

## Minnesota Field Office Technical Guide – Section V Introduction

The purpose of section V is twofold:

- A) To provide a repository of data on the effects of conservation practices in order to assist Minnesota's land users in making informed land use decisions. NRCS determines the effects of conservation treatments in order to help formulate and facilitate the identification of suitable alternatives. By considering conservation effects, natural resource planners can formulate a suitable Conservation Management System (CMS) to protect the resource base and to address both the land user's objectives and society's social, cultural resource, and economic objectives.
- B) To serve as a source of appropriate procedures and methods for collecting, analyzing, and displaying conservation effects information. Collecting conservation effects data is a long-term effort to be undertaken by each field office as part of the follow-up effort in the planning process.

Section V contains:

- Conservation Practice Physical Effects (CPPE)
- Effects Guidance Documents
- Economic Benefits

### **Conservation Practice Physical Effects (CPPE)**

Planning the soil, water, air, plant, animal, and energy resources and their interrelationships is a complex process. As a technical agency, NRCS must constantly strive to improve methods for evaluating the potential effects of conservation practices on the resources. When providing technical assistance, it is necessary to determine the physical effects relevant to each resource during the planning process. Just because a conservation practice has a positive effect on one resource concern does not necessarily mean it will also have a positive effect on other resources.

CPPE provides information on the effects for individual conservation practices on the resource concerns and considerations in the formulation of CMS. The mainstay of this section is the Conservation Practice Physical Effects (CPPE) Matrix. The CPPE Matrix displays the likely effects that various conservation practices will have on the six resource concerns of soil, water, air, plants, animals, and energy. The effects and magnitude of effects shown in these documents are not site specific.

The CPPE matrix summarizes each conservation practice's effects on specific natural resource concerns. The major effects of a single conservation practice on resource concerns are identified. The purpose of the CPPE matrix is to help the planner develop and maintain a strong awareness of the effects of conservation practices on each of the six natural resources. The CPPE matrix compares all NRCS conservation practices with each of the nationally recognized natural resource concerns, thus yielding an anticipated effect for each concern. This document becomes the foundation for developing guidance documents in Section III. Accordingly, it will be necessary to interpret the matrix, after considering the individual planning site involved.

The purpose of the CPPE Matrix is to help the planner develop alternatives and select practices based on how the practice physical effects address resource concerns. The CPPE is also helps the planner communicate the effects of individual practices on the soil, water, air, plant, animal, and energy resources. The purpose of the CPPE Matrix is to emphasize:

- A. The realization that resources are interrelated and the treatment of one resource also affects other resources;
- B. The importance of formulating CMS by providing a process that:
  1. Considers all the effects of conservation practices into potential RMS alternatives
  2. Facilitates the combining of conservation practices into potential RMS alternatives
  3. Helps to evaluate the potential planned alternatives against the quality criteria for achieving a RMS, or for the quality criteria needed to develop an Acceptable Management System (AMS) in the event an AMS is an allowable option.

The key question that should be asked when reviewing the CPPE Matrix is “If this practice is applied, what effect will it have, not only on the identified or potential target resource concerns/considerations, but also on all the other resource concerns/considerations?”

It is necessary to determine the physical effects relevant to each resource during the planning process for several reasons:

- A conservation practice which has a positive effect on one resource problem may have a different effect on other resources.
- One conservation practice may not completely solve all problems, thus, consideration must be given to the other natural resources concerns present.
- When trying to meet all natural resource concerns within the CMU, the cumulative effects of various conservation practices need to be assessed.

The natural resource planner needs to recognize the effect of applying conservation practices in order to select combinations of practices that solve the identified or potential concerns without creating additional resource problems. The Effects Concept is applicable for formulation of CMS alternatives for specific fields, conservation treatment units (CTUs) or other planning areas. It can also be used to assist in explaining resource problems and displaying treatment options. (The entire effects process will be needed when working with each decision maker. Only unique or complex situations would warrant documentation of the complete Effects Concept.)

The effects of conservation may be expressed in either narrative terms that represent factual data based on experience, or the expected results of the specified conservation treatment as applied to the resource setting. In the CPPE Matrix, the major effects of an individual conservation practice on resource problems are expressed.

It is assumed the practice is installed according to standards in Section IV. The definitions and explanations of the effects are listed in the Glossary and Explanation Section. In addition, the effect may be beneficial or adverse to each resource. Modifiers for clarity may follow the given effect. The application of a practice with a negative effect may be overcome through the application of another practice(s) that has a greater positive effective.

The point of reference for the CPPE Matrix is that there is an existing or potential problem with the resource, previously treated or not. The CPPE Matrix addresses broad, general effects that may be expected from the application of the practice. The effects shown in the CPPE Matrix and their magnitudes are not site specific. Accordingly, interpretation of the effects, after considering unique site characteristics, is necessary.

Carefully read the wording shown for each practice in the CPPE Matrix. Remember the effect shown is that of applying a specific practice to the resource problem. For example, if practice 314, Brush Management, is applied to the resource concern “sheet and rill erosion,” the effect states “slight to moderate decrease because of increase in vegetative cover.” This means there is a decrease in the amount of sheet and rill erosion, so the effect of the practice is positive, thus erosion is reduced.

### **Effects for Guidance Documents**

This section contains refinements of the CPPE Matrix including site specific data with quantified or narratively described effects. To the extent possible, conservation effects information will include conservation treatments on all six resources (soil, water, air, plants, animals, and energy) and their considerations as described under the Quality Criteria located in Section III.

Examples of effects of conservation treatment on natural resources include but are not limited to:

- Expected effect on sheet and rill, wind or ephemeral gully erosion.
- Indicators or measures of soil conditions, such as tilth, compaction and infiltration.
- Where applicable, indicators of soil deposition.
- Measures or indicators of effects on quality and quantity of surface or subsurface waters, such as chemical runoff as influenced by the conservation system.

- Effects on plant conditions and management, such as expected status of forest conditions with the indicated forestland conservation practices.
- Measures of conservation effects on wild and domestic animals, including animal waste uses and effects on the resource base.
- Indicators of effects on air, such as airborne particles, odors and chemical drift.

Information developed on conservation effects will vary significantly in scope and detail depending on the resource conditions in the local area as well as upon the needs for technical reference materials to carry out conservation activities in that location.

The effects of conservation planning are displayed in subjective detail in the conservation plan and are based on experience and available technical information. Each natural resource may have multiple problems associated with it. The effects of practices may be greater if they are associated with a land use change. On-site effects of practices are generally greater than off-site, i.e., the further away from the problem or treatment the less significant the effect.

The key question that should be asked when reviewing conservation effects is, “If this practice is applied, what effect will it have not only on the target problem, but also on all other resource problems?”

### **Economic Benefits**

The economic benefits section includes economic technical notes and landowner information sheets for conservation practices and plans that describe economic considerations and benefits. The other three items included in this section are the conservation effects for decision making process and tool (CED), guidance on economic evaluation and analysis, and case studies. Case studies are examples of producer experiences that display the effects on all the decision maker’s concerns.