CONSERVATION PRACTICE PHYSICAL EFFECTS WORKSHEET

STATE	Arkansas	FIELD OFFICE		DATE	

PRACTICE: Conservation Cover 327	Baseline Setting: Appropriate Land Use(s): Crop, Natural Area, Headquarters, Mined, Recreation, Watershed Protection, Wildlife

RESOURCES, CONSIDERATIONS AND CONCERNS	**PHYSICAL EFFECTS**	**RATIONALE**
SOIL - EROSION		
Sheet and Rill	Slight to Substantial Improvement	Increased vegetation and cover will improve infiltration and decrease soil detachment by water.
Wind	Slight to Substantial Improvement	An increase in vegetation and cover will protect the soil surface and decrease soil detachment by wind.
Ephemeral Gully	Slight to Moderate Improvement	An increase in vegetation and cover will improve infiltration, protect the soil surface and decrease soil detachment by concentrated flow.
Classic Gully	Slight Improvement	Increased cover will reduce runoff.
Streambank	Slight Improvement	Better vegetation and cover can reduce overland flow.
Shoreline	Not Applicable	Not applicable.
Irrigation Induced	Not Applicable	Not applicable.
Mass Movement	Slight Improvement	Water use by roots will reduce potential of mass movement; Soil is bound by roots.
Road, Roadsides, and Construction Sites	Not Applicable	Not applicable.
SOIL – CONDITION		
Organic Matter Depletion	Substantial Improvement	Establishing permanent vegetation will increase biomass production, infiltration and root establishment.
Rangeland Site Stability	Not Applicable	Not applicable.
Compaction	Moderate Improvement	Permanent vegetation will increase roots and organic matter and result in less field operations to cause compaction.
Subsidence	Neutral	If it affects drainage the practice can have an impact on subsidence.
Contaminants:		
• Salts and other Chemicals	Slight to Moderate Improvement	Permanent cover may increase salt uptake.
• Animal Waste and other Organics - N	Slight to Moderate Improvement	Permanent cover increases N uptake.
• Animal Waste and other Organics	Slight to Moderate Improvement	Permanent cover increases P

- P		uptake.
• Animal Waste and other Organics - K	Slight to Moderate Improvement	Permanent cover increases K uptake.
• Commercial Fertilizer - N	Slight to Moderate Improvement	Permanent cover increases N uptake.
• Commercial Fertilizer – P	Slight to Moderate Improvement	Permanent cover increases P uptake.
• Commercial Fertilizer – K	Slight to Moderate Improvement	Permanent cover increases K uptake.
• Residual Pesticides	Slight to Substantial Improvement	Land cover change can lead to less pesticide use and thus will reduce potential pesticide contamination.
Damage from Sediment Deposition	Slight to Substantial Improvement	Permanent cover reduces erosion.
WATER – QUANTITY		
Rangeland Hydrologic Cycle	Not Applicable	Not Applicable
Excessive Seepage	Slight Improvement	Increased water use by permanent vegetation. However, increased infiltration could increase seepage.
Excessive Runoff, Flooding, or Ponding	Slight to Moderate Improvement	Increased water use and infiltration will reduce runoff and ponding.
Excessive Subsurface Water	Slight Improvement	Increased water use by permanent vegetation. However, increased infiltration could increase seepage.
Drifted Snow	Slight Improvement	Permanent vegetation can trap snow.
Inadequate Outlets	Not Applicable	Not applicable.
Inefficient Water use on Irrigated Land	Not Applicable	Not applicable.
Inefficient Water use on Non-Irrigated Land	Slight to Moderate Improvement	Permanent cover increases infiltration and water use.
Reduced Capacity of Conveyances by Sediment Deposition	Slight to Substantial Improvement	Permanent vegetation reduces sediment yield.
Reduced Storage of Water Bodies by Sediment Accumulation	Slight to Substantial Improvement	Permanent vegetation reduces sediment yield.
Aquifer Overdraft	Slight Improvement	Increased infiltration may improve aquifer recharge.
Insufficient Flows in Water Courses	Not Applicable	Not applicable.
WATER – QUALITY		
In Groundwater:		
• Harmful Levels of Pesticides	Slight to Substantial Improvement	The action reduces the need for pesticide use and increases soil organic matter.
• Excessive Nutrients and Organics	Moderate to Substantial Improvement	Permanent vegetation will uptake excess nutrients.
• Excessive Salinity	Slight to Substantial Improvement	Permanent vegetation can take up salts and water reducing the leaching potential of salts.
• Harmful Levels of Heavy Metals	Slight to Moderate Improvement	Higher organic matter levels increase the buffering capacity of soil. Some species can take up

		some heavy metals.
• Harmful Levels of Pathogens	Slight to Substantial Improvement	Permanent vegetation increases organic matter promoting microbial activity which competes with pathogens.
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
In Surface Water:		
• Harmful Levels of Pesticides	Slight to Substantial Improvement	The action reduces the need for pesticide use, decreases runoff and erosion, and increases soil organic matter.
• Excessive Nutrients and Organics	Slight to Moderate Improvement	Less erosion and runoff reduces transport of nutrients. Permanent cover can take up excess nutrients and convert them to stable organic forms.
• Excessive Suspended Sediment and Turbidity	Slight to Substantial Improvement	Less erosion and runoff reduces sediment.
• Excessive Salinity	Substantial Improvement	Less runoff reduces transport of soluble salts. Permanent vegetation can use excess water which reduces seepage.
• Harmful Levels of Heavy Metals	Slight to Moderate Improvement	Decreased erosion and runoff reduces heavy metal delivery to surface water. Permanent vegetation can uptake heavy metals.
• Harmful Temperatures	Not Applicable	Not applicable.
• Harmful Levels of Pathogens	Slight Improvement	Less erosion and runoff reduces delivery of pathogens.
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
AIR – QUALITY		
Particulate Matter less than 10 Micrometers in Diameter (PM 10)	Slight to Moderate Improvement	Permanent vegetation reduces wind erosion and generation of fugitive dust.
Particulate Matter less than 2.5 Micrometers in Diameter (PM 2.5)	Slight to Moderate Improvement	Permanent vegetation reduces wind erosion and generation of fugitive dust.
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)	Moderate to Substantial Improvement	Vegetation 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	Not Applicable	Not applicable.

Reduced Visibility	Slight Improvement	Reduce fugitive dust emissions
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	Plants selected are adapted and suited.
PLANTS - CONDITION		
Productivity, Health, and Vigor	Moderate to Substantial Improvement	Plants are selected and managed to maintain optimal productivity and health.
Threatened or Endangered Plant Species:		
• Plant Species Listed or Proposed for Listing Under the Endangered Species Act	Slight to Moderate Improvement	The cover can allow T&E species to reestablish.
• Declining Species, Species of Concern	Slight to Moderate Improvement	The cover can allow T&E species to reestablish.
Noxious and Invasive Plants	Moderate to Substantial Improvement	Establishment of permanent vegetation may provide competition that would slow the spread of noxious plants.
Forage Quality and Palatability	Not Applicable	Not applicable.
Wildfire Hazard	Not Applicable	Not applicable.
ANIMALS - FISH AND WILDLIFE		
Inadequate Food	Slight to Moderate Improvement	Increased quality and quantity of vegetation provides more food for wildlife.
Inadequate Cover/Shelter	Slight to Moderate Improvement	Increased quality and quantity of vegetation provides more cover for wildlife.
Inadequate Water	Not Applicable	Not applicable.
Inadequate Space	Slight to Moderate Improvement	Increased cover will increase space for wildlife. May be used to connect other cover areas.
Habitat Fragmentation	Slight to Moderate Improvement	Increased cover can connect to other cover areas.
Imbalance Among and Within Populations	Slight to Substantial Improvement	Habitat management is implemented to remove limiting factors.
Threatened and Endangered Fish and Wildlife Species:		
• Fish and Wildlife Species Listed or Proposed for Listing Under the Endangered Species Act	Slight Improvement	Activities are designed, installed, and mitigated to an extent to maintain or enhance species of concern.
• Declining Species, Species of Concern	Slight Improvement	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	Not Applicable	Not applicable.
Inadequate Shelter	Not Applicable	Not applicable.

Inadequate Stock Water	Not Applicable	Not applicable.
Stress and Mortality	Not Applicable	Not applicable.
HUMAN – ECONOMICS		
Land - Change in Land Use	Substantial	Substantial if large areas are planted, otherwise N/A.
Land – Land in Production	Substantial	Substantial decrease, land converted to permanent cover.
Capital – Change in Equipment	Moderate Decrease.	
Capital - Total Investment Cost	Moderate.	
Capital – Annual Cost	Slight increase.	
Capital – Credit and Farm Program Eligibility	Situational.	
Labor - Labor	Negligible	
Labor – Change in Management Level	Slight increase.	
Risk - Yield	Not applicable.	Not applicable.
Risk - Flexibility	Negligible	
Risk - Timing	Moderate Increase	Moderate increase during establishment of plants dependent on climate and season.
Risk – Cash Flow	Slight Increase	Slight increase due to establishment costs.
Profitability – Change in Profitability	Moderate to substantial decrease.	
HUMAN - CULTURAL		
Cultural Resources and/or Historic Properties Present or Suspected to be PRESENT	Slight to Substantial Decrease	Historic properties in agricultural context can be protected from erosion.
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.