State Specific Training Module for Montana

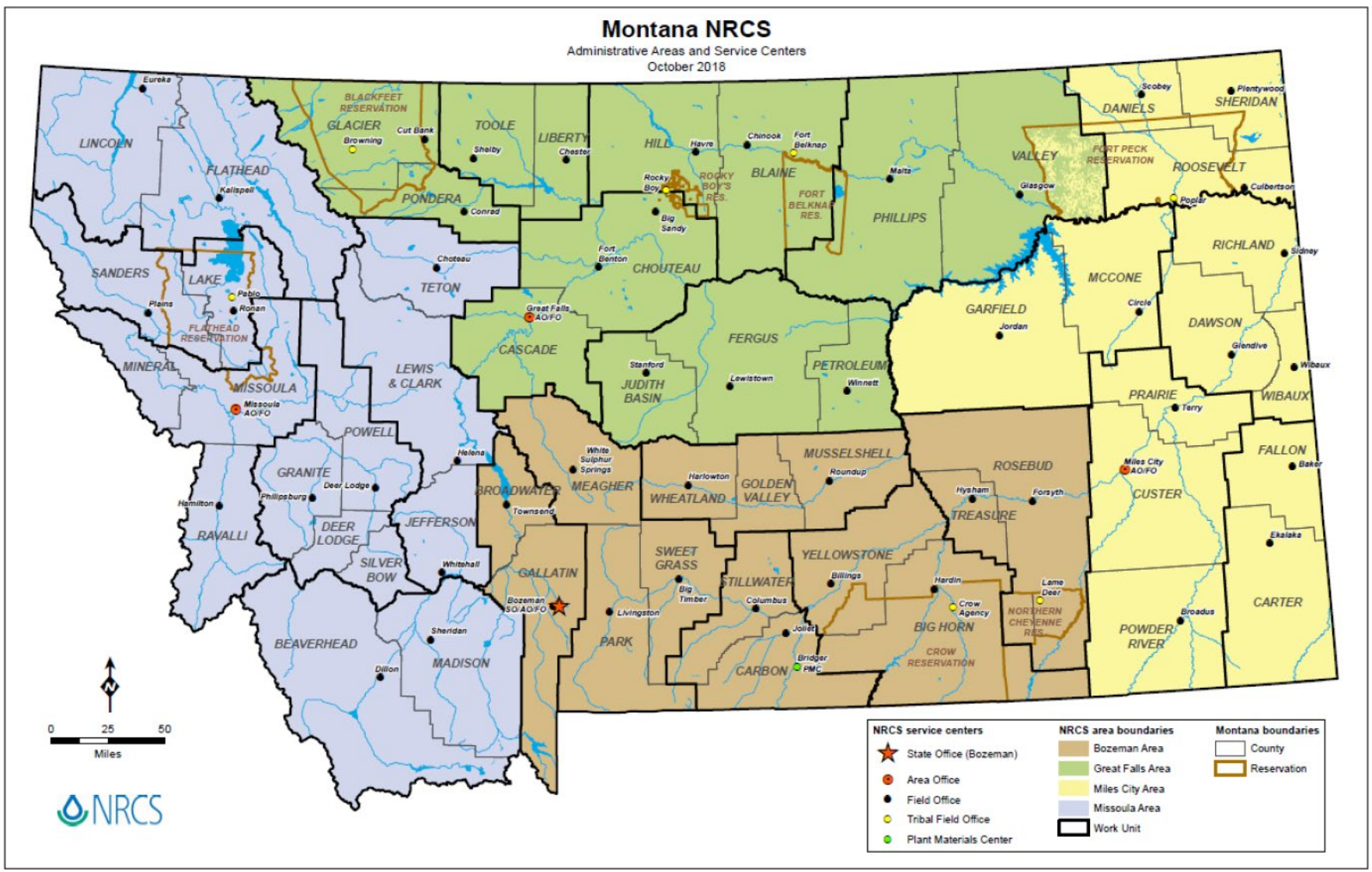
Purpose of this Module

This module will provide some general information that TSPs need to conduct conservation planning in our state. This information is general in nature so the TSP may need to follow up with additional reading or training to make sure they have the knowledge, skill, licenses and certifications to conduct conservation planning in this state.

Agricultural Statistics in Montana 2022(1)

- The average farm size is approximately 2,100 acres and the
- Average acres of cropland per farm is approximately 600 acres.
- There are approximately 2, 160,000 head of cattle and calves
- There are approximately 190,000 sheep and lambs
- All hogs and pigs numbered 225,000 in 2022

(1) Montana Agricultural Statistics, April 2023 www.nass.usda.gov/mt


Montana NRCS
Administrative Areas and Service Centers
October 2018
LINCOLN
FLATHEAD
SANDERS
LAKE
MINERAL
MISSOULA
RAVALLI
GRANITE
POWELL
DEER LODGE
SILVER BOW
BEAVERHEAD
JEFFERSON
MADISON
GALLATIN
PARK
BROADWATER
LEWIS & CLARK
TETON
PONDERA
GLACIER
TOOLE
LIBERTY
HILL
BLAINE
CHOUTEAU
CASCADE
FERGUS
JUDITH BASIN
MEAGHER
WHEATLAND
GOLDEN VALLEY
MUSSELSHELL
PETROLEUM
PHILLIPS
VALLEY
DANIELS
SHERIDAN
ROOSEVELT
RICHLAND
MCCONE
GARFIELD
DAWSON
PRAIRIE
WIBAUX
FALLON
CUSTER
ROSEBUD
TREASURE
YELLOWSTONE
STILLWATER
SWEET GRASS
CARBON
BIG HORN
CROW RESERVATION
NORTHERN CHEYENNE RES.
POWDER RIVER
CARTER
BLACKFEET RESERVATION
FLATHEAD RESERVATION
ROCKY BOY'S RES.
FORT BELKNAP RES.
FORT PECK RESERVATION
Eureka
Kalispell
Plains
Pablo
Ronan
Missoula AO/FO
Hamilton
Phillipsburg
Deer Lodge
Helena
Townsend
Whitehall
Bozeman SO;AO/FO
Livingston
Sheridan
Dillon
Browning
Cut Bank
Shelby
Chester
Conrad
Choteau
Great Falls AO/FO
Fort Benton
Big Sandy
Rocky Boy
Havre
Chinook
Fort Belknap
Malta
Glasgow
Scobey
Plentywood
Poplar
Culbertson
Sidney
Circle
Jordan
Glendive
Wibaux
Terry
Miles City AO/FO
Baker
Ekalaka
Broadus
Stanford
Lewistown
Winnett
White Sulphur Springs
Harlowton
Roundup
Hysham
Forsyth
Billings
Big Timber
Columbus
Joliet
Bridger
PMC
Hardin
Crow Agency
Lame Deer
0 25 50
Miles
NRCS service centers
State Office (Bozeman)
Area Office
Field Office
Tribal Field Office
Plant Materials Center
NRCS area boundaries
Bozeman Area
Great Falls Area
Miles City Area
Missoula Area
Work Unit
Montana boundaries
County
Reservation

Review of Major Land Ownership

Approximately 29% of this state is public lands. Most of the public land is managed for multiple use, and leases by individual ranchers is common. Conservation planning on private land may include a public component, however the opportunity for private individuals to construct permanent conservation practices on public lands is limited.

Review of State Laws

Agronomy - Nutrient Management in Montana – CAFO's

- Montana Department of Environmental Quality (DEQ)- Concentrated Animal Feeding Operations (CAFO's) Permit and Compliance Information.
- Permit information and forms
- Rules and regulation

Website: https://rules.mt.gov/gateway/ruleno.asp?RN=17%2E30%2E1330

Review of State Laws

Engineering in Montana

- Certain engineering practices require that the TSP be a certified Professional Engineer (PE). The PE can be required by the State of Montana. For questions regarding which practices require a PE please call the State Conservation Engineer.

Review of State FOTG Requirements

- All Technical Service Providers **must** be proficient with and use the Montana Field Office Technical Guide (FOTG). The FOTG has all of Montana's Conservation Practice Standards and Specifications in Section IV.

- Please access this link to Montana's FOTG: https://efotg.sc.egov.usda.gov/#/state/MT/documents

Review of Major Land Uses or Agronomic Practices

Most of the agricultural land in MT is about 66% pasture & range and 29% cropland.

- In the drier areas of the state the main crops are spring and winter wheat, barley, peas, lentils and canola either continuously cropped or with summer fallow.
- The main irrigated crops are alfalfa or grass for hay, silage or grazing, corn, potatoes, sugar beets, dry beans, wheat and barley.

Review of Cropland Resource Concerns

Soil Erosion Concerns

- Sheet and Rill erosion
    - Typical Conservation practices that can be used to address this concern:
        - 329– Residue Management No till
        - 328 – Conservation Crop Rotation
        - 340 – Cover Crop
- Concentrated Flow – tools to use to determine concentrated flow are visual and field surveys.
    - Typical Conservation practices that can be used to address this concern:
        - 329 – Residue Management No till
        - 386 - Field border
        - 342 - Critical Area Planting
        - 412 – Grassed Waterway
        - 512 Forage and Biomass Planting

Review of Cropland Resource Concerns

Soil Erosion Concerns

- Wind erosion – tools to use to determine erosion are visual survey, residue transects and WEPs.
- Typical Conservation practices that can be used to address this concern:
    - 329– Residue Management No till
    - 328 – Conservation Crop Rotation
    - 340 – Cover Crop
    - 603 - Herbaceous wind barriers
    - 386 - Field border

Review of Cropland Resource Concerns

Soil Quality Degradation

Organic Matter Depletion – tools to use to determine excessive bank erosion are WEPS or RUSLE2 Soil Condition index (SCI), Pasture Condition Score, soil testing.

- Typical Conservation practices that can be used to address this concern:
    - 329– Residue Management No till
    - 328 – Conservation Crop Rotation
    - 340 – Cover Crop
    - 590- Nutrient Management

Soil Quality Degradation – Compaction – tools to use to determine soil compaction are soil or plant condition, soil probes, bulk density test, infiltration tests.

- Typical Conservation practices that can be used to address this resource concern:
    - 329– Residue Management No till
    - 328 – Conservation Crop Rotation
    - 340 – Cover Crop

Review of Cropland Resource Concerns

Soil Quality Degradation - Concentration of salts leading to Salinity

Salinity – tools to use to determine soil salinity are soil diagnosis evaluations (visual observations, soil tests and EC meters)

- Typical Conservation practices that can be used to address this resource concern:
  - 328 -Conservation Crop Rotation
  - 512 – Forage and Biomass Planting
  - 610 – Salinity and Sodic Soil Management

Review of Cropland Resource Concerns

Water Quality Degradation – Excess nutrients in surface and ground waters

Excess Nutrients – tools to use to determine excess nutrients are Nitrogen Risk Assessment Tool, Phosphorous Index, nutrient applied based on soil tests and nutrient budgets, soil and water analysis and PCS Pasture Condition Score.

- Typical Conservation practices that can be used to address this resource concern:
  - 590 – Nutrient Management
  - 328 – Residue Management – No Till
  - 328 – Conservation Crop Rotation
  - 102 – Certified Nutrient Management Plan
  - 635 – Vegetative Treatment Area
  - 472 – Access Control

Review of Cropland Resource Concerns

Water Quality Degradation – Pesticides transported to surface and ground waters.

Pest Control chemicals are transported to surface and ground waters – tools to use to determine pesticides in receiving waters are visual observation of plant and soil condition and Windows Pesticide Screening Tool (Win-PST).

- Typical Conservation practices that can be used to address this resource concern:
  - 595 – Integrated Pest Management
  - 328 – Residue Management – No Till
  - 328 – Conservation Crop Rotation
  - 393 – Filter Strip

Review of Energy Resource Concerns

Energy is a major business expense, but now farmers and ranchers in Montana have a great opportunity to become more energy efficient.

Energy conservation can make a landowner even more competitive by cutting fuel and nitrogen inputs, reducing electrical energy use, and lowering operational costs.

- Activities within a farm or ranch enterprise that can be more energy efficient
    - Irrigation Pumping Plants
    - Building Envelopes
    - Lighting Systems
    - Motors/Variable Speed Drives
    - Crop/Tillage Systems

Review of Energy Resource Concerns

- Energy Audit

  The first step in taking advantage of energy-saving opportunities
- Implementation – typical improvements to address energy resource concerns
  - Lighting Improvement
    - LED
    - CFL
    - Linear Fluorescent
  - Building Envelopes
    - Attic and Wall Insulation
    - Sealants
  - Milkhouse Upgrades
    - Heat Exchangers (Plate Coolers)
    - Scroll Compressors
    - Automated Control Systems
    - General Motor Upgrades
    - Variable Seed Drives
    - High Efficiency and Radiant Tube Heaters

Review of Energy Resource Concerns

- Implementation, continued
  - Irrigation Improvement
    - Pumps, Variable Speed Drives
    - Turbine Bowls
    - Sprinkler Nozzle Packages
    - Conversion from Pump to Gravity Systems
  - Cropland Management
    - Conservation Crop Rotations
    - Cover Crop
    - Residue and Tillage Management
- Typical Conservation practices that can be used to address this energy resource concerns:
  - 374 – Farmstead Energy Improvement
  - 670 – Lighting System Improvement
  - 672 – Building Envelope Improvement
  - CAP 128 – Agricultural Energy Management Plan

Review of Forestry Resource Concerns

Soil Erosion Concerns After Wildfire

- Sheet and Rill and Wind erosion – tools to use to determine erosion are visual survey, WEPs and in some cases RUSLE2.
    - Typical Conservation practices that can be used to address this concern:
        - 484 - Mulching
        - 384 - Woody Residue Treatment
        - 342 - Critical Area Planting
- Concentrated Flow – tools to use to determine concentrated flow are visual surveys.
    - Typical Conservation practices that can be used to address this concern:
    - 484 - Mulching
    - 384 - Woody Residue Treatment
    - 342 - Critical Area Planting

Review of Forestry Resource Concerns

Soil Erosion Concerns (Cont.)
Excessive Bank Erosion – tools to use to determine excessive bank erosion are Stream Visual Assessment Protocol 2 (SVAP2) or visual observation and comparison with historic bank position and rates of retreat over recent time (within the last 10 years).

- Typical Conservation practices that can be used to address this concern:
  - 472 - Access Control
  - 391 - Riparian Forest Buffer
  - 612 - Tree and Shrub Establishment
  - 329– Residue Management No till
  - 512 – Forage and Biomass Planting
  - 550 – Range Planting
  - 342 - Critical Area Planting

- Soil Quality Degradation – Compaction – tools to use to determine soil compaction are soil probes.
  - Typical Conservation practices that can be used to address this resource concern:
    - 655 - Forest Trails and Landing
    - 384 - Woody Residue Treatment

Review of Forestry Resource Concerns

Soil Erosion Concerns (Cont.)

Excessive Bank Erosion – tools to use to determine excessive bank erosion are Stream Visual Assessment Protocol 2 (SVAP2) or visual observation and comparison with historic bank position and rates of retreat over recent time (within the last 10 years).

- Typical Conservation practices that can be used to address this concern:
  - 472 - Access Control
  - 391 - Riparian Forest Buffer
  - 612 - Tree and Shrub Establishment
  - 329– Residue Management No till
  - 512 – Forage and Biomass Planting
  - 550 – Range Planting
  - 342 - Critical Area Planting

Review of Forestry Resource Concerns

Soil Erosion Concerns (Cont.)

- Soil Quality Degradation – Compaction – tools to use to determine soil compaction are soil probes.
- Typical Conservation practices that can be use to address this resource concern:
  - 655 - Forest Trails and Landing
  - 384 - Woody Residue Treatment
- Soil Quality Degradation – Organic Matter Depletion – tools to use to determine OM depletion are soil tests.
- Typical Conservation practices that can be used to address this concern:
  - 384 - Woody Residue Treatment

Water Quality Issues

- Water Quality Degradation - Petroleum, Heavy metals, or other pollutants are transported to receiving waters. Tools to use to determine water quality degradation are observation in that pollution transport is not occurring in active treatment areas where refueling, maintenance service areas and landings exist.
- Typical Conservation practices that can be used to address this concern:
  - 655 - Forest Trails and Landings

Review of Forestry Resource Concerns

- Water Quality Degradation - Petroleum, Heavy metals, or other pollutants are

transported to receiving waters. Tools to use to determine water quality degradation are observation in that pollution transport is not occurring in active treatment areas where refueling, maintenance service areas and landings exist.

  - Typical Conservation practices that can be used to address this concern:

    - 391 - Riparian Forest Buffer
    - 612 - Tree and Shrub Establishment
    - 329– Residue Management No till
    - 512 – Forage and Biomass Planting
    - 342 - Critical Area Planting
    - 655 – Forest Trails and Landings

Review of Irrigation (Water Quantity) Concerns

- Irrigation efficiency needs to be addressed (water quantity)
  - A 10% efficiency improvement between present and planned practice must be documented by approved method found in EFOTG, Section III, "Resource Quality Criteria, Table 1.
  - Fields must have irrigation history, at least 2 of the last 5 years.
  - Incidental lands included in planned practice, limited to 5%.
- Typical Conservation Practices that can be Planned include:
  - 442 - Sprinkler System
  - 441 - Micro Irrigation
  - 449 - Irrigation Water Management
  - 533 - Pumping Plant
  - 587 - Structure for Water Control
  - 443 - Surface Irrigation
  - 388 - Field Ditch
  - 464 - Land Leveling

Review of Pasture/Rangeland Resource Concerns

- Soil Erosion – Tools used to determine erosion on pasture & rangeland: SVAP2, Environment Technical Note MT-2, Pasture Inventory Worksheet, Rangeland Health Assessment, Rangeland Trend Worksheet.

- Typical Conservation Practices that can be used to address soil erosion on range and pasture:
  - 528 – Prescribed Grazing

Review of Pasture/Rangeland Resource Concerns

- Soil Quality Degradation - Tools used to determine erosion on pasture & rangeland: Pasture Inventory Worksheet, Rangeland Health Worksheet, RUSLE2 or WEPS.
- Typical Conservation Practices that can be used to address soil quality degradation on range and pasture:
  - 528 – Prescribed Grazing
  - 511 – Forage Harvest Management
- Water Resources – Water Quality and Quantity – see irrigation concerns usually related to pasture.

Review of Pasture/Rangeland Resource Concerns

Animal Resource Concerns:

- Inadequate Habitat for Fish & Wildlife, Livestock Production Limitation, Inadequate livestock water. Tools to determine: SVAP2, ETN MT-2, Wildlife Habitat Evaluation Guides, Habitat Suitability Index, Feed/Forage Balance worksheet
- Typical Conservation Practices that can be used to address concern:
  - 645 – Upland Wildlife Habitat Management
  - 528 – Prescribed Grazing
  - 614 – Watering Facility
  - 516 – Livestock Pipeline
  - 642 – Water Well
  - 649 – Structures for Wildlife
  - 382 - Fence
  - 550 – Range Planting
  - 512 – Forage and Biomass Planting

Review of Wildlife Resource Concerns

Animal Resource Concern:

- Inadequate Habitat for Fish & Wildlife
- Tools to determine: SVAP2, Riparian Assessment – Using the NRCS Riparian Assessment Method Environment Technical Note MT-2, Wildlife Habitat Evaluation Guides, Habitat Suitability Index
- Typical Conservation Practices that can be used to address concern:
  - 396 –Aquatic Organism Passage
  - 645 – Upland Wildlife Habitat Management
  - 644 – Wetland Wildlife Habitat Management
  - 528 – Prescribed Grazing
  - 643 - Restoration and Management of Rare and Declining Habitat
  - 649 – Structures for Wildlife
  - 382 - Fence
  - 550 – Range Planting
  - 512 – Forage and Biomass Planting

Review of Cultural Resource Concerns

- Any ground disturbing practice must be evaluated by NRCS personnel per policy, or an archaeologist qualified according to Secretary of the Interior standards with notification to the NRCS State Archaeologist.
- The State Historic Preservation Office (SHPO) or Tribal Historic Preservation Office (THPO) consultation may need to be completed prior to ground disturbance (30 days).
- All consultation with Native American Tribes, the State Historic Preservation Office, or Tribal Historic Preservation Offices is an NRCS responsibility.

Review of National Environmental Policy Act Issues

- Technical Service Providers who are certified conservation planners will provide NRCS with the information necessary to assess:
  - Identified natural resource concerns along with treatment alternatives
  - Special environmental concerns: Environmental Laws, Executive Orders, and policies.
- This information will be documented according to NRCS State-specific procedures (i.e., Environmental Evaluation Worksheet, NRCS-CPA-52).
- TSPs will sign the NRCS-CPA-52 as the planner and NRCS will verify that the information provided is accurate and sign as the federal responsible official (RFO).

Review of Endangered Species Act Listed Species/Critical Habitat Consultation Issues

- Technical Service Providers will provide NRCS with the information necessary to assess whether Federal, State, or Tribal permits or consultation/conferencing with the Services is necessary.
  - Federally listed species information can be found at: https://www.fws.gov/office/montana-ecological-services
- This information will be documented according to NRCS State-specific procedures.
- In this context, TSPs do not represent NRCS and may not conduct required consultations, conferences, or other communication with entities outside of NRCS.

Expected TSP Workflow

- The State Resource Conservationist (SRC) will be responsible for reviewing and granting certification to TSPs for conservation planning purposes in Montana. For more information, please contact the SRC.

- Following certification subsequent conservation plans will be reviewed by the District Conservationist (DC) at the local USDA Service Center.

- The SRC will conduct plan reviews for TSP planner designation renewals.

- TSPs will work with the local District Conservationist to make sure the proper environmental evaluations (NRCS.CPA.52) are completed.

Additional References or Training

- Montana Field Office Technical Guide at: https://efotg.sc.egov.usda.gov/#/state/MT/documents
- Listing of training requirements for Level I Planner Certification in MT (MT-CPA-188): https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=43126.wba
- Montana Code Annotated 2014: 37-67-301. License required
- to practice or offer to practice.

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Certificate of Completion

After viewing the State Specific Training module, please print and sign the completion certificate on the following slide.

The certificate is your acknowledgement that based on the information provided in this module, you have the proper knowledge, skills and ability to conduct planning in this State.

Within your NRCS Registry profile, enter the training and upload the signed certificate to verify completion.

STATE SPECIFIC TRAINING MODULE COMPLETION CERTIFICATE

I, _____ hereby verify I have viewed and understand the content of *Montana* State
TSP Name

Specific Training Module and affirm I have the knowledge, skills, and ability to conduct conservation planning services in this state.

_____ _____

TSP Signature Date