



Conservation Planning in Maryland Essential Knowledge, Skills, and Abilities Leading to Certification

I. Resource Inventory and Analysis

Knowledge, Skill, or Ability	One should be able to:	Courses, sources or training opportunities ¹
1. Ability to use the soil survey and to understand basic soils information.	a. Determine the location of a farm or other land unit on a soil survey map. b. Explain the general concepts of soil series and mapping units. c. Use the published soil survey and Section II of the Field Office Technical Guide to determine the important properties of soils found on a land unit (e.g., surface texture, slope, permeability, pH, depth to groundwater, frequency of flooding, etc.). d. Explain how soil properties may affect crop production, land use decisions, and alternative treatments.	NEDC Conservation Planning Course, Modules 6-9 (classroom & field) Section II - FOTG Soil Survey Manual National Soil Survey Center (http://soils.usda.gov/contact/nssc/)
2. Ability to develop and document soil loss predictions and assess soil quality.	a. Explain the difference between USLE and RUSLE2, and when one should be used versus the other. b. Identify the factors used in RUSLE2. c. Explain how these factors are derived or where they can be found. d. Define "T." e. Define and explain the difference between sheet and rill, ephemeral, gully and geologic erosion. f. Demonstrate the correct procedure for estimating ephemeral and gully erosion. g. Measure and estimate crop residue and ground cover. h. Assess and discuss soil quality associated with various cropping systems and tillage methods, using values derived from the Soil Conditioning Index (SCI) and Soil Tillage Intensity Rating (STIR) in RUSLE2.	NEDC Conservation Planning Course, Modules 6-9 (classroom & field) In-state RUSLE2 workshops Section I - FOTG NRCS RUSLE2 website and tutorial (http://fargo.nserl.purdue.edu/rusle2_dataweb/RUSLE2_Index.htm)

¹ "Courses, Sources or Training Opportunities" represents just a partial list of references useful for achieving necessary skills and competencies related to NRCS Certification as a Conservation Planner.

I. Resource Inventory and Analysis (Cont.)

Knowledge, Skill, or Ability	One should be able to:	Courses, sources or training opportunities
3. Ability to identify plants common to the work area.	a. Identify common row crops, such as corn, soybeans, small grains (wheat, oats, barley, rye), fruit and vegetable crops. b. Identify commonly-used forage and conservation cover plantings, including grasses, legumes, trees, and shrubs. c. Identify naturally-occurring plants, including common trees, shrubs, and herbaceous species. d. Identify state-listed noxious weeds: johnsongrass, shattercane, and various thistles. e. Use published field guides, plant keys, and other references to identify unknown plant species.	NEDC Conservation Planning Course, Modules 6-9 (classroom & field) Wetland delineation training and workshops Extension Service Field Days Scheduled pasture walks and demonstrations Purdue Forage Plant ID (http://www.agry.purdue.edu/ext/forages) Plants Database (http://plants.usda.gov/)
4. Ability to measure and estimate crop residue and ground cover.	a. Identify and explain the four most common methods for estimating ground cover. b. Compare the effects of various tillage operations on ground cover and utilize this information in developing soil loss calculations.	University of Nebraska publication - Estimating Percent Residue Cover (http://www.ipm.iastate.edu/ipm/icm/node/1306/print)
5. Ability to identify and document the presence of Highly Erodible Land (HEL).	a. Explain the factors that are used to define HEL land. b. Demonstrate the correct procedure for determining whether or not a field is highly erodible. c. Document the HEL determination in the conservation plan folder using an approved soil loss worksheet. d. Mark the location of HEL fields on the conservation plan map.	NEDC Conservation Planning Course, Modules 6-9 (classroom & field) NRCS Food Security Act Manual, Part 511
6. Ability to recognize, document, and discuss sources of agricultural pollution.	a. Identify existing and potential sources of sediment, other particulates, and nutrients that may be delivered to surface waters. b. Identify existing and potential sources of groundwater contamination, including improper storage or disposal of animal wastes, pesticide handling facilities, and pesticide and nutrient application methods.	NEDC Introduction to Water Quality (http://www.aglearn.usda.gov/)

I. Resource Inventory and Analysis (Cont.)

Knowledge, Skill, or Ability	One should be able to:	Courses, sources or training opportunities
<p>7. Ability to interpret soil test results and nutrient management recommendations including the development of a Phosphorus Site Index Rating for a field.</p>	<p>a. Explain who is required to have a nutrient management plan in Maryland. b. Explain the required components of a nutrient management plan in Maryland. c. Distinguish between the requirements of a nitrogen vs. phosphorus based nutrient management plan. d. Explain the individual elements used in calculating the Phosphorus Index and how these affect nutrient use.</p>	<p>NEDC Conservation Planning Course, Modules 6-9 (classroom & field) Maryland Nutrient Management Regulations MD Nutrient Management Certification Training Manual and Workshops MD NM Continuing Education workshops MD Cooperative Extension Agricultural Nutrient Management www.agnr.umd.edu/users/agron/nutrient)</p>
<p>8. Ability to recognize and document cultural resources.</p>	<p>a. Describe what "cultural resources" are and how Federal and State Laws protect them. b. Describe sources of information about cultural resources that are available within and outside of the field office. c. Recognize cultural resources in the field when conducting a field inventory. d. Document the presence or absence of cultural resources according to accepted procedures. e. Describe the steps to be taken when a conservation practice or activity may adversely affect cultural resources. f. Describe the steps to be taken when cultural resources are discovered during construction.</p>	<p>Section II - FOTG http://efotg.nrcs.usda.gov NEDC Conservation Planning Course, Modules 6-9 (classroom & field) NEDC Cultural Resources Training Series, Modules 1-6 (http://www.aglearn.usda.gov/) NRCS General Manual 190 Part 410 - Compliance with NEPA http://policy.nrcs.usda.gov NRCS Cultural Resources Agreement http://www.achp.gov/nrcs.html</p>
<p>9. Ability to conduct and document a basic wetland delineation.</p>	<p>a. Describe what a "jurisdictional wetland" is and how Federal and State Laws protect jurisdictional wetlands. b. Describe sources of information about wetlands and wetland regulations that are available within and outside of the field office. c. Recognize wetlands in the field when conducting a field inventory. d. Document the presence or absence of wetlands according to accepted procedures. e. Delineate the extent of wetlands in the field and on an aerial photo. f. Describe the steps to be taken when a proposed conservation practice or activity may adversely affect wetlands.</p>	<p>NEDC Conservation Planning Course, Modules 6-9 (classroom & field) 1987 Corps of Engineers Wetlands Delineation Manual NRCS Food Security Act Manual, Part 514 NRCS General Manual 190 Part 410 Compliance with NEPA http://policy.nrcs.usda.gov Wetland delineation training and workshops Maryland Critical Area Commission</p>

I. Resource Inventory and Analysis (Cont.)

Knowledge, Skill, or Ability	One should be able to:	Courses, sources or training opportunities
<p>10. Ability to conduct and document a basic pasture and forage inventory.</p>	<p>a. Determine the pasture and forage species currently used by the producer.</p> <p>b. Document the condition of the stand: percent ground cover, grazing/cutting height, stocking rate.</p> <p>c. Determine the relative forage quality and composition of each field.</p>	<p>NEDC Conservation Planning Course, Modules 6-9 (classroom & field)</p> <p>NEDC Pastureland Ecology Course</p> <p>Scheduled pasture walks, demonstrations, and workshops</p> <p>Maryland Grazing Handbook</p> <p>National Range and Pasture Handbook (http://policy.nrcs.usda.gov)</p> <p>Purdue Forage Plant ID (www.agry.purdue.edu/ext/forages)</p> <p>Plants Database (http://plants.usda.gov/)</p>

II. Formulate and Evaluate Alternatives

Knowledge, Skill, or Ability	One should be able to:	Courses, sources or training opportunities
<p>1. Knowledge of conservation practices and systems common to the work area.</p>	<p>a. List the conservation practices commonly used in the geographic region, describe their purpose(s), and where and how they are applied.</p> <p>b. Recognize commonly used practices in the field.</p> <p>c. Describe how practices function in a conservation system to address soil erosion, water quality, and other resource concerns.</p> <p>d. Develop appropriate conservation system alternatives for each land use (e.g., cropland, pasture, hayland, etc.), taking into consideration the client's objectives, identified resource concerns, and constraints such as cost, availability of equipment, access, and regulatory or cost-share requirements.</p>	<p>NEDC Conservation Planning Course, Modules 6-9 (classroom & field) NRCS Field Office Technical Guide, Sections I-V (http://efotg.nrcs.usda.gov) NRCS National Planning Procedures Handbook (http://policy.nrcs.usda.gov)</p>
<p>2. Knowledge and understanding of the Field Office Technical Guide (FOTG) and related Handbooks.</p>	<p>a. Describe, in general, the contents of each major section (Sections I -V) of the FOTG.</p> <p>b. Describe, in general, the contents of the following federal and state handbooks referenced in the FOTG, such as: · · NRCS National Planning Procedures Handbook · · Maryland Nutrient Management Manual · NRCS Agricultural Waste Management Field Handbook · Maryland Wildlife Biology and Management Handbook</p>	<p>NEDC Conservation Planning Course, Modules 1-9 (http://www.aglearn.usda.gov/) NRCS Field Office Technical Guide, Sections I-V NRCS National Planning Procedures Handbook (http://policy.nrcs.usda.gov) Maryland Nutrient Management Manual (http://www.mda.state.md.us/resource_conservation/nutrient_management/manual/index.php) NRCS Agricultural Waste Management Field Handbook (http://www.wsi.nrcs.usda.gov/products/W2Q/AWM/handbk.html) Maryland Wildlife Biology and Management Handbook</p>

II. Formulate and Evaluate Alternatives (Cont.)

Knowledge, Skill, or Ability	One should be able to:	Courses, sources or training opportunities
<p>3. Knowledge and understanding of federal, state, and local regulations and programs that affect conservation planning and land use decisions.</p>	<ul style="list-style-type: none"> a. Identify the federal, state, and local agencies that have regulatory or resource responsibilities for environmental concerns, such as nutrient management, HEL, tidal and non-tidal wetlands, waters of the State and United States, 100-year floodplains, riparian areas, scenic and wild rivers, prime farmland, threatened and endangered species, cultural resources, and other significant concerns in the work area. b. Provide a general explanation of the pertinent federal, state, and local regulations that affect the above-listed environmental concerns. c. Describe sources of information for the various federal, state, and local regulations that are available within and outside of the field office. d. Provide a general explanation of the purpose of various USDA programs (e.g., EQIP, WHIP, CRP/CREP, WRP), and the types of conservation practices and assistance included in those programs. e. Provide a general explanation of the purpose of various state programs (e.g., MACS, MALPF), and the types of practices and assistance included in those programs. f. Identify the potential for using federal and/or state programs to achieve the client's objectives and address resource concerns. g. Describe sources of information available within and outside of the field office for clients who wish to pursue enrollment in federal and/or state programs. 	<p>NEDC Conservation Planning Course, Modules 6-9 (classroom & field)</p> <p>In-state training workshops</p> <p>Section I - FOTG</p> <p>NRCS Food Security Act Manual, Parts 510-514</p> <p>COE Section 404 permits (www.nab.usace.army.mil/Regulatory) and (www.epa.gov/owow/wetlands)</p> <p>Code of Maryland Regulations (COMAR) for the following concerns (on-line at www.dsd.state.md.us):</p> <p>Historical & Cultural Programs (COMAR 05.08.01-.08)</p> <p>Threatened and Endangered Species (COMAR 08.02.12 and 08.03.08)</p> <p>Forest Conservation (COMAR 08.19.01-.06)</p> <p>Soil and Water Conservation (COMAR 15.20.01-.08)</p> <p>Water Quality (COMAR 26.08.02)</p> <p>Construction on Nontidal Waters and Floodplains (COMAR 26.17.04)</p> <p>Nontidal Wetlands (COMAR 26.23.01-.06)</p> <p>Tidal Wetlands (COMAR 26.24.01-.05)</p> <p>USDA-NRCS Conservation Programs Manual</p> <p>Maryland Agricultural Cost-Share (MACS) Manual</p>

II. Formulate and Evaluate Alternatives (Cont.)

Knowledge, Skill, or Ability	One should be able to:	Courses, sources or training opportunities
4. Ability to conduct and document an Environmental Evaluation.	a. Describe the positive and negative effects of conservation practices and systems common to the work area, including consideration of the social, economic, and ecological factors that influence planning. b. Use the environmental evaluation process to determine and document the effects of alternative practices or systems on environmentally sensitive resources.	NEDC Conservation Planning Course, Modules 6-9 (classroom & field) NRCS Field Office Technical Guide, Sections I-V NRCS National Planning Procedures Handbook (http://policy.nrcs.usda.gov)
5. Ability to discuss issues associated with native vs. introduced plant species.	a. Define and explain the difference between native, introduced, noxious, and invasive species. b. Discuss the purpose and intent of Executive Order 13112 of February 3, 1999 --Invasive Species.	NEDC Conservation Planning Course, Modules 6-9 (classroom & field) NRCS Plants Database (http://plants.usda.gov) Executive Order 13112 (http://www.invasivespecies.gov/laws/execorder.shtml)
6. Ability to evaluate and discuss fish and wildlife habitat alternatives.	a. Identify and evaluate the habitat needs of individual fish and wildlife species or groups of species common to the work area. b. Select conservation practices and practice components that will meet the seasonal habitat requirements of the desired species. c. Evaluate and describe the effects of conservation practices and systems on fish and wildlife habitat.	NEDC Conservation Planning Course, Modules 6-9 (classroom & field) Maryland Wildlife Biology and Management Handbook NEDC Introduction to Ecological Principles: A Basic Biology Course
7. Ability to evaluate and discuss prescribed grazing alternatives.	a. Identify and evaluate the food, forage, and water requirements of livestock common to the work area and be able to develop a food and forage balance incorporating grazing system principles. b. Select conservation practices and practice components that will meet the seasonal food, forage, and water needs of the desired livestock and be able to integrate these practices and components into an overall system that is feasible to implement. c. Evaluate and describe the effects of conservation practices and systems on the following: health and vigor of the pasture plant community, livestock health and productivity, soil erosion and water quality, and sustainability of the grazing system.	NEDC Conservation Planning Course, Modules 6-9 (classroom & field) NEDC Pastureland Ecology Course Scheduled pasture walks, demonstrations, and workshops Maryland Grazing Handbook National Range and Pasture Handbook (http://policy.nrcs.usda.gov) Purdue Forage Plant ID (www.agry.purdue.edu/ext/forages) Plants Database (http://plants.usda.gov/)

II. Formulate and Evaluate Alternatives (Cont.)

Knowledge, Skill, or Ability	One should be able to:	Courses, sources or training opportunities
<p>8. Ability to evaluate and discuss alternatives for a Comprehensive Nutrient Management Plan (CNMP).</p>	<ul style="list-style-type: none"> a. Identify and evaluate the different types of storage facilities and waste management methods for livestock operations common to the work area. b. Select conservation practices and practice components that will meet the needs of the producer's operation and provide the required level of protection for water quality. c. Evaluate and describe the effects of conservation practices and systems on the following: ground water quality, surface water quality, odor control, and vector control. d. Develop a nutrient management plan for land application of manure following NRCS standards and guidance. e. Identify the necessary records to be kept by the animal feeding operation which support actions and management decisions. f. Address alternative uses of manure when land application opportunities are limited and/or livestock producers desire alternative value-added approaches to manure and wastewater use. 	<p>National Planning Procedures Handbook, Part 600.5, Comprehensive Nutrient Management Planning Technical Guidance (http://policy.nrcs.usda.gov) CNMP Watch, National Association of States Department of Agriculture http://www.cnmpwatch.com/ Comprehensive Nutrient Management Planning for Maryland Handbook Maryland NRCS CNMP Guidance template and documents http://www.md.nrcs.usda.gov/technical/agronomy/cnmp.html</p>
<p>9. Ability to develop and present a basic economic analysis of alternatives.</p>	<ul style="list-style-type: none"> a. Identify and describe the basic positive and negative economic effects of installing various conservation practices to landowners. b. Utilize basic analytical and economic principles such as: with and without analysis; partial budgeting; time value of money; and cost-effectiveness. 	<p>NEDC Economics of Conservation Planning Course NRCS National Planning Procedures Handbook (http://policy.nrcs.usda.gov) Section I - Field Office Technical Guide (http://efotg.nrcs.usda.gov)</p>

III. Plan Development and Documentation

Knowledge, Skill, or Ability	One should be able to:	Courses, sources or training opportunities
1. Ability to formulate and encourage adoption of Conservation Systems.	a. Explain and give examples of how individual conservation practices can be more effective when planned and implemented as part of a more comprehensive Conservation System. b. Understand and explain the concept of Quality Criteria in developing a Conservation System. c. Define the minimum level of planning and treatment that is a goal of all Conservation Planning.	NEDC Conservation Planning Course, Modules 1-9 (http://www.aglearn.usda.gov/) NRCS National Planning Procedures Handbook (http://policy.nrcs.usda.gov) Section III -FOTG http://efotg.nrcs.usda.gov
2. Ability to capture and record customer decisions from identified alternatives.	a. Record discussions and field visits with clients, including dates, persons involved, alternatives discussed, decisions reached, and by whom. b. Retain copies of correspondence (for example, letters, memos, plans) provided directly to clients and related to clients' projects. c. Explain the various documents, spreadsheets and automated systems that the individual agencies and Maryland Conservation Partnership uses within the field office to document customer services and to provide internal accountability.	NEDC Conservation Planning Course, Modules 1-9 (http://www.aglearn.usda.gov/) NRCS National Planning Procedures Handbook (http://policy.nrcs.usda.gov) Customer Service Toolkit Training and Support (http://www.itc.nrcs.usda.gov)
3. Ability to develop and revise a Conservation Plan map.	a. Transfer farm, tract, and field boundaries from existing hard-copy maps to digital format using approved software. b. Identify and interpret NRCS approved map symbols. c. Using approved software, assign physical attributes (line, point, and polygon) to a Conservation Plan map.	Customer Service Toolkit Training NRCS National Planning Procedures Handbook (http://policy.nrcs.usda.gov) National Map Symbol Handbook - Title 170 Customer Service/ArcView Users Guides (http://www.itc.nrcs.usda.gov)
4. Ability to maintain and revise Conservation Plan information using approved computer software.	a. Create or edit Customer Information File in Customer Service Toolkit. b. Maintain a record of customer assistance. c. Use the Plan Wizard, Practice Schedule Tool and Contract Wizard in Customer Service Toolkit to produce a Conservation Plan report.	Customer Service Toolkit Training Customer Service/ArcView Users Guides (http://www.itc.nrcs.usda.gov)

III. Plan Development and Documentation (Cont.)

Knowledge, Skill, or Ability	One should be able to:	Courses, sources or training opportunities
<p>5. Knowledge and understanding of privacy responsibilities.</p>	<p>a. Explain, in general, the purpose of the federal Freedom of Information Act (FOIA) and the Privacy Act. b. Describe the procedure for responding to a request for information from conservation plans and case files. c. Explain the components of the conservation plan and case file that are unavailable to the public based on federal and state privacy laws. d. Describe the types of information that are available for public review in field offices (for example, aerial photos, HEL and wetland determinations, published maps and soil surveys).</p>	<p>NEDC Conservation Planning Course, Modules 1-9 (http://www.aglearn.usda.gov/) General Manual -Part 408 -Subpart C - Records - Freedom of Information and Privacy Act (http://policy.nrcs.usda.gov)</p>
<p>6. Ability to track and accurately report progress in planning and application.</p>	<p>a. Identify key conservation treatments required to be tracked per national and state instructions. b. Input progress data to PRS and review available reports.</p>	<p>Performance Results System (PRS) website http://ias.sc.egov.usda.gov/PRSHOME/</p>
<p>7. Knowledge of proper case file maintenance and filing procedures.</p>	<p>a. Identify specific documentation required to be maintained in the official Field Office Case File. b. Explain the proper procedure for "checking-out" a case file when using Customer Service Toolkit.</p>	<p>NEDC Conservation Planning Course, Modules 6-9 (classroom & field office) NRCS National Planning Procedures Handbook (http://policy.nrcs.usda.gov) USDA-NRCS Conservation Programs Manual (http://policy.nrcs.usda.gov)</p>

**USDA-Natural Resources Conservation Service - Maryland
Required Proficiency Levels for Certified Conservation Planners**

Name: _____

Date: _____

<i>I. Resource Inventory and Analysis</i>	Required Proficiency Level (1 – 5)			Current Proficiency Level (1 – 5)	Notes
	Apprentice Planner	Category One – Soil Cons & Water Quality Planning	Category Two – RMS Planning		
1. Ability to use the soil survey and understand basic soils information.	2	4	4		
2. Ability to develop and document soil loss predictions and assess soil quality.	2	3	4		
3. Ability to identify plants common to the work area.	2	3	4		
4. Ability to measure and estimate crop residue and ground cover.	2	3	4		
5. Ability to identify and document presence of Highly Erodible Land (HEL).	2	3	4		
6. Ability to recognize, document and discuss sources of agricultural pollution.	2	3	4		
7. Ability to develop and explain a Phosphorus Index Rating for a field.	2	2	4		
8. Ability to recognize and document cultural resources.	2	2	3		
9. Ability to conduct and document a basic wetland delineation.	2	2	3		
10. Ability to conduct and document a basic pasture and forage inventory.	2	2	3		

Proficiency Levels
1 = Has limited knowledge or understanding.
2 = Has basic knowledge and/or can perform basic tasks with supervision or assistance.
3 = Has working knowledge and/or is competent to perform most tasks with limited supervision or assistance.
4 = Has an advanced level of working knowledge and/or is competent to perform all tasks independently.
5 = Has expert knowledge and is competent to perform under very complex circumstances and is able to train or demonstrate to others.

Required Proficiency Levels for Certified Conservation Planners

II. Formulate and Evaluate Alternatives	Required Proficiency Level (1 – 5)			Current Proficiency Level (1 – 5)	Notes
	Apprentice Planner	Category One – Soil Cons & Water Quality Planning	Category Two – RMS Planning		
1. Knowledge of conservation practices and systems common to the work area.	2	3	4		
2. Knowledge and understanding of the Field Office Technical Guide (FOTG) and related Handbooks.	2	3	4		
3. Knowledge and understanding of federal, state, and local regulations and programs that affect conservation planning and land use decisions.	2	3	4		
4. Ability to conduct and document an environmental evaluation.	2	3	4		
5. Ability to discuss issues associated with native vs. introduced plant species.	2	3	3		
6. Ability to evaluate and discuss wildlife habitat alternatives.	2	2	3		
7. Ability to evaluate and discuss prescribed grazing alternatives.	2	2	3		
8. Ability to evaluate and discuss alternatives for a Comprehensive Nutrient Management Plan (CNMP).	2	2	3		
9. Ability to develop and present a basic economic analysis of alternatives.	2	2	3		

Required Proficiency Levels for Certified Conservation Planners

<i>III. Plan Development and Documentation</i>	Required Proficiency Level (1 – 5)			Current Proficiency Level (1 – 5)	Notes
	Apprentice Planner	Category One – Soil Cons & Water Quality Planning	Category Two – RMS Planning		
1. Ability to formulate and encourage adoption of Conservation Systems.	2	4	4		
2. Ability to capture and record customer decisions from identified alternatives.	2	4	4		
3. Ability to develop and revise a Conservation Plan map.	2	4	4		
4. Ability to maintain and revise Conservation Plan information using approved computer software.	2	4	4		
5. Knowledge and understanding of privacy responsibilities.	2	3	4		
6. Ability to track and accurately report progress in planning and implementation.	2	4	4		
7. Knowledge of proper case file maintenance and filing procedures.	2	3	4		

**Individual Development Plan
for Calendar Year _____**

Name		Office Location	
Employee's Signature	Date	Supervisor's Signature	Date

<i>Training Need (Be Specific)</i>	<i>Current Proficiency Level</i>	<i>Required Proficiency Level</i>	<i>Training Method (On-the-Job Training, or Specific Course or Training Session, if known)</i>	<i>Date Scheduled to Begin</i>	<i>Date Completed</i>

<i>Training Need (Be Specific)</i>	<i>Current Proficiency Level</i>	<i>Required Proficiency Level</i>	<i>Training Method (On-the-Job Training, or Specific Course or Training Session, if known)</i>	<i>Date Scheduled to Begin</i>	<i>Date Completed</i>