

CONSERVATION PRACTICE PHYSICAL EFFECTS WORKSHEET

STATE	Pennsylvania	FIELD OFFICE	Any	DATE	
PRACTICE: Forest Trails and Landings 655		Baseline Setting:			
		Appropriate Land Use(s): Forest, Grazed Forest, Mined, Native or Naturalized Pasture, Natural Area, Recreation, Urban, Watershed Protection, Wildlife			
RESOURCES, CONSIDERATIONS AND CONCERNS		PHYSICAL EFFECTS		RATIONALE	
SOIL - EROSION					
Sheet and Rill		Slight Worsening		Travel-ways and cleared areas are treated to minimize soil detachment by water.	
Wind		Neutral		Disturbed areas are not extensive enough for wind erosion.	
Ephemeral Gully		Slight Worsening		Travel-ways and cleared areas are treated to minimize soil detachment by water.	
Classic Gully		Slight Improvement		Trails and landings are designed, located and maintained to minimize on site and off site impacts to resources.	
Streambank		Neutral		Trails and landings are designed, located and maintained to minimize on site and off site impacts to resources including streambanks.	
Shoreline		Neutral		Trails and landings are designed, located and maintained to minimize on site and off site impacts to resources.	
Irrigation Induced		Not Applicable		Not applicable.	
Mass Movement		Neutral		Trails and landings are designed, located and maintained to minimize on site and off site impacts to resources.	
Road, Roadsides, and Construction Sites		Not Applicable		Not applicable.	
SOIL – CONDITION					
Organic Matter Depletion		Neutral		Removal of woody vegetation from a site removes organic material that could have become soil organic matter.	
Rangeland Site Stability		Not Applicable		Not applicable.	
Compaction		Moderate to Substantial Worsening		Equipment used to harvest or remove forest products can compact soils. Reusing trails can limit compaction to designated areas.	
Subsidence		Not Applicable		Not applicable.	
Contaminants:					
<ul style="list-style-type: none"> • Salts and other Chemicals 		Neutral		The chemical make up of the soil is not altered by disturbance or short term manipulation of	

		vegetative cover.
• Animal Waste and other Organics - N	Neutral	N in organics, if applied, can volatilize if exposed to the atmosphere by soil disturbance activities.
• Animal Waste and other Organics - P	Neutral	P in organics, if applied, can volatilize if exposed to the atmosphere by soil disturbance activities.
• Animal Waste and other Organics - K	Neutral	K in organics, if applied, can volatilize if exposed to the atmosphere by soil disturbance activities.
• Commercial Fertilizer - N	Neutral	N in organics, if applied, can volatilize if exposed to the atmosphere by soil disturbance activities.
• Commercial Fertilizer – P	Neutral	P in organics, if applied, can volatilize if exposed to the atmosphere by soil disturbance activities.
• Commercial Fertilizer – K	Neutral	K in organics, if applied, can volatilize if exposed to the atmosphere by soil disturbance activities.
• Residual Pesticides	Not Applicable	Not applicable.
Damage from Sediment Deposition	Slight Improvement	Temporary removal of surface litter and alteration of vegetative structure alters entrapment capabilities.
WATER – QUANTITY		
Rangeland Hydrologic Cycle	Not Applicable	Not applicable.
Excessive Seepage	Not Applicable	Not applicable.
Excessive Runoff, Flooding, or Ponding	Neutral	Wet and flood prone areas are avoided.
Excessive Subsurface Water	Neutral	Wet and flood prone areas are avoided.
Drifted Snow	Not Applicable	Not applicable.
Inadequate Outlets	Neutral	Trails and landings are designed, located and maintained to minimize on site and off site impacts to resources.
Inefficient Water use on Irrigated Land	Not Applicable	Not applicable.
Inefficient Water use on Non-Irrigated Land	Not Applicable	Not applicable.
Reduced Capacity of Conveyances by Sediment Deposition	Neutral	Trails and landings are designed, located and maintained to minimize on site and off site impacts to resources.
Reduced Storage of Water Bodies by Sediment Accumulation	Neutral	Trails and landings are designed, located and maintained to minimize on site and off site impacts to resources.
Aquifer Overdraft	Not Applicable	Not applicable.

Insufficient Flows in Water Courses	Not Applicable	Not applicable.
WATER – QUALITY		
In Groundwater:		
• Harmful Levels of Pesticides	Not Applicable	Not applicable.
• Excessive Nutrients and Organics	Not Applicable	Not applicable.
• Excessive Salinity	Not Applicable	Not applicable.
• Harmful Levels of Heavy Metals	Not Applicable	Not applicable.
• Harmful Levels of Pathogens	Not Applicable	Not applicable.
• Harmful Levels of Petroleum	Slight Worsening	Increased vehicular traffic may increase fuel and/or lubricant spills.
In Surface Water:		
• Harmful Levels of Pesticides	Not Applicable	Not applicable.
• Excessive Nutrients and Organics	Slight Improvement	Proper design, location, and maintenance will minimize off-site delivery of sediment and nutrients from areas disturbed during logging.
• Excessive Suspended Sediment and Turbidity	Neutral	Trails will be designed to minimize erosion.
• Excessive Salinity	Not Applicable	Not applicable.
• Harmful Levels of Heavy Metals	Not Applicable	Not applicable.
• Harmful Temperatures	Not Applicable	Not applicable.
• Harmful Levels of Pathogens	Not Applicable	Not applicable.
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
AIR – QUALITY		
Particulate Matter less than 10 Micrometers in Diameter (PM 10)	Not Applicable	Not applicable.
Particulate Matter less than 2.5 Micrometers in Diameter (PM 2.5)	Not Applicable	Not applicable.
Excessive Ozone	Not Applicable	Not applicable.
Excessive Greenhouse Gas:		
• CO ₂ (Carbon Dioxide)	Not Applicable	Not applicable.
• N ₂ O (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	Not Applicable	Not applicable.
Undesirable Air Movement	Not Applicable	Not applicable.
Adverse Air Temperature	Not Applicable	Not applicable.
PLANTS – SUITABILITY		
Plants not Adapted or Suited	Moderate to Substantial Improvement	When species are selected, they are adapted and suited.
PLANTS - CONDITION		
Productivity, Health, and Vigor	Slight to Moderate Improvement	Trails and landings are located to avoid negative impacts on desirable plants as well as allow access for management activities to improve productivity, health and vigor.
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	Trails and landings are managed to control undesirable vegetation.
Forage Quality and Palatability	Not Applicable	Not applicable.
Wildfire Hazard	Slight to Moderate Improvement	Trails provide firebreaks and access to sites for fuel reduction activities.
ANIMALS - FISH AND WILDLIFE		
Inadequate Food	Slight Improvement	Disturbed areas are revegetated and provide some food for wildlife.
Inadequate Cover/Shelter	Slight to Moderate Improvement	Disturbed areas are revegetated and provide some cover for wildlife.
Inadequate Water	Not Applicable	Not applicable.
Inadequate Space	Slight Worsening	Breaks in canopy cover may interrupt continuity of habitat for certain wildlife species.
Habitat Fragmentation	Slight Worsening	Breaks in canopy cover may interrupt connectivity of habitat for certain wildlife species.
Imbalance Among and Within Populations	Not Applicable	Not applicable.
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	Slight to Moderate Improvement	Distribution of animals makes forage more readily available to livestock.
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	Not applicable.	Not applicable.
Land – Land in Production	Slight decrease.	
Capital – Change in Equipment	Moderate increase.	
Capital - Total Investment Cost	Moderate.	

Capital – Annual Cost	Slight increase.	
Capital – Credit and Farm Program Eligibility	Situational.	
Labor - Labor	Slight to moderate decrease.	
Labor – Change in Management Level	Slight increase.	
Risk - Yield	Not applicable.	Not applicable.
Risk - Flexibility	Substantial Decrease	Substantial decrease due to reduction of adverse harvest impacts.
Risk - Timing	Substantial Increase	Substantial increase - must be utilized prior to harvest.
Risk – Cash Flow	Slight to Moderate Increase	Slight to moderate increase due to construction costs.
Profitability – Change in Profitability	Slight to moderate increase.	
HUMAN - CULTURAL		
Cultural Resources and/or Historic Properties Present or Suspected to be PRESENT	Slight to Substantial Increase	Construction impacts (mechanical).
HUMAN – ENERGY		
Depletion of Fossil Fuel Resources	Moderate to Substantial Decrease	Practice provides access to harvest and maintenance areas, as well as serves as a fire break.
Underutilization of Non-Fossil Energy Resources	Slight to Substantial Decrease	This practice facilitates the harvest of biomass that could be used for energy production.

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.