United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E612B

CONSERVATION STEWARDSHIP PROGRAM

Planting for carbon sequestration and storage

CONSERVATION PRACTICE: 612 - Tree/Shrub Establishment

APPLICABLE LAND USE: Forest

RESOURCE CONCERN: Air

ENHANCEMENT LIFE SPAN: 15 years

Enhancement Description

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

Criteria

- States will apply criteria from the NRCS National Conservation Practice Standard Tree/Shrub Establishment (Code 612), and any additional criteria as required by the NRCS State Office.
- Species will be selected for their rate of growth, lifespan, historic range, mature size, suitability for retention as wildlife or legacy species, and/or suitability for use in long-lived sustainable wood products as well as their adaptability to current and future site conditions, including soil type.
- To support forest-level carbon sequestration and storage, native plant communities, soil organic matter, standing and down woody material should be properly maintained.
- Selection of species should also be chosen according to the site's natural disturbance regime. Species should be selected based on traits, successional status, structure, and composition.
- Build forest resilience by favoring existing species that are better adapted to projected future climate conditions, and by enhancing relative compositional and structural diversity.

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

Documentation and Implementation Requirements

Participant will:

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

Species	Note selected species characteristic(s)

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

TASK	Species	Species	Species
Planting date			
Planting Technique			
Arrangement/Spacing			

NRCS will:

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

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

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

NRCS Documentation Review:

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

USDA United States Department of Agriculture

IDAHO SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

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Addtional Documentation Requirements

We don't have to measure or report on the amount of carbon being sequestered or stored, but we do have to describe how our planting will result in a gain or offset.
Recommend adding the following five bullet points to the forest management plan:

- Half of all forest carbon is in the soil. Reforestation, afforestation, biological rotation ages, best management practices included in the forest management plan all foster soil health, thus storing carbon long term.
- CO2e is a common metric for carbon sequestration and storage. CO2e is the carbon dioxide equivalent of a greenhouse gas over a set period – usually 100 years.
- 1 tree can remove about ½ metric ton of CO2e over the life of the tree.
- This FMP prioritizes long-lived species best adapted to the disturbance regime and manages trees on a biological rotation age, not a financial rotation age.
- Insects or disease could predicate harvesting before the biological rotation age or risk loss of carbon S/S.

Recommended species for carbon S/S and their biological rotation age:

- Thuja plicata, western red cedar: 200+ years
- Larix occindentalis, western larch; 120+ years
- Pinus ponderosa, ponderosa pine; 120+ years
- Picea engelmannii, Engelmann spruce; 300 years
- Psudotsuga menziesii, Douglas-fir; 120 years

The following species probably don't make the list of trees that store carbon long term if we use the CO2e as a metric:

- Pinus contorta, lodgepole pine; 80 years
- Abies grandis, Grand fir; 80 years
- Abies lasiocarpa, sub-alpine fir; 80 years