Concepts of Planning, Certification, and Job Approval for Ecological Science


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judy.derricks@wi.usda.gov
OBJECTIVES: Conservation Planning

- Appreciate the 9 step planning process
- Identify and define Resource Concerns
- Analyze resource management in measurable terms
- Capture planning concepts

- Awareness of the Planning Certification Process
- Identify the types of planning certification
- Understanding of what is involved in becoming certified
- Knowledge of staying certified

- Job Approval Authority for Ecological Sciences (non-engineering)
Overview of Conservation Planning

Conservation Planning Principles of H.H. Bennett 1947

- Consider the needs and capabilities of each acre within the plan
- Consider the client’s facilities, machinery and economic situation
- Incorporate the client’s willingness to try new practices
- Consider the land’s relationship to the entire farm and watershed.
- Cultivate a cooperative relationship with the client
HISTORY REPEATS


........ “we want to ...reemphasize that conservation plans are the basis for all assistance NCS provides to landowners and operators and a basic tool for landowners to manage their land, water, and related natural resources. However, based on reviews and feedback, it appears conservation planning in many field offices is driven by farm bill program requirements, with practices being planned only to meet the requirements of specific programs....It is NRCS Policy that the conservation plan serves as the primary planning document to address identified resource concerns and meets the objectives of the landowners and operators. Programs are then used to help implement the conservation plan, rather than driving the planning process.....No conservation practice shall be installed without proper planning being completed first.”...
Food for thought...

“Agriculture is facing a huge loss of non-renewable resources... we can’t wait till 2050 to start. The clock’s ticking. We’re already at the tipping point. We must start planning now.”

Paul Farrell, MarketWatch
Overview of Conservation Planning

- Conservation planning is the basis for technical assistance with or without cost sharing.
- Conservation planning is based on a resource assessment and alternative solutions that meet the clients goals and ability to manage.
- Conservation planning policy, tools, references and format continue to evolve over time. Practice standards and specifications remain the sound science behind planning decisions.
- Today’s planner must be well trained with a diverse knowledge of resource management and agricultural production methods.
Planning Foundation Includes a positive relationship between these three:

- Producer
- Land
- Planner
Planning is a Process

Phase I: Collection and Analysis
1. Identify Problems
2. Determine Objectives
3. Inventory Resources
4. Analyze Resource Data

Phase II: Decision Support
5. Formulate Alternatives
6. Evaluate Alternatives
7. Make Decisions

Phase III: Application & Evaluation
8. Implement the Plan
9. Evaluate the Plan
NPWH Resource Concerns

- **SOIL EROSION**
  - Sheet, Rill, & Wind Erosion
  - Concentrated Flow Erosion
  - Excessive Bank Erosion From Streams, Shorelines, or Water Conveyance Channels

- **DEGRADED PLANT CONDITION**
  - Undesirable Plant Productivity and Health
  - Inadequate Structure and Composition
  - Excessive Plant Pest Pressure
  - Wildfire Hazard, Excessive Biomass Accumulation

- **SOIL QUALITY DEGRADATION**
  - Subsidence
  - Compaction
  - Organic Matter Depletion
  - Concentration of Salts and Other Chemicals

- **INADEQUATE HABITAT FOR FISH AND WILDLIFE**
  - Habitat Degradation (Food, Water, Cover/Shelter, and Habitat Continuity/Space)

- **EXCESS / INSUFFICIENT WATER**
  - Ponding, Flooding, Seasonal High Water Table, Seeps, and Drifted Snow
  - Inefficient Moisture Management
  - Inefficient Use of Irrigation Water

- **LIVESTOCK PRODUCTION LIMITATION**
  - Inadequate Feed and Forage
  - Inadequate Livestock Shelter
  - Inadequate Livestock Water

- **WATER QUALITY DEGRADATION**
  - Excess Nutrients in Surface and Groundwaters
  - Pesticides Transported to Surface and Groundwaters
  - Excess Pathogens and Chemicals From Manure, Bio-solids, or Compost Applications in Surface Waters and Groundwaters
  - Excessive Salts in Surface Waters and Groundwaters
  - Petroleum, Heavy Metals, and Other Pollutants, Transported to Waters
  - Excessive Sediment in Surface Waters
  - Elevated Water Temperature

- **AIR QUALITY IMPACTS**
  - Emissions of Particulate Matter (PM) and PM Precursors
  - Emissions of Greenhouse Gases (GHGs)
  - Emissions of Ozone Precursors
  - Objectionable Odors

- **INEFFICIENT ENERGY USE**
  - Equipment and Facilities
  - Farming/Ranching Practices and Field Operations
Resource Concern Based Planning

Soil Erosion - Sheet, rill, gully

Soil Erosion - Wind

Degraded Plant Condition

Water Quality
Degradation - Excessive nutrients in surface water
Soil Quality degradation - compaction

Soil Erosion - Bank Erosion

Soil Quality Degradation - Organic Matter Depletion
NRCS Nine Step Planning Process

Phase I 
Collection and Analysis
1. Identify Problems
2. Determine Objectives
3. Analyze Resource Data
4. Inventory Resources

Phase II 
Decision Support
5. Formulate Alternatives
6. Evaluate Alternatives
7. Make Decisions

Phase III 
Application & Evaluation
8. Implement the Plan
9. Evaluate the Plan
What is the Landowner Objective:
• Repair Erosion
• Understand Soil Health
• Gather Ideas on more practices
• Assess the situation
NRCS Step Three

Phase I
Collection and Analysis
1. Identify Problems
2. Determine Objectives
3. Analyze Resource Data
4. Inventory Resources

Phase II
Decision Support
5. Formulate Alternatives
6. Evaluate Alternatives
7. Make Decisions

Phase III
Application & Evaluation
8. Implement the Plan
9. Evaluate the Plan
Analyze Existing Resource Data

- Gather the Facts
- Get enough information to define a benchmark condition
- Provide information on SWAPAE + H (Soil, Water, Air, Plants, Animals, Energy + Humans)
- Use section III for guidance on the resource concern and always ground it in the practice standard
## Quality Criteria Assessment Tools: Section III FOTG

<table>
<thead>
<tr>
<th>Resource Concern</th>
<th>Description of Concern</th>
<th>Land Use</th>
<th>Screening Level</th>
<th>Basic Assessment Level</th>
<th>Assessment Methods or Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SOIL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Different receiving waters (303d listed, ORW, and ERW) or planning units may require a higher assessment level to achieve the desired resource requirements.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - SOIL EROSION - Sheet, rill, &amp; wind erosion</td>
<td>Detachment and transportation of soil particles caused by rainfall runoff/splash, irrigation runoff or wind that degrades soil quality</td>
<td>Crop</td>
<td>Permanent ground cover or residue &gt; 90% and slope &lt; 10%</td>
<td>Water (sheet and rill) erosion rate ≤ T</td>
<td>RUSLE2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Developed Land, Farmsteads, Associated AG Land, Designated Protected Area, Other Rural Land, Pasture</td>
<td>Permanent ground cover or residue &gt; 90% and slope &lt; 10%</td>
<td>Wind erosion rate ≤ T</td>
<td>WEPS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Forest</td>
<td>Soil surface organic residue cover (leaf litter, herbaceous plants) &gt; 80%</td>
<td>Site is stable and without visible signs of erosion</td>
<td>Client input &amp; Planner I&amp;E</td>
</tr>
</tbody>
</table>
NRCS Step 4

Phase I
Collection and Analysis

1. Identify Problems
2. Determine Objectives
3. Analyze Resource Data
4. Inventory Resources

Phase II
Decision Support

5. Formulate Alternatives
6. Evaluate Alternatives
7. Make Decisions

Phase III
Application & Evaluation

8. Implement the Plan
9. Evaluate the Plan

7. Make Decisions

6. Evaluate Alternatives

5. Formulate Alternatives

4. Inventory Resources

3. Analyze Resource Data

2. Determine Objectives

1. Identify Problems

NRCS Step 4
Resource inventory of Concentrated Flow - Classic Gully Erosion

- Identify the gully on the map
- Investigate the source of the problem
- Define the extent of the problem
- Quantify the problem...

Erosion Formula:
Depth * top width * bottom width * length *
   Years to form  (Example soil loss)

\[ 1.0 \times 10 + \frac{2}{2} \times 600 \times 80#/ft^3/2000#/ton \times \frac{1}{2} \text{ years} = \text{channel soil loss} \] 72 T/yr
### Define Resource Problem in measurable terms.

<table>
<thead>
<tr>
<th>EXAMPLE 1:</th>
<th>EXAMPLE 2:</th>
<th>EXAMPLE: 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repair erosion problem on field 12.</td>
<td>Resolve 73 Ton/year soil loss from gully as outlined on plan map.</td>
<td>10 ft deep gully moving 8 ft/year (73 T annual soil loss). Outlet is not stable. Moving into crop field as noted on plan map.</td>
</tr>
<tr>
<td>Tract 3002 is eroding</td>
<td>Field 12 of T3002 has a series of ephemeral &amp; sheet erosion on north end</td>
<td>R2 shows 8.3 T soil Loss on Field 12 T3002. Ephemeral erosion as noted on plan map. 12% residue on spring Chisel site.</td>
</tr>
</tbody>
</table>
NRCS Step Five Alternatives

Phase I
Collection and Analysis
1. Identify Problems
2. Determine Objectives
3. Analyze Resource Data
4. Inventory Resources

Phase II
Decision Support
5. Formulate Alternatives
6. Evaluate Alternatives
7. Make Decisions

Phase III
Application & Evaluation
8. Implement the Plan
9. Evaluate the Plan
Contour Stripcropping

No Tillage

Residue Management

Cover Crops

Field Border

Contour Buffer Strips

Formulating Alternatives...Step Five
NRCS Nine Step Planning Process

Phase I
Collection and Analysis
1. Identify Problems
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Phase II
Decision Support
5. Formulate Alternatives
6. Evaluate Alternatives
7. Make Decisions

Phase III
Application & Evaluation
8. Implement the Plan
9. Evaluate the Plan
### Step Six Evaluate the Alternatives:

<table>
<thead>
<tr>
<th>Crop</th>
<th>Soil Erosion - Concentrated Flow Erosion</th>
<th>Conservation practices and management are in place to prevent or control ephemeral gullies OR vegetated protection exists in channels (grassed waterways) within twice the RUSLE2 planning slope (from the top of the watershed) AND classic gullies are not present.</th>
<th>Vegetated protection exists in channels and grassed waterways, or other control practices exists within twice the RUSLE2 planning slope (from the top of the watershed)</th>
<th>Client input &amp; Planner I&amp;E</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>SOIL EROSION - Concentrated flow erosion</td>
<td></td>
<td></td>
<td>Tons/year ≤ 4 or ≤ T (ephemeral gullies)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ephemeral and Gully Erosion Worksheet</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>Capacity for design storms adequate</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td>Classic gully management is adequate to stop the progression of head cutting and widening and offsite impacts are minimized by vegetation and/or structures.</td>
</tr>
<tr>
<td>Forest, Farmsteads, Pasture, Developed Land, Associated Ag Land, Designated Protected Area, Other Rural Land</td>
<td>Classic gullies are not present. Classic gully management is adequate to stop the progression of head cutting and widening and offsite impacts are minimized by vegetation and/or structures.</td>
<td>Client input &amp; Planner I&amp;E</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Tons/year ≤ 4 (classic gullies)</td>
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</tr>
</tbody>
</table>

**Tons/year ≤ 4 (classic gullies)**

**Field measurements - Direct Volume method**

**[Density * (LxWxD)]/2000 years to form. Ephemeral and Gully Erosion Worksheet**
NRCS Step Seven-Make Decision

Phase I
Collection and Analysis
1. Identify Problems
2. Determine Objectives
3. Analyze Resource Data
4. Inventory Resources

Phase II
Decision Support
5. Formulate Alternatives
6. Evaluate Alternatives
7. Make Decisions

Phase III
Application & Evaluation
8. Implement the Plan
9. Evaluate the Plan

1. Identify Problems
2. Determine Objectives
3. Analyze Resource Data
4. Inventory Resources
5. Formulate Alternatives
6. Evaluate Alternatives
7. Make Decisions
8. Implement the Plan
9. Evaluate the Plan

NRCS Step Seven - Make Decision
NRCS Step Eight Implement
Construction
NRCS Step Nine: Evaluate the Plan

Phase I: Collection and Analysis
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Phase II: Decision Support
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7. Make Decisions

Phase III: Application & Evaluation
8. Implement the Plan
9. Evaluate the Plan
NRCS Planning Certification

“Compensating for a lack of Knowledge & Skill by doubling your efforts, creates no end to the things you shouldn’t do.”
### Apprentice Planner

- Not Authorized to Sign
- New inexperienced Planner
- Work will be approved by certified Planner

<table>
<thead>
<tr>
<th>AgLearn Courses</th>
<th>S&amp;T Webinars</th>
<th>NEDC or State Courses</th>
<th>On the Job</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservation Planning Part 1 - Modules 1-5</td>
<td>Environmental Evaluation Webinar Series No. 1: Primer on NRSC Environmental Compliance</td>
<td>Conservation Planning Business Tool Training (e.g. Toolkit or Conservation Desktop)</td>
<td>Assessment tools training specific to current duty location</td>
</tr>
<tr>
<td>Introduction to the Field Office Technical Guide</td>
<td>Environmental Evaluation Webinar Series No. 2: Documenting the Environmental Evaluation on the NRCS-CPA-52</td>
<td></td>
<td>Planning Criteria</td>
</tr>
<tr>
<td>Cultural Resources Training Series Part 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Quality Webinar Series No. 1-3</td>
<td>Soil health sustainability for field staff</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Basic Soils and Web Soil Survey to interpret land capabilities and limitations</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Certified Conservation Planner

- Major Job Duty of independent planning
- Progressive and Resource Management Plans for all land uses
- Approve or disapprove plans, follow Planning policy and Conservation Practice Standards.

<table>
<thead>
<tr>
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<th>NEDC or State Courses</th>
<th>On the Job</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutrient Management Track 1, Part 1</td>
<td>Environmental Evaluation Webinar Series No. 3-11</td>
<td>Conservation Planning Course Part 2- Modules 6-8 (instructor led) or Conservation Planning Boot Camp</td>
<td>Conservation Planning Course Part 3- Module 9 - Develop RMS plan, field observation of planning process, interaction with client, final plan</td>
</tr>
<tr>
<td>Pest Management Track 2, Part 1</td>
<td></td>
<td></td>
<td>Cultural Resources training series Part 2</td>
</tr>
<tr>
<td>Air Quality, Climate Change, and Energy</td>
<td></td>
<td>Fundamentals of Highly Erodible Land (HEL) and Wetland Conservation (WC) provisions</td>
<td></td>
</tr>
<tr>
<td>Water Quality Webinar Series No. 4-7</td>
<td></td>
<td>Economics of Conservation Planning</td>
<td>One of the “Working Effectively” courses</td>
</tr>
</tbody>
</table>
**Master Planner**

- State wide planning that follows the 9 step process without supervision for progressive and resource management plans
- Leads area wide conservation planning efforts by providing training and quality control reviews and spot checks.

<table>
<thead>
<tr>
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<th>NEDC or State Courses</th>
<th>On the Job</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Area-wide Conservation Planning Course</td>
<td>Submit area-wide conservation plan for review</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Assist State Conservationist’s designee with two state quality reviews</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Serve as an instructor along with a State Conservationist’s designee for two conservation planning training sessions</td>
</tr>
</tbody>
</table>
Area or statewide technical specialists capable of providing conservation planning assistance aligned with conservation planning procedures, and other requirements.

Provide training on components of conservation planning that relate to their area(s) of expertise on all land uses, provide support for area wide conservation planning efforts within the State, and perform quality assurance reviews and spot checks for conservation practices and conservation plans.
Requirements for Planning Certification in Wisconsin

1. BASIC PLANNING

2. Basic Agriculture
3. NEPA, Laws, & Policy
4. Soils, Land Use, Photos
5. Design, JAA, TSP, Policy
6. Nutrient & Pests, SH
7. Plant ID & Plant Science
8. Forestry & Wildlife
Ecological Science

Job Approval Authority
What is Happening in Resources JAA?

- National JAA Policy is out defining Ecological Science JAA practices and Planning requirements.
- New software supports JAA both engineering & Resources
- JAA will tie into CDSI Planning and application flow
- This will ensure the competency of NRCS employees to plan, apply and certify practices
- This process will substantiate the credibility and trust of NRCS with State License boards, agencies, and others.
- This system creates a uniform national policy for JAA
How does JAA work?.....

Three CP phases for ESJAA:

- **Inventory and evaluation (I & E) planning** — Individuals with inventory/evaluation and planning ESJAA will have adequate KSAs to assess resource concerns and recommend appropriate CP alternatives so that the client can make a decision on which CP will be planned as part of the conservation system.

- **Design and development of conservation practice requirements** — Individuals must demonstrate competence to design ES CP for site-specific conditions to meet NRCS standards consistent with client objectives and the selected conservation management system.

- **Installation oversight and certification** — confirmation that the practice is installed according to the conservation practice standard and certification of practice completion.
Opening Screen

SKILLS MATRIX DATABASE

Data Entry
- JAA Data Entry
- Establish User Profile

Data Edits
- Edit User Profile

Reports
- Print Latest Skills Matrix Master
- Create Report For an Individual
- Create a Report
- Discipline Lead Report
- KSA Report

For Approvers Only
- Delegate JAA for Individuals
- Delegate JAA by Category
- Concur an Individual’s Skill Matrix

Exit Application
## Example Report

### Skills Matrix Worksheet

**Name:** Alan V. Davis  
**Title:** Rangeland Specialist  
**Concurrent by:** Anthony Burns  
**Title:** Area Resource Conservationist  
**Location:** State Office  
**Date:** 5/24/2016

### Ethics Statement

In exercising Job Approval Authority as shown below, I agree to utilize my assigned technical approval authority only for work that I am competent and qualified to perform. Economic, social, cultural, and environmental impacts will be considered before a conservation practice is recommended. I will seek assistance from others when complicating factors warrant.

I also understand that conservation practices can have negative effects on some resources. I agree to consider the impacts of practices on all resources before recommending their use.

<table>
<thead>
<tr>
<th>Conservation Practice</th>
<th>Lead Discipline</th>
<th>Controlling Factor</th>
<th>Units</th>
<th>Job Class</th>
<th>MAX APPR AUTHORITY</th>
<th>Approved by</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alley Copping</td>
<td>EcoSci</td>
<td>ESD For</td>
<td>Number of tree species</td>
<td>1, 2, 3</td>
<td>All</td>
<td>3, 2, 1</td>
<td>Bob Graham</td>
</tr>
<tr>
<td>Brush Management</td>
<td>EcoSci</td>
<td>ESD For</td>
<td>Treatment type</td>
<td>Mechanical, chemical, hand</td>
<td>All</td>
<td>5, 5, 5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EcoSci</td>
<td>ESD For</td>
<td>Ecological Sites</td>
<td>Number</td>
<td>1, 5, 10, all</td>
<td>3, 2, 1</td>
<td></td>
</tr>
</tbody>
</table>
## Example Report

### Skills Matrix Worksheet

<table>
<thead>
<tr>
<th>Conservation Practice</th>
<th>Lead Discipline</th>
<th>Controlling Factor</th>
<th>Units</th>
<th>Job Class I</th>
<th>Job Class II</th>
<th>Job Class III</th>
<th>Job Class IV</th>
<th>Job Class V</th>
<th>Max Appr Authority I and II</th>
<th>Design/Planning</th>
<th>Const/Install</th>
<th>Approved by</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carly Turner</td>
<td>EcoSci</td>
<td>ESD-Agro</td>
<td>NA</td>
<td>all</td>
<td>all</td>
<td>all</td>
<td>all</td>
<td>all</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>Bob Graham</td>
<td>5/24/2016</td>
</tr>
</tbody>
</table>
Scroll through Records and Approve JAA

If you need to Grant Approval for a practice that has not been entered for an individual, you need to go back to the Main Menu and click the button "JAA Data Entry", enter data, and then come back to the screen to Grant Approval.

Area: Central
Team: South Central
Location: Montgomery
Name: Carly Turner
Practice Code: 327
Practice Purpose: Conservation Cover
Matrix Last Updated by Individual On: 5/17/2016

Current Value is Displayed  Type New Value (if applicable) to the box next to Current Value

T & E / Planning: 5  Design / Development: 5  Const / Install / Cert: 5

Comments:
NEW Comments:

*NEW Comments will completely replace original comments. If you want to keep original comments AND type NEW Comments, copy and paste original comments into NEW Comments and then type additional comments.

Concurred By: Anthony Burns
Concurred By Title: Area Resource Conservationist
Concurred By Date: 7/3/2015

Approved By: Bob Graham
Approved By Date: 5/24/2015

I Approve the Job Approval Authority As Shown Above

Type your name: First Last (ie., Steve Durbin)
Approved By:
Approved By Date (MM/DD/YYYY): *if date field is left blank, today’s date will automatically be used

If not already populated, select the Supervisor that will need to concur this skill matrix.

Anthony Burns

Please send an email to the chosen Supervisor indicating this update. NOTE: Make sure outlook is running (you may have to activate outlook in order to send the message).

Use the arrow to scroll through all the records returned as a result of your search criteria.
Questions?