CONSERVATION PRACTICE PHYSICAL EFFECTS WORKSHEET

STATE	Pennsylvania	FIELD OFFICE	Any	DATE	
PRACTICE: Prescribed Grazing 528		Baseline Setting:			
		Appropriate Land Use(s): Crop, Grazed Forest, Grazed Range, Hay, Headquarters, Native or Naturalized Pasture, Natural Area, Pasture, Recreation, Water, Watershed Protection, Wildlife			

RESOURCES, CONSIDERATIONS AND CONCERNS	**PHYSICAL EFFECTS**	**RATIONALE**
SOIL - EROSION		
Sheet and Rill	Moderate to Substantial Improvement	Improving the health and vigor of plant communities will increase vegetative cover and/or water infiltration and decrease erosion by water.
Wind	Moderate to Substantial Improvement	Improving the health and vigor of plant communities will increase vegetative cover and decrease erosion by wind.
Ephemeral Gully	Moderate to Substantial Improvement	Improving the health and vigor of plant communities will increase vegetative cover and/or water infiltration and decrease erosion by water.
Classic Gully	Slight to Moderate Improvement	There will be decreased overland flow, enhanced vegetation cover.
Streambank	Slight to Substantial Improvement	There will be enhancement of protective riparian vegetation.
Shoreline	Slight to Substantial Improvement	There will be enhancement of protective shoreline vegetation.
Irrigation Induced	Slight to Moderate Improvement	There will be an improvement in vegetative cover.
Mass Movement	Neutral	There will be improved stability of soil profile by root systems of the more vigorous plant communities.
Road, Roadsides, and Construction Sites	Not Applicable	Not applicable.
SOIL – CONDITION		
Organic Matter Depletion	Moderate to Substantial Improvement	There will be an increase in vegetative cover, deeper root systems, increased soil organic material and biological activity, and improved nutrient cycling.
Rangeland Site Stability	Moderate to Substantial Improvement	There will be an increase in vegetative cover, deeper root systems, increased soil organic material and biological activity, and improved nutrient cycling.
Compaction	Slight to Substantial Improvement	Soil bulk density decreases on long-term basis because of an increase in vegetative cover, deeper root systems, and increased soil organic material.

		There may be a slight increase in bulk density in the short term on intensively managed grazing systems.
Subsidence	Not Applicable	Not applicable.
Contaminants:		
• Salts and other Chemicals	Slight to Moderate Improvement	There will be increased vigor of plant community in recharge areas which may uptake salts, however a slight worsening may be possible in areas where intensive grazing systems are implemented.
• Animal Waste and other Organics - N	Slight to Moderate Improvement	There will be a greater use of N by more vigorous plants.
• Animal Waste and other Organics - P	Slight to Moderate Improvement	There will be a greater use of P by more vigorous plants.
• Animal Waste and other Organics - K	Slight to Moderate Improvement	There will be a greater use of K by more vigorous plants.
• Commercial Fertilizer - N	Slight to Moderate Improvement	There will be a greater use of N by more vigorous plants.
• Commercial Fertilizer – P	Slight to Moderate Improvement	There will be a greater use of P by more vigorous plants.
• Commercial Fertilizer – K	Slight to Moderate Improvement	There will be a greater use of K by more vigorous plants.
• Residual Pesticides	Slight to Moderate Improvement	Vigorous plants are more resistant to pest pressure.
Damage from Sediment Deposition	Moderate Improvement	There will be an increase in vegetative cover, reducing runoff, erosion, and sediment yield.
WATER – QUANTITY		
Rangeland Hydrologic Cycle	Slight to Substantial Improvement	Restoration and/or maintenance of the function and structure of the ecological site.
Excessive Seepage	Neutral	There is potential for a decrease in seep flow because of increased utilization of soil moisture, however there may be slight worsening due to increased infiltration, especially during dormant season.
Excessive Runoff, Flooding, or Ponding	Slight to Moderate Improvement	Runoff will be reduced and infiltration increased due to improved vegetative cover.
Excessive Subsurface Water	Slight Improvement	There will be an increase in plant uptake.
Drifted Snow	Not Applicable	Not applicable.
Inadequate Outlets	Slight Improvement	Runoff will be reduced and infiltration increased due to improved vegetative cover.
Inefficient Water use on Irrigated Land	Slight Worsening	Grazing animals causes difficulty in scheduling irrigations.

Inefficient Water use on Non-Irrigated Land	Slight to Moderate Improvement	There will be increased infiltration, increased available water, and extended interflow yield.
Reduced Capacity of Conveyances by Sediment Deposition	Slight to Moderate Improvement	There will be a decrease in sediment loads due to reduced runoff, greater water infiltration, and increased cover.
Reduced Storage of Water Bodies by Sediment Accumulation	Slight Improvement	There will be a decrease in sediment loads due to reduced runoff, greater water infiltration, and increased cover.
Aquifer Overdraft	Neutral	Improved vigor of plant community increases infiltration rate and evapotranspiration.
Insufficient Flows in Water Courses	Neutral	Improved vigor of plant community increases infiltration rate and evapotranspiration.
WATER – QUALITY		
In Groundwater:		
• Harmful Levels of Pesticides	Slight to Moderate Improvement	Managing for desirable plant health and vigor reduces the need for pesticide applications.
• Excessive Nutrients and Organics	Slight Improvement	The action increases plant vigor and uptake of nutrients.
• Excessive Salinity	Slight Improvement	The action results in increased vigor of plant community which may increase contaminant uptake.
• Harmful Levels of Heavy Metals	Slight Improvement	The action results in increased vigor of plant community, which may increase uptake of metals.
• Harmful Levels of Pathogens	Slight Improvement	The action may increase soil microbial activity enhancing competition with pathogens.
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
In Surface Water:		
• Harmful Levels of Pesticides	Slight to Moderate Improvement	Managing for desirable plant health and vigor reduces runoff, erosion, and the need for pesticide applications.
• Excessive Nutrients and Organics	Slight Improvement	The action increases plant vigor and uptake of nutrients.
• Excessive Suspended Sediment and Turbidity	Slight to Substantial Improvement	Management will result in increased plant vigor and cover, decreasing sediment yields.
• Excessive Salinity	Slight to Moderate Improvement	The action reduces soil surface evaporation, increases infiltration and reduces runoff.
• Harmful Levels of Heavy Metals	Slight Improvement	Improved plant growth reduces runoff and increases uptake.
• Harmful Temperatures	Neutral	The action protects soil and water quality.
• Harmful Levels of Pathogens	Slight Improvement	Reduced runoff, grazing

		managent, and properly placed and designed watering facilities will reduce risk of movement of pathogens in surface waters.
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
AIR – QUALITY		
Particulate Matter less than 10 Micrometers in Diameter (PM 10)	Slight to Moderate Improvement	Improved vegetative cover reduces the generation of particulates.
Particulate Matter less than 2.5 Micrometers in Diameter (PM 2.5)	Slight to Moderate Improvement	Improved vegetative cover reduces the generation of particulates.
Excessive Ozone	Neutral	There is a minimal reduction of ozone precursors through reduced surface temperatures offered by shade or ground cover, and minimal biofiltering of ozone concentrations due to interception by vegetation.
Excessive Greenhouse Gas:		
• CO_2 (Carbon Dioxide)	Slight to Moderate Improvement	Improved vegetative cover removes CO2 from the air and stores it in the form of carbon in the plants and soil.
• N_20 (Nitrous Oxide)	Not Applicable	Not applicable.
• CH_4 (Methane)	Not Applicable	Not applicable.
Ammonia (NH_3)	Not Applicable	Not applicable.
Chemical Drift	Not Applicable	Not applicable.
Objectionable Odors	Neutral	Proper management will spread livestock, reducing manure concentrations.
Reduced Visibility	Slight to Moderate Improvement	Reduction in particulates due to improved ground cover.
Undesirable Air Movement	Not Applicable	Not applicable.
Adverse Air Temperature	Not Applicable	Not applicable.
PLANTS – SUITABLIITY		
Plants not Adapted or Suited	Moderate to Substantial Improvement	Grazing management is implemented to create or maintain the desired plant community.
PLANTS - CONDITION		
Productivity, Health, and Vigor	Substantial Improvement	Improved plant and animal management enhances growing conditions of the desired plant community.
Threatened or Endangered Plant Species:		
• Plant Species Listed or Proposed for Listing Under the Endangered Species Act	Neutral	When threatened or endangered plants are present, protection and recovery are addressed in the planning process.
• Declining Species, Species of Concern	Neutral	When threatened or endangered plants are present, protection and recovery are addressed in the

		planning process.
Noxious and Invasive Plants	Moderate to Substantial Improvement	Management will increased health and vigor and competition by desirable plants which will decrease noxious and invasive plants.
Forage Quality and Palatability	Moderate to Substantial Improvement	Management of plant community will increase quality and palatability of forage species.
Wildfire Hazard	Slight to Substantial Improvement	Management of plant communities reduces fuel loads.
ANIMALS - FISH AND WILDLIFE		
Inadequate Food	Slight to Substantial Improvement	Management enhances production and diversity of the plant community including food species.
Inadequate Cover/Shelter	Slight to Substantial Improvement	Management enhances production and diversity of cover/shelter conditions/
Inadequate Water	Not Applicable	Not applicable.
Inadequate Space	Moderate to Substantial Improvement	Management can restore desired habitats/space.
Habitat Fragmentation	Moderate to Substantial Improvement	Management can restore and reconnect desired habitats/space.
Imbalance Among and Within Populations	Slight to Substantial Improvement	Stocking rates are determined with the intent of maintaining or enhancing wildlife habitat.
Threatened and Endangered Fish and Wildlife Species:		
• Fish and Wildlife Species Listed or Proposed for Listing Under the Endangered Species Act	Neutral	Activities are designed, installed, and mitigated to an extent to maintain or enhance species of concern.
• Declining Species, Species of Concern	Neutral	Activities are designed, installed, and mitigated to an extent to maintain or enhance species of concern.
ANIMALS – DOMESTIC		
Inadequate Quantities and Quality of Feed and Forage	Substantial Improvement	Livestock numbers are in balance with available feed and forage that meets nutritional and productive needs for the kinds and classes of livestock.
Inadequate Shelter	Slight to Substantial Improvement	Grazing management considers location of animals and available shelter(s) throughout the year.
Inadequate Stock Water	Not Applicable	Not applicable.
Stress and Mortality	Moderate to Substantial Improvement	Management results in nutritive forage, reduction and avoidance of poisonous plant, and disruption of pest cycles which improves livestock health.
HUMAN – ECONOMICS		

Land - Change in Land Use	Not applicable.	Not applicable.
Land – Land in Production	Not applicable.	Not applicable.
Capital – Change in Equipment	Slight Increase.	
Capital - Total Investment Cost	Not applicable.	Not applicable.
Capital – Annual Cost	Negligible	
Capital – Credit and Farm Program Eligibility	Situational.	
Labor - Labor	Slight to moderate increase	Slight to moderate increase to move livestock between pastures.
Labor – Change in Management Level	Slight increase	Slight increase to determine when to move livestock and manage forage.
Risk - Yield	Slight to Moderate Decrease	Slight to moderate decrease from improved health, extended grazing period, improved forage.
Risk - Flexibility	Slight to Moderate Increase	Slight to moderate increase because of increased management.
Risk - Timing	Substantial Increase	Substantial increase - practice must be applied according to forage needs.
Risk – Cash Flow	Slight to Moderate Decrease	Slight to moderate decrease due to higher yields and reduced costs.
Profitability – Change in Profitability	Slight to moderate increase.	
HUMAN - CULTURAL		
Cultural Resources and/or Historic Properties Present or Suspected to be PRESENT	Not applicable.	Not applicable.
HUMAN – ENERGY		
Depletion of Fossil Fuel Resources	Not Applicable	Not Applicable
Underutilization of Non-Fossil Energy Resources	Not Applicable	Not Applicable

Human Considerations Explanation

Considerations	Physical effects indicate:
Land - Change in Land Use	The degree to which implementing the conservation practice is expected to cause a change from one land use to another.
Land - Land in Production	The degree to which implementing the conservation practice is expected to cause an increase or decrease in the amount of land in production.
Capital - Change in Equipment	The degree to which implementing the conservation practice is expected to cause an increase or decrease in the amount of capital equipment required for farm or ranch operations.
Capital - Total Investment Cost	A qualitative measure of the increase in total investment dollars required in order to implement the conservation practice.
Capital - Annual Cost	A qualitative measure of the expected change in annual capital costs required in order to operate and maintain the conservation practice.
Capital - Credit & Farm Program Eligibility	Included to make conservation planners aware of the potential availability of funding for implementing conservation practices.
Labor – Labor	The degree to which implementing the conservation practice is likely to cause an increase or decrease in the total amount of overall farm or ranch labor required for operations.
Labor - Change in Management Level	The degree to which implementing the conservation practice is likely to cause an increase or decrease in the total amount of required active management on a farm or ranch.
Risk – Yield	The degree to which risk, as related to crop or livestock yields, is expected to increase or decrease as a result of implementing the conservation practice.
Risk – Flexibility	The degree to which risk, as related to the flexibility of farm or ranch operations, is expected to increase or decrease as a result of implementing the conservation practice. For example, converting from flood irrigation to a sprinkler system gives a farmer an increase in flexibility of irrigation, which results in a decrease in the level of risk associated with inflexibility of operations.
Risk – Timing	The degree to which risk, as related to the timing of farm or ranch operations, is expected to increase or decrease as a result of implementing the conservation practice.
Risk - Cash Flow	The degree to which risk, as related to cash flow in farm or ranch operations, is expected to increase or decrease as a result of implementing the conservation practice.
Profitability - Change in Profitability	The degree to which farm or ranch profitability is expected to increase or decrease as a result of implementing the conservation practice.
Cultural Resources and/or Historic Properties Present or Suspected to be Present	The degree to which implementation of the conservation practice is expected to increase or decrease the risk of cultural resource disturbance, degradation, or loss.
Depletion of Fossil Fuel Resources	Inefficient use of fossil-originated energy sources (diesel, gasoline, propane, natural gas, coal), lubricants, and other materials.
Underutilization of Non-Fossil Energy Sources	Available and cost-effective alternative energy sources (solar, wind, biofuel, hydroelectric, geothermal) are not being used or are being used inefficiently.