acres that have recently converted from CRP grass/legume conservation cover to annual planted crops. The crop rotation adds diversity to the system; keeps a living root growing; and is managed to minimize soil chemical, physical and biological disturbance and maintain residue cover on the surface. The rotation includes crops and/or cover crops representing 3 of the 4 crop types during the planned crop sequence: warm season grass (WSG), warm season broadleaf (WSB), cool season grass (CSG), or cool season broadleaf (CSB). The crop rotation will produce a positive trend in the Organic Matter (OM) sub factor value over the life of the rotation, as determined by the SCI. Crop rotation minimizes disturbance and reduces soil erosion from wind to below soil tolerance (T) level. The current NRCS wind and water erosion prediction technologies must be used to document the rotation, STIR and SCI calculations. *This enhancement is limited to acres where the conversion event took place not more than 2 years prior. Enhancement not applicable on hayland.	acre	1	5	NA
E328107I	SOIL QUALITY DEGRADATION	Compaction	X							Improved resource conserving crop rotation to improve soil compaction	Improved resource conserving crop rotation to improve soil compaction	Improve an existing Resource Conserving Crop Rotation. Must enrich an existing rotation which already includes AT LEAST one resource conserving crop as determined by the State Conservationist in a minimum three year crop rotation. The crop rotation will reduce soil erosion (water and wind), improve soil health, improve soil moisture efficiency, and reduce plant pest pressures.	acre	1	5	NA
E328107R	SOIL QUALITY DEGRADATION	Compaction	X							Resource conserving crop rotation to improve soil compaction	Resource conserving crop rotation to improve soil compaction	Establish a Resource Conserving Crop Rotation. Rotation must include AT LEAST one resource conserving crop as determined by the State Conservationist in a minimum three year crop rotation. The crop rotation will reduce soil erosion (water and wind), improve soil health, improve soil moisture efficiency, and reduce plant pest pressures.	acre	1	5	NA
E328109Z	SOIL QUALITY DEGRADATION	Concentration of Salts and other Chemicals	X							Conservation crop rotation to reduce the concentration of salts	Conservation crop rotation to reduce the concentration of salts	Implement a crop rotation to reduce the concentration of salts and other chemicals from saline seeps. The rotation should include at least 3 crops and/or cover crops grown in a sequence in the recharge areas of saline seeps that have rooting depths and water requirements adequate to fully utilize all available soil water. Do not use summer fallow. Use an approved water balance procedure to determine crop selection and sequence. Select crops with a tolerance to salinity levels that match the salinity of the discharge area. (See state lists)	acre	1	5	NA
E328118Z	WATER QUALITY DEGRADATION	Nutrients in Surface Water	X	X						Conservation crop rotation to reduce water quality degradation by utilization and removal of excess soil nutrients with forage harvest	Conservation crop rotation to reduce water quality degradation by utilization and removal of excess	Establish a forage crop (single species or mix of two or more species) following a primary annual crop to take up excess soil nutrients (nitrogen or phosphorous). Select a forage crop for the ability to effectively utilize and scavenge nutrients. The forage crop shall be harvested for forage (hay/balage/haylage) as late as practical to maximize plant biomass production and nutrient uptake. The forage crop shall not be grazed or burned. <i>This enhancement is applicable on field where excess soil nutrients cause or increase water quality degradation concerns.</i>	acre	1	5	No
E328134I	DEGRADED PLANT CONDITION	Excessive Plant Pest Pressure	X							Improved resource conserving crop rotation to relieve plant pest pressure	Improved resource conserving crop rotation to relieve plant pest pressure	Improve an existing Resource Conserving Crop Rotation. Must enrich an existing rotation which already includes AT LEAST one resource conserving crop as determined by the State Conservationist in a minimum three year crop rotation. The crop rotation will reduce soil erosion (water and wind), improve soil health, improve soil moisture efficiency, and reduce plant pest pressures.	acre	1	5	NA

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E328134R	DEGRADED PLANT CONDITION	Excessive Plant Pest Pressure	X							Resource conserving crop rotation to relieve plant pest pressure	Resource conserving crop rotation to relieve plant pest pressure	Establish a Resource Conserving Crop Rotation. Rotation must include AT LEAST one resource conserving crop as determined by the State Conservationist in a minimum three year crop rotation. The crop rotation will reduce soil erosion (water and wind), improve soil health, improve soil moisture efficiency, and reduce plant pest pressures.	acre	1	5	NA
E328136Z	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food	X							Leave standing grain crops unharvested to benefit wildlife food sources	Leave standing grain crops unharvested to benefit wildlife food sources	Implement a crop rotation which allows a portion of grain crops to be left in fields un-harvested to provide food and cover for wildlife during winter months.	acre	1	5	NA
E328136Z2	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food	X							Improved crop rotation to provide benefits to pollinators	Improved crop rotation to provide benefits to pollinators	Improve the existing crop rotation by adding pollinator friendly crops into the rotation. The crop rotation shall include a minimum of three different crops in a minimum five year crop rotation. Each year, the pollinator friendly crop will be planted on a minimum of 5% of cropland acres.	acre	1	5	No
E328137Z	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter	X							Leave standing grain crops unharvested to benefit wildlife cover and shelter	Leave standing grain crops unharvested to benefit wildlife cover and shelter	Implement a crop rotation which allows a portion of grain crops to be left in fields un-harvested to provide food and cover for wildlife during winter months.	acre	1	5	NA
E329101Z	SOIL EROSION	Sheet and Rill Erosion	X							No till to reduce water erosion	No till to reduce water erosion	Establish no till system to reduce sheet and rill erosion soil loss. Field(s) must have a soil loss at or below the soil tolerance (T) level for water erosion for the crop rotation and a Soil Tillage Intensity Rating (STIR) of no greater than 10 for each crop in the planned rotation. The current NRCS wind and water erosion prediction technologies must be used to calculate soil loss and STIR.	acre	1	5	NA
E329102Z	SOIL EROSION	Wind Erosion	X							No till system to reduce wind erosion	No till system to reduce wind erosion	Establish no till system to reduce wind erosion soil loss. Field(s) must have a soil loss at or below the soil tolerance (T) level for wind erosion for the crop rotation and a Soil Tillage Intensity Rating (STIR) of no greater than 10 for each crop in the planned rotation. The current NRCS wind and water erosion prediction technologies must be used to calculate soil loss and STIR.	acre	1	5	NA
E329106Z	SOIL QUALITY DEGRADATION	Organic Matter Depletion	X							No till system to increase soil health and soil organic matter content	No till system to increase soil health and soil organic matter content	Establish a no till system to increase soil health and soil organic matter content. Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 20. The crop rotation must achieve a soil conditioning index (SCI) of zero or higher. The current NRCS wind and water erosion prediction technologies must be used to document STIR and SCI calculations. Residue shall not be burned, grazed, or harvested.	acre	1	5	NA
E329114Z	INSUFFICIENT WATER	Inefficient Use of Irrigation Water	X							No till to increase plant-available moisture: irrigation water	No till to increase plant-available moisture: irrigation water	Establish a no till system to increase plant-available moisture. Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 20. The current NRCS wind and water erosion prediction technologies must be used to document STIR calculations. Maintain a minimum 60 percent surface residue cover throughout the year to reduce evaporation from the soil surface.	acre	1	5	NA
E329115Z	INSUFFICIENT WATER	Inefficient Moisture Management	X							No till to increase plant-available moisture: moisture management	No till to increase plant-available moisture: moisture management	Establish a no till system to increase plant-available moisture. Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 20. The current NRCS wind and water erosion prediction technologies must be used to document STIR calculations. Maintain a minimum 60 percent surface residue cover throughout the year to reduce evaporation from the soil surface.	acre	1	5	NA
E329128Z	AIR QUALITY IMPACTS	Emissions of Particulate Matter (PM) and PM Precursors	X							No till to reduce tillage induced particulate matter	No till to reduce tillage induced particulate matter	Establish no till system to reduce tillage induced particulate matter. Field(s) must have a soil loss at or below the soil tolerance (T) level for the crop rotation and a Soil Tillage Intensity Rating (STIR) of no greater than 10 for each crop in the planned rotation. The current NRCS wind and water erosion prediction technologies must be used to document soil loss and STIR calculations.	acre	1	5	NA
E329144Z	INEFFICIENT ENERGY USE	Farming/Ranching Practices and Field Operations	X							No till to reduce energy	No till to reduce energy	Establish a no till system which reduces total energy consumption associated with field operations by at least 25% compared to current tillage system (benchmark). Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 20. The current NRCS wind and water erosion prediction technologies must be used to document STIR calculations and energy consumption.	acre	1	5	NA
E334107Z	SOIL QUALITY DEGRADATION	Compaction	X	X						Controlled traffic farming to reduce compaction	Controlled traffic farming to reduce compaction	Establish a controlled traffic system where no more than 25% of the surface is tracked with heavy axle loads to minimize soil compaction. For row crops (e.g. corn in 30-inch rows) no tire should run on a row except for flotation tires on combines and/or fertilizer and lime spreading trucks. If wide flotation tires are used, they must be big enough that the inflation pressure will be below 18 psi to minimize compaction on trafficked rows.	acre	5	1	NA
E338134Z	DEGRADED PLANT CONDITION	Excessive Plant Pest Pressure				X				Strategically planned, patch burning for grazing distribution and wildlife habitat (undesirable plant pressure)	Strategic patch burning for grazing distribution/wildlife habitat (undesirable plant pressure)	Patch burn grazing is the application of prescribed fires on portions of an identified grazing unit at different times of the year. Patch burn grazing allows grazing animals to select where they want to graze creating a mosaic of vegetation structures and diversity that will maintain or enhance the wildlife habitat desired for the identified wildlife species and maintain livestock production.	acre	1	5	NA
E338135Z	DEGRADED PLANT CONDITION	Wildfire Hazard, Excessive Biomass Accumulation				X				Strategically planned, patch burning for grazing distribution and wildlife habitat (fuel loading)	Strategically planned, patch burning for grazing distribution and wildlife habitat (fuel loading)	Patch burn grazing is the application of prescribed fires on portions of an identified grazing unit at different times of the year. Patch burn grazing allows grazing animals to select where they want to graze creating a mosaic of vegetation structures and diversity that will maintain or enhance the wildlife habitat desired for the identified wildlife species and maintain livestock production.	acre	1	5	NA
E338136Z	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food					X			Short-interval burns to promote a healthy herbaceous plant community for wildlife food	Short-interval burns to promote a healthy herbaceous plant community for wildlife food	The controlled use of fire is applied in a forest to restore fire-adapted plants while improving wildlife habitat, wildlife food supply, and reducing the risk of damage from intense, severe wildfires. The ideal interval between prescribed burns is not often achieved. To improve the effectiveness of prescribed burning, the frequency of prescribed burning is increased appropriately, for a specified time period, to help restore ecological conditions in forests and woodlands. Short return interval prescribed burning is used to regenerate desirable tree species, improve the condition of fire-adapted plants and native herbaceous vegetation, improve wildlife food supply, create wildlife habitat (snags and den/cavity trees), limit encroachment of competing vegetation including non-native species, and reduce the future risk of damage from intense, severe wildfires.	acre	1	5	NA

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E338137Z1	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter					X			Sequential patch burning	Sequential patch burning	Conduct prescribed under burning beneath the canopy of a conifer forest, burning a portion of the area each year to create a mosaic of vegetation in several stages of development, to provide a more diverse understory and contribute to wildlife habitat. The health of conifer forests, particularly longleaf pine with a characteristic herbaceous understory, is dependent on fire or another means of controlling encroaching woody vegetation. A healthy longleaf pine forest, as well as shortleaf and other pines, can support a wide array of wildlife including pollinators and several endangered or threatened species.	acre	1	5	NA
E338137Z2	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter					X			Short-interval burn	Short-interval burn	Increase the frequency of prescribed burning to help restore ecological conditions in forests and woodlands. Several years of intense burning in certain forest and woodland conditions can regenerate desirable tree species, improve the condition of fire-adapted plants and native herbaceous vegetation, create wildlife habitat (snags and den/cavity trees), limit encroachment of competing vegetation including non-native species, and reduce the future risk of damage from intense, severe wildfires.	acre	1	5	NA
E338140Z	LIVESTOCK PRODUCTION LIMITATION	Inadequate Feed and Forage					X			Short-interval burns to promote a healthy herbaceous plant community	Short-interval prescribed burning to promote a healthy herbaceous plant community	The controlled use of fire is applied in a forest to restore fire-adapted plants and forage while improving wildlife habitat and reducing the risk of damage from intense, severe wildfires. The ideal interval between prescribed burns is not often achieved. To improve the effectiveness of prescribed burning, the frequency of prescribed burning is increased appropriately, for a specified time period, to help restore ecological conditions in forests and woodlands. Short return interval prescribed burning is used to regenerate desirable tree species, improve the condition of fire-adapted plants and native herbaceous vegetation, improve forage quantity and quality, create wildlife habitat (snags and den/cavity trees), limit encroachment of competing vegetation including non-native species, and reduce the future risk of damage from intense, severe wildfires.	acre	1	5	NA
E340101Z	SOIL EROSION	Sheet and Rill Erosion	X	X						Cover crop to reduce water erosion	Cover crop to reduce water erosion	Cover crop added to current crop rotation to reduce soil erosion from water to below soil tolerance (T) level. Cover crops grown during critical erosion period(s). Species are selected that will have physical characteristics to provide adequate erosion protection.	acre	1	5	NA
E340102Z	SOIL EROSION	Wind Erosion	X	X						Cover crop to reduce wind erosion	Cover crop to reduce wind erosion	Cover crop added to current crop rotation to reduce soil erosion from wind to below the soil tolerance (T) level. Cover crops grown during critical erosion period(s). Species are selected that will have physical characteristics to provide adequate erosion protection.	acre	1	5	NA
E340106Z1	SOIL QUALITY DEGRADATION	Organic Matter Depletion	X							Intensive cover cropping to increase soil health and soil organic matter content	Intensive cover cropping to increase soil health and soil organic matter content	Implementation of cover crop mix to provide soil coverage during ALL non-crop production periods in an annual crop rotation. Cover crop shall not be harvested or burned. Planned crop rotation including cover crops and associated management activities must achieve a soil conditioning index (SCI) of zero or higher. The current NRCS wind and water erosion prediction technologies must be used to document SCI calculations.	acre	1	5	NA
E340106Z2	SOIL QUALITY DEGRADATION	Organic Matter Depletion	X	X						Use of multi-species cover crops to improve soil health and increase soil organic matter	Use of multi-species cover crops to improve soil health and increase soil organic matter	Implement a multi-species cover crop to add diversity and increase biomass production to improve soil health and increase soil organic matter. Cover crop mix must include a minimum of 4 different species. The cover crop mix will increase diversity of the crop rotation by including crop types currently missing, e.g. Cool Season Grass (CSG), Cool Season Broadleaves (CSB), Warm Season Grasses (WSG), Warm Season Broadleaves (WSB).	acre	1	5	NA
E340106Z3	SOIL QUALITY DEGRADATION	Organic Matter Depletion		X						Intensive cover cropping (orchard/vineyard floor) to increase soil health and soil organic matter content	Intensive cover cropping (orchard/vineyard floor) to increase soil health and SOM content	Implementation of cover crops to provide orchard or vineyard floor coverage throughout the year. Cover crop shall not be harvested, grazed, or burned. Planned cover crop management activities must achieve a soil conditioning index (SCI) of zero or higher and produce a positive trend in the Organic Matter (OM) subfactor over the life of the crop rotation. The current NRCS wind and water erosion prediction technologies must be used to document SCI calculations.	acre	1	5	NA
E340106Z4	SOIL QUALITY DEGRADATION	Organic Matter Depletion	X							Use of soil health assessment to assist with development of cover crop mix to improve soil health and increase soil organic matter	Use of SHA to assist with development of cover crop mix to improve soil health and increase SOM	Use of a soil health assessment to evaluate impact of current conservation crop rotation in addressing soil organic matter depletion (primary assessment made in Year 1). Soil health assessment results and client's objectives will be utilized to determine a multi-species cover crop mix that will be added to the crop rotation. During Year 3 a follow up assessment will be completed to allow time for the addition of a cover crop to increase soil organic matter.	acre	1	5	NA
E340107Z	SOIL QUALITY DEGRADATION	Compaction	X	X						Cover crop to minimize soil compaction	Cover crop to minimize soil compaction	Establish a cover crop mix that includes plants with both fibrous root and deep rooted systems. Fibrous to treat and prevent both near surface (0-4") and deep (>4") soil compaction and deep rooted to break up deep compacted soils. Cover crop shall not be harvested, grazed, or burned.	acre	1	5	NA
E340118Z	WATER QUALITY DEGRADATION	Nutrients in Surface Water	X	X						Cover crop to reduce water quality degradation by utilizing excess soil nutrients-surface water	Cover crop to reduce water quality degradation by utilizing excess soil nutrients-surface water	Establish a cover crop mix to take up excess soil nutrients. Select cover crop species for their ability to effectively utilize nutrients. Terminate the cover crop as late as practical to maximize plant biomass production and nutrient uptake. Cover crop shall not be harvested, grazed, or burned.	acre	1	5	NA
E340119Z	WATER QUALITY DEGRADATION	Nutrients in Ground Water	X	X						Cover crop to reduce water quality degradation by utilizing excess soil nutrients-ground water	Cover crop to reduce water quality degradation by utilizing excess soil nutrients-ground water	Establish a cover crop mix to take up excess soil nutrients. Select cover crop species for their ability to effectively utilize nutrients. Terminate the cover crop as late as practical to maximize plant biomass production and nutrient uptake. Cover crop shall not be harvested, grazed, or burned.	acre	1	5	NA
E340134Z	DEGRADED PLANT CONDITION	Excessive Plant Pest Pressure	X	X						Cover crop to suppress excessive weed pressures and break pest cycles	Cover crop to suppress excessive weed pressures and break pest cycles	Establish a cover crop mix to suppress excessive weed pressures and break pest cycles. Select cover crop species for their life cycles, growth habits, and other biological, chemical and/or physical characteristics. Select cover crop species that do not harbor pests or diseases of subsequent crops in the rotation. Cover crop shall not be harvested, grazed, or burned.	acre	1	5	NA
E345101Z	SOIL EROSION	Sheet and Rill Erosion	X							Reduced tillage to reduce water erosion	Reduced tillage to reduce water erosion	Establish a reduced tillage system to reduce sheet and rill erosion soil loss. Field(s) must have a soil loss at or below the soil tolerance (T) level for water erosion for the crop rotation and a Soil Tillage Intensity Rating (STIR) of no greater than 40 for each crop in the planned rotation. The current NRCS wind and water erosion prediction technologies must be used to calculate soil loss and STIR.	acre	1	5	NA

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Enhancements

Enhancement Code	Resource Concern	Resource Concern Cause	Crop (Annual and Mixed)	Crop (Perennial)	Pasture	Range	Forest	Associated Ag Land	Farmstead	Full Enhancement Name	Short Enhancement Name (from CPDES and used in Toolkit)	Enhancement Description	Units	Enhancement Lifespan	Max years enh. can be contracted	Use Suitable for Land Conversion
E345102Z	SOIL EROSION	Wind Erosion	X							Reduced tillage to reduce wind erosion	Reduced tillage to reduce wind erosion	Establish a reduced tillage system to reduce wind erosion soil loss. Field(s) must have a soil loss at or below the soil tolerance (T) level for water erosion for the crop rotation and a Soil Tillage Intensity Rating (STIR) of no greater than 40 for each crop in the planned rotation. The current NRCS wind and water erosion prediction technologies must be used to calculate soil loss and STIR.	acre	1	5	NA
E345106Z	SOIL QUALITY DEGRADATION	Organic Matter Depletion	X							Reduced tillage to increase soil health and soil organic matter content	Reduced tillage to increase soil health and soil organic matter content	Establish a reduced till system to increase soil health and soil organic matter content. Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 80. The crop rotation must achieve a soil conditioning index (SCI) of zero or higher and produce a positive trend in the Organic Matter (OM) subfactor over the life of the crop rotation. The current NRCS wind and water erosion prediction technologies must be used to document STIR and SCI calculations. Residue shall not be burned, grazed, or harvested.	acre	1	5	NA
E345114Z	INSUFFICIENT WATER	Inefficient Use of Irrigation Water	X							Reduced tillage to increase plant-available moisture: irrigation water	Reduced tillage to increase plant-available moisture: irrigation water	Establish a reduced till system to increase plant-available moisture. Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 80. The current NRCS wind and water erosion prediction technologies must be used to document STIR calculations. Maintain a minimum 60 percent surface residue cover throughout the year to reduce evaporation from the soil surface.	acre	1	5	NA
E345115Z	INSUFFICIENT WATER	Inefficient Moisture Management	X							Reduced tillage to increase plant-available moisture: moisture management	Reduced tillage to increase plant-available moisture: moisture management	Establish a reduced till system to increase plant-available moisture. Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 80. The current NRCS wind and water erosion prediction technologies must be used to document STIR calculations. Maintain a minimum 60 percent surface residue cover throughout the year to reduce evaporation from the soil surface.	acre	1	5	NA
E345128Z	AIR QUALITY IMPACTS	Emissions of Particulate Matter (PM) and PM Precursors	X							Reduced tillage to reduce tillage induced particulate matter	Reduced tillage to reduce tillage induced particulate matter	Establish a reduced tillage system to reduce tillage induced particulate matter. Field(s) must have a soil loss at or below the soil tolerance (T) level for the crop rotation and a Soil Tillage Intensity Rating (STIR) of no greater than 40 for each crop in the planned rotation. The current NRCS wind and water erosion prediction technologies must be used to document soil loss and STIR calculations.	acre	1	5	NA
E345144Z	INEFFICIENT ENERGY USE	Farming/Ranching Practices and Field Operations	X							Reduced tillage to reduce energy use	Reduced tillage to reduce energy use	Establish a reduced tillage system which reduces total energy consumption associated with field operations by at least 25% compared to conventional tillage systems (benchmark). Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 80. The current NRCS wind and water erosion prediction technologies must be used to document STIR calculations and energy consumption.	acre	1	5	NA
E374144Z1	INEFFICIENT ENERGY USE	Farming/Ranching Practices and Field Operations	X	X	X			X	X	Install variable frequency drive(s) on pump(s)	Install variable frequency drive(s) on pump(s)	Install Variable Frequency Drive(s) (VFD) on Pumping Plant (Conservation Practice Standard CPS 533) with the correct sensors, on all pumps indicated in the energy audit.	no	10	1	NA
E374144Z2	INEFFICIENT ENERGY USE	Farming/Ranching Practices and Field Operations	X	X	X			X	X	Switch fuel source for pump motor(s)	Switch fuel source for pump motor(s)	Switch the fuel source for the pump motor(s) indicated in the energy audit to a renewable source (wind, solar, geothermal, etc.). (CPS 533 Pumping Plant)	no	10	1	NA
E376128Z	AIR QUALITY IMPACTS	Emissions of Particulate Matter (PM) and PM Precursors	X	X						Modify field operations to reduce particulate matter	Modify field operations to reduce particulate matter	Modify tillage and/or harvest operations to reduce particulates by at least 20 percent below the required levels.	acre	1	5	NA
E381133Z	DEGRADED PLANT CONDITION	Inadequate Structure and Composition			X		X	X		Silvopasture for wildlife habitat (structure and composition)	Silvopasture for wildlife habitat (structure and composition)	Establishing a combination of trees or shrubs and compatible forages on the same acreage, providing forage, shade, and/or shelter for livestock and including a purpose of enhancing wildlife habitat.	acre	15	1	NA
E381137Z	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter			X		X	X		Silvopasture for wildlife habitat (cover and shelter)	Silvopasture for wildlife habitat (cover and shelter)	Establishing a combination of trees or shrubs and compatible forages on the same acreage, providing forage, shade, and/or shelter for livestock and including a purpose of enhancing wildlife cover and shelter.	acre	15	1	NA
E382136Z	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food			X	X				Incorporating "wildlife friendly" fencing for connectivity of wildlife food resources	Incorporating "wildlife friendly" fencing for connectivity of wildlife food resources	Retrofitting or constructing fences that provide a means to control movement of animals, people, and vehicles, but minimizes wildlife movement impacts.	ft	20	1	NA
E383135Z	DEGRADED PLANT CONDITION	Wildfire Hazard, Excessive Biomass Accumulation				X	X			Grazing-maintained fuel break to reduce the risk of fire	Grazing-maintained fuel break to reduce the risk of fire	The area has existing fuel break(s) of 30 to 60 feet in width, supporting a mixture of woody sprouts and some herbaceous vegetation. Warm-season perennial vegetation will be established on the fuel breaks, and will be overseeded with cool-season annual forages in the fall. Grazing will be managed on the fuel breaks to remove or modify the fine fuel vegetation, thus reducing the risk of fire spread from ground fires. Ground cover will be maintained to control soil erosion and facilitate prescribed burning.	acre	10	1	NA
E384135Z	DEGRADED PLANT CONDITION	Wildfire Hazard, Excessive Biomass Accumulation					X	X		Biochar production from woody residue	Biochar production from woody residue	Utilizes woody debris remaining after fuel reduction harvests or wildfires to create biochar. Biochar stores carbon and is a useful soil amendment that improves SOM and water-holding capacity.	acre	10	1	NA
E386101Z	SOIL EROSION	Sheet and Rill Erosion	X	X				X		Enhanced field borders to reduce water induced erosion along the edge(s) of a field	Enhanced field borders to reduce water induced erosion along the edge(s) of a field	Enhance existing field borders to a width of at least 30 feet and establish a single species or mixture of species that provide a dense ground cover along the edge(s) of the field.	acre	10	1	NA
E386102Z	SOIL EROSION	Wind Erosion	X	X				X		Enhanced field borders to reduce wind induced erosion along the edge(s) of a field	Enhanced field borders to reduce wind induced erosion along the edge(s) of a field	Enhance existing field borders to a width of at least 30 feet and establish a single species or mixture of species that provide a dense ground cover along the edge(s) of the field.	acre	10	1	NA
E386106Z	SOIL QUALITY DEGRADATION	Organic Matter Depletion	X	X				X		Enhanced field borders to increase carbon storage along the edge(s) of the field	Enhanced field borders to increase carbon storage along the edge(s) of the field	Enhance existing field borders to a width of at least 30 feet and establish a single species or mixture of species that provide a dense ground cover and dense rooting system along the edge(s) of the field.	acre	10	1	NA

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E386128Z	AIR QUALITY IMPACTS	Emissions of Particulate Matter (PM) and PM Precursors	X	X				X		Enhanced field borders to decrease particulate emissions along the edge(s) of the field	Enhanced field borders to decrease particulate emissions along the edge(s) of the field	Enhance existing field borders to a width of at least 40 feet and establish a mixture of species that decrease the particulate emissions along the edge(s) of the field.	acre	10	1	NA
E386136Z	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food	X	X				X		Enhanced field borders to increase food for pollinators along the edge(s) of a field	Enhanced field borders to increase food for pollinators along the edge(s) of a field	Enhance existing field borders to a width of at least 40 feet and establish a mixture of species that provide food for pollinators along the edge(s) of the field.	acre	10	1	NA
E386137Z	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter	X	X				X		Enhanced field borders to increase wildlife food and cover along the edge(s) of a field	Enhanced field borders to increase wildlife food and cover along the edge(s) of a field	Enhance existing field borders to a width of at least 40 feet and establish a mixture of species that provide wildlife food and cover along the edge(s) of the field.	acre	10	1	NA
E386139Z	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Habitat Continuity (Space)	X	X				X		Enhanced field border to provide wildlife habitat continuity along the edge(s) of a field	Enhanced field border to provide wildlife habitat continuity along the edge(s) of a field	Enhance existing field borders to a width of at least 40 feet and establish a mixture of species that provide wildlife habitat continuity along the edge(s) of the field.	acre	10	1	NA
E390118Z	WATER QUALITY DEGRADATION	Nutrients in Surface Water	X	X						Increase riparian herbaceous cover width for nutrient reduction	Increase riparian herbaceous cover width for nutrient reduction	Where an existing herbaceous riparian buffer is located along a river, stream, pond, lake, or other waterbody, increase the width of the buffer in order to allow a greater percentage of nutrient removal from surface and subsurface flows.	acre	5	1	NA
E390126Z	WATER QUALITY DEGRADATION	Excessive Sediment in Surface Water	X	X						Increase riparian herbaceous cover width to reduce sediment loading	Increase riparian herbaceous cover width to reduce sediment loading	Where an existing herbaceous riparian buffer is located along a river, stream, pond, lake, or other waterbody, increase the width of the buffer in order to allow a greater percentage of sediment removal from surface flows.	acre	5	1	NA
E390136Z	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food	X	X	X	X		X	X	Increase riparian herbaceous cover width to enhance wildlife habitat	Increase riparian herbaceous cover width to enhance wildlife habitat	Where an existing herbaceous riparian buffer is located along a river, stream, pond, lake, or other waterbody, increase the diversity of native species, control invasive species, install fencing and relocate equipment operations, trails, and livestock, and increase the width of the buffer.	acre	5	1	NA
E391118Z	WATER QUALITY DEGRADATION	Nutrients in Surface Water	X	X						Increase riparian forest buffer width for nutrient reduction	Increase riparian forest buffer width for nutrient reduction	Where an existing forested riparian area is located along a river, stream, pond, lake, or other waterbody, increase the width of the buffer in order to allow a greater percentage of nutrient removal from surface and subsurface flows.	acre	15	1	NA
E391126Z	WATER QUALITY DEGRADATION	Excessive Sediment in Surface Water	X	X						Increase riparian forest buffer width to reduce sediment loading	Increase riparian forest buffer width to reduce sediment loading	Where an existing forested riparian area is located along a river, stream, pond, lake, or other waterbody, increase the width of the buffer in order to allow a greater percentage of sediment removal from surface flows.	acre	15	1	NA
E391127Z	WATER QUALITY DEGRADATION	Elevated Water Temperature	X	X	X	X	X	X	X	Increase stream shading for stream temperature reduction	Increase stream shading for stream temperature reduction	Riparian area tree canopy cover density is increased and the extent of the forested riparian area is increased to provide greater stream shading.	acre	15	1	NA
E391136Z	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food	X	X	X	X	X	X	X	Increase riparian forest buffer width to enhance wildlife habitat	Increase riparian forest buffer width to enhance wildlife habitat	Where an existing riparian forest buffer is located along a river, stream, pond, lake, or other waterbody, increase the diversity of native species, control invasive species, install fencing and relocate equipment operations, trails, and livestock to increase the functional width of the buffer.	acre	15	1	NA
E393118Z	WATER QUALITY DEGRADATION	Nutrients in Surface Water	X	X				X		Extend existing filter strip to reduce excess nutrients in surface water	Extend existing filter strip to reduce excess nutrients in surface water	Extend existing filter strips for water quality protection (reduce excess nutrients in surface water). Extend the existing buffer for a total of 60 feet or more to enhance water quality functions. The extended buffers must be composed of at least 5 species of non-noxious, wildlife friendly grasses and/or perennial forbs best suited to site conditions. Include species that provide pollinator food and habitat where possible.	acre	10	1	NA
E393122Z	WATER QUALITY DEGRADATION	Excess Pathogens and Chemicals from Manure, Bio-solids or Compost Applications in Surface Water	X	X				X		Extend existing filter strip to reduce excess pathogens and chemicals in surface water	Extend existing filter strip to reduce excess pathogens and chemicals in surface water	Extend existing filter strips for water quality protection (reduce excess pathogens and chemicals from manure, bio-solids or compost applications in surface waters). Extend the existing buffer for a total of 60 feet or more to enhance water quality functions. The extended buffers must be composed of at least 5 species of non-noxious, wildlife friendly grasses and/or perennial forbs best suited to site conditions. Include species that provide pollinator food and habitat where possible.	acre	10	1	NA
E393126Z	WATER QUALITY DEGRADATION	Excessive Sediment in Surface Water	X	X				X		Extend existing filter strip to reduce excess sediment in surface water	Extend existing filter strip to reduce excess sediment in surface water	Extend existing filter strips for water quality protection (reduce excess sediment in surface waters). Extend the existing buffer for a total of 60 feet or more to enhance water quality functions. The extended buffers must be composed of at least 5 species of non-noxious, wildlife friendly grasses and/or perennial forbs best suited to site conditions. Include species that provide pollinator food and habitat where possible.	acre	10	1	NA
E395137X	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter	X	X	X	X	X	X	X	Stream habitat improvement through placement of woody biomass	Stream habitat improvement through placement of woody biomass	Flexible placement of wood (unanchored/unpinned) in small, 1st and 2nd order streams to improve stream habitat conditions for aquatic species and natural stream processes.	acre	5	1	NA
E399137X	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter	X	X	X	X	X	X	X	Fishpond management for native aquatic and terrestrial species	Fishpond management for native aquatic and terrestrial species	Pond rehabilitation, buffer, and watershed management actions are taken to improve habitat for native species of fish, amphibians, and shorebirds.	acre	1	5	NA
E449114Z5	INSUFFICIENT WATER	Inefficient Use of Irrigation Water	X	X	X			X	X	Complete pumping plant evaluation for all pumps on a farm	Complete pumping plant evaluation for all existing pumps on a farm.	Evaluation of all pumping plants to determine the potential to rehabilitate/replace/reconfigure pump performance to improve water delivery efficiency 10% or more. Evaluate to determine if a Variable Frequency Drive motor controller(s) is recommended and the simple payback in terms of energy savings is less than 10 years.	acre	1	1	NA
E449114Z6	INSUFFICIENT WATER	Inefficient Use of Irrigation Water	X							Automated Intermittent flood irrigation of rice fields, Year 2-5	Automated Intermittent flood irrigation of rice fields, Year 2-5	Rice fields are drained and allowed to "dry down" to a saturated soil condition prior to re-flooding the field. System is installed in year 1 with Scenario E449144Z8 and this scenario used in years 2-5.	acre	1	5	NA
E449114Z7	INSUFFICIENT WATER	Inefficient Use of Irrigation Water	X	X	X					Advanced Automated IWM-Year 2-5, Soil moisture monitoring	Advanced Automated IWM - Year 2-5, Soil moisture is monitored, recorded and used in decision making	Advanced automated irrigation water management using soil moisture or water level monitoring (one sensor per 40 acres or less) with data loggers. Record keeping is such that a daily water balance is calculated and future irrigation is forecast. Equipment was bought in year one, this is monitoring for future years. Subscription service may be used as source for monitoring. System will be monitored and controlled using remote devices.	acre	1	5	NA

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E449114Z8	INSUFFICIENT WATER	Inefficient Use of Irrigation Water	X	X	X					Advanced Automated IWM-Year 1, Equipment and soil moisture or water level monitoring	Advanced Automated IWM - Year 1 - Equipment and soil moisture is monitored, recorded and used in dec	This activity includes installing and monitoring soil moisture or water leveling equipment for advanced automated irrigation water management. The equipment includes field specific weather station data with soil moisture monitoring (one sensor station per 40 acres or less), data loggers and telemetry. Sensor stations will include a minimum of 2 sensors per site at depths appropriate for the crop and soils. If rice is the major crop, water level sensors may be substituted for the soil moisture sensors. Monitoring will be for the entire irrigation season and data gathered will be used to predict and manage irrigation water on crop grown.	acre	1	1	NA
E449144Z	INEFFICIENT ENERGY USE	Farming/Ranching Practices and Field Operations	X	X	X			X	X	Complete pumping plant evaluation for all pumps on a farm	Complete pumping plant evaluation for all existing pumps on a farm.	Evaluation of all pumping plants to determine the potential to rehabilitate/replace/reconfigure to perform 10% more efficiently. Evaluate to determine if a Variable Frequency Drive motor controller(s) is recommended and the simple payback in terms of energy savings is less than 10 years.	acre	1	1	NA
E472118Z	WATER QUALITY DEGRADATION	Nutrients in Surface Water	X	X	X	X	X	X	X	Manage livestock access to streams, ditches, and other waterbodies to reduce nutrients in surface water	Manage livestock access to streams/ditches/other waterbodies to reduce nutrients in surface water	Installation of structures and implementation of grazing management actions that restrict livestock access to streams, ditches, and other waterbodies in order to reduce nutrient loading to surface waters.	ft	10	1	NA
E472122Z	WATER QUALITY DEGRADATION	Excess Pathogens and Chemicals from Manure, Biosolids or Compost Applications in Surface Water	X	X	X	X	X	X	X	Manage livestock access to streams, ditches, and other waterbodies to reduce pathogens in surface water	Manage livestock access to streams/ditches/other waterbodies to reduce pathogens in surface water	Installation of structures and implementation of grazing management actions that restrict livestock access to streams, ditches, and other waterbodies in order to reduce the introduction of pathogens to surface waters.	ft	10	1	NA
E484106Z	SOIL QUALITY DEGRADATION	Organic Matter Depletion	X							Mulching to improve soil health	Mulching to improve soil health	Implement a crop rotation which utilizes mulch and addresses all four principle components of soil health: increases diversity of the cropping system; maintains residue throughout the year; keeps a living root; and minimizes soil chemical, physical and biological disturbance. Plant-based mulching materials will be applied at least once during the rotation. The rotation will include at least 4 different crops and/or cover crops grown in a sequence that will produce a positive trend in the Organic Matter (OM) subfactor value over the life of the rotation, as determined by the Soil Conditioning Index (SCI). The current NRCS wind and water erosion prediction technologies must be used to document the rotation and SCI calculations.	acre	1	5	NA
E484128Z	AIR QUALITY IMPACTS	Emissions of Particulate Matter (PM) and PM Precursors		X						Reduce particulate matter emissions by using orchard or vineyard generated woody materials as mulch	Reduce particulate matter emissions by using orchard or vineyard generated woody materials as mulch	Reduce particulate matter emissions by using orchard or vineyard generated woody materials as mulch. At least 90% of all woody materials are to be used as mulch on the operation. <i>An exception may be made when it is determined that infected material must be burned to preserve crop health.</i>	acre	1	5	No
E511137Z1	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter	X	X						Harvest of crops (hay or small grains) using conservation measures that allow desired species to flush or escape	Harvest of crops (hay or small grains) using measures that allow desired species to flush or escape	Harvest of crops (hay or small grains) using conservation measures that allow desired species to flush or escape. (For species list see State Wildlife Action Plan) Conservation measures include timing of harvest, idling land during the nesting or fawning period, and applying harvest techniques that reduce mortality to wildlife.	acre	1	5	NA
E511137Z2	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter	X	X	X					Forage harvest management that helps maintain or improve wildlife habitat (cover and shelter)	Forage harvest management that helps maintain or improve wildlife habitat (cover and shelter)	The timely cutting and removal of forages from the field as hay, green-chop, or ensilage in such as way and time frames so as to optimize both forage yield/quality and wildlife cover and shelter.	acre	1	5	NA
E511139Z2	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Habitat Continuity (Space)	X	X	X					Forage harvest management that helps maintain wildlife habitat continuity (space)	Forage harvest management that helps maintain wildlife habitat continuity (space)	The timely cutting and removal of forages from the field as hay, green-chop, or ensilage in such as way and time frames so as to optimize both forage yield/quality and wildlife cover and shelter for habitat and/or continuity between otherwise disconnected habitats.	acre	1	5	NA
E512101Z1	SOIL EROSION	Sheet and Rill Erosion	X	X						Cropland conversion to grass-based agriculture to reduce water erosion	Cropland conversion to grass-based agriculture to reduce water erosion	Conversion of cropped land to grass-based agriculture. Mixtures of perennial grasses, forbs, and/or legume species are established on cropland where annually-seeded cash crops have been grown.	acre	5	1	YES

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E512101Z2	SOIL EROSION	Sheet and Rill Erosion			X					Forage and biomass planting for water erosion to improve soil health	Forage and biomass planting for water erosion to improve soil health	Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species suitable for pasture, hay, or biomass production that can provide for reduced soil erosion, improving soil health.	acre	5	1	NA
E512102Z	SOIL EROSION	Wind Erosion	X	X						Cropland conversion to grass-based agriculture to reduce wind erosion	Cropland conversion to grass-based agriculture to reduce wind erosion	Conversion of cropped land to grass-based agriculture. Mixtures of perennial grasses, forbs, and/or legume species are established on cropland where annually-seeded cash crops have been grown.	acre	5	1	YES
E512106Z1	SOIL QUALITY DEGRADATION	Organic Matter Depletion	X	X						Cropland conversion to grass-based agriculture for soil organic matter improvement	Cropland conversion to grass-based agriculture for soil organic matter improvement	Conversion of cropped land to grass-based agriculture. Mixtures of perennial grasses, forbs, and/or legume species are established on cropland where annually-seeded cash crops have been grown.	acre	5	1	YES
E512106Z2	SOIL QUALITY DEGRADATION	Organic Matter Depletion			X					Forage plantings that can help increase organic matter in depleted soils	Forage plantings that can help increase organic matter in depleted soils	Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species suitable for pasture, hay, or biomass production that can help improve soil quality of depleted sites through increase or conservation of the organic matter in the soil.	acre	5	1	NA
E512132Z1	DEGRADED PLANT CONDITION	Undesirable Plant Productivity and Health	X	X						Forage and biomass planting that produces feedstock for biofuels or energy production	Forage and biomass planting that produces feedstock for biofuels or energy production	Conversion of cropped land to grass-based agriculture. Mixtures of perennial grasses, forbs, and/or legume species are established on cropland where annually-seeded cash crops have been grown.	acre	5	1	YES
E512132Z2	DEGRADED PLANT CONDITION	Undesirable Plant Productivity and Health			X					Native grasses or legumes in forage base to improve plant productivity and health	Native grasses or legumes in forage base to improve plant productivity and health	Establishing adapted and/or compatible species, varieties, or cultivars of perennial, herbaceous species that can provide the structure and composition needed to enhance livestock and wildlife habitat, particularly when targeted forage supply and quality, cover, and shelter are not available in other pastures.	acre	5	1	NA
E512133Z1	DEGRADED PLANT CONDITION	Inadequate Structure and Composition			X			X		Native grasses or legumes in forage base to improve plant community structure and composition	Native grasses or legumes in forage base to improve plant community structure and composition	Establishing adapted and/or compatible species, varieties, or cultivars of perennial, herbaceous species that can provide the structure and composition needed to enhance livestock and wildlife habitat, particularly when targeted forage supply and quality, cover, and shelter are not available in other pastures.	acre	5	1	NA
E512133Z2	DEGRADED PLANT CONDITION	Inadequate Structure and Composition			X			X		Forage plantings that enhance bird habitat (structure and composition)	Forage plantings that enhance bird habitat (structure and composition)	Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species suitable for pasture, hay, or biomass production that can provide cover and shelter components of bird habitat.	acre	5	1	NA
E512136Z1	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food			X					Establish pollinator and/or beneficial insect habitat	Establish pollinator and/or beneficial insect habitat	Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species that can provide nectar for pollinators and forage and other habitat values for wildlife and livestock, particularly at times when targeted nectar, forage supply and quality, cover, and shelter are not available in other pastures.	acre	5	1	NA
E512136Z2	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food			X					Native grass or legumes in forage base to provide wildlife food	Native grass or legumes in forage base to provide wildlife food	Establishing adapted and/or compatible species, varieties, or cultivars of perennial, herbaceous species that can provide the structure and composition needed to enhance livestock and wildlife habitat, particularly when targeted forage supply and quality, cover, and shelter are not available in other pastures.	acre	5	1	NA
E512137Z	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter			X					Forage plantings that enhance bird habitat (cover and shelter)	Forage plantings that enhance bird habitat (cover and shelter)	Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species suitable for pasture, hay, or biomass production that can provide cover and shelter components of bird habitat.	acre	5	1	NA
E512138Z	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Water			X			X	X	Establish wildlife corridors to enhance access to water	Establish wildlife corridors to enhance access to water	Establishing adapted and/or compatible species, varieties, or cultivars of perennial, herbaceous species that can provide cover needed for wildlife species of concern to move from food/cover/water sources to other food/cover/water sources as needed for their life cycles, and/or to enhance the utility of underused wildlife habitat areas.	acre	5	1	NA
E512139Z1	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Habitat Continuity (Space)			X			X	X	Establish wildlife corridors to provide habitat continuity	Establish wildlife corridors to provide habitat continuity	Establishing adapted and/or compatible species, varieties, or cultivars of perennial, herbaceous species that can provide cover needed for wildlife species of concern to move from food/cover/water sources to other food/cover/water sources as needed for their life cycles, and/or to enhance the utility of underused wildlife habitat areas.	acre	5	1	NA
E512139Z2	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Habitat Continuity (Space)			X			X	X	Establish pollinator and/or beneficial insect habitat continuity (space)	Establish pollinator and/or beneficial insect habitat continuity (space)	Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species that can provide nectar for pollinators and forage and other habitat values for wildlife and livestock, particularly at times when targeted nectar, forage supply and quality, cover, and shelter are not available in other pastures.	acre	5	1	NA
E512139Z3	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Habitat Continuity (Space)			X			X	X	Establish Monarch butterfly habitat in pastures	Establish Monarch butterfly habitat in pastures	Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species that can provide nectar for Monarch butterflies and forage and other habitat values for wildlife and livestock, particularly at times when targeted nectar, forage supply and quality, cover, and shelter are not available in other pastures.	acre	5	1	NA
E512140Z	LIVESTOCK PRODUCTION LIMITATION	Inadequate Feed and Forage		X	X			X		Native grasses or legumes in forage base	Native grasses or legumes in forage base	Establishing adapted and/or compatible species, varieties, or cultivars of perennial, herbaceous species that can provide the structure and composition needed to enhance livestock and wildlife habitat, particularly when targeted forage supply and quality, cover, and shelter are not available in other pastures.	acre	5	1	NA

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Enhancement Code	Resource Concern	Resource Concern Cause	Crop (Annual and Mixed)	Crop (Perennial)	Pasture	Range	Forest	Associated Ag Land	Farmstead	Full Enhancement Name	Short Enhancement Name (from CPDES and used in Toolkit)	Enhancement Description	Units	Enhancement Lifespan	Max years enh. can be contracted	Use Suitable for Land Conversion
E528101Z	SOIL EROSION	Sheet and Rill Erosion				X				Improved grazing management for water erosion through monitoring activities	Improved grazing management for water erosion through monitoring activities	Three predominant key grazing areas are evaluated utilizing the Rangeland Health Assessment protocols to determine how well the ecological processes of the site(s) are functioning. Departure from reference categories will be determined, justified, and ratings described for soil and site stability, hydrologic function, and biotic integrity. Utilizing knowledge learned from this as a part of the ranch resource assessment, a qualifying professional, as detailed in the enhancement criteria, will provide recommendations or follow-up evaluations toward mitigating some of the degradation risks that are initially identified.	acre	1	5	NA
E528102Z	SOIL EROSION	Wind Erosion				X				Improved grazing management for wind erosion through monitoring activities	Improved grazing management for wind erosion through monitoring activities	Three predominant key grazing areas are evaluated utilizing the Rangeland Health Assessment protocols to determine how well the ecological processes of the site(s) are functioning. Departure from reference categories will be determined, justified, and ratings described for soil and site stability, hydrologic function, and biotic integrity. Utilizing knowledge learned from this as a part of the ranch resource assessment, a qualifying professional, as detailed in the Documentation and Implementation Requirements, will provide recommendations or follow-up evaluations toward mitigating some of the degradation risks that are initially identified.	acre	1	5	NA
E528104Z	SOIL EROSION	Classic Gully Erosion			X	X				Grazing management that protects sensitive areas from gully erosion	Grazing management that protects sensitive areas from gully erosion	Grazing management employed will provide cover and density needed in the watershed in order to protect sensitive areas such as sinkholes, streams, highly erodible areas, or locations with plants that cannot tolerate defoliation.	acre	1	5	NA
E528105Z	SOIL EROSION	Streambank, Shoreline, Water Conveyance Channels			X	X	X			Prescribed grazing that improves or maintains riparian and watershed function-erosion	Prescribed grazing that improves or maintains riparian and watershed function-erosion	Grazing management employed will provide cover and density needed in the watershed in order to reduce runoff, improve infiltration, provide for above ground water filtration and sustain applicable fish and wildlife species habitat.	acre	1	5	NA
E528107Z1	SOIL QUALITY DEGRADATION	Compaction			X					Improved grazing management for soil compaction on pasture through monitoring activities	Improved grazing management for soil compaction through monitoring activities	Manage the harvest of vegetation with grazing and/or browsing animals as adjusted when following recommendations of a qualifying professional, as detailed in the enhancement criteria, generated through pasture condition scoring (PCS).	acre	1	5	NA
E528107Z2	SOIL QUALITY DEGRADATION	Compaction				X				Improved grazing management for soil compaction on rangeland through monitoring activities	Improved grazing management for soil compaction on rangeland through monitoring activities	Three predominant key grazing areas are evaluated utilizing the Rangeland Health Assessment protocols to determine how well the ecological processes of the site(s) are functioning. Departure from reference categories will be determined, justified, and ratings described for soil and site stability, hydrologic function, and biotic integrity. Utilizing knowledge learned from this as a part of the ranch resource assessment, a qualifying professional, as detailed in the enhancement criteria, will provide recommendations or follow-up evaluations toward mitigating some of the degradation risks that are initially identified.	acre	1	5	NA
E528118Z1	WATER QUALITY DEGRADATION	Nutrients in Surface Water			X					Prescribed grazing on pastureland that maintains/improves riparian and watershed function impairment from nutrients	Prescribed grazing that maintains/improves riparian/watershed function impairment from nutrients	Grazing management employed will provide cover and density needed in the watershed in order to reduce runoff, improve infiltration, provide for above ground water filtration and sustain applicable fish and wildlife species habitat.	acre	1	5	NA
E528118Z2	WATER QUALITY DEGRADATION	Nutrients in Surface Water				X				Grazing management that protects sensitive areas-surface water from nutrients	Grazing management that protects sensitive areas-surface water from nutrients	Grazing management employed will provide cover and density needed in the watershed in order to protect sensitive areas such as sinkholes, streams, highly erodible areas, or locations with plants that cannot tolerate defoliation.	acre	1	5	NA
E528119Z	WATER QUALITY DEGRADATION	Nutrients in Ground Water			X	X				Grazing management that protects sensitive areas-ground water from nutrients	Grazing management that protects sensitive areas-ground water from nutrients	Grazing management employed will provide cover and density needed in the watershed in order to protect sensitive areas such as sinkholes, streams, highly erodible areas, or locations with plants that cannot tolerate defoliation.	acre	1	5	NA

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Enhancement Code	Resource Concern	Resource Concern Cause	Crop (Annual and Mixed)	Crop (Perennial)	Pasture	Range	Forest	Associated Ag Land	Farmstead	Full Enhancement Name	Short Enhancement Name (from CPDES and used in Toolkit)	Enhancement Description	Units	Enhancement Lifespan	Max years enh. can be contracted	Use Suitable for Land Conversion
E528122Z	WATER QUALITY DEGRADATION	Excess Pathogens and Chemicals from Manure, Bio-solids or Compost Applications in Surface Water			X					Prescribed grazing on pastureland that maintains/improves riparian/ and watershed function impairment from pathogens/chemicals.	Prescribed grazing that maintains/improves riparian/watershed function-pathogens/chemicals	Grazing management employed will provide cover and density needed in the watershed in order to reduce runoff, improve infiltration, provide for above ground water filtration and sustain applicable fish and wildlife species habitat.	acre	1	5	NA
E528126Z	WATER QUALITY DEGRADATION	Excessive Sediment in Surface Water			X					Prescribed grazing on pastureland that maintains/improves riparian and watershed function through minimizing sediment in surface water	Prescribed grazing that maintains/improves riparian/watershed function-min sediment in surface water	Grazing management employed will provide cover and density needed in the watershed in order to reduce runoff, improve infiltration, provide for above ground water filtration and sustain applicable fish and wildlife species habitat.	acre	1	5	NA
E528127Z	WATER QUALITY DEGRADATION	Elevated Water Temperature				X				Prescribed grazing that improves or maintains riparian and watershed function-elevated water temperature	Prescribed grazing that improves or maintains riparian/watershed function-elevated water temperature	Grazing management employed will provide cover and density needed in the watershed in order to reduce runoff, improve infiltration, provide for above ground water filtration and sustain applicable fish and wildlife species habitat.	acre	1	5	NA
E528132Z1	DEGRADED PLANT CONDITION	Undesirable Plant Productivity and Health			X					Improved grazing management on pasture for plant productivity and health through monitoring activities	Improved grazing mgmt for plant productivity/health through monitoring	Managing the harvest of vegetation with grazing and/or browsing animals as adjusted when following recommendations of a qualifying professional, as detailed in the enhancement criteria, generated through pasture condition scoring (PCS).	acre	1	5	NA
E528132Z2	DEGRADED PLANT CONDITION	Undesirable Plant Productivity and Health			X			X		Stockpiling cool season forage to improve plant productivity and health	Stockpiling cool season forage to improve plant productivity and health	Grazing management employed to stop grazing events of selected paddock(s) to allow pasture forages to grow to maximum vegetative biomass accumulation before the end of the growing season.	acre	1	5	NA
E528132Z3	DEGRADED PLANT CONDITION	Undesirable Plant Productivity and Health				X				Improved grazing management on rangeland for plant productivity and health through monitoring activities	Improved grazing management for plant productivity/health through monitoring	Three predominant key grazing areas are evaluated utilizing the Rangeland Health Assessment protocols to determine how well the ecological processes of the site(s) are functioning. Departure from reference categories will be determined, justified, and ratings described for soil and site stability, hydrologic function, and biotic integrity. Utilizing knowledge learned from this as a part of the ranch resource assessment, a qualifying professional, as detailed in the enhancement criteria, will provide recommendations or follow-up evaluations toward mitigating some of the degradation risks that are initially identified.	acre	1	5	NA
E528133Z1	DEGRADED PLANT CONDITION	Inadequate Structure and Composition			X			X		Stockpiling cool season forage to improve structure and composition	Stockpiling cool season forage to improve structure and composition	Grazing management employed will stop grazing events of selected paddock(s) to allow pasture forages to grow to maximum vegetative biomass accumulation before the end of the growing season.	acre	1	5	NA
E528133Z2	DEGRADED PLANT CONDITION	Inadequate Structure and Composition			X	X		X		Grazing management for improving quantity and quality of plant structure and composition for wildlife	Grazing management for improving quantity/quality of plant structure/composition for wildlife	Managing the harvest of vegetation with grazing and/or browsing animals for the purpose of improving the quantity and quality of the structure and composition of the plant community that is available for wildlife.	acre	1	5	NA
E528133Z3	DEGRADED PLANT CONDITION	Inadequate Structure and Composition				X				Improved grazing management for plant structure and composition through monitoring activities	Improved grazing management for plant structure and composition through monitoring activities	Three predominant key grazing areas are evaluated utilizing the Rangeland Health Assessment protocols to determine how well the ecological processes of the site(s) are functioning. Departure from reference categories will be determined, justified, and ratings described for soil and site stability, hydrologic function, and biotic integrity. Utilizing knowledge learned from this as a part of the ranch resource assessment, a qualifying professional, as detailed in the enhancement criteria, will provide recommendations or follow-up evaluations toward mitigating some of the degradation risks that are initially identified.	acre	1	5	NA
E528134Z	DEGRADED PLANT CONDITION	Excessive Plant Pest Pressure				X				Improved grazing management that reduces undesirable plant pest pressure through monitoring activities	Improved grazing management that reduces undesirable plant pest pressure through monitoring	Three predominant key grazing areas are evaluated utilizing the Rangeland Health Assessment protocols to determine how well the ecological processes of the site(s) are functioning. Departure from reference categories will be determined, justified, and ratings described for soil and site stability, hydrologic function, and biotic integrity. Utilizing knowledge learned from this as a part of the ranch resource assessment, a qualifying professional, as detailed in the enhancement criteria, will provide recommendations or follow-up evaluations toward mitigating some of the degradation risks that are initially identified.	acre	1	5	NA
E528136Z1	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food			X	X	X			Grazing management for improving quantity and quality of food for wildlife	Grazing management for improving quantity and quality of food for wildlife	Grazing management employed will provide plant structure, density and diversity needed for the desired wildlife species of concern.	acre	1	5	NA
E528136Z2	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food			X	X				Incorporating wildlife refuge areas in contingency plans for prescribed grazing for wildlife food	Incorporating wildlife refuge areas in contingency plans for prescribed grazing for wildlife food	A prescribed grazing plan that includes 18 month (or longer) deferral of a grazing unit that consists of native grasses and/or legumes and/or perennial forbs for the purpose of meeting the needs for drought/disaster contingency plans that will also provide wildlife habitat for a period of time.	acre	1	5	NA
E528136Z3	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food			X	X				Grazing management that improves Monarch butterfly habitat	Grazing management that improves Monarch butterfly habitat	Implement a grazing management plan that will increase the abundance and diversity of monarch nectar-producing perennial forbs, including milkweed, while maintaining ecosystem benefits for other wildlife and livestock.	acre	1	5	NA
E528137Z1	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter			X	X	X			Grazing management for improving quantity and quality of cover and shelter for wildlife	Grazing management for improving quantity and quality of cover and shelter for wildlife	Grazing management employed will provide plant structure, density and diversity needed for the desired wildlife species of concern.	acre	1	5	NA
E528137Z2	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter			X	X				Incorporating wildlife refuge areas in contingency plans for prescribed grazing for wildlife cover and shelter	Incorporating wildlife refuge areas in contingency plans for prescribed grazing-cover/shelter	A prescribed grazing plan that includes 18 month (or longer) deferral of a grazing unit that consists of native or adapted grasses and/or legumes and/or perennial forbs for the purpose of meeting the needs for drought/disaster contingency plans that will also provide wildlife habitat for a period of time.	acre	1	5	NA

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E528138Z	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Water			X	X				Incorporating wildlife refuge areas in contingency plans for prescribed grazing for wildlife access to water	Incorporating wildlife refuge areas in contingency plans for prescribed grazing-water access	A prescribed grazing plan that includes 18 month (or longer) deferral of a grazing unit that consists of native or adapted grasses and/or legumes and/or perennial forbs for the purpose of meeting the needs for drought/disaster contingency plans that will also provide wildlife habitat for a period of time.	acre	1	5	NA
E528140Z1	LIVESTOCK PRODUCTION LIMITATION	Inadequate Feed and Forage			X	X		X		Maintaining quantity and quality of forage for animal health and productivity	Maintaining quantity and quality of forage for animal health and productivity	Managing the harvest of vegetation with grazing and/or browsing animals for the purposes of maintaining desired pasture composition/plant vigor and improving/maintaining quantity and quality of forage for the animals' health and productivity following the recommendations of a qualifying professional, as detailed in the documentation and implementation requirements.	acre	1	5	NA
E528140Z2	LIVESTOCK PRODUCTION LIMITATION	Inadequate Feed and Forage			X	X				Incorporating wildlife refuge areas in contingency plans for prescribed grazing for livestock feed and forage	Incorporating wildlife refuge areas in contingency plans for prescribed grazing for livestock feed and forage	A prescribed grazing plan that includes 18 month (or longer) deferral of a grazing unit that consists of native grasses and/or legumes and/or perennial forbs for the purpose of meeting the needs for drought/disaster contingency plans that will also provide wildlife habitat for a period of time.	acre	1	5	NA
E550106Z	SOIL QUALITY DEGRADATION	Organic Matter Depletion	X	X		X				Range planting for increasing/maintaining organic matter	Range planting for increasing/maintaining organic matter	Establishment of adapted perennial or self-sustaining vegetation such as grasses, forbs, legumes, shrubs and trees for the purpose of increasing or maintaining organic matter levels in the soil.	acre	5	1	YES
E550136Z	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food	X	X		X				Range planting for improving forage, browse, or cover for wildlife	Range planting for improving forage, browse, or cover for wildlife	Establishment of adapted perennial or self-sustaining vegetation such as grasses, forbs, legumes, shrubs and trees for the purpose of improving forage, browse, or cover for wildlife on areas that have been degraded beyond recovery via ecological principles, or old crop fields and pastures devoid of desirable, native rangeland species that range within an ecological site description steady state.	acre	5	1	YES
E578139X	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Habitat Continuity (Space)	X	X	X	X	X	X	X	Stream crossing elimination	Stream crossing elimination	Existing stream crossings on an operation are consolidated into fewer crossings in order to reduce impacts to stream habitat.	no	10	1	NA
E580105Z	SOIL EROSION	Streambank, Shoreline, Water Conveyance Channels	X	X	X	X	X	X	X	Stream corridor bank stability improvement	Stream corridor bank stability improvement	Stream corridor bank vegetation components are established to provide additional streambank stability.	ft	20	1	NA
E580137Z	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter	X	X	X	X	X	X	X	Stream corridor bank vegetation improvement	Stream corridor bank vegetation improvement	Stream corridor bank vegetation components are established to improve ecosystem functioning and stability.	acre	20	1	NA
E590118X	WATER QUALITY DEGRADATION	Nutrients in Surface Water	X	X						Reduce risks of nutrient losses to surface water by utilizing precision agriculture technologies to plan and apply nutrients	Reduce risks of nutrient losses to surface water by utilizing precision ag technologies	Utilize precision application technology and techniques to reduce risk of nutrients in surface water by reducing total amount of applied and reducing the potential for delivery of nutrients into water bodies. Precision agriculture technology is utilized to plan and apply nutrients to improve nutrient use efficiency and reduce risk of nutrient losses.	acre	1	5	NA
E590118Z	WATER QUALITY DEGRADATION	Nutrients in Surface Water	X	X						Improving nutrient uptake efficiency and reducing risk of nutrient losses to surface water	Improving nutrient uptake efficiency and reducing risk of nutrient losses to surface water	Nutrient management encompasses managing the amount, source, placement, and timing of the application of plant nutrients and soil amendments. Nutrients are currently being applied on the farm based on the 4R nutrient stewardship principles. Enhanced nutrient use efficiency strategies or technologies are utilized to improve nutrient use efficiency and reduce risk of nutrient losses.	acre	1	5	NA
E590119X	WATER QUALITY DEGRADATION	Nutrients in Ground Water	X	X						Reduce risks of nutrient losses to ground water by utilizing precision agriculture technologies to plan and apply nutrients	Reduce risks of nutrient losses to ground water by utilizing precision agriculture technologies to plan and apply nutrients	Utilize precision application technology and techniques to reduce risk of nutrients in ground water by reducing total amount of applied and reducing the potential for delivery of nutrients into ground water. Precision agriculture technology is utilized to plan and apply nutrients to improve nutrient use efficiency and reduce risk of nutrient losses.	acre	1	5	NA
E590119Z	WATER QUALITY DEGRADATION	Nutrients in Ground Water	X	X						Improving nutrient uptake efficiency and reducing risk of nutrient losses to groundwater	Improving nutrient uptake efficiency and reducing risk of nutrient losses to groundwater	Nutrient management encompasses managing the amount, source, placement, and timing of the application of plant nutrients and soil amendments. Nutrients are currently being applied on the farm based on the 4R nutrient stewardship principles. Enhanced nutrient use efficiency strategies or technologies are utilized to improve nutrient use efficiency and reduce risk of nutrient losses.	acre	1	5	NA
E590130Z	AIR QUALITY IMPACTS	Emission of Greenhouse Gases (GHGs)	X	X						Improving nutrient uptake efficiency and reducing risks to air quality – emissions of greenhouse gases (GHGs)	Improving nutrient uptake efficiency and reducing risks to air quality - emissions of GHGs	Nutrient management encompasses managing the amount, source, placement, and timing of the application of plant nutrients and soil amendments. Nutrients are currently being applied on the farm based on the 4R nutrient stewardship principles. Enhanced nutrient use efficiency strategies or technologies are utilized to improve nutrient use efficiency and reduce risks to air quality by reducing emissions of Greenhouse Gases (GHGs).	acre	1	5	NA
E595116X	WATER QUALITY DEGRADATION	Pesticides in Surface Water	X	X						Reduce risk of pesticides in surface water by utilizing precision pesticide application techniques	Reduce risk of pesticides in surface water by utilizing precision pesticide application techniques	Utilize precision application techniques to reduce risk of pesticides in surface water by reducing total amount of chemical applied and reducing the potential for delivery of chemicals into water bodies.	acre	1	5	NA
E595116Z	WATER QUALITY DEGRADATION	Pesticides in Surface Water	X	X	X					Reduce risk of pesticides in surface water by utilizing IPM PAMS techniques	Reduce risk of pesticides in surface water by utilizing IPM PAMS techniques	Utilize integrated pest management (IPM) prevent, avoidance, monitoring, and suppression (PAMS) techniques to reduce risk of pesticides in surface water and reducing the potential for delivery of chemicals into water bodies.	acre	1	5	NA
E595116Z2	WATER QUALITY DEGRADATION	Pesticides in Surface Water	X							Reducing routine neonicotinoid seed treatments on corn and soybean crops	Reducing routine neonicotinoid seed treatments on corn and soybean crops	Eliminate routine use of neonicotinoid seed treatments to reduce risk of pesticides in surface water by reducing the total amount of chemical applied and reducing the potential for delivery of chemicals into water bodies that would impair water quality and fish and wildlife habitat.	acre	1	5	NA
E595129Z	AIR QUALITY IMPACTS	Emissions of Ozone Precursors	X	X	X	X	X			Reduce ozone precursor emissions related to pesticides by utilizing IPM PAMS techniques	Reduce ozone precursor emissions related to pesticides by utilizing IPM PAMS techniques	Utilize integrated pest management (IPM) prevent, avoidance, monitoring, and suppression (PAMS) techniques to reduce ozone precursor emissions related to pesticides.	acre	1	5	NA

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E595136X	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food	X							Increase the size requirement of refuges planted to slow pest resistance to Bt crops	Increase the size requirement of refuges planted to slow pest resistance to Bt crops	Bacillus thuringiensis (Bt) plant incorporated protectants are plants that have been genetically altered to produce proteins that are harmful to certain insect pests. Widespread implementation of Bt crops has decreased insecticide use and increased crop yields, but it must be used as part of an integrated pest management (IPM) approach to protect the crop from pest species that are not susceptible to the Bt toxin and to manage pest resistance. Crop rotation, scouting and resistance management strategies, such as planting and creating refuges of non-Bt crops, are essential when farming Bt crops. Insects have developed resistance to Bt proteins. To mitigate the development of further resistance, growers are required to plant refuges of non-transgenic crops. These refuges produce numbers of susceptible insects that will help sustain populations of non-resistant insects. The size of Refuge requirement depends on the environment, pest and strain of the crop. Size of refuge is determined by resistance risk. Most Bt corn requires that 20% of the total Bt crop planted be non-Bt. Cotton can require 50% of the crop be planted to non-Bt. A recent study published in the Journal of Integrated Pest Management revealed, compliance has been a challenge. Nearly 40% of growers surveyed did not plant the required refuge (Reisig 2017). They credit non-compliance, in part, to lack of understanding by small-scale farmers about the need for refuges.	acre	1	5	No
E595137Z	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter			X	X				Eliminate use of chemical treatments to control pests and to increase the presence of dung beetles	Eliminate use of chemical treatments to control pests and increase dung beetle populations	Pests and parasites can have a significant impact on the economic viability of livestock operations, by affecting the performance and health of animals. The use of broad-spectrum insecticides, pour-ons and avermectins have been shown to have a detrimental effect on dung beetle populations. Having a healthy population of dung beetles facilitates the recycling of nutrients and promotes soil and grassland health. By eliminating the application of broad-spectrum insecticides, pour-ons, and avermectins, including injectable avermectins, for pest control in and on livestock along with rotational grazing and higher stock densities has shown to increase the dung beetle population. Use of natural or alternative methods of pest control over multiple years is encouraged.	acre	1	5	No
E612126Z	WATER QUALITY DEGRADATION	Excessive Sediment in Surface Water	X	X						Cropland conversion to trees or shrubs for long term improvement of water quality	Cropland conversion to trees or shrubs for long term improvement of water quality	Cropland conversion to trees and shrubs for long term erosion control and improvement of water quality. Trees and shrubs are established on cropland where annually-seeded cash crops have been grown. Tree and/or shrub species are selected for their efficacy in holding soil, and the planting design is configured to control runoff and trap sediment.	acre	15	1	YES
E612130Z	AIR QUALITY IMPACTS	Emission of Greenhouse Gases (GHGs)	X	X	X	X	X	X	X	Planting for high carbon sequestration rate	Planting for high carbon sequestration rate	Plant tree species and use stocking levels for higher growth to increase the rate of carbon sequestration (capture). Use species with a longer life span as well as relatively fast growth, and species suitable for durable manufactured products. Increase stocking levels in forests that are not fully stocked. Implement afforestation on appropriate open lands.	acre	15	1	YES
E612132Z	DEGRADED PLANT CONDITION	Undesirable Plant Productivity and Health				X	X	X		Establishing tree/shrub species to restore native plant communities	Establishing tree/shrub species to restore native plant communities	Establish trees and/or shrubs to restore elements of plant diversity that have been lost through past diseases or improper management. For example, disease-resistant varieties of elm and chestnut can be established to restore the ecological functions of American elm and American chestnut. At the stand level, past forest management may have eliminated certain native tree species. Restoring stand-level diversity and function addresses a wide array of resource concerns and strengthens ongoing management activities. This enhancement improves a forest that is already in good condition by increasing plant diversity, and improving health and vigor through adding plants with resistance to disease, pests, or other local hazards. Additional benefits include contributing to carbon storage, and providing diversity in wildlife habitat and food sources.	acre	15	1	NA
E612133X1	DEGRADED PLANT CONDITION	Inadequate Structure and Composition	X	X	X	X	X	X	X	Adding food-producing trees and shrubs to existing plantings	Adding food-producing trees and shrubs to existing plantings	Plant food-producing trees and shrubs for wildlife or human consumption within windbreaks, alley cropping, multi-story cropping, silvopasture systems, and/or riparian forest buffers.	acre	15	1	NA
E612133X2	DEGRADED PLANT CONDITION	Inadequate Structure and Composition			X	X	X	X	X	Cultural plantings	Cultural plantings	Plant trees and shrubs that are of cultural significance, such as those species utilized by Tribes in traditional practices, medicinal plants, species used in basket-making, etc. (e.g., paper birch, slippery elm, witch hazel).	acre	15	1	NA
E612133X3	DEGRADED PLANT CONDITION	Inadequate Structure and Composition					X	X	X	Sugarbush management	Sugarbush management	Establish or maintain species diversity in a sugarbush to enhance pollinator and wildlife needs. Maintain at least 20% of basal area in species other than sugar maple (Acer saccharum) to provide species diversity. Half of the trees that are not sugar maples (10%) will be mast producing species (hard or soft mass). Use maple tree tapping guidelines that minimize tree damage.	acre	15	1	NA
E612136Z	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food	X	X	X	X	X	X	X	Tree/shrub planting for wildlife food	Tree/shrub planting for wildlife food	Tree or shrub planting to enhance habitat for native wildlife. A minimum of five tree or shrub species will be used; they will be species that provide food and/or cover for identified wildlife species.	acre	15	1	YES
E612137Z	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter	X	X	X	X	X	X	X	Tree/shrub planting for wildlife cover	Tree/shrub planting for wildlife cover	Tree or shrub planting to enhance habitat for native wildlife. A minimum of five tree or shrub species will be used; they will be species that provide food and/or cover for identified wildlife species.	acre	15	1	YES

Activity List For Participants
Enhancements

Enhancement Code	Resource Concern	Resource Concern Cause	Crop (Annual and Mixed)	Crop (Perennial)	Pasture	Range	Forest	Associated Ag Land	Farmstead	Full Enhancement Name	Short Enhancement Name (from CPDES and used in Toolkit)	Enhancement Description	Units	Enhancement Lifespan	Max years enh. can be contracted	Use Suitable for Land Conversion
E643132X	DEGRADED PLANT CONDITION	Undesirable Plant Productivity and Health				X	X			Restoration of sensitive coastal vegetative communities	Restoration of sensitive coastal vegetative communities	Enhance the level of restoration in unique and diminishing coastal ecosystems by establishing native herbaceous and woody plants. Protect established vegetation, and manage to maintain floristic quality and the provision of environmental services. This enhancement is applied on unique areas with rare and declining habitat conditions, where vegetation has been detrimentally altered by human or natural events. Targeted sites are those that formerly supported vegetative communities that are now declining and/or becoming rare. The sites will vary across the continent. The enhancement will expand and elevate the process of restoring these unique areas, increasing their ecological value and benefits to wildlife. It re-establishes a select group of trees and/or shrubs that are key components in this ecosystem.	acre	1	5	NA
E643139X	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Habitat Continuity (Space)					X			Creating native plant refugia	Creating native plant refugia	Provide protection from adverse environmental conditions to create refugia for documented occurrences of sensitive plant communities.	ft	1	5	NA
E644136Z	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food	X	X	X					Managing Flood-Irrigated Landscapes for Wildlife	Managing Flood-Irrigated Landscapes for Wildlife	Developing and implementing a conservation plan that supports maintenance of flood-irrigation in key landscapes to provide important foraging habitat for local breeding and migratory waterfowl and waterbirds.	acre	1	5	NA
E645137Z	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter	X	X	X	X	X	X	X	Reduction of attractants to human-subsidized predators in sensitive wildlife species habitat	Reduction of attractants to human-subsidized predators in sensitive wildlife species habitat	Reduction of artificial perching sites, nest sites, food, and water available to subsidized predators in areas where human-subsidized predators are a threat to sensitive wildlife species. Human-subsidized predators may include ravens, crows, magpies, coyotes, foxes, skunks, raccoons, and other species. Activities under this enhancement may include removal of non-native or invasive trees; removal of unused power poles, corrals, windmills, buildings, and other vertical structures; and/or removal or management of watering facilities, dead livestock, road kill, garbage, animal feed, dumps, and other non-natural food sources.	acre	1	5	NA
E646136Z1	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food	X							Close structures to capture and retain rainfall to improve food sources for waterfowl and other wading birds during winter	Close structures to capture/retain rainfall to improve food for waterfowl/wading birds during winter	When flooded to shallow depths during fall and winter, agricultural fields provide ideal foraging habitat for myriad species of waterfowl and wading birds. In addition, flooded conditions promote establishment of aquatic invertebrate populations, thus providing protein-rich food sources for shorebirds as well as waterfowl and wading birds.	acre	5	5	NA
E646136Z2	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food	X							Extend retention of captured rainfall to provide enhanced food sources for late winter habitat for migratory waterfowl and shorebirds	Extend retention of rainfall to provide food for late winter habitat	When flooded to shallow depths during fall and winter, agricultural fields provide ideal foraging habitat for myriad species of waterfowl and wading birds. Harvested and idled agricultural lands, notably those occurring within rice rotations, contain high densities of residual (i.e., waste) grain and natural seeds following harvest. In addition, flooded conditions promote establishment of aquatic invertebrate populations, thus providing protein-rich food sources for shorebirds as well as waterfowl and wading birds. Benefits may become greatest during late winter and early spring as birds are assimilating nutrient and fat reserves in preparation for northward migration. However, agricultural fields flooded during fall-winter are typically drained during late January or February in advance of spring planting. This often results in a rapid reduction in available habitat, and may constrain ability of migratory birds to adequately prepare for migration, with greatest impacts likely occurring during years of low winter precipitation. Retention of water on agricultural lands into early spring will produce maximum benefits to migratory waterfowl and shorebirds by providing high quality habitat during a time when habitat may otherwise be in low abundance.	acre	5	5	NA
E646136Z3	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food	X							Shorebird habitat, late season shallow water with manipulation to improve food sources	Shorebird habitat, late season shallow water with manipulation to improve food sources	Suitable shorebird habitat is limited during the summer and fall as birds migrate south post-breeding and providing shallow water and mud flat habitat will benefit a variety of shorebird species. Optimal conditions are created when water levels are slowly reduced through evaporation, which allows for propagation of invertebrates (typically insect larvae) used as food by shorebirds. Manipulation of vegetation, preferably through rolling, creates open conditions required by this suite of birds as a means to detect and avoid predators, and provides nutrient inputs for invertebrate production.	acre	5	5	NA
E646136Z4	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food	X							Shorebird habitat, extended late season shallow water with manipulation to improve food sources	Shorebird habitat, extended late season shallow water with manipulation to improve food sources	Suitable shorebird habitat is limited during the summer and fall as birds migrate south post-breeding. Providing shallow water and mud flat habitat will benefit a variety of shorebird species. Optimal conditions are created when water levels are slowly reduced through evaporation, which allows for propagation of invertebrates (typically insect larvae) used as food by shorebirds. Manipulation of vegetation, preferably through rolling, creates open conditions required by this suite of birds as a means to detect and avoid predators, and provides nutrient inputs for invertebrate production.	acre	5	5	NA
E646137X	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter	X	X				X		Renovate small, shallow pothole and playa sites which may seasonally hold water	Renovate small, shallow pothole and playa sites which may seasonally hold water	Renovate small, shallow pothole and playa sites which may seasonally hold water.	acre	5	1	NA
E646137Z1	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter	X							Close structures to capture and retain rainfall to improve cover and shelter for waterfowl and other wading birds during winter	Close structures to capture and retain rainfall to improve cover and shelter for birds during winter	When flooded to shallow depths during fall and winter, agricultural fields provide ideal cover and shelter for myriad species of waterfowl and wading birds. Many declining suites of wildlife species rely on early successional habitats for at least part of their life cycle needs. Migratory shorebird species in particular rely on open, moist soil or shallowly flooded conditions for foraging and security. Harvested and idled agricultural lands, notably those occurring within rice rotations, can contain high densities of early successional vegetation. When moisture is added to this situation, short-term habitat is available and cover and shelter is provided to early successional species.	acre	5	5	NA

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Enhancements

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E646137Z2	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter	X							Extend retention of captured rainfall to provide enhanced cover and shelter for late winter habitat for migratory waterfowl and shorebirds	Extend retention of captured rainfall to provide enhanced cover and shelter for late winter habitat	When flooded to shallow depths during fall and winter, agricultural fields provide ideal cover and shelter for myriad species of waterfowl and wading birds. Many declining suites of wildlife species rely on early successional habitats for at least part of their life cycle needs. Migratory shorebird species in particular rely on open, moist soil or shallowly flooded conditions for foraging and security. Harvested and idled agricultural lands, notably those occurring within rice rotations, can contain high densities of early successional vegetation. When moisture is added to this situation, cover and shelter is provided to early successional species. Benefits may become greatest during late winter and early spring as birds are assimilating nutrient and fat reserves in preparation for northward migration. However, agricultural fields flooded during fall-winter are typically drained during late January or February in advance of spring planting. This often results in a rapid reduction in available habitat, and may constrain ability of migratory birds to adequately prepare for migration, with greatest impacts likely occurring during years of low winter precipitation. Retention of water on agricultural lands into early spring will produce maximum benefits to migratory waterfowl and shorebirds by providing high quality habitat during a time when habitat may otherwise be in low abundance.	acre	5	5	NA
E646137Z3	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter	X							Shorebird habitat, late season shallow water with manipulation to improve cover and shelter	Shorebird habitat, late season shallow water with manipulation to improve cover and shelter	Suitable shorebird habitat is limited during the summer and fall as birds migrate south post-breeding. Providing shallow water and mud flat habitat will benefit a variety of shorebird species. Optimal conditions are created when water levels are slowly reduced through evaporation, which allows for propagation of invertebrates (typically insect larvae) used as food by shorebirds. Manipulation of vegetation, preferably through rolling, creates open conditions required by this suite of birds as a means to detect and avoid predators, and provides nutrient inputs for invertebrate production.	acre	5	5	NA
E646137Z4	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter	X							Shorebird habitat, extended late season shallow water with manipulation to improve cover and shelter.	Extended late season shallow water with manipulation to improve cover and shelter	Suitable shorebird habitat is limited during the summer and fall as birds migrate south post-breeding. Providing shallow water and mud flat habitat will benefit a variety of shorebird species. Optimal conditions are created when water levels are slowly reduced through evaporation, which allows for propagation of invertebrates (typically insect larvae) used as food by shorebirds. Manipulation of vegetation, preferably through rolling, creates open conditions required by this suite of birds as a means to detect and avoid predators, and provides nutrient inputs for invertebrate production.	acre	5	5	NA
E646138Z1	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Water	X							Close structures to capture and retain rainfall to provide water for waterfowl and other wading birds during winter	Close structures to capture and retain rainfall to provide water for birds during winter	When flooded to shallow depths during fall and winter, agricultural fields provide ideal habitat for myriad species of waterfowl and wading birds. Harvested and idled agricultural lands, notably those occurring within rice rotations, contain high densities of residual (i.e., waste) grain and natural seeds following harvest. Seed densities in harvested rice fields may rival those documented in intensively managed moist-soil units, especially in the Gulf Coast and Central Valley of California. Capturing and retaining water on those areas provide access for waterfowl and wading birds and promote the establishment of aquatic invertebrate populations, thus providing protein-rich food sources.	acre	5	5	NA
E646138Z2	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Water	X							Extend retention of captured rainfall to provide late winter water habitat for migratory waterfowl and shorebirds.	Extend retention of captured rainfall to provide late winter water habitat	When flooded to shallow depths during fall and winter, agricultural fields provide ideal habitat for myriad species of waterfowl and wading birds. Harvested and idled agricultural lands, notably those occurring within rice rotations, contain high densities of residual (i.e., waste) grain and natural seeds following harvest. In addition, flooded conditions provide access for waterfowl and wading birds and promote establishment of aquatic invertebrate populations, thus providing protein-rich food sources for shorebirds as well as waterfowl and wading birds. Benefits may become greatest during late winter and early spring as birds are assimilating nutrient and fat reserves in preparation for northward. However, agricultural fields flooded during fall-winter are typically drained during late January or February in advance of spring planting. This often results in a rapid reduction in available habitat, and may constrain ability of migratory birds to adequately prepare for migration, with greatest impacts likely occurring during years of low winter precipitation. Retention of water on agricultural lands into early spring will produce maximum benefits to migratory waterfowl and shorebirds by providing high quality habitat during a time when habitat may otherwise be in low abundance.	acre	5	5	NA
E646138Z3	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Water	X							Shorebird habitat, late season shallow water with manipulation	Shorebird habitat, late season shallow water with manipulation	Suitable shorebird habitat is limited during the summer and fall as birds migrate south post-breeding. Providing shallow water and mud flat habitat will benefit a variety of shorebird species. Improved conditions are created when water levels are slowly reduced through evaporation, which allows for propagation of invertebrates (typically insect larvae) used as food by shorebirds. Manipulation of vegetation, preferably through rolling, creates open conditions required by this suite of birds as a means to detect and avoid predators, and provides nutrient inputs for invertebrate production.	acre	5	5	NA
E646138Z4	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Water	X							Shorebird habitat, extended late season shallow water with manipulation	Shorebird habitat, extended late season shallow water with manipulation	Suitable shorebird habitat is limited during the summer and fall as birds migrate south post-breeding. Providing shallow water and mud flat habitat will benefit a variety of shorebird species. Optimal conditions are created when water levels are slowly reduced through evaporation, which allows for propagation of invertebrates (typically insect larvae) used as food by shorebirds. Manipulation of vegetation, preferably through rolling, creates open conditions required by this suite of birds as a means to detect and avoid predators, and provides nutrient inputs for invertebrate production.	acre	5	5	NA

Activity List For Participants
Enhancements

Enhancement Code	Resource Concern	Resource Concern Cause	Crop (Annual and Mixed)	Crop (Perennial)	Pasture	Range	Forest	Associated Ag Land	Farmstead	Full Enhancement Name	Short Enhancement Name (from CPDES and used in Toolkit)	Enhancement Description	Units	Enhancement Lifespan	Max years enh. can be contracted	Use Suitable for Land Conversion
E646139Z1	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Habitat Continuity (Space)	X							Close structures to capture and retain rainfall for waterfowl and wading birds to improve habitat continuity	Close structures to capture and retain rainfall for birds to improve habitat continuity	When flooded to shallow depths during fall and winter, agricultural fields provide habitat for myriad species of waterfowl and wading birds. The flooded conditions promote a network or continuity of habitat that is available to migratory waterfowl, shorebirds, and wading birds. Harvested and idled agricultural lands, notably those occurring within rice rotations, contain high densities of residual (i.e., waste) grain and natural seeds following harvest. Seed densities in harvested rice fields may rival those documented in intensively managed moist-soil units, especially in the Gulf Coast and Central Valley of California. In addition, flooded conditions promote establishment of aquatic invertebrate populations, thus providing protein-rich food sources for shorebirds as well as waterfowl and wading birds.	acre	5	5	NA
E646139Z2	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Habitat Continuity (Space)	X							Extend retention of captured rainfall to provide habitat continuity during late winter for migratory waterfowl and shorebirds	Extend retention of captured rainfall to provide habitat continuity during late winter	When flooded to shallow depths during fall and retained into late winter, agricultural fields provide habitat for myriad species of waterfowl and wading birds. However, agricultural fields flooded during fall-winter are typically drained during late January or February in advance of spring planting. This often results in a rapid reduction in available habitat, and may constrain ability of migratory birds to adequately prepare for migration, with greatest impacts likely occurring during years of low winter precipitation. Retention of water on agricultural lands into early spring will provide a network or continuity of habitat for waterfowl, wading birds, and shorebirds during a time when it may otherwise be in low abundance. In addition, flooded conditions promote establishment of aquatic invertebrate populations, thus providing protein-rich food sources for shorebirds as well as waterfowl and wading birds.	acre	5	5	NA
E646139Z3	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Habitat Continuity (Space)	X							Shorebird habitat, late season shallow water with manipulation to enhance habitat continuity and space	Shorebird habitat, late season shallow water with manipulation to enhance habitat continuity	Suitable shorebird habitat is limited during the summer and fall as birds migrate south post-breeding (Elliott and McKnight 2000). Providing shallow water and mud flat habitat will benefit a variety of shorebird species (Vermillion 2012). Optimal conditions are created when water levels are slowly reduced through evaporation, which allows for propagation of invertebrates (typically insect larvae) used as food by shorebirds (Elphick et. al. 2010). Manipulation of vegetation, preferably through rolling, creates open conditions required by this suite of birds as a means to detect and avoid predators, and provides nutrient inputs for invertebrate production.	acre	5	5	NA
E646139Z4	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Habitat Continuity (Space)	X							Shorebird habitat, extended late season shallow water with manipulation to enhance habitat continuity and space	Shorebird habitat, extended late season shallow water with manipulation - habitat continuity	Suitable shorebird habitat is limited during the summer and fall as birds migrate south post-breeding. Providing shallow water with manipulation of vegetation creates a network or continuity of habitat required by this suite of migratory birds during a time when it may otherwise be in low abundance. Optimal conditions are created when water levels are slowly reduced through evaporation, which allows for propagation of invertebrates (typically insect larvae) used as food by shorebirds. Manipulation of vegetation, preferably through rolling, creates open conditions required by this suite of birds as a means to detect and avoid predators, and provides nutrient inputs for invertebrate production.	acre	5	5	NA
E647136Z1	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food	X							Manipulate vegetation on fields where rainfall is to be captured and retained to provide enhanced food sources for wildlife	Manipulate vegetation on fields where rainfall is to be captured and retained-food	Harvested and idled agricultural lands, notably those occurring within rice rotations, contain high densities of residual (i.e., waste) grain and natural seeds following harvest. Seed densities in harvested rice fields may rival those documented in intensively managed moist-soil units, especially in the Gulf Coast and Central Valley of California. When flooded to shallow depths during fall and winter, these agricultural fields provide ideal foraging habitat for myriad species of waterfowl and wading birds. In addition, flooded conditions promote establishment of aquatic invertebrate populations, thus providing protein-rich food sources for shorebirds as well as waterfowl and wading birds. In many cases, light manipulation of dense vegetation is needed to improve the accessibility of food resources to waterfowl, wading birds, and shorebirds.	acre	1	5	NA
E647136Z2	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food	X							Provide early successional habitat between first rice crop and ratoon crop to support important wildlife food sources	Provide early successional habitat between first rice crop and ratoon crop-food	Many declining suites of wildlife species rely on early successional habitats for at least part of their life cycle needs. Migratory shorebird species in particular rely on open, moist soil or shallowly flooded conditions for foraging and security. Rice farms support many migratory and resident water bird species. The first rice crop harvest often coincides with the arrival of early migrating shorebirds. This time of year is also the highest rainfall months. If standing rice stubble from the first crop is rolled to push above-ground stalks level with the soil surface, the first component of this type of habitat is met. When moisture is added to this situation, short-term habitat is available until the ratoon crop initiates growth to a height beyond that which would provide benefit to the early successional species.	acre	1	5	NA
E647136Z3	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food	X							Establish and maintain moist soil vegetation on cropland edges to increase wildlife food sources and habitat diversity	Establish and maintenance of moist soil vegetation on cropland edges to increase wildlife food	The wetter or more water saturated portions of cropland fields such as areas adjacent to field drains, have the potential to produce a significant amount of moist soil plants which are a tremendously valuable source of forage and cover for many waterfowl, shorebird and wading bird species, especially during a period of time when such plants may be limited. Under normal cropland production, the native vegetation is restricted on these sites through mechanical and/or chemical control. These maintained moist soil plants also will provide filtering and improve water quality.	acre	1	5	NA
E647137Z1	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter	X							Manipulate vegetation on fields where rainfall is to be captured and retained to provide enhanced cover and shelter for wildlife	Manipulate vegetation on fields where rainfall is to be captured and retained-cover/shelter	Harvested and idled agricultural lands, notably those occurring within rice rotations, contain high densities of residual (i.e., waste) grain and natural seeds following harvest. Seed densities in harvested rice fields may rival those documented in intensively managed moist-soil units, especially in the Gulf Coast and Central Valley of California. When flooded to shallow depths during fall and winter, these agricultural fields provide ideal foraging habitat for myriad species of waterfowl and wading birds. In addition, flooded conditions promote establishment of aquatic invertebrate populations, thus providing protein-rich food sources for shorebirds as well as waterfowl and wading birds. In many cases, light manipulation of dense vegetation is needed to improve the accessibility of food resources to waterfowl, wading birds, and shorebirds.	acre	1	5	NA

Activity List For Participants
Enhancements

Enhancement Code	Resource Concern	Resource Concern Cause	Crop (Annual and Mixed)	Crop (Perennial)	Pasture	Range	Forest	Associated Ag Land	Farmstead	Full Enhancement Name	Short Enhancement Name (from CPDES and used in Toolkit)	Enhancement Description	Units	Enhancement Lifespan	Max years enh. can be contracted	Use Suitable for Land Conversion
E647137Z2	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter	X							Establish and maintain moist soil vegetation on cropland edges to increase wildlife cover, shelter and habitat diversity	Establish and maintenance of moist soil vegetation on cropland edges to increase cover/shelter	The wetter or more water saturated portions of cropland fields such as areas adjacent to field drains, have the potential to produce a significant amount of moist soil plants which are a tremendously valuable source of forage and cover for many waterfowl, shorebird and wading bird species, especially during a period of time when such plants may be limited. Under normal cropland production, the native vegetation is restricted on these sites through mechanical and/or chemical control. These maintained moist soil plants also will provide filtering and improve water quality.	acre	1	5	NA
E647139Z1	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Habitat Continuity (Space)	X							Establish and maintain wildlife habitat continuity by providing early successional, naturally occurring vegetation in ditches and ditch bank borders	Establish/maintain habitat continuity, naturally occurring vegetation in ditches/ditch bank borders	This enhancement is to encourage the establishment of early successional, naturally occurring vegetation in ditches, side slope and bank borders to provide cover, critical nesting and brood rearing habitat as well as filtering overland flow and improving water quality. Ditches perform the critical function of removing water from agricultural lands. Allowing naturally occurring vegetation to develop along ditches, including side slopes, banks and borders, will help provide food and cover for wildlife while enhancing aquatic habitat and improving water quality. Ditches and ditch borders provide a foundation that supports a diverse wildlife community including Northern Bobwhite (<i>Colinus virginianus</i>) and other birds preferring early successional cover. Rabbits, furbearers, amphibians and many other species that inhabit agriculture areas will use this vegetative cover. These areas can also provide critical nesting habitat for the Mottled Duck (<i>Anas fulvigula</i>).	acre	1	5	NA
E647139Z2	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Habitat Continuity (Space)	X							Provide early successional habitat between first rice crop and ratoon crop to support space and continuity for wildlife	Provide early successional habitat between first rice crop and ratoon crop-continuity	Many declining suites of wildlife species rely on early successional habitats for at least part of their life cycle needs. Migratory shorebird species in particular rely on open, moist soil or shallowly flooded conditions for foraging and security. Rice farms support many migratory and resident water bird species. The first rice crop harvest often coincides with the arrival of early migrating shorebirds and can provide necessary habitat continuity and space. If standing rice stubble from the first crop is rolled to push above-ground stalks level with the soil surface, the first component of this type of habitat is met. When moisture is added to this situation, short-term habitat is available until the ratoon crop initiates growth to a height beyond that which would provide benefit to the early successional species.	acre	1	5	NA
E666106Z1	SOIL QUALITY DEGRADATION	Organic Matter Depletion					X	X		Implementing sustainable practices for pine straw raking	Implementing sustainable practices for pine straw raking	Adopts guidelines for sustaining soil quality and wildlife habitat on sites where pine straw raking is currently practiced. Raking and removal of pine needles ("pine straw") provides valuable landscaping material but at a high cost to soil fertility, soil organic matter, wildlife habitat, and in some cases, soil compaction, soil erosion and water quality degradation. Straw removal also makes prescribed burning less feasible by removal of the fine fuels needed to carry frequent surface fires that maintain longleaf pine and its characteristic understory. This enhancement is most applicable to longleaf pine forestland because: (1) longleaf-dominated ecosystems with their characteristic suite of flora and fauna historically predominated in most places where pines are currently grown in the Southeast, and (2) longleaf is the favored species for pine straw operations.	acre	10	1	NA
E666106Z2	SOIL QUALITY DEGRADATION	Organic Matter Depletion					X			Maintaining and improving forest soil quality	Maintaining and improving forest soil quality	Adopts guidelines for maintaining and improving soil quality on sites where forest management activities are practiced. These guidelines will increase soil organic matter content, improve nutrient cycling, and increase infiltration and retention of precipitation. Avoiding soil compaction will allow for greater root development and tree growth, limit windthrow, and reduce drought stress. Increasing carbon storage on site will maintain the soil microbial community and provide wildlife benefits.	acre	10	1	NA
E666107Z	SOIL QUALITY DEGRADATION	Compaction					X			Maintaining and improving forest soil quality by limiting compaction	Maintaining and improving forest soil quality by limiting compaction	Adopts guidelines for maintaining and improving soil quality on sites where forest management activities are practiced. These guidelines will increase soil organic matter content, improve nutrient cycling, and increase infiltration and retention of precipitation. Avoiding soil compaction will allow for greater root development and tree growth, limit windthrow, and reduce drought stress. Increasing carbon storage on site will maintain the soil microbial community and provide wildlife benefits.	acre	10	1	NA
E666115Z1	INSUFFICIENT WATER	Inefficient Moisture Management					X			Converting loblolly and slash pine plantations to longleaf pine to retain soil moisture	Converting loblolly and slash pine plantations to longleaf pine to retain soil moisture	Longleaf pine has greater wildlife habitat value, is more resistant to insects and disease, and is better able to withstand hurricane-force winds than other southern pines, particularly loblolly and slash pines. Because of rapid early growth, loblolly and slash pines have often been planted on soils and sites better suited to longleaf. Loblolly has a higher rate of evapotranspiration than longleaf and can deplete soil moisture. Loblolly and slash pine plantations can be converted to longleaf by clearcutting and planting seedlings but mature tree cover is then lost for 20 or more years. This enhancement will gradually convert an existing loblolly or slash pine plantation to longleaf while at the same time maintaining mature tree cover with the associated benefits of wildlife habitat and visual quality, and moderating effects on soil temperature, soil moisture and understory plants.	acre	10	1	NA
E666115Z2	INSUFFICIENT WATER	Inefficient Moisture Management					X			Forest Stand Improvement to manage understory vegetation to aid in moisture management	Forest Stand Improvement to manage understory vegetation to aid in moisture management	Forest stand improvement to manage the structure and composition of overstory and understory vegetation so that additional moisture is captured and filtered through the vegetation and soil. Managing the understory vegetation will increase available water to the plants, minimize run-off and erosion, and improve water quality. An adequately stocked forest provides inputs of leaves, needles, and woody twigs and stems to the forest floor, adding to soil organic matter and contributing to forest soil health. Desirable tree species and understory vegetation, with spacing that allows ground cover to develop, will allow moisture to infiltrate and be stored in the soil, releasing moisture over longer periods of time. This enhancement provides for management of the understory vegetation in a forested area, using mechanical, chemical or manual methods to improve the plant species mix and the health of the residual vegetation. These practices encourage development of a forested ecosystem that efficiently utilizes available water.	acre	10	1	NA

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Enhancements

Enhancement Code	Resource Concern	Resource Concern Cause	Crop (Annual and Mixed)	Crop (Perennial)	Pasture	Range	Forest	Associated Ag Land	Farmstead	Full Enhancement Name	Short Enhancement Name (from CPDES and used in Toolkit)	Enhancement Description	Units	Enhancement Lifespan	Max years enh. can be contracted	Use Suitable for Land Conversion
E666118Z	WATER QUALITY DEGRADATION	Nutrients in Surface Water					X			Enhance development of the forest understory to capture nutrients in surface water	Enhance development of the forest understory to capture nutrients in surface water	Forest stand improvement to manage the structure and composition of overstory and understory vegetation so that additional moisture is captured and filtered through the vegetation and soil, thus minimizing nutrient loss through ground water. Managing the understory vegetation will increase available water to plants, minimize run-off and erosion, and improve water quality. This enhancement provides for management of the understory vegetation in a forested area, using mechanical, chemical or manual methods to improve the plant species mix and the health of the residual vegetation. These practices encourage development of a forested ecosystem that efficiently utilizes available water and captures nutrients.	acre	10	1	NA
E666119Z	WATER QUALITY DEGRADATION	Nutrients in Ground Water					X			Enhance development of the forest understory to capture nutrients and limit their movement into ground water	Enhance development of the forest understory to capture nutrients - ground water	Forest stand improvement to manage the structure and composition of overstory and understory vegetation so that additional moisture is captured and filtered through the vegetation and soil, thus minimizing nutrient loss through ground water. Managing the understory vegetation will increase available water to the plants, minimize run-off and erosion, and improve water quality. This enhancement provides for management of the understory vegetation in a forested area, using mechanical, chemical or manual methods to improve the plant species mix and the health of the residual vegetation. These practices encourage development of a forested ecosystem that efficiently utilizes available water and captures nutrients.	acre	10	1	NA
E666130Z	AIR QUALITY IMPACTS	Emission of Greenhouse Gases (GHGs)					X	X	X	Increase on-site carbon storage	Increase on-site carbon storage	Use forest management techniques to maintain and increase on-site carbon storage. These include, but are not limited to, applying uneven-aged management, using longer rotations, retaining cavity/den trees, snags, and down woody debris, and protecting or increasing soil organic material.	acre	10	1	NA
E666132Z1	DEGRADED PLANT CONDITION	Undesirable Plant Productivity and Health					X	X	X	Crop tree management for mast production	Crop tree management for mast production	Forest stand improvement using crop tree management techniques to increase mast production	acre	10	1	NA
E666132Z2	DEGRADED PLANT CONDITION	Undesirable Plant Productivity and Health					X			Reduce forest stand density to improve a degraded plant community	Reduce forest stand density to improve a degraded plant community	Reducing forest stand density creates open forest conditions with a low basal area which promotes the health and vigor of the residual trees. The open stand structure allows a significant amount of sunlight to reach the forest floor and stimulates the growth of understory vegetation. Understory vegetation management, along with the wide spacing between trees or clumps of trees, provides visual appeal, lowers the risk of wildfire, and provides habitat for many at-risk and listed wildlife species. The enhancement creates conditions that facilitate a follow-up treatment with prescribed burning. This enhancement provides for management of the understory vegetation in a forested area, using mechanical, chemical or manual methods to improve the plant species mix and the health of the residual vegetation.	acre	10	1	NA
E666132Z3	DEGRADED PLANT CONDITION	Undesirable Plant Productivity and Health					X	X		Facilitating oak forest regeneration	Facilitating oak forest regeneration	Facilitate oak regeneration following a forest stand improvement treatment for natural oak regeneration (i.e., a regeneration cut). After a regeneration cut, oaks in the seedling and sapling stages are often out-competed by invasive brush and undesirable tree and shrub species. This enhancement will release seedling and sapling oaks from competing invasive plants and other undesirable species, and thin stump sprouts. A forester will monitor site conditions, treat competition, protect seedlings, and recommend additional follow-up treatments as needed. The enhancement protects investments in oak regeneration by providing for follow-up activities that require the expertise of a professional forester.	acre	10	3 (May be planned every other year)	No
E666133X	DEGRADED PLANT CONDITION	Inadequate Structure and Composition					X			Forest Stand Improvement to rehabilitate degraded hardwood stands	Forest Stand Improvement to rehabilitate degraded hardwood stands	Hardwood forest stands have been subject to poor logging practices ("high-grading ") for decades. Without professional forestry assistance the best species and individual trees are removed, often before maturity ("diameter-limit cutting"), leaving the poorest species and individual trees to regenerate the stand. Reversing this process requires cutting or killing poor quality trees while retaining any desirable species that might still be present. A combination of 3	acre	10	1	NA
E666133Z1	DEGRADED PLANT CONDITION	Inadequate Structure and Composition					X	X	X	Creating structural diversity with patch openings	Creating structural diversity with patch openings	Forest stand improvement that creates patch openings. Size and shape of patches will be based on characteristic natural wind disturbances, which will vary geographically and by forest type.	acre	10	1	NA
E666133Z2	DEGRADED PLANT CONDITION	Inadequate Structure and Composition					X			Converting loblolly and slash pine to longleaf plantations with forest stand improvement and prescribed burning	Converting loblolly and slash pine plantations to longleaf pine with FSI and prescribed burning	Longleaf pine has greater wildlife habitat value, is more resistant to insects and disease, and is better able to withstand hurricane-force winds than other southern pines, particularly loblolly and slash pines. Because of rapid early growth, loblolly and slash pines have often been planted on soils and sites better suited to longleaf. Loblolly and slash pine plantations can be converted to longleaf by clearcutting and planting seedlings but mature tree cover is then lost for 20 or more years. This enhancement will gradually convert an existing loblolly or slash pine plantation to longleaf while at the same time maintaining mature tree cover with the associated benefits of wildlife habitat and visual quality, and moderating effects on soil temperature, soil moisture and understory plants.	acre	10	1	NA

Activity List For Participants
Enhancements

Enhancement Code	Resource Concern	Resource Concern Cause	Crop (Annual and Mixed)	Crop (Perennial)	Pasture	Range	Forest	Associated Ag Land	Farmstead	Full Enhancement Name	Short Enhancement Name (from CPDES and used in Toolkit)	Enhancement Description	Units	Enhancement Lifespan	Max years enh. can be contracted	Use Suitable for Land Conversion
E666134Z	DEGRADED PLANT CONDITION	Excessive Plant Pest Pressure					X			Enhance development of the forest understory to create conditions resistant to pests	Enhance development of the forest understory to create conditions resistant to pests	Forest stand improvement that manages the structure and composition of overstory and understory vegetation to reduce vulnerability to damage by insects and diseases of forest trees. Managing the understory vegetation will also reduce the risk of wildfire, and promote development of herbaceous plants that benefit wildlife. This enhancement provides for management of the understory vegetation in a forested area, using mechanical, chemical or manual methods to improve the plant species mix and the health of the residual vegetation. These practices encourage the development of a less dense forested ecosystem. The canopy gaps and open understory allow for air circulation that reduces the incidence of disease, and the improved health of the residual trees increases their ability to withstand insect attacks. Forest stand improvement (FSI) activities are used to remove trees of undesirable species, form, quality, condition, or growth rate. The quantity and quality of forest for wildlife and/or timber production will be increased by manipulating stand density and structure. These treatments can also reduce wildfire hazards, improve forest health, restore natural plant communities, and achieve or maintain a desired native understory plant community for soil health, wildlife, grazing, and/or browsing.	acre	10	1	NA
E666135Z1	DEGRADED PLANT CONDITION	Wildfire Hazard, Excessive Biomass Accumulation					X			Reduce height of the forest understory to limit wildfire risk	Reduce height of the forest understory to limit wildfire risk	Forest stand improvement that manages forest structure to reduce the risk of wildfire, and creates conditions that facilitate prescribed burning. The fire risk reduction is accomplished by reducing the height of the woody understory and midstory, creating space between the ground cover and the tree canopy. This enhancement provides for management of the understory vegetation in a forested area, using mechanical, chemical or manual methods to improve the plant species mix and the health of the residual vegetation, and reduce the risk of wildfire. In appropriate stands, the treatment creates conditions that favor prescribed burning. Forest stand improvement (FSI) activities are used to remove trees of undesirable species, form, quality, condition, or growth rate. The quantity and quality of forest for wildlife and/or timber production will be increased by manipulating stand density and structure. These treatments can also reduce wildfire hazards, improve forest health, restore natural plant communities, and achieve or maintain a desired native understory plant community for soil health, wildlife, grazing, and/or browsing.	acre	10	1	NA
E666135Z2	DEGRADED PLANT CONDITION	Wildfire Hazard, Excessive Biomass Accumulation					X			Reduce forest density and manage understory along roads to limit wildfire risk	Reduce forest density and manage understory along roads to limit wildfire risk	Opening the tree canopy along roads ("daylighting"), and providing space between ground vegetation and tree crowns, minimizes the spread of wildfires that often start along roads. Additionally, opening the canopy will allow more sunlight to reach the forest floor and promote flowering plants, and will reduce maintenance needs by allowing moisture to evaporate from roads. The area along a forest road will have some trees removed through harvesting, cutting, mulching, or another option available at the site, with the objective of creating a partially open forest canopy bordering the road. The semi-open canopy provides a greater amount of sunlight reaching the forest floor, which with appropriate management will increase herbaceous ground cover. The open canopy and herbaceous understory minimizes woodland fuel and reduces the intensity of wildfires.	acre	10	1	NA
E666135Z3	DEGRADED PLANT CONDITION	Wildfire Hazard, Excessive Biomass Accumulation					X	X		Maintaining structural diversity in dry Western forests	Maintaining structural diversity in dry Western forests	This enhancement retains the beneficial effects of treatments that have been applied to restore ecological function in dry Western forests. It is implemented following a forest stand improvement treatment designed to restore variable and patchy conditions typical of benchmark ecological sites. After a restoration treatment, young trees often regenerate in numbers higher than desired, leading to increased fire risk and loss of wildlife habitat. The enhancement will address follow-up activities needed for maintaining forest structure. Site conditions will be monitored and follow-up treatments recommended as needed. The enhancement protects investments in habitat creation by providing for follow-up activities that require the expertise of a forester or wildlife biologist.	acre	10	5	No
E666136Z1	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food					X			Reduce forest density and manage understory along roads to improve wildlife food sources	Reduce forest density and manage understory along roads to improve wildlife food sources	Opening the tree canopy along roads ("daylighting") allows more sunlight to reach the forest floor and promotes the growth of herbaceous plants. The resulting condition is more visually appealing for users of the roadway, and improves wildlife habitat and food sources for many wildlife species. The area along a forest road will have some trees removed through harvesting, cutting, mulching, or another option available at the site, with the objective of creating a partially open forest canopy bordering the road. The semi-open canopy provides a greater amount of sunlight reaching the forest floor, which with appropriate management will increase herbaceous ground cover. The open canopy and herbaceous understory provides diverse habitat and food for wildlife.	acre	10	1	NA
E666136Z2	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food					X			Reduce forest stand density to improve wildlife food sources	Reduce forest stand density to improve wildlife food sources	Reducing forest stand density creates open forest conditions with a low basal area which promotes the health and vigor of the residual trees while promoting wildlife food sources in the understory. The open stand structure allows a significant amount of sunlight to reach the forest floor and stimulates the growth of understory vegetation. Understory vegetation management, along with the wide spacing between trees or clumps of trees, provides visual appeal, lowers the risk of wildfire, and provides food, cover, and shelter for many at-risk and listed wildlife species. The enhancement creates conditions that facilitate a follow-up treatment with prescribed burning. This enhancement provides for management of the understory vegetation in a forested area, using mechanical, chemical or manual methods to improve the plant species mix and the health of the residual vegetation.	acre	10	1	NA

Activity List For Participants
Enhancements

Enhancement Code	Resource Concern	Resource Concern Cause	Crop (Annual and Mixed)	Crop (Perennial)	Pasture	Range	Forest	Associated Ag Land	Farmstead	Full Enhancement Name	Short Enhancement Name (from CPDES and used in Toolkit)	Enhancement Description	Units	Enhancement Lifespan	Max years enh. can be contracted	Use Suitable for Land Conversion
E666136Z3	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food					X			Create patch openings to enhance wildlife food sources and availability	Create patch openings to enhance wildlife food sources and availability	Forest stand improvement that creates patch openings. Size, shape, and arrangement of patches will be based on natural features, and emulate patches that would result from natural disturbance regimes of wind or fire, varying geographically and by forest type, and by tree species desired from natural regeneration. The treatment will create diversity in stand composition and structure, and enhance wildlife food availability. Forest stand improvement (FSI) can be used to create small openings where all of the trees are removed. Creating openings may serve to restore natural plant communities, and achieve or maintain a desired understory plant community to provide wildlife habitat. Habitat for certain wildlife species is improved by increasing by the amount of edge, cover and diversity of the tract.	acre	10	1	NA
E666136Z4	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Food					X	X		Creating structural diversity in dry Western forests	Creating structural diversity in dry Western forests	Restore natural stand structure in dry Western forests by creating openings characteristic of reference ecological site conditions in stands where even thinning treatments have already been applied to reduce wildfire risk. Thinning treatments are effective in reducing fuels, but typically do not restore forest structural diversity to emulate benchmark or reference conditions. Applying this enhancement as a follow-up treatment will create a patchy structure that provides open areas where grasses and forbs can thrive and produce wildlife food and cover. The size, shape, and arrangement of openings will be based on moisture availability and site physiography, to emulate structural conditions that would result from natural disturbance regimes of wind and/or fire.	acre	10	1	No
E666137Z1	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter					X	X	X	Snags, den trees, and coarse woody debris for wildlife habitat	Snags, den trees, and coarse woody debris for wildlife habitat	Improve wildlife habitat through creation and retention of snags, den trees, forest stand structural diversity, and coarse woody debris on the forest floor, to provide cover/shelter for native wildlife species.	acre	10	1	NA
E666137Z2	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter					X	X	X	Summer roosting habitat for native forest-dwelling bat species	Summer roosting habitat for native forest-dwelling bat species	Create new potential roost trees within upland and riparian forests to achieve desired summer habitat for forest-dwelling bat species.	acre	10	1	NA
E666137Z3	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter					X	X	X	Increase diversity in pine plantation monocultures	Increase diversity in pine plantation monocultures	Create small openings to provide diversity in pine plantations, which are typically monocultures and inhospitable to wildlife. Small openings are one-half (0.5) to three (3) acres in size. The cleared area will have the vegetation removed through cutting, mulching, or other means compatible with the site.	acre	10	1	NA
E666137Z4	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter					X			Converting loblolly and slash pine plantations to longleaf pine to enhance wildlife habitat	Converting loblolly and slash pine plantations to longleaf pine to enhance wildlife habitat	Longleaf pine has greater wildlife habitat value, is more resistant to insects and disease, and is better able to withstand hurricane-force winds than other southern pines, particularly loblolly and slash pines. Because of rapid early growth, loblolly and slash pines have often been planted on soils and sites better suited to longleaf. Loblolly and slash pine plantations can be converted to longleaf by clearcutting and planting seedlings but mature tree cover is then lost for 20 or more years. This enhancement will gradually convert an existing loblolly or slash pine plantation to longleaf while at the same time maintaining mature tree cover with the associated benefits of wildlife habitat and visual quality, and moderating effects on soil temperature, soil moisture and understory plants.	acre	10	1	NA
E666137Z5	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter					X	X		Implementing sustainable practices for pine straw raking to enhance wildlife habitat	Implementing sustainable practices for pine straw raking to enhance wildlife habitat	Adopts guidelines for sustaining soil quality and wildlife habitat on sites where pine straw raking is currently practiced. Raking and removal of pine needles ("pine straw") provides valuable landscaping material but at a high cost to soil fertility, soil organic matter, wildlife habitat, and in some cases, soil compaction, soil erosion and water quality degradation. Straw removal also makes prescribed burning less feasible by removal of the fine fuels needed to carry frequent surface fires that maintain longleaf pine and its characteristic understory. This enhancement is most applicable to longleaf pine forestland because: (1) longleaf-dominated ecosystems with their characteristic suite of flora and fauna historically predominated in most places where pines are currently grown in the Southeast, and (2) longleaf is the favored species for pine straw operations.	acre	10	1	NA
E666137Z6	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter					X	X		Create patch openings to enhance wildlife cover and shelter	Create patch openings to enhance wildlife cover and shelter	Forest stand improvement that creates patch openings. Size, shape, and arrangement of patches will be based on natural features, and emulate patches that would result from natural disturbance regimes of wind or fire, varying geographically and by forest type, and by tree species desired from natural regeneration. The treatment will create diversity in stand composition and structure, and enhance the availability of wildlife cover and shelter. Forest stand improvement can be used to create small openings where all of the trees are removed. Creating openings may serve to restore natural plant communities, and achieve or maintain a desired understory plant community to provide wildlife habitat. Habitat for certain wildlife species is improved by increasing by the amount of edge, cover and diversity of the tract.	acre	10	1	NA

Activity List For Participants
Enhancements

Enhancement Code	Resource Concern	Resource Concern Cause	Crop (Annual and Mixed)	Crop (Perennial)	Pasture	Range	Forest	Associated Ag Land	Farmstead	Full Enhancement Name	Short Enhancement Name (from CPDES and used in Toolkit)	Enhancement Description	Units	Enhancement Lifespan	Max years enh. can be contracted	Use Suitable for Land Conversion
E666137Z7	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter					X	X	X	Enhance development of the forest understory to provide wildlife cover and shelter	Enhance development of the forest understory to provide wildlife cover and shelter	Forest stand improvement that manages the structure and composition of overstory and understory vegetation to improve the quantity and quality of wildlife cover and shelter. Reducing the number of trees per acre provides canopy openings that allow sunlight to reach the forest floor and promote the growth of herbaceous plants, improving wildlife shelter and cover in the forest understory. The treatment also creates conditions that facilitate the use of prescribed burning as a follow-up practice to maintain wildlife shelter and cover in fire-adapted forests. This enhancement provides for management of the understory vegetation in a forested area, using mechanical, chemical or manual methods to improve the plant species mix and the health of the residual vegetation. Where wildlife species have inadequate habitat or food, managing the understory in a forest can provide excellent food, shelter and cover.	acre	10	1	NA
E666137Z8	FISH and WILDLIFE-INADEQUATE HABITAT	Inadequate Habitat-Cover/Shelter					X	X	X	Forest songbird habitat maintenance	Forest songbird habitat maintenance	Adopts guidelines and methods developed by the Forest Bird Initiative of the Vermont Audubon Society, to preserve habitat features following a forest stand improvement treatment designed to create habitat for a suite of forest-dwelling neotropical migratory songbirds. It includes developing or updating a forest management plan, inspecting and tending forest habitat, and monitoring bird populations. It protects investments in habitat creation by providing for follow-up activities that require the expertise of a professional forester or biologist. This enhancement is appropriate for states in the Atlantic Flyway and the Upper Midwest.	acre	10	5	No

"++ This is simply a list of required state supplements and is not intended to limit any needed additional supplements that States may need to develop. States may supplement any enhancement as long as the requirements are not less restrictive than the requirements of the nationally developed criteria."

Activity List For Participants Bundles

Bundle Code	Eligible Land Uses							Bundle Name	Bundle Description	Units	Bundle Lifespan	Max years bundle can be contracted	Information States need to Develop Prior to Signup	Suitable for Voluntary Land Use Conversion
	Crop (Annual and Mixed)	Crop (Perennial)	Pasture	Range	Forest	Associated Ag Land	Farmstead							
B000BFF1	X	X				X		Buffer Bundle#1	Extend existing Buffers to address water quality degradation, fish/wildlife inadequate habitat, degraded plant condition plus an option for air quality impacts. Adopt E393118Z, E327136Z1, and E612133X1 as well as one of the following enhancements: E612130Z, E612136Z. This bundle will be applied one time and the enhancements maintained for their lifespan.	acre	15	1	See specific component enhancements.	NA
B000BFF2	X	X				X		Buffer Bundle#2	Extend existing Buffers to address water quality degradation, fish/wildlife inadequate habitat, degraded plant condition plus an option for air quality impacts. Adopt E393126Z, E327137Z, and E612133X1 as well as one of the following enhancements: E612130Z, E612136Z. This bundle will be applied one time and the enhancements maintained for their lifespan.	acre	15	1	See specific component enhancements.	NA
B000CPL10	X							YEAR 1 Irrigated Cropland (MRBI/Ogallala)	Addresses water quality degradation, insufficient water, soil erosion, and inefficient energy resource concerns. Adopt E590118Z or E590119Z, E449114Z8, E449144Z, and E340101Z or E340102Z. This bundle will be applied one time and the enhancements maintained for their lifespan.	acre	1	1	See specific component enhancements.	NA
B000CPL11	X							YEAR 2+ Irrigated Cropland (MRBI/Ogallala)	Addresses water quality degradation, insufficient water, and soil erosion resource concerns. Adopt E590118Z or E590119Z, E449114Z7, and E340101Z or E340102Z. This bundle may be applied multiple times.	acre	1	4	See specific component enhancements.	NA
B000CPL12	X							Non-Irrigated Precision Ag (MRBI)	Addresses water quality degradation, soil quality, and soil erosion resource concerns. Adopt E590118X or E590119X, E595116X, E340101Z or E340102Z, and E329106Z or E345106Z. This bundle may be applied multiple times.	acre	1	5	See specific component enhancements.	NA
B000CPL13	X							Non-Irrigated Cropland (MRBI)	Addresses water quality degradation, soil quality, and soil erosion resource concerns. Adopt E590118Z or E590119Z, E595116Z, and E340101Z or E340102Z. This bundle may be applied multiple times.	acre	1	5	See specific component enhancements.	NA
B000CPL14	X							YEAR 1 Irrigated Precision Ag Cropland (MRBI)	Addresses water quality degradation, insufficient water, soil erosion, and inefficient energy resource concerns. Adopt E590118X or E590119X, E449114Z8, E449144Z, and E340101Z or E340102Z. This bundle will be applied one time and the enhancements maintained for their lifespan.	acre	1	1	See specific component enhancements.	NA
B000CPL15	X							YEAR 2+ Irrigated Precision Ag Cropland (MRBI)	Addresses water quality degradation, insufficient water, and soil erosion resource concerns. Adopt E590118X or E590119X, E449114Z7, and E340101Z or E340102Z. This bundle may be applied multiple times.	acre	1	4	See specific component enhancements.	NA
B000CPL16	X							Non-Irrigated Cropland with Water Bodies (MRBI)	Addresses water quality degradation, soil erosion, and soil quality resource concerns. Adopt E590118Z or E590119Z, E595116Z, E340101Z or E340102Z, E329106Z or E345106Z, and E390118Z or E390126Z or E393118Z. This bundle may be applied multiple times.	acre	1	5	See specific component enhancements.	NA
B000CPL17	X							Non-Irrigated Cropland with Water Bodies Riparian Forest Buffer (MRBI)	Addresses water quality degradation, soil erosion, and soil quality resource concerns. Adopt E590118Z or E590119Z, E595116Z, E340101Z or E340102Z, E329106Z or E345106Z, and E391118Z or E391126Z. This bundle may be applied multiple times.	acre	1	5	See specific component enhancements.	NA
B000CPL18	X							Crop Bundle #18 - Precision Ag	Addresses water quality degradation, fish and wildlife inadequate habitat, air quality impairment, and either soil erosion or soil quality degradation resource concerns. Adopt E595116X, E590118X or E590119X, E328137Z, E329128Z or E345128Z, and E340101Z or E340102Z or E340107Z. This bundle may be applied multiple times.	acre	1	5	See specific component enhancements.	NA
B000CPL19	X							Crop Bundle #19 - Soil Health Precision Ag	Addresses water quality degradation, soil quality degradation, fish and wildlife inadequate habitat, and insufficient water resource concerns. Adopt E595116X, E590118X or E590119X, E328106Z1, E327136Z1, and E329115Z or E345115Z. This bundle may be applied multiple times.	acre	1	5	See specific component enhancements.	NA
B000CPL20	X							Crop Bundle #20 - Soil Health Assessment	Addresses water quality degradation, soil quality degradation, fish and wildlife inadequate habitat, and insufficient water resource concerns. Adopt E595116Z, E590118Z or E590119Z, E328106Z2, E327136Z1, and E329115Z or E345115Z. This bundle may be applied multiple times.	acre	1	5	See specific component enhancements.	NA

Activity List For Participants Bundles

Bundle Code	Eligible Land Uses							Bundle Name	Bundle Description	Units	Bundle Lifespan	Max years bundle can be contracted	Information States need to Develop Prior to Signup	Suitable for Voluntary Land Use Conversion
	Crop (Annual and Mixed)	Crop (Perennial)	Pasture	Range	Forest	Associated Ag Land	Farmstead							
B000CPL21	X							Crop Bundle #21 - Crop Bundle (Organic)	Adds soil quality degradation, water quality degradation, and degraded plant condition resource concerns. Adopt E484106Z, E595116Z, E590118Z or E590119Z, E393126Z, and E612133X1. This bundle may be applied multiple times.	acre	1	5	See specific component enhancements.	NA
B000CPL22	X							Crop Bundle #22 - Erosion Bundle (Organic)	Adds soil quality degradation, water quality degradation, soil erosion, and fish and wildlife inadequate habitat resource concerns. Adopt E328106Z1, E345106Z, E595116Z, E590118Z or E590119Z, E340101Z or E340102Z, and E327136Z1 or E327137Z. This bundle may be applied multiple times.	acre	1	5	See specific component enhancements.	NA
B000FST1					X			Forest Bundle#1	Address forest management on sites that are not adapted to natural fire disturbances. Address soil quality degradation, degraded plant condition, fish/wildlife inadequate habitat, and insufficient water. Adopt E666106Z2, E666132Z1, E666137Z1, E612137Z, and E666115Z2.	acre	15	1	See specific component enhancements.	NA
B000LLP1					X			Longleaf Pine Bundle#1	Improve conifer forest health through prescribed burning and grazing management. Address water quality degradation, degraded plant condition, and fish/wildlife inadequate habitat. Adopt E666137Z1, E338137Z1, E472118Z, E314133Z, and E391127Z.	acre	15	5	See specific component enhancements.	NA
B000LLP2					X			Longleaf Pine Bundle#2	Improve conifer forest health through prescribed burning and forest stand management. Address insufficient water, degraded plant condition, and fish/wildlife inadequate habitat. Adopt E666137Z1, E666133Z1, E666115Z2, E338137Z1, and E327136Z1.	acre	10	5	See specific component enhancements.	NA
B000LLP3					X			Longleaf Pine Bundle#3	Improve forest health and wildlife habitat through forest stand management. Address insufficient water, degraded plant condition, and fish/wildlife inadequate habitat. Adopt E666115Z2, E338137Z1, E666133Z1, E666137Z1, and E645137Z.	acre	10	5	See specific component enhancements.	NA
B000LLP4					X			Longleaf Pine Bundle#4	Improves forest health and wildlife habitat through conversion of forest stands that are not predominantly longleaf pine. Address insufficient water, degraded plant condition, and fish/wildlife inadequate habitat. Adopt E666115Z1, E338137Z1, E666133Z1, E666137Z1, and E666136Z2.	acre	1	5	See specific component enhancements.	NA
B000LLP5					X			Longleaf Pine Bundle#5	Improves conifer forest health through prescribed burning and forest stand management, and reduction of pine straw raking. Address soil quality degradation, degraded plant condition, insufficient water, and fish/wildlife inadequate habitat. Adopt E666137Z1, E666133Z1, E338137Z1, E666106Z1, and E666115Z2.	acre	1	5	See specific component enhancements.	NA
B000GRZ1			X	X				Grazing Bundle 1 - Range and Pasture	The participant will implement site specific strategies applied to range or pasture through the following enhancements: E528105Z, E315134Z, and E645137Z. This bundle may be applied multiple times in order to address soil erosion, degraded plant condition, and fish and wildlife inadequate habitat resource concerns.	acre	5	5	See specific component enhancements.	NA
B000GRZ2			X	X				Grazing Bundle 2 - Range and Pasture	The participant will implement site specific strategies applied to range or pasture through the following enhancements: E472118Z, E382136Z, and E580105Z. This bundle will be applied one time and the enhancements maintained for their lifespan in order to address water quality degradation, fish and wildlife inadequate habitat, and soil erosion resource concerns.	acre	20	1	See specific component enhancements.	NA
B000GRZ3			X	X				Grazing Bundle 3 - Range and Pasture	The participant will implement site specific strategies applied to range or pasture through the following enhancements: E472118Z, E390136Z, and E580105Z. This bundle will be applied one time and the enhancements maintained for their lifespan in order to address water quality degradation, fish and wildlife inadequate habitat, and soil erosion resource concerns.	acre	10	1	See specific component enhancements.	NA
B000GRZ4			X	X				Grazing Bundle 4 - Range and Pasture	The participant will implement site specific strategies applied to range or pasture through the following enhancements: E472118Z, E391136Z, and E580105Z. This bundle will be applied one time and the enhancements maintained for their lifespan in order to address water quality degradation, fish and wildlife inadequate habitat, and soil erosion resource concerns.	acre	15	1	See specific component enhancements.	NA
B000GRZ5			X	X				Grazing Bundle 5 - Range and Pasture	The participant will implement site specific strategies applied to range or pasture through the following enhancements: E528140Z1, E315134Z, and E645137Z. This bundle may be applied multiple times in order to address soil erosion, degraded plant condition, and fish and wildlife inadequate habitat resource concerns.	acre	5	5	See specific component enhancements.	NA

Activity List For Participants Bundles

Bundle Code	Eligible Land Uses							Bundle Name	Bundle Description	Units	Bundle Lifespan	Max years bundle can be contracted	Information States need to Develop Prior to Signup	Suitable for Voluntary Land Use Conversion
	Crop (Annual and Mixed)	Crop (Perennial)	Pasture	Range	Forest	Associated Ag Land	Farmstead							
B000PST5			X				Pasture Bundle 5	The participant will implement site specific strategies applied to pasture by selecting one of the following grazing management enhancements E528118Z1 or E528122Z, and implementing the following two enhancements E315134Z and E645137Z. This bundle may be applied multiple times in order to address soil erosion, degraded plant condition, and fish and wildlife inadequate habitat resource concerns.	acre	5	5	See specific component enhancements.	NA	
B000RNG4				X			Range Bundle 4	The participant will implement site specific strategies applied to range by selecting one of the following grazing management enhancements E528101Z, E528102Z, or E528107Z2 and implementing the following two enhancements E315134Z and E645137Z. This bundle may be applied multiple times in order to address soil erosion, degraded plant condition, and fish and wildlife inadequate habitat resource concerns.	acre	5	5	See specific component enhancements.	NA	

Note: Bundles that include the names of initiatives (MRBI, Ogallala, organic, Longleaf Pine) may be available in any state that offers the component enhancements. These bundles are not limited to the identified initiative areas.

**Activity List For Participants
Practices**

Practice Code	Crop (Annual and Mixed)	Crop (Perennial)	Pasture	Range	Forest	Associated Ag Land	Farmstead	Practice Name	Units	lifespan	Suitable for Land Use Conversion
311	X	X						Alley Cropping	ac	15	
314			X	X	X	X		Brush Management	ac	10	
315			X	X	X	X	X	Herbaceous Weed Control	ac	5	
319	X	X	X	X	X	X	X	On-Farm Secondary Containment Facility	no	15	
324	X	X						Deep Tillage	ac	1	
327	X	X			X	X	X	Conservation Cover	ac	5	
328	X							Conservation Crop Rotation	ac	1	
329	X							Residue and Tillage Management, No Till	ac	1	
333	X	X						Amending Soils with Gypsum Products	ac	1	
334	X	X						Controlled Traffic Farming	ac	5	
338			X	X	X	X		Prescribed Burning	ac	1	
340	X	X						Cover Crop	ac	1	
342	X	X	X	X	X	X	X	Critical Area Planting	ac	10	
345	X							Residue and Tillage management, Reduced till	ac	1	
348	X	X			X	X	X	Dam, Diversion	no	15	
373	X	X	X	X	X	X	X	Dust Control on Unpaved Roads and Surfaces	sq ft	1	
374	X	X	X		X	X	X	Farmstead Energy Improvement	no	10	
376	X	X						Field Operation Emissions Reduction	ac	1	
378			X	X				Pond	no	20	
380	X	X	X	X		X	X	Windbreak/Shelterbelt Establishment	ft	15	
381			X		X	X		Silvopasture Establishment	ac	15	
382	X	X	X	X	X	X	X	Fence	ft	20	
383	X	X	X	X	X	X	X	Fuelbreak	ac	10	
384					X	X		Woody Residue Treatment	ac	10	
386	X	X				X		Field Border	ac	10	
390	X	X	X	X	X	X	X	Riparian Herbaceous Cover	ac	5	
391	X	X	X	X	X	X	X	Riparian Forest Buffer	ac	15	
393	X	X				X	X	Filter Strip	ac	10	
394	X	X	X	X	X	X	X	Firebreak	ft	5	
395	X	X	X	X	X	X	X	Stream Habitat Improvement and Management	ac	5	
396	X	X		X	X	X	X	Aquatic Organism Passage	mi	5	
399	X	X	X	X	X	X	X	Fishpond Management	no	1	
410	X	X	X	X	X	X		Grade Stabilization Structure	no	15	
412	X	X				X	X	Grassed Waterway	ac	10	
422	X	X				X		Hedgerow	ft	15	
430	X	X	X		X	X	X	Irrigation Pipeline	ft	20	
441	X	X			X	X	X	Irrigation System, Microirrigation	ac	15	
442	X	X	X		X	X	X	Sprinkler system	ac	15	
443	X	X	X					Irrigation System, Surface and Subsurface	ac	15	
447	X	X	X					Irrigation System, Tailwater Recovery	no	15	
449	X	X	X		X	X	X	Irrigation Water Management	ac	1	
462	X							Precision Land Forming	ac	10	
464	X							Irrigation Land Leveling	ac	15	
466	X	X						Land Smoothing	ac	10	
472	X	X	X	X	X	X	X	Access Control	ac	10	
484	X	X	X	X	X	X	X	Mulching	ac	1	
490	X	X	X	X	X	X	X	Tree/Shrub Site Preparation	ac	1	
511	X	X	X					Forage Harvest Management	ac	1	

Activity List For Participants
Practices

Practice Code	Crop (Annual and Mixed)	Crop (Perennial)	Pasture	Range	Forest	Associated Ag Land	Farmsstead	Practice Name	Units	lifespan	Suitable for Land Use Conversion
512	X	X	X			X		Forage and Biomass Planting	ac	5	YES
516			X	X	X			Livestock Pipeline	ft	20	
528			X	X	X	X		Prescribed Grazing	ac	1	
533	X	X	X	X	X	X	X	Pumping Plant	no	15	
550				X				Range Planting	ac	5	YES
554	X	X				X		Drainage Water Management	ac	1	
557	X	X						Row Arrangement	ac	5	
558						X	X	Roof Runoff Structure	no	15	
561			X	X		X	X	Heavy Use Area Protection	sq ft	10	
570						X	X	Stormwater Runoff Control	no	1	
574			X	X		X		Spring Development	no	20	
576			X	X		X		Livestock Shelter Structure	no	10	
578	X	X	X	X	X	X	X	Stream Crossing	no	10	
580	X	X	X	X	X	X	X	Streambank and Shoreline Protection	ft	20	
587	X							Structure for Water Control	no	20	
590	X	X	X					Nutrient Management	ac	1	
595	X	X	X	X	X	X	X	Integrated Pest Management	ac	1	
604	X	X				X		Saturated Buffer	ft	15	
605	X	X				X		Denitrifying Bioreactor	no	10	
606						X		Subsurface Drain	ft	20	
610	X	X				X		Salinity and Sodic Soil Management	ac	1	
612	X	X	X	X	X	X	X	Tree/Shrub Establishment	ac	15	YES
614			X	X	X	X		Watering Facility	no	10	
620						X	X	Underground Outlet	ft	20	
643				X	X			Restoration and Management of Rare and Declining Habitats	ac	1	
644	X	X	X	X	X	X	X	Wetland Wildlife Habitat Management	ac	1	
645	X	X	X	X	X	X	X	Upland Wildlife Habitat Management	ac	1	
646	X	X		X	X	X		Shallow Water Development and Management	ac	5	
647	X	X	X	X	X	X	X	Early Successional Habitat Development/Management	ac	1	
649	X	X	X	X	X	X	X	Structures for Wildlife	no	5	
650	X	X	X	X		X	X	Windbreak/Shelterbelt Renovation	ft	15	
654	X	X	X	X	X	X	X	Road/Trail/Landing Closure and Treatment	ft	10	
655					X			Forest Trails and Landings	ft	5	
660	X	X	X	X	X	X	X	Tree/Shrub Pruning	ac	10	
666					X	X	X	Forest Stand Improvement	ac	10	
782	X	X	X		X	X	X	Phosphorus Removal System	no	10	