Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Appalachian
State	North Carolina
Discipline Group	Forestry
Practice Code/Name	666 - Forest Stand Improvement
Scenario ID	1
Scenario Name	Pre-commercial Thinning, Hand tools
Scenario Description	Adjusting the stocking of a young, non-merchantable stand of trees. The operation is supervised by a consultant forester and is carried out using hand tools such as chainsaws. Resource concerns include Undesirable plant productivity and health; Wildlife habitat degradation; Wildfire hazard; and Inadequate structure and composition.
Before Practice Situation	The stocking of a stand of trees that are too small to make a commercial thinning exceeds the recommended fully stocked level for the species and site. The effect is much slower growth than is reasonable or expected for the site, increased susceptibility to insects and disease, and an unacceptable devastating wildfire risk.
After Practice Situation	After adjusting the stocking to an acceptable level, stand growth, condition, and overall quality is improved. In addition, wildlife habitat is improved with the resulting increase of sunlight reaching the forest floor.
Scenario Feature Measure	Area treated
Scenario Unit	Acre
Scenario Typical Size	20

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$0.00	$0.00
Equipment/Installation	$471.60	$23.58
Labor	$1,797.00	$89.85
Mobilization	$191.70	$9.59
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$2,460.30	$123.02

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation	937	Chainsaw	Equipment and power unit costs. Labor not included.	Hour	$5.44	48	$261.12
Equipment/Installation	939	Truck, Pickup	Equipment and power unit costs. Labor not included.	Hour	$26.31	8	$210.48
Labor	231	General Labor	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$18.67	48	$896.16
Labor	235	Specialist Labor	Labor requiring a specialized skill set: Includes Agronomists, Foresters, Biologists, etc. to provide additional technical information during the planning and implementation of the practice. Does not include NRCS or TSP services.	Hour	$75.07	12	$900.84
Mobilization	1146	Mobilization, Specialist Labor	Mobilization of Specialist Labor. Includes Agronomists, Foresters, Biologists, etc.	Hour	$77.30	2	$154.60
Mobilization	1142	Mobilization, General labor	Mobilization of general labor: Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$18.55	2	$37.10

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Appalachian
State	North Carolina
Discipline Group	Forestry
Practice Code/Name	666 - Forest Stand Improvement
Scenario ID	7
Scenario Name	Creating Patch Clearcuts
Scenario Description	Creating 2 acre patches in over-mature and/or degraded stands using hand tools such as chainsaws. Resource concerns include: Undesirable plant productivity and health, Inadequate structure and composition, and habitat degradation.
Before Practice Situation	The existing stand is overly mature and/or has been degraded in value by past harvesting practices. The level of acceptable growing stock is too low to justify managing this stand in its present condition. The present form, species composition and structure cannot meet the resource concerns and landowner objectives. Creating small openings by cutting all trees greater than 2" in diameter will foster the regeneration of high-value shade intolerant species. The work will be done with chainsaws.
After Practice Situation	A new, young stand of desirable species is established In addition, early successional wildlife habitat as well as forest type diversity are created.
Scenario Feature Measure	Area treated
Scenario Unit	Acre
Scenario Typical Size	2

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$0.00	$0.00
Equipment/Installation	$192.28	$96.14
Labor	$582.16	$291.08
Mobilization	$214.64	$107.32
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$989.08	$494.54

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation	937	Chainsaw	Equipment and power unit costs. Labor not included.	Hour	$5.44	16	$87.04
Equipment/Installation	939	Truck, Pickup	Equipment and power unit costs. Labor not included.	Hour	$26.31	4	$105.24
Labor	234	Supervisor or Manager	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	$35.43	8	$283.44
Labor	231	General Labor	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$18.67	16	$298.72
Mobilization	1142	Mobilization, General labor	Mobilization of general labor: Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$18.55	4	$74.20
Mobilization	1145	Mobilization, Supervisor or Manager	Mobilization of supervisors or management. Includes crew supervisors, foremen and farm/ranch managers, etc.	Hour	$35.11	4	$140.44

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Appalachian
State	North Carolina
Discipline Group	Forestry
Practice Code/Name	666 - Forest Stand Improvement
Scenario ID	8
Scenario Name	Wildlife Habitat Improvement
Scenario Description	A combination of hand and chemical treatments used to open the canopy of a stand to improve the wildlife habitat and tree health. Resource concerns include: Inadequate structure and composition, Undesirable plant productivity and health, and Habitat degradation.
Before Practice Situation	The stand of mature trees is overstocked resulting in a closed canopy. This condition is causing a lack of structure, herbaceous layer, and diversity that is needed to meet the landowner's objectives for improved wildlife habitat and forest health. Under the supervision of a consultant forester, it will be marked for thinning and timber stand improvement applications that will include cutting with hand tools (chainsaws) and injection. Costs involved in any commercial harvesting including marking, access, and transportation are not included in this scenario. However the costs involved in marking trees to be treated or left and supervising the TSI work is included.
After Practice Situation	The stand is treated to favor diversity of important commercial and wildlife species. The canopy is opened to the extent necessary to promote herbaceous growth and the work is performed without excessive damage to the residual trees and site.
Scenario Feature Measure	Acres treated
Scenario Unit	Acre
Scenario Typical Size	20

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$255.70	$12.79
Equipment/Installation	$1,124.72	$56.24
Labor	$3,898.96	$194.95
Mobilization	$479.25	$23.96
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$5,758.63	$287.93

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	313	Tree Marking Paint	Trees to be cut through tree marking are physically identified through the application of paint on the tree. Typically one quart of paint is used to mark one acre of trees.	Acre	$5.02	10	$50.20
Materials	1321	Herbicide, Triazine	Broad spectrum herbicide. Refer to WIN-PST for product names and active ingredients. Materials only.	Acre	$41.10	5	$205.50
Equipment/Installation	965	All terrain vehicles, ATV	Includes equipment, power unit and labor costs.	Hour	$28.76	16	$460.16
Equipment/Installation	964	Chemical, spot treatment, single stem application	Ground applied chemical to individual plants or group of plants, e.g., backpack sprayer treatment. Equipment and labor cost included.	Hour	$55.87	8	$446.96
Equipment/Installation	937	Chainsaw	Equipment and power unit costs. Labor not included.	Hour	$5.44	40	$217.60
Labor	231	General Labor	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$18.67	48	$896.16
Labor	235	Specialist Labor	Labor requiring a specialized skill set: Includes Agronomists, Foresters, Biologists, etc. to provide additional technical information during the planning and implementation of the practice. Does not include NRCS or TSP services.	Hour	$75.07	40	$3,002.80
Mobilization	1146	Mobilization, Specialist Labor	Mobilization of Specialist Labor. Includes Agronomists, Foresters, Biologists, etc.	Hour	$77.30	5	$386.50
Mobilization	1142	Mobilization, General labor	Mobilization of general labor: Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$18.55	5	$92.75

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Appalachian
State	North Carolina
Discipline Group	Forestry
Practice Code/Name	666 - Forest Stand Improvement
Scenario ID	2
Scenario Name	Timber Stand Improvement, Single Stem Treatment
Scenario Description	Altering the composition and stocking of a stand of trees by means of individual stem treatment. The trees to be retained are marked by a consultant forester. Resource concerns include Undesirable plant productivity and health; Wildlife habitat degradation; Wildfire hazard; and Inadequate structure and composition.
Before Practice Situation	The existing condition of the stand cannot meet the landowners objectives because the composition consists of unwanted species and the stocking exceeds the recommended level. The species and quality of the trees to be controlled makes a commercial operation unfeasible. Therefore the stand improvement will be carried out with single stem treatment such as injection or basal bark spraying.
After Practice Situation	The composition of the stand can meet the landowners objectives and the growth, condition and quality of the remaining trees is improved.
Scenario Feature Measure	Acres treated
Scenario Unit	Acres
Scenario Typical Size	10

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$126.30	$12.63
Equipment/Installation	$1,137.52	$113.75
Labor	$450.42	$45.04
Mobilization	$231.90	$23.19
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$1,946.14	$194.61

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	337	Herbicide, Picloram	A systemic herbicide used for general woody plant control. Product is typically used in these practices 314, 595, 666, and 645. Refer to WIN-PST for product names and active ingredients. Materials only.	Acre	$12.63	10	$126.30
Equipment/Installation	964	Chemical, spot treatment, single stem application	Ground applied chemical to individual plants or group of plants, e.g., backpack sprayer treatment. Equipment and labor cost included.	Hour	$55.87	10	$558.70
Equipment/Installation	939	Truck, Pickup	Equipment and power unit costs. Labor not included.	Hour	$26.31	22	$578.82
Labor	235	Specialist Labor	Labor requiring a specialized skill set: Includes Agronomists, Foresters, Biologists, etc. to provide additional technical information during the planning and implementation of the practice. Does not include NRCS or TSP services.	Hour	$75.07	6	$450.42
Mobilization	1146	Mobilization, Specialist Labor	Mobilization of Specialist Labor. Includes Agronomists, Foresters, Biologists, etc.	Hour	$77.30	3	$231.90

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Appalachian
State	North Carolina
Discipline Group	Forestry
Practice Code/Name	666 - Forest Stand Improvement
Scenario ID	5
Scenario Name	Competition Control, Mechanical, Light Equipment
Scenario Description	Using light equipment such as a tractor with brush hog to control vegetation that is competing with desirable trees and species or to reduce the stocking level of a stand of desirable trees. Resource concerns include Undesirable plant productivity and health; Wildlife habitat degradation; Wildfire hazard; and Inadequate structure and composition.
Before Practice Situation	A stand of young, desirable trees is adversely affected by competition either from undesirable species or because the stand is overstocked. The vegetation to be controlled is small enough that it can be mowed or shredded. The work can be done by mowing or shredding strips through the stand, mowing between planted rows, etc.
After Practice Situation	After adjusting the stocking to an acceptable level and/or controlling the competing vegetation, stand growth, condition, and overall quality is improved. In addition, wildlife habitat is improved with the resulting increase of sunlight reaching the forest floor.
Scenario Feature Measure	Area Treated
Scenario Unit	Acre
Scenario Typical Size	10

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$0.00	$0.00
Equipment/Installation	$480.82	$48.08
Labor	$196.20	$19.62
Mobilization	$102.06	$10.21
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$779.08	$77.91

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation	939	Truck, Pickup	Equipment and power unit costs. Labor not included.	Hour	$26.31	2	$52.62
Equipment/Installation	940	Mower, Bush Hog	Equipment and power unit costs. Labor not included.	Hour	$42.82	10	$428.20
Labor	232	Equipment Operators, Light	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$19.62	10	$196.20
Mobilization	1143	Mobilization, Light Equipment Operator	Mobilization of light equipment operators: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$19.43	2	$38.86
Mobilization	1138	Mobilization, small equipment	Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds.	Each	$63.20	1	$63.20

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Appalachian
State	North Carolina
Discipline Group	Forestry
Practice Code/Name	666 - Forest Stand Improvement
Scenario ID	6
Scenario Name	Competition Control, Mechanical, Heavy Equipment
Scenario Description	Using equipment such as a masticator or mulcher to control vegetation that is competing with desirable trees and species or to reduce the stocking level of a stand of desirable trees. The trees to be retained will be marked by a consultant. Resource concerns include Undesirable plant productivity and health; Wildlife habitat degradation; Wildfire hazard; and Inadequate structure and composition.
Before Practice Situation	A stand of desirable trees is adversely affected by competition either from undesirable species, cull trees, or because the stand is overstocked. The vegetation to be controlled is too large to be mowed or shredded. Therefore other mechanical methods such as using masticators or mulchers is necessary.
After Practice Situation	The released stand of trees contains the composition and quality needed to meet the landowner's objectives and address the resource concerns.
Scenario Feature Measure	Area treated
Scenario Unit	Acre
Scenario Typical Size	10

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$0.00	$0.00
Equipment/Installation	$1,898.72	$189.87
Labor	$914.48	$91.45
Mobilization	$247.20	$24.72
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$3,060.40	$306.04

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation	943	Mechanical cutter, chopper	Masticator, flail shredder, hydro axe, brush cutter, etc. Equipment and power unit costs. Labor not included.	Hour	$118.67	16	$1,898.72
Labor	232	Equipment Operators, Light	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$19.62	16	$313.92
Labor	235	Specialist Labor	Labor requiring a specialized skill set: Includes Agronomists, Foresters, Biologists, etc. to provide additional technical information during the planning and implementation of the practice. Does not include NRCS or TSP services.	Hour	$75.07	8	$600.56
Mobilization	1146	Mobilization, Specialist Labor	Mobilization of Specialist Labor. Includes Agronomists, Foresters, Biologists, etc.	Hour	$77.30	2	$154.60
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$92.60	1	$92.60

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Appalachian
State	North Carolina
Discipline Group	Forestry
Practice Code/Name	666 - Forest Stand Improvement
Scenario ID	3
Scenario Name	Timber Stand Improvement, Chemical, Ground
Scenario Description	Using ground applied chemicals to release young desirable trees from competing and/or overtopping vegetation. Resource concerns include: Undesirable plant productivity and health, and Wildlife habitat degradation.
Before Practice Situation	An adequately stocked stand of desirable species and trees is not growing to its potential for the site due to severe competition from undesirable trees and brush. Releasing the desirable trees from the competition will be achieved through the application of appropriate herbicides according to label directions. Application will be by ground equipment as an over-the-top spray.
After Practice Situation	The released stand of trees contains the composition and quality needed to meet the landowner's objectives and address the resource concerns.
Scenario Feature Measure	Acres treated
Scenario Unit	Acre
Scenario Typical Size	40

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$3,216.00	$80.40
Equipment/Installation	$176.40	$4.41
Labor	$283.44	$7.09
Mobilization	$218.16	$5.45
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$3,894.00	$97.35

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1095	Herbicide, Surfactant	Surfactants reduce the surface tension of water to produce more uniform coverage and penetration of herbicides, and weed killers. Paraffin Based Petroleum Surfactant. Refer to WIN-PST for product names and active ingredients. Materials only.	Acre	$1.09	40	$43.60
Materials	336	Herbicide, Imazapyr	Pre and post-emergent, non-selective herbicide for control of undesirable vegetation in non-crop areas. Product is typically used in these practices 314, 595, 666 and 645. Refer to WIN-PST for product names and active ingredients. Materials only.	Acre	$79.31	40	$3,172.40
Equipment/Installation	948	Chemical, ground application	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$4.41	40	$176.40
Labor	234	Supervisor or Manager	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	$35.43	8	$283.44
Mobilization	1143	Mobilization, Light Equipment Operator	Mobilization of light equipment operators: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$19.43	4	$77.72
Mobilization	1145	Mobilization, Supervisor or Manager	Mobilization of supervisors or management. Includes crew supervisors, foremen and farm/ranch managers, etc.	Hour	$35.11	4	$140.44

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Appalachian
State	North Carolina
Discipline Group	Forestry
Practice Code/Name	666 - Forest Stand Improvement
Scenario ID	4
Scenario Name	Timber Stand Improvement, Chemical, Aerial
Scenario Description	Using aerially applied chemicals to release desirable trees from competing and/or overtopping vegetation. Resource concerns include: Undesirable plant productivity and health, and Wildlife habitat degradation.
Before Practice Situation	An adequately stocked stand of desirable species and trees is not growing to its potential for the site due to severe competition from undesirable trees and brush. Releasing the desirable trees from the competition will be achieved through the application of appropriate herbicides according to label directions. Application will be by helicopter as an over-the-top spray. The work will be professionally planned and supervised.
After Practice Situation	The released stand of trees contains the composition and quality needed to meet the landowner's objectives and address the resource concerns.
Scenario Feature Measure	Area treated
Scenario Unit	Acre
Scenario Typical Size	40

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$3,216.00	$80.40
Equipment/Installation	$1,183.20	$29.58
Labor	$283.44	$7.09
Mobilization	$280.88	$7.02
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$4,963.52	$124.09

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1095	Herbicide, Surfactant	Surfactants reduce the surface tension of water to produce more uniform coverage and penetration of herbicides, and weed killers. Paraffin Based Petroleum Surfactant. Refer to WIN-PST for product names and active ingredients. Materials only.	Acre	$1.09	40	$43.60
Materials	336	Herbicide, Imazapyr	Pre and post-emergent, non-selective herbicide for control of undesirable vegetation in non-crop areas. Product is typically used in these practices 314, 595, 666 and 645. Refer to WIN-PST for product names and active ingredients. Materials only.	Acre	$79.31	40	$3,172.40
Equipment/Installation	1991	Chemical, aerial application, helicopter	Chemical application performed by helicopter on forest only. Includes equipment, mobilization, and labor.	Acre	$29.58	40	$1,183.20
Labor	234	Supervisor or Manager	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	$35.43	8	$283.44
Mobilization	1145	Mobilization, Supervisor or Manager	Mobilization of supervisors or management. Includes crew supervisors, foremen and farm/ranch managers, etc.	Hour	$35.11	8	$280.88

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Appalachian
State	North Carolina
Discipline Group	Forestry
Practice Code/Name	666 - Forest Stand Improvement
Scenario ID	9
Scenario Name	Managing Commercial Sale to Enhance Wildlife Habitat
Scenario Description	A mid-rotation stand of Southern Yellow Pine capable is being commercially thinned. The treatment area is marked by a consulting forester. A commercial thinning operation is carefully monitored to ensure the harvest removes a sufficient number of trees to leave a stand density that is between 50-80% of the 50-year pine site index in order to maximize wildlife habitat potential. The cost for this scenario is based on the labor for a professional forester or wildlife biologist to provide timber marking and sale supervision to ensure that the treatment is silviculturally sound and damage to the residual stand is minimized.
Before Practice Situation	A mid-rotation stand of Southern Yellow Pine has densities that cause heavy shading and needle drop on the forest floor. The shade and duff accumulation suppresses growth of native understory grasses and forbs to an extent that habitat conditions for desired wildlife species are less than optimal.
After Practice Situation	Application of this practice scenario results in an open canopy condition providing more sunlight on the forest floor. The risk of damage and disease in the residual stand is reduced significantly, due to close supervision of the logger by the consulting forester. Habitat potential for desired species is maximized by increased regeneration of the forest understory. Health, productivity and vigor of remaining crop trees is also improved.
Scenario Feature Measure	
Scenario Unit	Acre
Scenario Typical Size	25

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$125.50	$5.02
Equipment/Installation	$0.00	$0.00
Labor	$1,501.40	$60.06
Mobilization	$463.80	$18.55
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$2,090.70	$83.63

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	313	Tree Marking Paint	Trees to be cut through tree marking are physically identified through the application of paint on the tree. Typically one quart of paint is used to mark one acre of trees.	Acre	$5.02	25	$125.50
Labor	235	Specialist Labor	Labor requiring a specialized skill set: Includes Agronomists, Foresters, Biologists, etc. to provide additional technical information during the planning and implementation of the practice. Does not include NRCS or TSP services.	Hour	$75.07	20	$1,501.40
Mobilization	1146	Mobilization, Specialist Labor	Mobilization of Specialist Labor. Includes Agronomists, Foresters, Biologists, etc.	Hour	$77.30	6	$463.80