USDA United States Department of Agriculture

National Resource Concern List and Planning Criteria

Natural Resources Conservation Service (NRCS)

March 2023

This document is the official list of NRCS resource concerns and planning criteria that is used to determine resource treatment levels using the conservation planning process.

A resource concern is the resource condition that does not meet minimum acceptable condition levels as established by resource planning criteria shown in the Field Office Technical Guide (FOTG), Section III. This implies an expected degradation of the soil, water, air, plant, animal, or energy resource base to the extent that the sustainability or intended use of the resource is impaired.

Planning criteria are quantitative or qualitative statements of the minimum level of treatment required to address a given resource concern. Planning criteria are established for all NRCS resource concerns and may be assessed using specific tools or through client input and planner observation as listed in this document.

A nationally supported tool that automates and streamlines the resource concern assessment process (e.g., Conservation Assessment Ranking Tool or Conservation Desktop) can be used to document meeting FOTG planning criteria for conservation program planning purposes. Although an automated assessment tool may not directly rely on planning criteria for resource assessment, it utilizes similar inputs to provide thresholds and document whether planning criteria have been achieved.

In this document, each NRCS resource concern is listed with a description of the concern and the objective in treating the concern. Tables sorted by land use are included for each resource concern, which list the assessment method (tool, observation, etc.) and resource concern planning criteria for that assessment. Each row of the table represents planning criteria that, on their own, determine if the planning criteria has been met.

Example:

Resource Concern

Description of resource concern.

Objective: *What is accomplished by treating the resource concern.*

When land use is: *NRCS Land use*

Tools	Planning Criteria
Tool or observation that can be used to assess the resource concern	The expected result that would indicate there is no resource concern

NRCS Resource Concern List and Planning Criteria

Table of Contents

Soil Resource Concerns

Sheet and rill erosion

Detachment and transport of soil particles caused by rainfall, melting snow, or irrigation.

Objective: Reduce sheet and rill erosion to tolerable limits.

When land use is: Crop

Tools	Planning Criteria
Current NRCS water erosion technology – Conservation planning soil loss tons/acre/year	Average annual crop rotation soil loss is $\leq$ T

Note: Observation of sheet and rill erosion after a storm indicates the need for assessment but does not confirm the resource concern exists.

When land use is: Forest, Farmstead, Associated Ag Land or Other

Tools	Planning Criteria
Client input and/or Planner Observation	Site is stable and without visible signs of active erosion.

When land use is: Range

Tools	Planning Criteria
Interpreting Indicators of Rangeland Health (IIRH)	Soil/Site Stability and Hydrologic Function attributes; and Rills Indicator 1: slight to moderate or less
Rangeland Hydrology & Erosion Model (RHEM)	Evaluate soil loss output risk (compare to IIRH reference sheet, State and Transition Model, and Historic Plant Community soil loss)
Client input and/or Planner Observation AND Rangeland Trend Worksheet	Sheet and rill erosion matches the Ecological Site Description and/or the IIRH reference sheet for rangeland planning criteria, AND Trend Worksheet Condition of Soil Surface indicator is positive

Note: RHEM applicable for use by trained RHEM users only.

When land use is: Pasture

Tools	Planning Criteria
Pasture Condition Score (PCS)	Soil Erosion, and percent desirable plants, and plant cover elements ≥4
Determining Indicators of Pasture Health (DIPH)	Rills, Soil/Site Stability and Hydrologic Function: slight to moderate or less
Rangeland Hydrology & Erosion Model (RHEM)	Evaluate soil loss output risk; compare with expected reference condition and expected cover
Client Input and/or Planner Observation	No visible active sheet and rill erosion following normal storm events.

Note: RHEM applicable for use by trained RHEM users only.

Wind erosion

Detachment and transport of soil particles caused by wind.

Objective: Reduce wind erosion to tolerable limits.

When land use is: Crop

Tools	Planning Criteria
Current NRCS wind erosion technology AND Crop Tolerance to Blowing Soil Table (see National Agronomy Manual Table 502–1)	Wind Erosion ≤ T AND Plant damage from airborne soil particles is below crop damage tolerance levels.

Note: Observation of wind erosion indicates assessment is needed, however does not confirm the resource concern exists.

When land use is: Forest, Farmstead, Developed Land, Associated Ag Land or Other

Tools	Planning Criteria
Client input and/or Planner Observation	Site is stable and without visible signs of active erosion.

When land use is: Range

Tools	Planning Criteria
Interpreting Indicators of Rangeland Health (IIRH)	Soil/Site Stability attribute: slight to moderate or less OR Wind-Scoured and/or Depositional Areas Indicator 6 is slight to moderate or less.
Client input and/or Planner Observation AND Rangeland Trend Worksheet	Wind erosion matches the Ecological Site Description and/or the IIRH reference sheet AND Trend worksheet Condition of Soil Surface is positive.

When land use is: Pasture

Tools	Planning Criteria
Current NRCS wind erosion technology	Wind Erosion $\leq$ T
Pasture Condition Score (PCS)	Soil Erosion, and plant cover element $\geq$3

Note: Observation of wind erosion indicates assessment is needed, however does not confirm the resource concern exists.

Ephemeral gully erosion

Soil erosion that results in small gullies in the same flow area that can be obscured by tillage or other soil distribution activities.

Objective: Control the formation of ephemeral gullies.

When land use is: Crop, Pasture, and Range

Tools	Planning Criteria
Client input and/or Planner Observation	No evidence of active ephemeral gullies observed.

Classic gully erosion

Gullies created by runoff that can enlarge a channel progressively by head cutting and/or lateral widening.

Objective: Stabilize an actively eroding gully.

When land use is: Crop, Forest, Farmstead, Developed Land, Associated Ag Land or Other

Tools	Planning Criteria
Client input and/or Planner Observation	Site is stable and without visible signs of active classic gully erosion.

When land use is: Range

Tools	Planning Criteria
Interpreting Indicators of Rangeland Health (IIRH)	Soil/Site Stability and Hydrologic Function attributes; and Gullies indicator 5: slight to moderate or less
Client Input/Planner Observation	Site is stable and without visible signs of active classic gully erosion.

When land use is: Pasture

Tools	Planning Criteria
Pasture Condition Score (PCS)	Gullies are stable with vegetative cover or do not exist
Determining Indicators of Pasture Health (DIPH)	Gully indicator 2: slight to moderate or less
Client Input/Planner Observation	Site is stable and without visible signs of active classic gully erosion.

Bank erosion from streams, shorelines or water conveyance channels

Erosion resulting from poor land management practices, storm events, wave action, rain, ice, wind, runoff, loss of vegetation, hydrologic dynamics, stream isolation from floodplains, and/or other disturbed/altered geomorphological processes.

Objective: Restore the stability of eroding banks.

When land use is: Crop, Forest, Range, Farmstead, Developed Land, Associated Ag Land or Other and streams, shoreline, or channels are adjacent to the planning area.

Tools: Streambanks	Planning Criteria
Stream Visual Assessment Protocol, Version 2 (SVAP2)	For streambanks - Bank condition score $\geq$5
Client input and/or Planner Observation	Banks are stable

Tools: Shorelines/Conveyance Channels	Planning Criteria
Client input and/or Planner Observation	Banks are stable

When land use is: Pasture

Tools: Streambanks/Shorelines	Planning Criteria
Pasture Condition Score (PCS)	Streambank and Shoreline element ≥4
Determining Indicators of Pasture Health (DIPH)	Soil/Site Stability and Hydrologic Function attributes, and Streambank or Shoreline indicator: slight to moderate or less
Client input and/or Planner Observation	Banks are stable

Tools: Conveyance Channels	Planning Criteria
Client input and/or Planner Observation	Banks are stable

Subsidence

Loss of volume and depth of organic soils due to oxidation caused by above normal microbial activity resulting from excessive water drainage, soil disturbance, or extended drought. This excludes naturally occurring sinkholes and issues, or depressions caused by underground activities.

Objective: Reduce potential for subsidence to occur and treat existing subsidence.

When land use is: Crop, Forest, Range, Pasture, Farmstead or Associated Ag Land

Tools	Planning Criteria
Client input and/or Planner Observation	No observed subsidence AND Current land use, activities and management on histosols or histic horizons is not increasing the oxidation of organic matter.

Compaction

Management-induced soil compaction at any level throughout the soil profile resulting in reduced plant productivity, biological activity, infiltration and aeration.

Objective: Reduce soil compaction.

When land use is: Crop, Forest, Associated Ag Land or Other

Tools	Planning Criteria
National or State In-Field Soil Health Assessment Worksheet	No resource concern results
Client input and/or Planner Observation	No observed evidence of compaction, such as ponding, stunted plant growth, or root growth limitation.
Penetrometer	Rating less than 150 psi within top 6" depth and < 300 in 6-18" depth of moist soil.

When land use is: Range

Tools	Planning Criteria
Interpreting Indicators of Rangeland Health (IIRH)	Soil/Site Stability attribute: slight to moderate or less AND Hydrologic Function attribute: slight to moderate or less OR Compaction Layer Indicator 11: slight to moderate or less
Client input and/or Planner Observation	No observed evidence of compaction, such as ponding, stunted plant growth, or root growth limitation.

When land use is: Pasture

Tools	Planning Criteria
Pasture Condition Score (PCS)	Soil compaction and soil regenerative features element $\geq$4
Determining Indicators of Pasture Health (DIPH)	Soil/Site Stability and Hydrologic Function attributes; and Compaction Layer Indicator 11: slight to moderate or less
Client input and/or Planner Observation	No observed evidence of compaction, such as ponding, stunted plant growth, or root growth limitation and slight or no resistance with wire flag inserted to 12".
Penetrometer	Rating less than 150 psi within top 6" depth and < 300 in 6-18" depth of moist soil.

Organic matter depletion

Management-induced depletion of any or all pools of soil organic matter resulting in limited soil function and processes that support plant productivity, biological activity and water and nutrient cycling.

Objective: Maintain, increase and/or improve soil organic matter.

When land use is: Crop or Associated Ag Land

Tools	Planning Criteria
National or State In-Field Soil Health Assessment Worksheet	Soil organic matter indicators do not meet the criteria in the assessment worksheet
Client input and/or Planner Observation OR Soil Test Results OR Current NRCS wind or water erosion technology	Implementing a Soil Health Management System that addresses organic matter depletion. OR Soil test shows organic matter, labile carbon, or labile bioavailable nitrogen trends at or above typical value for a high functioning soil for that specific management unit and site conditions. OR Improved organic matter over multiple years of results. OR Soil Condition Index is positive AND Positive trend in organic matter subfactor

When land use is: Forest

Tools	Planning Criteria
Client input and/or Planner Observation	Plant litter (e.g., leaves, stems, branches) in various stages of decomposition, herbaceous vegetation, and/or biological crusts cover >85% to provide a protective cover for the soil.

When land use is: Range

Tools	Planning Criteria
Interpreting Indicators of Rangeland Health (IIRH)	Soil/Site Stability and Biotic Integrity attributes: slight to moderate or less OR Soil Surface Loss or Degradation Indicator 9: slight to moderate or less

When land use is: Pasture

Tools	Planning Criteria
Pasture Condition Score (PCS)	Live or Dormant Plant Cover, Plant Residue as Soil Cover, and Plant Diversity element $\geq$4

Concentration of salts or other chemicals

Concentration of salts leading to salinity and/or sodicity reducing productivity or limiting desired use, or concentrations of other chemicals impacting productivity, populations of beneficial organisms or limiting desired use.

Objective: Reduce concentration of salts or other chemicals in the soil.

Land Use (Salts): Crop, Forest, Range, Pasture or Associated Ag Land

Tools	Planning Criteria
Client input and/or Planner Observation	No salt concentration evidence observed OR On-site effects have been mitigated
Soil and irrigation water tests	Salinity does not exceed crop salt tolerance OR For Rangeland and Pasture, salt concentrations match what is expected for the ecological site description.
Electrical Conductivity meters and National Engineering Handbook Part 623 Chapter 2	Crop specific electrical conductivity, pH, or sodium adsorption ratio threshold values are not exceeded.

Land Use (Chemical): Crop, Range, Pasture, Farmstead, Developed Land or Associated Ag Land

Tools	Planning Criteria
Client input and/or Planner Observation	No chemical concentration evidence observed OR On-site effects have been mitigated

Soil organism habitat loss or degradation

Quantity, quality, diversity or connectivity of food, cover, space, shelter and/or water is inadequate to meet requirements of beneficial soil organisms.

Objective: Improve habitat for beneficial soil organisms.

When land use is: Crop, Forest, Developed Land, or Associated Ag Land

Tools	Planning Criteria
National or State In-Field Soil Health Assessment Worksheet	No resource concern results (less than two soil organism habitat indicators do not meet the criteria).
Client input and/or Planner Observation	Implementing a Soil Health Management System that addresses soil organism habitat loss or degradation.

When land use is: Range

Tools	Planning Criteria
Interpreting Indicators of Rangeland Health (IIRH)	Soil/Site Stability, Biotic Integrity and Hydrologic Function attributes: slight to moderate or less.

When land use is: Pasture

Tools	Planning Criteria
Pasture Condition Score (PCS)	Live or Dormant Plant Cover, Plant Residue as Soil Cover, Plant Diversity, and Soil Compaction and Soil Regenerative Features elements $\geq$ 4.
Determining Indicators of Pasture Health (DIPH)	Soil/Site Stability, Biotic Integrity and Hydrologic Function attributes: slight to moderate or less.

Aggregate instability

Management-induced degradation of water stable soil aggregates resulting in destabilized soil carbon; surface crusting; reduced water infiltration, water holding capacity, and aeration; depressed resilience to extreme weather; increased ponding and flooding; increased soil erosion and plant stress; and reduced habitat and soil biological activity.

Objective: Improve aggregate stability.

When land use is: Crop, Associated Ag land

Tools	Planning Criteria
National or State In-Field Soil Health Assessment Worksheet	No resource concern results (less than two aggregate instability indicators do not meet the criteria)

Tools	Planning Criteria
Client input and/or Planner Observation	Implementing a Soil Health Management System that addresses aggregate instability AND No evidence of poor aggregate stability, such as surface crusting, ponding or presence of massive, platy or blocky surface soil structure.
NRCS-approved Water Soil Aggregate Lab Assessment Test (tech note 450-03)	Water stable aggregates are present at critical levels AND Soil test shows aggregate stability is above thresholds for typical value for a high functioning soil for that specific management unit and site conditions.

Note: If concentration of salts is a resource concern it will affect aggregates stability.

When land use is: Forest

Tools	Planning Criteria
Client input and/or Planner Observation	Implementing a Soil Health Management System that addresses aggregate instability. AND No evidence of poor aggregate stability, such as surface crusting, ponding or presence of massive, platy or blocky surface soil structure.
NRCS-approved Water Soil Aggregate Lab Assessment Test (tech note 450-03)	Water stable aggregates are present at critical levels AND Soil test shows aggregate stability is above thresholds for typical value for a high functioning soil for that specific management unit and site conditions

Note: If concentration of salts is a resource concern it will affect aggregates stability.

When land use is: Range

Tools	Planning Criteria
Interpreting Indicators of Rangeland Health (IIRH)	Soil/Site Stability, Biotic Integrity and Hydrologic Function attributes; Soil Surface Loss or Degradation Indicator 9: slight to moderate or less

When land use is: Pasture

Tools	Planning Criteria
Pasture Condition Score (PCS)	Soil Compaction and Soil Regenerative Features elements ≥ 4

Water Resource Concerns

Ponding and flooding

Water covering the land surface, along with saturated conditions below the surface, degrades natural resources, or restricts capability of land to support its intended use.

Objective: Reduce the risk of natural resource degradation, or limitation to land use caused by flooding or ponding.

When land use is: Crop, Forest, Range, Pasture, Farmstead, Developed Land, Associated Ag Land, or Other

Tools	Planning Criteria
Client input and/or Planner Observation	No observed ponding OR Ponding is treated and/or managed to reduce degradation of natural resources and meet the client's natural resource management and land use objectives, avoids perpetuating existing natural resource concerns, and avoids creating new natural resource concerns.

Note: Examples of client input or planner observation:

- Aerial image made at time(s) when excess water is expected indicate the threat/impairment has been reduced or its timing changed. Examples: plant condition, sediment deposits, high water marks.
- National or state approved hydrology model predicts ponding or flooding will be reduced, or its timing changed.
- Client's testimonial indicates ponding or flooding were reduced, allowing intended land use after an event that would historically cause ponding or flooding.
- Field measurement of water levels and presence of conservation practices indicates the threat/impairment has been reduced.

Seasonal high-water table

Groundwater or a perched water table causing saturated conditions near the surface degrades water resources or restricts capability of land to support its intended use.

Objective: Reduce the risk of natural resource degradation or limitation to land use caused by a seasonal high-water table.

When land use is: Crop, Forest, Range, Pasture, Farmstead, Developed Land, Associated Ag Land or Other

Tools	Planning Criteria
Client input and/or Planner Observation	No observed seasonal high-water table OR Seasonal high-water table is treated and/or managed to meet client's natural resource management and land use objectives, avoids perpetuating existing natural resource concerns, and avoids creating new natural resource concerns.
National or State Approved Hydrology model	Predicts seasonal high-water table will be reduced or its timing changed.

Note: Examples of client input or planner observation:

- Client's testimonial indicates seasonal high-water table was reduced, allowing intended land use after an event that would historically cause high water table.
- Field measurement of water levels and presence of conservation practices indicates the threat/impairment from seasonal high-water table has been reduced.

Seeps

Sub-surface saturated flows that percolates slowly to the surface, degrades water resources, or restricts capability of land to support its intended use.

Objective: Reduce the risk of natural resource degradation, or limitation to land use caused by a seep.

When land use is: Crop, Forest, Range, Pasture, Farmstead, Developed Land, Associated Ag Land or Other

Tools	Planning Criteria
Client input and/or Planner Observation	No observed seeps OR Seeps are treated and/or managed to meet the client's natural resource management and land use objectives, avoids perpetuating existing natural resource concerns, and avoids creating new natural resource concerns.

Note: Examples of client input or planner observation:

- Aerial image made at time(s) when excess water from seeps is expected indicates the threat/impairment has been reduced, or its timing changed.
- National or state approved hydrology model predicts seeps will be reduced, or their timing changed.
- Client's testimonial indicates seeps were reduced, allowing intended land use after an event that would historically cause seepage.
- Field measurement of water levels and presence of conservation practices indicates the threat/impairment from seeps has been reduced.

Drifted snow

Wind-blown snow accumulates around and over surface structures, which restricts access to humans or animals; or wind removes snow from desired location where it can be used to accumulate water.

Objective: Control where snow drifts accumulate.

When land use is: Crop, Forest, Range, Pasture, Farmstead, Developed Land, Associated Ag Land or Other

Tools	Planning Criteria
Client input and/or Planner Observation	Drifting of snow is controlled to limit negative impacts to humans and animals and/or improve moisture management.
Locally approved drift simulation models	Model prediction of negative impacts of snow drift are reduced.

Surface water depletion

Water from collected precipitation runoff, ponds, lakes, surface watercourses and reservoirs is used at a rate that is detrimental to ecological functions or other identified uses and threatens sustained availability of surface water.

Objective: Reduce surface water depletion.

Any Land Use

Tools	Planning Criteria
Client input and/or Planner Observation	Water use is managed to meet state/local regulations regarding water withdrawals. AND Water is used without significant long-term impact to water supply OR Water use is being reduced commensurate with available supply, OR Water is no longer withdrawn.
State declared surface water depletion concern	Meet state/local regulations regarding water withdrawals.

Groundwater depletion

Underground water is used at a rate greater than aquifer recharge.

Objective: Reduce the risk of natural resource degradation, or limitation to land use caused by groundwater depletion.

When land use is: Crop, Forest, Range, Pasture, Farmstead, Developed Land, Associated Ag Land or Other

Tools	Planning Criteria
Client input and/or Planner Observation	Manage groundwater withdrawal rates to meet the client's natural resource management and land use objectives while avoiding perpetuating existing natural resource concerns or creating new natural resource concerns.
State/Region declared groundwater depletion concern	Meet state/local regulations regarding water withdrawals.

Naturally available moisture use

Natural precipitation is not optimally managed to support desired land use goals or ecological processes.

Objective: Manage natural precipitation more efficiently.

When land use is: Crop, Forest, Developed Land or Associated Ag Land

Tools	Planning Criteria
Client input and/or Planner Observation	Activities are managed to maintain or enhance water infiltration rates and minimize evaporation to utilize as much natural precipitation as possible.

When land use is: Range

Tools	Planning Criteria
Interpreting Indicators of Rangeland Health (IIRH)	Hydrologic function attributes: slight to moderate or less

When land use is: Pasture

Tools	Planning Criteria
Pasture Condition Score (PCS)	Soil Compaction and Soil Regenerative Features and Live Plant cover elements $\geq$4

Inefficient Irrigation water use

Irrigation water is not stored, delivered, scheduled and/or applied efficiently.

Objective: Manage irrigation water efficiently.

When land use is: Any Land Use

Tools	Planning Criteria
Farm Irrigation Rating Index (FIRI)	FIRI ≥ 80% of maximum system potential
State approved assessment tool	Irrigation system components and management meet state irrigation guide efficiency criteria.

Nutrients transported to surface water

Nutrients (organic and inorganic) stored, concentrated, or applied are transported to receiving surface waters in quantities that degrade water quality and limit its use for intended purposes.

Objective: Reduce transport of nutrients to surface water.

When land use is: Crop

Tools:	Planning Criteria
Current management of nutrients	Nutrients (organic or inorganic) are applied within a conservation system. Conservation system benefits achieve the site-specific nutrient loss reduction.
Current CART risk assessment, or Conservation Effects Assessment Project (CEAP) Water Quality Benefits Estimator Tool	Assessment tools indicate existing site condition has reduced the risk of loss from a nutrient application meets the nitrogen (N) and or phosphorus (P) loss threshold targets for surface water quality. *Assessment aligns with water quality targets of P loss less than or equal to 3 pounds/acre and N loss less than or equal to 15 pounds/acre
Other NRCS approved assessment tools including wind and water erosion models, P Index or Assessments, and State NRCS approved N leaching index.	Assessment tools indicate existing conditions treat the transport loss risk.

Note: Conservation System - A combination of conservation practices and resource management for the treatment of resource concerns. (H_180_600 - NPPH, 1st Ed., Amend. 9, Dec. 2021)

When land use is: Forest, Developed Land, Associated Ag Land or Other

Tools:	Planning Criteria
Evaluation of current nutrient management	Nutrients (organic or inorganic) are applied based on a plan, in accordance with Land Grant University recommendations, which specifies the source, amount, timing and method of application, required conservation practices needed to reduce nutrient movement to surface waters, and contains state-specific nutrient application and livestock access setbacks (e.g., sinkholes, wells, water courses, wetlands, or rapidly permeable soil areas).

When land use is: Pasture

Tools:	Planning Criteria
Pasture Condition Score (PCS) AND Evaluation of current nutrient management	Livestock Concentration Areas and Streambank/Shoreline Erosion elements ≥4 AND Nutrients (organic or inorganic) are applied based on a plan, in accordance with Land Grant University recommendations, which specifies the source, amount, timing and method of application, required conservation practices needed to reduce nutrient movement to surface waters, and contains state-specific nutrient application and livestock access setbacks (e.g., sinkholes, wells, water courses, wetlands, or rapidly permeable soil areas).

When land use is: Farmstead

Tools	Planning Criteria
Current NRCS-approved farmstead assessment or evaluation tools	Nutrients are stored and handled in a way which reduces nutrient movement to surface waters.

When Nutrients are stored, regardless of land use:

Tools	Planning Criteria
Client input and/or Planner Observation	Nutrients are stored and handled in a way which reduces nutrient movement to surface waters.

Nutrients transported to groundwater

Nutrients (organic and inorganic) stored, concentrated, or applied are transported to groundwaters in quantities that degrade water quality and limit its use for intended purposes.

Objective: Reduce transport of nutrients to groundwater.

When land use is: Crop, Forest, Pasture, Developed Land, Associated Ag Land or Other

Tools: If Nutrients Applied	Planning Criteria
Current management of nutrients	Nutrients (organic or inorganic) are applied within a conservation system. Conservation system benefits achieve the site-specific nutrient loss reduction and contain site-specific nutrient and livestock access setbacks from sensitive areas (e.g., sinkholes, wells, water courses, wetlands, or rapidly permeable soil areas).
Current CART assessment risk thresholds, OR Conservation Effects Assessment Project (CEAP) Water Quality Benefits Estimator Tool	Assessment tools indicate existing site condition points meet the N and or P loss threshold targets for groundwater quality. *Assessment aligns with water quality targets of P loss less than or equal to 1 pound/acre and N loss less than or equal to 25 pounds/acre
NRCS and State NRCS approved N leaching index. Other data sources and map sources such as source water protection management zones, public or private well nitrate and soluble phosphorus contamination reports, SSURGO depth to water table, well locations	Assessment tools indicate existing conditions treat nutrient transport loss to groundwater. AND Other source findings of groundwater degradation or potential to degrade from nutrient transport are mitigated.

Note: Conservation System - A combination of conservation practices and resource management for the treatment of resource concerns. (H_180_600 - NPPH, 1st Ed., Amend. 9, Dec. 2021)

When Nutrients are stored, regardless of land use:

Tools	Planning Criteria
Client input and/or Planner Observation	Nutrients are stored and handled in a way which reduces nutrient movement to groundwater.

Pesticides transported to surface water

Pesticides are lost from their application area and transported to surface water sources in quantities that degrade water quality and limit its use for intended purposes.

Objective: Reduce hazardous pesticide losses from application areas that can be transported to surface water sources.

Any Land Use when pesticides are applied

Tools	Planning Criteria
Evaluation of current pest management system	Pesticides are applied based on a pest management system which specifies the Land Grant University and label requirements, required conservation practices and/or IPM techniques needed to reduce pesticide movement to surface waters, and contains state-specific required application and livestock access setbacks (e.g., sinkholes, wells, water courses, wetlands, or rapidly permeable soil areas).
Windows Pesticide Screening Tool (WIN-PST)	Mitigation is applied based on the WIN-PST soil/pesticide combinations as follows: • Intermediate: 20 Points of Mitigation • High: 40 Points of Mitigation • Extra High: 60 Points of Mitigation

When Pesticides are stored, regardless of land use:

Tools	Planning Criteria
Client input and/or Planner Observation	Pesticides are stored and handled in a way which reduces movement to surface water.

Pesticides transported to groundwater

Pesticide loses from the application area are transported to groundwater sources in quantities that degrade water quality and limit its use for intended purposes.

Objective: Reduce hazardous pesticide losses from application areas that can be transported to groundwater sources.

Any Land Use when pesticides are applied

Tools	Planning Criteria
Evaluation of current pest management system	Pesticides are applied based on a pest management system which specifies the Land Grant University and label requirements, required conservation practices and/or IPM techniques needed to reduce pesticide movement to groundwater, and contains state-specific required application and livestock access setbacks (e.g., sinkholes, wells, water courses, wetlands, or rapidly permeable soil areas).
Windows Pesticide Screening Tool (WIN-PST)	Mitigation is applied based on the WIN-PST soil/pesticide combinations as follows: • Intermediate: 20 Points of Mitigation • High: 40 Points of Mitigation • Extra High: 60 Points of Mitigation

When Pesticides are stored, regardless of land use:

Tools	Planning Criteria
Client input and/or Planner Observation	Pesticides are stored and handled in a way which reduces movement to groundwater.

Note: State approved tools may be available to inform decisions.

Pathogens and chemicals from manure, bio-solids, or compost applications transported to surface water

Pathogens, pharmaceuticals, leachate and chemicals from manure, bio-solids or compost transported to receiving waters in quantities that degrade water quality and limit uses.

Objective: Reduce transport of pathogens, pharmaceuticals, leachate and polluting chemicals from manure, bio-solids, or compost to surface water.

Any Land Use

Tools	Planning Criteria
Evaluation of current nutrient management	Nutrients (organic or inorganic) are applied based on a plan, in accordance with Land Grant University recommendations, which specifies the source, amount, timing and method of application, required conservation practices needed to reduce nutrient movement to surface waters, and contains state-specific nutrient application and livestock access setbacks (e.g., sinkholes, wells, water courses, wetlands, or rapidly permeable soil areas).

Note: Additional assessments for Pasture and Range:

- If livestock have access to pasture or range, then a grazing plan is followed or livestock access to the stream is minimized.

When manure, bio-solids, or compost are stored, regardless of land use:

Tools	Planning Criteria
Client input and/or Planner Observation AND Compost temperature and procedure record	Manure, bio-solids, or compost are stored and handled in a way that minimizes loss to surface water. AND Conservation practices minimize loss to surface water. AND Compost and Composted Mortalities meet time and temperature requirements for pathogen reduction and/or destruction

Pathogens and chemicals from manure, bio-solids, or compost applications transported to groundwater

Pathogens, pharmaceuticals, leachate and chemicals from manure, biosolids or compost transported to groundwaters in quantities that degrade water quality and limit uses.

Objective: Reduce transport of pathogens, pharmaceuticals, leachate and polluting chemicals from manure, bio-solids, or compost to groundwater.

Any Land Use

Tools	Planning Criteria
Evaluation of current nutrient management	Nutrients (organic or inorganic) are applied based on a plan, in accordance with Land Grant University recommendations, which specifies the source, amount, timing and method of application, required conservation practices needed to reduce nutrient movement to groundwater, and contains state-specific nutrient application and livestock access setbacks (e.g., sinkholes, wells, water courses, wetlands, or rapidly permeable soil areas).

Note: Additional assessments for Pasture and Range:

- If livestock have access to pasture or range, THEN grazing plan is followed

When manure, bio-solids, or compost are stored, regardless of land use:

Tools	Planning Criteria
Client input and/or Planner Observation AND Compost temperature and procedure record	Manure, bio-solids, or compost are stored and handled in a way that minimizes loss to groundwater. AND Conservation practices that minimize loss to groundwater are in place. AND Compost and Composted Mortalities meet time and temperature requirements for pathogen reduction and/or destruction.

Salts transported to surface water

Irrigation or rainfall runoff transports salts to receiving surface waters in quantities that degrade water quality and limit use for intended purposes

Objective: Limit transfer of salts from site to receiving surface waters.

All Land Uses

Tools	Planning Criteria
Locally approved Soil Salinity Tests and Water Quality Tests	Salt concentrations are managed to mitigate transport to surface waters to meet local/state criteria

Salts transported to groundwater

Irrigation or rainfall infiltration transport salts to groundwater in quantities that degrade aquifer water quality and limit intended uses.

Objective: Limit loss of salts from site to groundwater.

Any Land Use

Tools	Planning Criteria
Locally approved Soil Salinity Tests and Water Quality Tests	Salt concentrations are managed to mitigate transport to groundwater to meet local/state criteria

Petroleum, heavy metals, and other pollutants transported to surface water

Petroleum, heavy metals, and other pollutants for on-farm use are lost from areas of concentration (handling, storage, or processing facilities and areas) to receiving surface waters in quantities that degrade water quality and limits its use for intended purposes. This resource concern does not cover pathogens/manure, sediment (although sediment contaminated with petroleum, heavy metals, or other pollutants would be covered), nor naturally occurring salts.

Objective: Reduce losses from facilities for handling, storing, or processing of petroleum, heavy metals, and other pollutants to surface water.

All Land Uses, except water

Tools	Planning Criteria
Client input and/or Planner Observation	The petroleum, heavy metal, or pollutant is protected from surface runoff that can carry the pollutants to surface water. AND All petroleum storage sites are free from obvious signs of continuous or significant leakage.

Petroleum, heavy metals, and other pollutants transported to groundwater

Petroleum, heavy metals, and other pollutants for on-farm use are lost from areas of concentration (handling, storage, or processing facilities and areas) to receiving groundwater in quantities that degrade water quality and limit its use for intended purposes. This resource concern does not cover pathogens/manure, sediment (although sediment contaminated with

petroleum, heavy metals, or other pollutants would be covered), nor naturally occurring salts.

Objective: Reduce losses from facilities for handling, storing, or processing of petroleum, heavy metals, and other pollutants to groundwater.

Any Land Use, except water

Tools	Planning Criteria
Client input and/or Planner Observation	The petroleum, heavy metal, or pollutant is protected from surface runoff that can carry the pollutants to sensitive areas (e.g., sinkholes, wells, or rapidly permeable soil areas). AND All petroleum storage sites are free from obvious signs of continuous or significant leakage.

Sediment transported to surface water

Offsite transport of sediment to surface water degrades water quality and limits use for intended purposes.

Objective: Limit sediment loss from site to surface waters.

When land use is: Crop, Farmstead, Developed Land, Associated Ag Land or Other

Tools	Planning Criteria
Current NRCS water erosion technology AND Streambanks: Stream Visual Assessment Protocol, Version 2 (SVAP2) AND Client input and/or Planner Observation	Sediment delivery does not degrade water quality or limit the intended use AND Bank condition score $\geq$5 AND Upslope treatment and buffer practices address concentrated flows, ephemeral gullies, and classic gullies to water bodies and stream approach and water crossings are stable.

When land use is: Forest

Tools	Planning Criteria
Streambanks: Stream Visual Assessment Protocol, Version 2 (SVAP2) AND Client input and/or Planner Observation	Bank condition score ≥5 AND Upslope treatment and buffer practices address concentrated flows, ephemeral gullies, and classic gullies to water bodies AND Heavy use areas are stable

When land use is: Range

Tools	Planning Criteria
Interpreting Indicators of Rangeland Health (IIRH) AND Streambanks: Stream Visual Assessment Protocol, Version 2 (SVAP2)	Soil/Site Stability and Hydrologic Function attributes: slight to moderate or less AND Bank condition score ≥5
Rangeland Hydrology Model	Evaluate soil loss output risk; compare to current and existing conditions with reference to Historic Plant Community in State and Transition Model.

When land use is: Pasture

Tools	Planning Criteria
Streambanks: Stream Visual Assessment Protocol, Version 2 (SVAP2) AND Pasture Condition Score (PCS) AND Client input and/or Planner Observation	Bank condition score ≥5 AND Soil Erosion and Livestock Concentration Areas elements ≥ 4 AND Upslope treatment and buffer practices address concentrated flows, ephemeral gullies, and classic gullies to water bodies. AND Stream water crossings are stable.

Elevated water temperature

Surface water temperatures exceed State/Federal standards in downstream receiving waters which limits its use for identified fish or as aquatic habitat.

Objective: Lower stream water temperature and/or prevent additional water temperature increases in downstream receiving waters.

Any Land Use

Tools	Planning Criteria
Streambanks: Stream Visual Assessment Protocol, Version 2 (SVAP2)	Riparian Area Quality and Canopy Cover element scores ≥ 6 AND Riparian Area Quantity element score ≥ 5

Air Resource Concerns

Emissions of particulate matter (PM) and PM precursors

Direct emissions of particulate matter – dust and smoke – as well as the formation of fine particulate matter in the atmosphere from other agricultural emissions – ammonia, oxides of nitrogen, and volatile organic compounds – can cause multiple negative environmental impacts.

Objective: Emissions of PM and PM precursors from agricultural activities do not excessively contribute to negative impacts to human, plant, or animal health; do not excessively contribute to regional visibility restriction, unwanted chemical droplet drift, and unwanted deposition on surfaces; and do not result in safety or nuisance visibility restrictions.

When land use is: Crop, Forest, Range, Pasture, Farmstead or Associated Agriculture Lands (except as noted in the For column)

For	Tools	Planning Criteria
Diesel engines	Client input and planner observation	All diesel engines larger than 25 brake horsepower in operation at the PLU are certified to at least EPA Tier 3 standards (based on engine model year and horsepower rating).

For	Tools	Planning Criteria
Non-diesel engine combustion sources	Client input and planner observation	*PM attainment areas:* At least 50% of the normal annual fuel usage for non-diesel engine combustion sources in operation at the PLU is either natural gas or propane. OR At least 50% of the non-diesel engine combustion sources in operation at the PLU utilize emissions control for PM and NOx emissions. OR *PM nonattainment and maintenance areas:* At least 75% of the normal annual fuel usage for non-diesel engine combustion sources in operation at the PLU is either natural gas or propane. OR At least 75% of the non-diesel engine combustion sources in operation at the PLU utilize emissions control for PM and NOx emissions.
Open burning	Client input and planner observation	*Landscape Biomass Fire Management:* Prescribed fire is applied according to a NRCS approved prescribed burn plan meeting Federal, State, Tribal or local requirements and including Basic Smoke Management Practices AND *Piled Biomass Fire Management:* Piled material is treated by applying alternatives to burning or by burning following Federal, State, Tribal or local requirements and using Basic Smoke Management Practices.
Chemical pesticide drift	Client input and planner observation	Neither the planner nor the client has observed any chemical drift issues related to chemical pesticide application at the PLU.
Nitrogen fertilizer (Crop, Forest, Pasture or Associated Agriculture Lands only)	Evaluation of current nutrient management	Nitrogen (organic or inorganic) is applied based on a plan which specifies the source, amount, timing and method of application, and conservation activities needed to reduce nitrogen loss to air.

For	Tools	Planning Criteria
Dust from field operations (Crop, Range and Pasture only)	Client input and planner observation	Demonstrated reduction in PM emissions from the benchmark condition OR Neither the planner nor the client has observed any PM/dust issues related to field operations at the PLU.
Dust from unpaved roads	Client input and planner observation	Demonstrated reduction in PM emissions from the benchmark condition OR Neither the planner nor the client has observed any PM/dust issues related to vehicle and machinery traffic on unpaved roads and surfaces at the PLU.
Windblown dust	Client input and planner observation Current wind erosion technology	Demonstrated reduction in PM emissions from the benchmark condition OR Neither the planner nor the client has observed any PM/dust issues related to windblown dust at the PLU.
Confinement-based animal operations (Farmstead only)	Client input and planner observation National Air Quality Site Assessment Tool (NAQSAT)	Neither the planner nor the client has observed any PM/dust issues related to confinement-based animal production at the PLU. AND The score bars for the Animals and Housing, On Farm Roads, Manure Storage (if dry manure is stored or handled), Land Application (if dry manure is land applied), and Feed and Water (if dry feed ingredients are stored or handled) data categories under Particulate Matter (Dust) and the score bars for Feed and Water, Manure Storage, Land Application, Animals and Housing, and Collection and Transfer under Ammonia in the NAQSAT report are all at least 50% green. OR Appropriate documentation is provided to indicate why an applicable NAQSAT score bar identified above with less than 50% green is acceptable.

Emissions of greenhouse gases (GHGs)

Emissions of methane, nitrous oxide, and carbon dioxide increase atmospheric concentrations of greenhouse gases.

Objective: Emissions of nitrous oxide from nitrogen fertilizer, methane and nitrous oxide from confinement-based animal production, and loss of carbon from soils and biomass do not excessively contribute to increased atmospheric concentrations of greenhouse gases.

When land use is: Crop, Forest, Pasture or Associated Agricultural Land

For	Tools	Planning Criteria
Nitrogen fertilizer	Evaluation of current nutrient management	Nitrogen (organic or inorganic) is applied based on a plan, in accordance with Land Grant University recommendations, which specifies the source, amount, timing and method of application, conservation activities needed to reduce nitrogen loss to air.
Carbon stocks	Client input and planner observation Soils Agricultural Organic Matter Depletion interpretation Soils Organic Carbon Stocks interpretation In-Field Soil Health Assessment Pasture Condition Score Sheet Interpreting Indicators of Rangeland Health COMET-Farm	The client is maintaining or increasing carbon stocks in soils and perennial biomass at the PLU

When land use is: Range

For	Tools	Planning Criteria
Carbon stocks	Client input and planner observation Soils Agricultural Organic Matter Depletion interpretation Soils Organic Carbon Stocks interpretation In-Field Soil Health Assessment Pasture Condition Score Sheet Interpreting Indicators of Rangeland Health COMET-Farm	The client is maintaining or increasing carbon stocks in soils and perennial biomass at the PLU.

When land use is: Farmstead

For	Tools	Planning Criteria
Confinement-based animal operations	National Air Quality Site Assessment Tool (NAQSAT)	The score bars for the Manure Storage and Feed and Water data categories under Methane and the score bars for Feed and Water, Manure Storage, and Land Application under Nitrous Oxide in the NAQSAT report are all at least 50% green OR Appropriate documentation is provided to indicate why an applicable NAQSAT score bar identified above with less than 50% green is acceptable

Emissions of ozone precursors

Emissions of ozone precursors – oxides of nitrogen and volatile organic compounds (VOCs) – result in formation of ground-level ozone, which can have negative impacts to human, plant, and animal health.

Objective: Emissions of ozone precursors from agricultural activities do not excessively contribute to negative impacts to human, plant, or animal health.

When land use is: Crop, Forest, Range, Pasture or Associated Agricultural Land

For	Tools	Planning Criteria
Diesel engines	Client input and planner observation	All diesel engines larger than 25 brake horsepower in operation at the PLU are certified to at least EPA Tier 3 standards (based on engine model year and horsepower rating).
Non-diesel engine combustion sources	Client input and planner observation	*Ozone attainment areas:* At least 50% of the normal annual fuel usage for non-diesel engine combustion sources in operation at the PLU is either natural gas or propane. OR At least 50% of the non-diesel engine combustion sources in operation at the PLU utilize emissions control for NOx emissions. OR *Ozone nonattainment and maintenance areas:* At least 75% of the normal annual fuel usage for non-diesel engine combustion sources in operation at the PLU is either natural gas or propane. OR At least 75% of the non-diesel engine combustion sources in operation at the PLU utilize emissions control for NOx emissions.
Open burning	Client input and planner observation	*Landscape Biomass Fire Management:* Prescribed fire is applied according to a NRCS approved prescribed burn plan meeting Federal, State, Tribal or local requirements and including Basic Smoke Management Practices. AND *Piled Biomass Fire Management:* Piled material is treated by applying alternatives to burning or by burning following Federal, State, Tribal or local requirements and using Basic Smoke Management Practices.

For	Tools	Planning Criteria
Pesticide VOCs	Client input and planner observation Evaluation of pest management system	*Ozone nonattainment and maintenance areas:* For any applied pesticides, the client has either implemented a pest management approach that utilizes prevention, avoidance, monitoring, and suppression to minimize or eliminate use of pesticides containing VOCs at the PLU or applies techniques to minimize volatilization of VOCs from pesticides applied at the PLU.

When land use is: Farmstead

For	Tools	Planning Criteria
Diesel engines	Client input and planner observation	All diesel engines larger than 25 brake horsepower in operation at the PLU are certified to at least EPA Tier 3 standards (based on engine model year and horsepower rating).
Non-diesel engine combustion sources	Client input and planner observation	*Ozone attainment areas:* At least 50% of the normal annual fuel usage for non-diesel engine combustion sources in operation at the PLU is either natural gas or propane. OR At least 50% of the non-diesel engine combustion sources in operation at the PLU utilize emissions control for NOx emissions. OR *Ozone nonattainment and maintenance areas:* At least 75% of the normal annual fuel usage for non-diesel engine combustion sources in operation at the PLU is either natural gas or propane. OR At least 75% of the non-diesel engine combustion sources in operation at the PLU utilize emissions control for NOx emissions.
Open burning	Client input and planner observation	*Landscape Biomass Fire Management:* Prescribed fire is applied according to a NRCS approved prescribed burn plan meeting Federal, State, Tribal or local requirements and including Basic Smoke Management Practices. AND *Piled Biomass Fire Management:* Piled material is treated by applying alternatives to burning or by burning following Federal, State, Tribal or local requirements and using Basic Smoke Management Practices.

For	Tools	Planning Criteria
Pesticide VOCs	Client input and planner observation Evaluation of pest management system	*Ozone nonattainment and maintenance areas:* For any applied pesticides, the client has either implemented a pest management approach that utilizes prevention, avoidance, monitoring, and suppression to minimize or eliminate use of pesticides containing VOCs at the PLU or applies techniques to minimize volatilization of VOCs from pesticides applied at the PLU.
Confinement-based animal operations	National Air Quality Site Assessment Tool (NAQSAT)	*Ozone nonattainment and maintenance areas:* The score bars for the Manure Storage, Feed and Water, and Animals and Housing data categories under VOCs in the NAQSAT report are all at least 50% green. OR Appropriate documentation is provided to indicate why an applicable NAQSAT score bar identified above with less than 50% green is acceptable.

Objectionable odors

Emissions of odorous compounds – volatile organic compounds (VOCs), ammonia, and odorous sulfur compounds – can cause nuisance conditions.

Objective: Emissions of volatile organic compounds, ammonia, and odorous sulfur compounds from agricultural activities do not excessively contribute to negative odor impacts.

When land use is: Crop, Forest, Pasture or Associated Agricultural Land

For	Tools	Planning Criteria
Nitrogen fertilizer	Evaluation of current nutrient management	Nitrogen (organic or inorganic) is applied based on a plan which specifies the source, amount, timing and method of application, and conservation activities needed to reduce nitrogen loss to air.
Pesticides	Evaluation of pest management system	For any applied pesticides, the client has implemented a pest management approach that utilizes prevention, avoidance, monitoring, and suppression to minimize or eliminate use of pesticides with objectionable odors on the PLU.

When land use is: Farmstead

For	Tools	Planning Criteria
Confinement-based animal operations	Client input and planner observation National Air Quality Site Assessment Tool (NAQSAT)	Neither the planner nor the client has observed any odor issues related to confinement-based animal production at the PLU. AND The score bars for the Mortalities, Manure Storage, Feed and Water, Land Application, and Animals and Housing data categories under Odor, the score bars for the Manure Storage, Feed and Water, and Animals and Housing data categories under VOCs, the score bars for the Manure Storage and Feed and Water data categories under Hydrogen Sulfide, and the score bars for the Manure Storage, Feed and Water, Land Application, Animals and Housing, and Collection and Transfer data categories under Ammonia in the NAQSAT report are all at least 50% green. OR Appropriate documentation is provided to indicate why an applicable NAQSAT score bar identified above with less than 50% green is acceptable.

Emissions of airborne reactive nitrogen

Emissions of airborne reactive nitrogen – ammonia and oxides of nitrogen – can negatively impact atmospheric chemistry, cause unwanted fertilization via deposition in sensitive ecosystems, and degrade regional visibility.

Objective: Emissions of airborne reactive nitrogen from agricultural activities do not excessively contribute to negative atmospheric and/or ecosystem impacts.

When land use is: Crop, Forest, Range, Pasture, Farmstead or Associated Agricultural Land (except where noted in For column)

For	Tools	Planning Criteria
Diesel engines	Client input and planner observation	All diesel engines larger than 25 brake horsepower in operation at the PLU are certified to at least EPA Tier 3 standards (based on engine model year and horsepower rating).
Non-diesel engine combustion sources	Client input and planner observation	At least 50% of the normal annual fuel usage for non-diesel engine combustion sources in operation at the PLU is either natural gas or propane. OR At least 50% of the non-diesel engine combustion sources in operation at the PLU utilize emissions control for NOx emissions.
Open burning	Client input and planner observation	*Landscape Biomass Fire Management:* Prescribed fire is applied according to a NRCS approved prescribed burn plan meeting Federal, State, Tribal or local requirements and including Basic Smoke Management Practices. AND *Piled Biomass Fire Management:* Piled material is treated by applying alternatives to burning or by burning following Federal, State, Tribal or local requirements and using Basic Smoke Management Practices.
Nitrogen fertilizer (Not for Range or Farmstead)	Evaluation of current nutrient management	Nitrogen (organic or inorganic) is applied based on a plan which specifies the source, amount, timing and method of application, and conservation activities needed to reduce nitrogen loss to air.
Confinement-based livestock operations (Farmstead only)	Client input and planner observation National Air Quality Site Assessment Tool (NAQSAT)	The score bars for the Manure Storage, Feed and Water, Land Application, Animals and Housing, and Collection and Transfer data categories under Ammonia in the NAQSAT report are all at least 50% green. OR Appropriate documentation is provided to indicate why an applicable NAQSAT score bar identified above with less than 50% green is acceptable.

Plant Resource Concerns

Plant productivity and health

Improper fertility, management or plants not adapted to site negatively impact plant productivity, vigor and/or quality

Objective: Improve poor plant productivity and health.

When land use is: Crop

Tools	Planning Criteria
Client input and/or planner observation	No evidence of yield limiting conditions.
Yield data and crop health information	Crop yield is greater or equal to 75% of the realistic yield expectations found in Land Grant University Guidelines or realistic yield tables; (lowest value should be used when indices differ).
Productivity indices in Section II of the FOTG	Crop yield is greater or equal to 75% of the realistic yield expectations.

When land use is: Forest

Tools	Planning Criteria
Forest Inventory AND Client input and/or planner observation	Forest plants species are adapted to the site and tree density is within stocking guidelines that support desired ecological functions and/or desired future management objectives. OR There is no excessive mortality.

When land use is: Range

Tools	Planning Criteria
Interpreting Indicators of Rangeland Health (IIRH)	Biotic Integrity attribute: slight to moderate departure or less. AND Indicators: Functional/Structural Groups #12, Dead or Dying Plants or Plant Parts#13, Annual Production #15, and #17 Vigor with an emphasis on Reproductive Capability of Perennial Plants; indicators are slight to moderate departure or less.

Tools	Planning Criteria
Rangeland Trend Worksheet	Positive trend AND Abundance of Seedlings and Young Plants and Plant Vigor indicators are positive. OR Measured improvements in plant health and productivity over time.
Similarity Index Worksheet	Vegetation meets similarity index of 60 or greater for desired vegetation state or plant community within the ESD State and Transition Model.

Note: Only use the similarity index worksheet when desired vegetation states or plant communities are described in an ecological site description.

When land use is: Pasture

Tools	Planning Criteria
Client input and/or Planner Observation AND Pasture Condition Score (PCS)	Plants are adapted to the site and meet production goals. AND Percent Desirable Plants, Live or Dormant Plant Cover, and Plant Vigor elements ≥ 4
Determining Indicators of Pasture Health (DIPH)	Biotic Integrity attribute: slight to moderate or less AND Indicators: Forage Plant Diversity 13, Percent Desirable Forage Plants 14, Annual Production 16, Plant Vigor with an Emphasis on Reproductive Capability of Perennials 17, and Percentage Nontoxic Legumes 20: slight to moderate departure or less.

When land use is: Farmstead, Developed Land, Associated Ag Land or Other

Tools	Planning Criteria
Client input and/or Planner Observation	Plants are adapted to the site. AND Plants are vigorous and healthy.

Plant structure and composition

Plant communities have insufficient composition and structure to achieve ecological functions and management objectives. This resource concern includes degradation of wetland habitat, targeted ecosystems, or unique plant communities.

Objective: Improve plant structure and composition.

When land use is: Forest

Tools	Planning Criteria
Forest Inventory	Plant communities contain adequate diversity, composition and structure to enhance ecological functions and/or desired future management objectives.

When land use is: Range

Tools	Planning Criteria
Interpreting Indicators of Rangeland Health (IIRH)	Biotic Integrity attribute rating: slight to moderate departure or less. AND The functional/structural indicator 12 has a rating of: slight to moderate departure or less.
Rangeland Trend Worksheet	Composition changes provide adequate plant community diversity and composition and structure towards a desired plant community or vegetative state.

When land use is: Pasture

Tools	Planning Criteria
Pasture Condition Score (PCS)	Percent Desirable Plants and Plant Vigor elements ≥ 4
Determining Indicators of Pasture Health (DIPH)	Biotic Integrity attribute: slight to moderate departure or less AND Indicators: Forage Plant Diversity 13, Percent Forage Plants (for identified livestock class) 14, Percentage of nontoxic legumes 20 are: slight to moderate departure or less.

Plant pest pressure

Excessive pest damage to plants including that from undesired plants, diseases, animals, soil borne pathogens, and nematodes. This concern addresses invasive plant, animal and insect species.

Objective: Reduce plant pest pressure.

When land use is: Crop

Tools	Planning Criteria
Client input and/or Planner Observation (May be based on crop scouting, crop/soil yield comparisons, field pest histories, or University guidelines)	Pest damage to plants is below economic, historic, pest model or environmental thresholds.

When land use is: Range

Tools	Planning Criteria
Interpreting Indicators of Rangeland Health (IIRH)	Biotic Integrity attribute: slight to moderate departure or less AND Invasive Plant indicator 16: slight to moderate or less
Ecological Site Descriptions	Invasive plants and other pests are within parameters of ecological site descriptions.

When land use is: Pasture

Tools	Planning Criteria
Pasture Condition Score (PCS)	Plant Vigor and Percent Desirable Plants elements ≥ 4
Determining Indicators of Pasture Health (DIPH)	Invasive Plant indicator 15: slight to moderate or less

When land use is: Forest, Farmstead, Developed Land, Associated Ag Land or Other

Tools	Planning Criteria
Client input and/or Planner Observation	Pest damage to plants is below economic, historic, pest model or environmental thresholds.

Wildfire hazard from biomass accumulation

The kinds and amounts of plant biomass create wildfire hazards that pose risks to human safety, structures, plants, animals, and air resources.

Objective: Reduce biomass accumulation and the risk of wildfire hazard.

Any Land Use

Tools	Planning Criteria
Client input and/or Planner Observation (May be based on visual assessment protocols, site and flammable biomass inventories, or aerial photo analysis)	Surface and ladder fuels are managed to provide defensible space and mitigate wildfire risk.

Animal Resource Concerns

Terrestrial habitat for wildlife and invertebrates

Quantity, quality or connectivity of food, cover, space, and/or water is inadequate to meet requirements of identified terrestrial wildlife or invertebrate species.

Objective: Improve quantity and quality of habitat to meet requirements of identified terrestrial wildlife or invertebrate species.

Any Land Use

Tools	Planning Criteria
Wildlife Habitat Evaluation Guide (WHEG)	Overall WHEG score ≥0.5 or 50% of maximum score.
Specialist (e.g., biologist) report or management plan	Specialist/planner documentation that prescribed practices will adequately address specific wildlife resource concern(s).

Aquatic habitat for fish and other organisms

Quantity, quality, or connectivity of water, food, cover and space, is inadequate to meet requirements of identified fish or other organisms.

Objective: Provide water that is sufficient in quality and extent to meet identified species or guild habitat requirements, remove barriers to enable aquatic species movement and improve associated riparian habitat to meet identified species or guild habitat requirements

Any Land Use

For	Tools	Planning Criteria
Ephemeral Streams And Water Bodies	Stream Visual Assessment Protocol, Version 2 (SVAP2)	SVAP2 - Fish habitat complexity, Aquatic Invertebrate habitat, Barriers to aquatic species movement, element scores ≥ 7 AND There are more than 8 Aquatic Habitat Features (AHF) AND Water is available in quality and extent to meet identified species or guild habitat requirements.

For	Tools	Planning Criteria
Ephemeral Streams And Water Bodies	Specialist (e.g., biologist) reports and documentation	Specialist/planner documentation that prescribed practices will adequately address identified fish or other aquatic organism resource concern(s).
Perennial Streams	Stream Visual Assessment Protocol (SVAP2)	SVAP2 - Fish habitat complexity, Aquatic Invertebrate habitat, Barriers to aquatic species movement, element scores $\geq$ 7 AND There are more than 8 AHF AND Water is available year-round in quality and extent to meet identified species or guild habitat requirements. AND In stream or adjacent physical structures, water withdrawals do not restrict or prohibit movement of aquatic species. AND Riparian habitat meets identified species or guild requirements.
Perennial Streams	Specialist (e.g., biologist) reports and documentation	Specialist/planner documentation that prescribed practices will adequately address identified fish or other aquatic organism resource concern(s).

Note: Particularly in ephemeral streams, habitat needs and types vary considerably throughout the country. States should adjust habitat feature characteristics to reflect reference conditions in their region.

Feed and forage imbalance

Feed and Forage quality and/or quantity is inadequate for nutritional needs and production goals of the kinds and classes of livestock.

Objective: Balance the quantity and quality of feed and forage to meet livestock needs and reduce negative impacts to other resources.

When land use is: Crop (grazed)

Tools	Planning Criteria
Client input and/or Planner Observation	Livestock forage, roughage and supplemental nutritional requirements are addressed AND Sufficient residue and/or stubble height is maintained to prevent or mitigate other resource concerns.

When land use is: Forest (grazed)

Tools	Planning Criteria
National Range and Pasture Handbook (NRPH)	An inventory of Livestock-Forage/Feed is in balance for intended use.

When land use is: Range

Tools	Planning Criteria
Interpreting Indicators of Rangeland Health (IIRH) AND National Range and Pasture Handbook (NRPH)	Biotic integrity attribute: slight to moderate or less AND Annual Production Indicator: slight to moderate departure or less. AND An inventory of Livestock-Forage/Feed is in balance for intended use.

When land use is: Pasture

Tools	Planning Criteria
Pasture Condition Score (PCS) AND Livestock-Forage/Feed Inventory	Grazing Utilization and Severity element $\geq$ 4 AND An inventory of Livestock Forage/Feed is in balance for intended use.
Determining Indicators of Pasture Health (DIPH) AND Livestock-Forage/Feed Inventory	Livestock forage, roughage, and supplemental nutritional requirements are addressed, and sufficient residual and/or stubble height is maintained to prevent or mitigate other resource concerns

When land use is: Farmstead

Tools	Planning Criteria
National Range and Pasture Handbook (NRPH)	Livestock forage, roughage and supplemental nutritional requirements addressed. AND An inventory of Livestock-Forage/Feed is in balance for intended use.

Inadequate livestock shelter

Livestock lack adequate shelter from climatic conditions to meet basic needs.

Objective: Supply adequate shelter to meet grazing livestock needs.

When land use is: **Crop (grazed), Forest (grazed), Range, Pasture, Farmstead, Developed Land, Associated Ag Land or Other**

Tools	Planning Criteria
Client input and/or Planner Observation AND National Range and Pasture Handbook (NRPH)	NRPH thermal neutral zones or local Extension Service guidelines are met. AND There is protection (wind or shade) available. AND No excessive use areas are evident. AND Shady areas exist and do not show excessive use, crowding or other limits. AND Kind/Class of livestock does impact the severity of need.

Inadequate livestock water quantity, quality and distribution

Quantity or quality of drinking water are insufficient to meet basic needs for the kind and class of livestock and improper distribution negatively impacts other resources.

Objective: Supply adequate quantity and quality of water to meet basic livestock needs and assure proper distribution to reduce negative impacts to other resources.

When land use is: Crop (grazed), Forest (grazed), Range, Pasture or Farmstead

Tools	Planning Criteria
Client input and/or Planner Observation	Water of acceptable quality and quantity are adequately distributed to meet kind/class of livestock.
National Range and Pasture Handbook (NRPH)	Local Extension Service guidelines, state guidelines, or NRPH are met.

Note: Distribution based on NRPH 5.2-39;5.3-1 and consumed water per animal based on NRPH 6-7.

Energy Resource Concerns

Energy efficiency of equipment and facilities

Stationary equipment or facilities are using energy inefficiently. In addition to energy use in and around buildings on the farmstead, this includes other stationary equipment such as grain dryers or commodity storages as well as equipment in the field such as irrigation pumps, irrigation systems, and center pivots.

Objective: Improve energy efficiency of stationary equipment and facilities to reduce energy use.

Any Land Use

Tools	Planning Criteria
Client input and/or Planner Observation	The client is operating the farm such that the energy use has been cost effectively minimized to the extent practicable at any given time.
USDA approved Energy Audit (ASABE S612 Type 2 Audit) OR NRCS approved tool to evaluate energy conservation opportunities OR NRCS Energy Estimator Tools	A minimum of one energy efficiency recommendation is implemented.

Energy efficiency of field operations

Mobile on-farm, field operations are using energy inefficiently. This includes use of tractors, trucks or other mobile equipment as well as changes in farming/ranching and forestry practices that reduce energy use such as making fewer trips across the field or implementing practices that result in less energy use.

Objective: Improve energy efficiency of farming, ranching, forestry practices and mobile field operations to reduce energy use.

When land use is: Crop, Forest, Range, Pasture or Farmstead

Tools	Planning Criteria
Client input and/or Planner Observation	The client energy use has been effectively minimized to the extent practicable at any given time.
USDA approved Energy Audit (ASABE S612 Type 2 Audit) OR NRCS approved tool to evaluate energy conservation opportunities OR NRCS Energy Estimator Tools OR Current NRCS wind and water erosion prediction technologies	A minimum of one energy efficiency recommendation is implemented.