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Summary: Final Environmental Impact Statement

Spring Creek Project

Marienville Ranger District, Allegheny National Forest

Elk and Forest Counties, Pennsylvania

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PROJECT OVERVIEW AND BACKGROUND

On April 10, 2002, the Marienville Ranger District of the Allegheny National Forest issued the Spring Creek Scoping Letter, which formally proposed a multi-resource management plan involving vegetation treatments, wildlife habitat improvement projects, recreation activities, soil and water treatments, and road treatments in the Spring Creek Project Area (SCPA). There were 97 comments received during the official scoping period and more as a result of the Spring Creek field tour held in September 2002. These commentors presented their views regarding the Spring Creek Project. After considering these public comments in conjunction with issues raised by members of the Interdisciplinary Team and further analysis of the Project Area, four alternatives were developed. These four alternatives, which include a "No action" Alternative, present the responsible official with a broad range of options to chose from. Although the original proposed action from scoping has not been retained as an option, nearly all the treatments that were part of the initial proposed action have become part of and is replaced by Alternative 2.

This summary represents an overview of the FEIS and only a portion of the FEIS is represented. More detail information is available within the FEIS itself in all resource areas. Treatments and numbers that changed between the DEIS and FEIS are noted in the ROD, but are not reflected this Summary.

PURPOSE AND NEED

The purpose of the Spring Creek project is to achieve and maintain desired conditions in the SCPA as stated in the Forest Plan while addressing site-specific needs. The SCPA consists of 56,093 acres located west of Ridgway, PA in the Spring Creek watershed on the Marienville Ranger District of the Allegheny National Forest (ANF). Seventy-one percent (71%), or 39,692 acres, of this area is National Forest System lands and is being considered for management. The remaining area is privately owned or under state of Pennsylvania jurisdiction.

Forest Plan

The ANF Land and Resource Management Plan (Forest Plan) (USDA-FS, 1986a) provides direction for providing multiple uses and a sustained yield of goods and services from National Forest System lands in an environmentally sound manner. The Forest Plan establishes short- and long-term goals through the year 2035. It prescribes the standards and guidelines necessary to achieve these goals and provides the framework for a forest-wide monitoring and evaluation program.

Some of the goals set by the Forest Plan apply to the entire forest. Following is a partial listing of these forest-wide goals:

- Maintain or increase opportunities for hunting wildlife game species through vegetative manipulation.
- Maintain or increase non-consumptive opportunities for game and non-game wildlife species through vegetative manipulation; and, maintain habitat for viable populations of all existing native vertebrate species.
- Restore understory to obtain a broader diversity of flora and fauna.
- Provide a sustained flow of timber volume.

In addition to forest-wide goals, the ANF is divided into eleven management areas for the purpose of setting site-specific goals, acceptable uses, and standards/guidelines. The SCPA is made up of four

management areas. Management Area (MA) 3.0 encompasses about 88% of the National Forest land within the project area. MA 6.1 (11%), MA 1.0 (1%), and MA 6.3 (<1%) make up the remainder of the project area. The primary management goals for these four management areas are summarized below:

Primary Purposes of MA 3.0 (Forest Plan, p. 4-82)

- Provide a sustained yield of high-quality Allegheny hardwood and oak saw timber through even-aged management.
- Provide a variety of age or size class habitat diversity from seedling to mature saw timber in a variety of timber types.
- Emphasize deer and turkey in all timber types and squirrel in the oak type.
- Provide a Roaded Natural setting for all types of developed and dispersed recreation opportunities, with an emphasis on motorized recreation activities.

Primary Purposes of MA 6.1 (Forest Plan, p. 4-110)

- Maintain or enhance scenic quality.
- Emphasize a variety of dispersed recreation activities in a semi-primitive motorized setting.
- Emphasize wildlife species, which require mature or overmature hardwood forests, such as turkey, bear, cavity-nesting birds, and mammals.

Primary Purposes of MA 1.0 (Forest Plan, p. 4-60)

- Emphasize habitat management for ruffed grouse and other wildlife species associated with early successional stages of forest habitat.
- Provide a high quality of wood fiber production.
- Provide a roaded natural setting for all types of dispersed recreation opportunities.

Primary Purposes of MA 6.3 (Forest Plan, p. 4-138)

- Intensively manage for wildlife species which require riparian habitat, including waterfowl, furbearers, and warm-water fish.
- Emphasize dispersed recreation activities particularly hunting, fishing, and wildlife observation in a semi-primitive motorized recreation setting.

Table 1 compares the desired condition with the present condition by Management Areas.

Table 1: Desired Condition and Present Condition - MA 3.0, 6.1, 1.0, 6.3

Management Area 3.0				
	Desired Condition (DC)			**Present Condition**
Vegetative Management				
Age-class distribution	Even-aged timber stands distributed across a variety of age classes	0-10 years (seedling)	9%[1]	5%
		11-20 years (sapling)	9%	5%
		21-50 years (pole timber)[2]		7%
		51-110 year (saw timber)[2]		78%

		111+ years (old growth) Min 5%		2%
Wildlife				
0-20 year age class	Not greater than 20-25%			10%
Percent of the SCPA in mast-producing timber (greater than 35 years old)	50% or more			81%
Permanent opening and other brood habitats	3-10%			3%
Conifer component	Generally no more than 10% in conifer cover			6%[3]
Management Area 6.1				
	Desired Condition (DC)			**Present Condition**
Vegetative Management				
111 + (old growth)	Minimum of 10%			0%
Wildlife				
Pole and saw timber (greater than 20 years old)	Minimum of 70%			89%
Permanent opening and other brood habitats	5-10%			4%
Conifer component	Generally no more than 20% in conifer cover			20%[3]
Management Area 1.0				
	Desired Condition (DC)			**Present Condition**
Vegetative Management				
Age class	0-10 (seedlings) – min 20%[4]			10%
	11- 20 (saplings) – min 20%[4]			4%
	111 + (old growth) – min – N/A			0%
Wildlife				
Permanent opening and other brood habitats	Maximum 3%			13%
Conifer component	Minimum 2% - 5%			3%[3]

1. The Forest Plan does not directly state the Desired Future Condition for the 0-10 year age class as a percentage of any given land area. In MA 3.0, the 9% DFC for 0-10 age class is derived from the Forest Plan estimated amount of final harvest cutting in MA 3.0 over the first decade of plan implementation (29,200 acres). This represents 9% of the total MA 3.0 on the Forest.

2. The Forest Plan does not specify distribution amounts for these age classes in this MA.

3. The % reflects stands that are actually typed as conifer. A stand must contain a conifer component of >50% to be typed as conifer. However, this % does not reflect the conifer component across the SCPA as a whole. See chapter 3, wildlife section, for a description of available conifer.

4. The Forest Plan does specify that a minimum of 20% in the 0-9 age class and 20% in 10-19 age class for MA 1.0 for age class distribution. The age class 0-10 and 11-20 is used for consistency.

Management Area 6.3

The primary purpose for MA 6.3, commonly known as the Buzzard Swamp Area, is to manage intensively for wildlife species which require riparian habitat, including waterfowl, furbearers, and warm-water fish. The area will continue to be dominated by open bodies of water and wetland vegetation. Large openings with scattered trees and food plots will be maintained on drier sites, with small, interspersed inclusions of aspen, other hardwoods, conifers, and/or shrubs (USDA-FS, 1986a, p. 4-138). The Forest Plan sets no percentages in terms of the existing age class vegetation condition. There is only an estimated 72 acres of MA 6.3 that falls within the SCPA.

Background/Management Direction

The Forest Plan is just one of the environmental documents which provide guidance or information regarding management within the SCPA. Some documents provide broad programmatic direction, and some provide site-specific information. Finally, some activities are regulated by other government agencies. Close communication with these agencies is necessary to assure compliance with all applicable regulations.

Previous documents that apply to the SCPA include documents that establish direction and guidance for the use of herbicides on the ANF, monitoring and evaluation reports, Spring Creek Watershed Assessment, and the Spring Creek Roads Analysis Project (RAP). The latter document analyzes the effects of the road system on environmental, economic, and social resources within the analysis area, describes opportunities, and sets priorities for road management in the SCPA.

Several projects have been implemented that have had effects in the SCPA since the Forest Plan was implemented. Also some activities that would take place within the SCPA have been approved under previous decision documents, but have yet to be implemented. Many of these activities have been scheduled to occur within the SCPA regardless of the outcome of this EIS. A list of these past projects is available in the FEIS.

A severe storm event that occurred on July 21, 2003 resulted in damage to mature forests and Forest Service facilities and public investments within the SCPA. The alternatives includes a reassessment of this changed condition by interdisciplinary team specialists to protect natural ecosystems, ensure needed regeneration, protect forest trees from infection by disease or pests, and protect public investments. Maintenance of roads, trails, fencing and other facilities are currently on-going within SCPA as a result of the storm to provide public safety and protect environmental resources on National Forest lands.

Finally, the ANF is working in close cooperation with the US Fish and Wildlife Service, the Pennsylvania Game Commission, the Pennsylvania Historical and Museum Commission, and the Seneca Nation of Indians Tribal Historic Preservation Office to ensure compliance with applicable laws.

Needs For Action

An Interdisciplinary (ID) Team of specialists in forestry, wildlife biology, engineering, recreation, and archaeology have surveyed and evaluated the SCPA for the past two years. The team identified site-specific needs that would help achieve forest-wide and management area goals. The ID Team identified

site-specific opportunities for natural resource management that could change or enhance present conditions to move the area toward the Desired Conditions described in the Forest Plan. The following list summarizes the "needs for action" and opportunities identified for the SCPA.

1. The Spring Creek watershed is classified as a High Quality Cold Water Fishery (HQ-CWF) by the Pennsylvania Department of Environmental Protection (PA DEP). There is a need to continue to protect the soil and water conditions in the watershed to maintain and improve water quality and aquatic habitat. Efforts to improve soil and water quality in the watershed are evident in silvicultural, recreation, wildlife, and transportation proposals.
2. There is a need to modify the distribution of native vegetation to improve plant diversity. The diversity of shrubs, herbaceous plants, and tree seedlings has been reduced. Many areas are now dominated by fern, grass, beech root sprouts and striped maple, which limit or interfere with the establishment of many other native plants. Experience on the ANF has shown: 1) by creating the desired light levels to promote understory development; 2) by reducing interfering vegetation through reforestation treatments (herbicide application and site preparation); and 3) by providing enough forage to reduce over-browsing by deer; that a diversity of tree seedlings and shrubs can be established and understory diversity improved.
3. There is a need to complete regeneration sequences and reforestation treatments in stands approaching maturity or are mature in order to foster sustainable forest management in MA 3.0. Prior treatments have been initiated in the past 10 years to encourage growth of stands for subsequent regeneration. There is a need to follow up on these past treatments with activities to regenerate these stands in the SCPA. Investments need to be made which create full sunlight conditions on the forest floor to regenerate shade-intolerant species that comprise the Upland and Allegheny hardwood types.
4. There is a need to initiate regeneration treatments in order to achieve the age-class distribution and harvest levels described for MA 3.0 (USDA-FS 1986a, p. 4-84). Eighty percent of the SCPA consists of stands greater than 51 years old in MA 3.0. Opportunities exist, through timber harvests, release cuts and reforestation treatments to improve stand and project area vegetative structure and diversity. Management activities include regeneration treatments such as shelterwood seed/removal cut sequences, overstory removal harvests, and two-aged harvest; intermediate treatments such as thinning/improvement cuts and salvage thinning in declining stands; release cuts (pre-commercial thinning) in young stands and reforestation treatments.
5. A severe windstorm occurred on July 21, 2003 and affected the northern portion of the Spring Creek watershed. Entire forested stands, patches of stands, and isolated trees were affected. This impact was mainly seen across MA 3.0 with some damage noted in MA 6.1. Across the watershed, some 1200+ acres were affected by the storm at varying levels of intensity ranging from light, scattered damage to severe damage to the forested stands. There is a need to actively manage these areas through a variety of salvage and reforestation treatments including salvage shelterwood sequences, salvage overstory removals, salvage clearcuts, salvage thinning, and associated reforestation treatments. These activities will help diverse seedling regeneration become established and will also ensure removal of hazardous trees, and facilitate regeneration activities where forested stand replacement blowdown occurred. Isolated windthrown trees also exist throughout the watershed. Opportunity exists to initiate timely salvage of damaged and down timber in certain areas. There is a need to protect and improve forest health in the SCPA. Native pests impacting forest health in the watershed include: cherry scallop shell moth, fall cankerworm, and elm spanworm. Impacts of pests and diseases are intensified with the presence of other stressors such as drought. In combination with more than four droughts since 1988,

forest pests and disease outbreaks have resulted in mortality and decline in various tree species within the SCPA. Maintaining structural-age class and community composition diversity at the landscape level helps to reduce the risks of forest pests and diseases. Forest-wide Standards and Guidelines state integrated pest management methods would be used to minimize or prevent the development of forest pest problems (USDA-FS, 1986a, pp. 4-47 - 4-49). Potential activities include treatments such as removal of damaged or declining trees, thinning designed to enhance vigor and health of remaining trees, and monitoring. Other management practices may include treatments to facilitate regeneration of declining or impacted stands, where regeneration is not present. There is a need to initiate silvicultural treatments to salvage trees and initiate reforestation efforts, which include many of the treatments above.

6. There is a need to provide timber to meet people's demand for products such as furniture, paper, fiber, and construction materials. The Allegheny Forest Plan allocates land for the sustainable production of timber (MA 3.0). Demand for hardwood and other timber products continue to be high, which supports the need to supply this renewable resource. Projects such as Spring Creek provide a means to help in demand for timber and to contribute to the economic vitality of local communities.

7. A portion of MA 6.1 (4,168 ac.) lies within the watershed. Both wildlife and silvicultural activities in MA 6.1 will be proposed providing progress towards continuous canopy of mature forest and wildlife habitat improvement. Several stands within this area are red pine plantations. Opportunities exist to improve diversity within these plantations through silvicultural techniques such as thinning and planting.

8. A portion of MA 1.0 (578 ac.) lies within the watershed. Currently 14% of MA 1.0 is in the 0-20 age class. Forest Plan direction calls for 40% of MA 1.0 to be in this younger age class. Within this portion of MA 1.0 there is a need to initiate regeneration treatments to achieve the age class distribution to meet Forest Plan objectives.

9. A portion of MA 6.3 (72 ac.) lies within the watershed. Opportunities for wildlife habitat improvement in this area, such as a prescribed burn to maintain warm season grasses, will be addressed.

10. There is a need to improve aquatic and riparian habitats within the Spring Creek watershed. Many in-stream and streamside structural and vegetative components have been degraded. Large trees that once shaded or fell into the stream corridors providing temperature regulation, aquatic structural components, and nutrient replenishment are missing from the system. Opportunities exist to replace in-stream structural components, native vegetative conditions, and rehabilitate areas with soil erosion problems. Leaving some of the downed and damaged trees from July 21, 2003 storm will aid in immediately improving in-stream and aquatic structure.

11. There is a need to improve the quality of terrestrial habitats within the Spring Creek watershed. Historic uses and present demands of the watershed have resulted in conditions that lack structural and foraging potential. Conifer can provide feeding, nesting and winter shelter opportunities for many wildlife species. However, conifer is primarily restricted to stream bottoms and side slopes within the SCPA. There is an opportunity to improve the distribution of conifer on the plateau to provide habitat for species that prefer a mixed hardwood/conifer community. There is an opportunity to diversify foraging opportunities. Native forage sources such as grasses, shrubs, and mast producing trees have diminished in the watershed resulting from historic uses and management of the SCPA. In some areas, there is an opportunity to replenish structural components such as snags, coarse woody debris, understories, and native warm season grasses that provide essential cover for many wildlife species. Leaving some of the

downed and damaged trees from July 21, 2003 storm will aid in providing immediate structural habitat diversity.

12. There is a need to meet public demands for consumptive wildlife uses. There is an opportunity to improve hunter access and parking areas. There is an opportunity to improve parking and directional signing at popular wildlife viewing areas. There is an opportunity to maintain current habitat improvements and infrastructure, and past investments in wildlife habitat, including water control devices, nest box structures, plantings, fencing, and signing.

13. There is a need to provide an adequate transportation system for both short and long-term access to facilitate the management of the National Forest System lands within the SCPA. A variety of options including road construction, road reconstruction, and road realignment are proposed. Investments are needed to maintain the existing Forest Road system at the approved standard in order to maintain healthy, resilient watersheds. There is also a need to identify and address unneeded or unnecessary roads (USDA–FS 1986a, pp. 4-69, 4-95, 4-124, and 4-148). Many of these roads were identified through the Spring Creek Roads Analysis Project (USDA-FS 2002a) process and opportunities exist to eliminate or manage unneeded roads through a variety of methods. Management proposals will reduce road densities, minimize adverse environmental impacts and help restore ecological processes. The density of existing Forest Service system roads in the SCPA is within the allowable road densities established in the Forest Plan for the MAs within the watershed. There is a need to protect soil and water resources as outlined in the 1997 Fisheries Amendment to the Forest Plan (USDA–FS 1986a pp. 4-23, 4-26 through 4-28) for road segments that are affecting water quality in riparian areas. Proposals exist to improve road segments within 300 feet of riparian areas on existing or planned road segments through a variety of mitigating structures.

14. There is a need to evaluate illegal ATV and snowmobile use and identify strategies to curtail these uses. The demand for Off Highway Vehicle (OHV) trails is high and efforts to educate trail users on riding and land use ethics has not kept pace with the growing number of riders. As a result, OHV use off of legal routes has grown in recent years and soil and water problems exist. Opportunities exist for more education and law enforcement efforts to curb these activities. Methods such as barricades and other closure devices will be explored on illegal routes.

15. There is a need to enhance the visual quality along State Route 66. Along the road, the forest edge forms a straight line that creates a straight-line tunnel-like view. There are opportunities in selected forested stands to create a scalloped forest edge by removing some hardwood trees to emphasize hemlock trees and trees with attractive color and form.

16. There are no designated equestrian trails on the ANF, but riders are permitted to ride cross-country. This has resulted in a user-created trail system of about 70 miles in the Duhring area. These corridors are not laid out with good design principles, so there are resource impacts on steep slopes, poorly drained soils, and at stream crossings. There is a need to provide an Equestrian trail system within the SCPA. Opportunities exist to construct and designate an equestrian trail system (including two trailheads), which will meet public demand, promote health and safety and protect soil and water resources. Locations of recreational developments will be determined with priority given to correcting health and safety problems, protecting the environment, complementing prescribed recreation opportunities, and meeting public demand (USDA-FS 1986a, p. 4-85, p. 4-113) and recreational facilities will be generally limited to those necessary to provide access into the area or to protect the resources, such as trails, trailhead facilities, and primitive campsites, and vault toilets (USDA-FS 1986a, p. 4-110).

17. There is a need to provide additional dispersed campsites and rehabilitate existing sites within the Spring Creek Watershed. Some campsites are located near streams within riparian corridors and require additional surfacing or erosion control work. In order to address the high demand for campsites, new dispersed campsites will be built.
18. There is a need to provide more campsites near the designated ATV trails. There are few opportunities to camp near the trail other than at trailheads. On most summer weekends, these sites are filled beyond capacity. Opportunity exists to construct a low development ATV campground near the Timberline Trailhead near FR 232. Forest Plan guidelines mentioned above in Need Statement #16 apply here as well. Developed facilities may include campgrounds with a variety of toilet facilities (USDA-FS 1986a p 4-82).
19. There is a need to identify, evaluate, and protect historic and prehistoric sites as necessary, for the benefit of future generations. Heritage resources hold clues to past ecological environments. They may also help link living humans to their ancestral past, enhancing traditional cultural experiences.

PUBLIC INVOLVEMENT AND SCOPING

In accordance with the National Environmental Policy Act (NEPA), and Forest Service NEPA direction, consultation and public involvement has continued throughout the environmental analysis process. Comments on the proposed action, potential concerns, and opportunities for managing the Spring Creek Project Area were solicited from Forest Service employees, members of the public, other public agencies, adjacent property owners, and organizations. Various methods were used to request comments including:

1. Initial inclusion of the Spring Creek Project in Eyes on the Allegheny (ANF quarterly publication of our schedule of proposed activities) in October 2001
2. A scoping letter was signed on April 10, 2002 and was sent to over 700 interested parties, adjacent property owners and individuals/organizations who had previously expressed interest in the project or in similar projects.
3. A Notice of Intent (NOI) to prepare an EIS was published in the Federal Register on April 19, 2002.
4. A newspaper release was sent to the The Derrick (Oil City, PA) and The Ridgway Record (Ridgway, PA) newspapers that described the project and solicited comments on April 12, 2002.
5. A public tour of the project area was held on the afternoon of September 21, 2002. This tour brought the public to roads, forest stands, and recreation locations where management activities were being proposed and described how the management activities would be carried out. There were opportunities for visitors to ask questions and express their concerns. The Ridgway Record reported on this public tour in their September 23, 2002 paper issue.

Comments received during the scoping process were used to define issues, develop alternatives and mitigation measures, and analyze effects. A total of 97 responses were received during the formal Scoping Process. Additional comments and questions were received as a result of the public tour, which included 40 individuals from the public. For a summary of the scoping process and a review of the comments received during the scoping period, please see Appendix A- Scoping and Public Involvement. The comments received during scoping were evaluated using the following criteria:

- Were they issues that should be addressed at a higher (Forest, region, national) level?
- Have they already been addressed at a higher level (e.g. Forest Plan)?
- Could they be resolved by applying Forest Plan standards and guidelines?
- Could they be resolved by modifying the proposed action?

Four issues are carried forward as "unresolved", after applying the above criteria and methodology of the scoping process, and were used in formulating alternatives to the proposed action. These issues were addressed in the effects analysis of each alternative, displayed in Chapter 3, Environmental Consequences. Table 10 in Chapter 2 displays the comparison of alternatives to the issues.

The "Notice of Availability" (NOA) was published in the January 23, 2004 issue of the Federal Register (Vol. 69, No. 15, p. 3340) for the Draft EIS, and the public comment period began. The full DEIS or a summary of the DEIS or a letter of availability and a cover letter identifying the Deciding Officer's preferred alternative was mailed to approximately 212 individuals, organizations, and agencies on January 16, 2004. A press release describing proposed activities and announcing the NOA was made available to regional media sources on January 21, 2004. In addition approximately 187 individuals were notified via electronic mail of the availability of the DEIS on the ANF web page.

In addition to the public involvement listed above, the Forest Service has also consulted with the U.S. Fish and Wildlife Service and the Pennsylvania Historical and Museum Commission, specifically, the Bureau of Historic Preservation, which is the State Historic Preservation Office and also with the Seneca Nations of Indians' Tribal Historic Preservation Office.

The close of the Forest Service comment period on the DEIS was March 8, 2004. Fifteen letters, telephone calls and E-mails were received from individuals, organizations, and agencies. Our response to those comments is published in the Final EIS (FEIS) as Appendix I.

ISSUES USED TO FORMULATE ALTERNATIVES

The most important issues are ones that are used to develop alternatives. These issues become central in the decision making process and are used to evaluate alternatives. Measurements that will be used to evaluate the issues are also described in this section.

Issue 1: How can the effects of fragmentation be reduced or avoided while implementing the Forest Plan and meeting multiple use resource needs in the Spring Creek Watershed?

Some commentors were concerned with the amount and type of silvicultural treatments proposed and that already exist in the watershed, as well as the current road system and additional transportation proposals.

The northern half of the watershed contains high road densities resulting from past and present oil and gas activities as well as past vegetation management activity. Some parcels of private land and management on portions of State Game Lands contain similar conditions. Some commentors are concerned that resource treatments contribute towards fragmentation that will decrease habitat for late successional species and mature forest conditions. The effects of fragmentation could lead to a decrease in localized populations of wildlife species, lower biodiversity, and increased edge effect.

This issue can be addressed by developing an alternative to the proposed action and activities prescribed to meet multiple resource needs and implement the Forest Plan will be evaluated based on this issue.

Measures used to evaluate alternatives include acres of landscape distribution of age classes (communities), acres of concentrated management activities (i.e. oil and gas locations and associated roads), and locations and acres of large core areas (maturing forest conditions). Methods of measurements include acres of final harvest treatments and miles of new road construction.

Issue 2: What silvicultural system should be used in the Spring Creek Watershed?

The Allegheny National Forest Plan provides direction regarding the primary silvicultural system for each MA: the primary system for MA 1.0 and 3.0 is even-age management, while for MA 6.1, both even-age and uneven-age management are emphasized to achieve both wildlife and recreation management objectives (USDA-FS 1986a, p. 4-116). Uneven- age management is an option to be considered for inclusions such as riparian areas, wet soils, or visually sensitive areas (USDA-FS 1986a, p. 87).

Comments were received about the type and intensity of the silvicultural treatments proposed in the Spring Creek Watershed. These ranged from exclusively using even-aged treatments, to the other end of the spectrum of using only uneven-aged treatments. There is some concern that uneven-age management techniques will not result in a sustainable forest condition in MA 3.0 in stands that are currently being managed in an even-age manner (USDA-FS 2002b, pp. 21-24).

This issue can be addressed by developing alternatives that propose both even-age and uneven-age management treatments.

a. Even-age Management

Even-aged treatments are most successful in regenerating the Allegheny hardwood timber type, which is comprised of tree species that are shade intolerant. These species include black cherry, red maple, and yellow poplar, which require full sunlight to establish seedlings and grow rapidly. It also works well for regenerating areas having a mixture of shade intolerant and shade mid-tolerant species. Of the forested area in the SCPA, thirty-five percent is comprised of the Allegheny hardwood type.

b. Uneven-age Management

Uneven-age management can be effective in timber stands where a large proportion of the trees are shade tolerant, such as beech, sugar maple and hemlock. The seedlings of these tree species grow best when established and in partial or full shade conditions. Adequate seedlings must develop following each harvest. It should be noted that both beech and sugar maple are in a state of decline because of insect and disease infestations, and soil nutrient deficiencies. An uneven-aged stand is one where there are trees of many ages. It is difficult to convert an even-aged stand to uneven-aged because of the species composition. In order to achieve an uneven-aged stand, a small number of trees are cut at specified intervals throughout the life of the stand. An uneven-aged treatment may provide structural diversity and habitat for interior wildlife species.

Measures used to evaluate alternatives include acres of even-aged vegetative treatments and uneven-aged treatments, volume of timber harvested, and net cash flow resulting in each alternative.

Issue 3: What level of road management is appropriate to achieve our multiple use resource objectives and retain land stewardship values within the Spring Creek watershed?

The level of new construction, reconstruction and decommissioning of roads is of interest to the public. Commentors are also concerned about building new roads and road density in the SCPA. How roads are

maintained and whether or not they are left open are of particular concern to the public. Protecting soil and water resources, and providing access for the public and resource management are objectives that will help guide these decisions.

a. Level of new road construction, reconstruction, & decommission of existing roads

Overall commentors were concerned with roads and their effects on the environment. To reduce effects to soil, water and habitat, they suggested that no new roads should be built and that other roads should be decommissioned, closed and obliterated. The Roads Analysis Report (RAP) (USDA-FS 2002a) completed for the Spring Creek watershed also identified a number of roads that need action to reduce environmental effects. Some of these roads are not under the jurisdiction of the Forest Service, but through cooperative efforts with other ownership the effects can be lessened.

b. Road Density

Concerns were expressed about new road construction and that it would increase road density in the SCPA. The SCPA has varying road densities. In the northern portion of the watershed many of the roads are private oil and gas (OGM) roads. These roads are built and maintained by a mineral owner to access their privately held oil and gas rights. All of the subsurface mineral, oil, and gas rights in the SCPA are privately held with the exception of a small 61-acre tract near Byromtown in the western part of the SCPA. Road densities (if all road jurisdictions were included) range from 0 to 15 miles/square mile. The FS and OGM operators work together and use each other's road systems to reduce impacts of roads on the environment. The Commonwealth of Pennsylvania and various townships also manage roads in the SCPA.

c. Access

Concerns surfaced about regulated access to roads to protect wildlife habitat and provide isolation in the watershed. Some felt that roads should not be decommissioned because they are capital investments and provide future access and use of the area.

d. Road Maintenance

Commentors expressed the need for road improvements to increase recreational use and reduce impacts to soil and water resources. The Forest Service has completed a Spring Creek Roads Analysis that included evaluating oil and gas roads as well as Forest Service roads for effects to the ecosystem. There is approximately 110 miles of Forest Service roads in the watershed. The Roads Analysis required examining the road system to determine if new access was needed, if the existing road system was adequate in terms of safety and where improvements were needed to lessen environmental impacts, and if any roads needed to be closed or restricted for resource protection or other reasons (water quality, wildlife, or recreation). Roads provide access for recreation, timber, and wildlife management activities. However, roads can also eliminate opportunities for unroaded recreation, cause disturbances to wildlife, and create resource damage (e.g. soil and water quality concerns).

Measures used to evaluate alternatives include miles or percent of roads in the SCPA in various management categories (open, closed, restricted) and road density by MA. Measures also include the amount of road construction, reconstruction, and decommission to support management actions, measured in miles. Amount of road investments (miles and/or # treatment sites) proposed to protect resource values i.e. spot limestone surfacing. Acres affected in unroaded areas by proposed road activities in the project.

Issue 4: How can areas with concentrated recreation use, unauthorized recreation use, or unmet demand be managed to reduce user conflicts, to protect user health and safety, and to protect soil and water resources?

A wide variety of recreational uses take place in the Spring Creek Project Area. Activities range from highly developed activities, such as ATV trail riding, to activities that require no facilities, such as hunting and fishing. Some of these activities occur on designed and managed facilities, and others have been developed through repeated use. These user-created trails and campsites are not always chosen with resource suitability in mind. Facilities are needed where recreation use is concentrated. Recreation facilities and policies regarding recreation use need to be evaluated to see if they adequately protect the resource.

a. Recreation Use in Riparian Areas

Resource specialists have concerns that unmanaged recreation use such as ATV use off designated trails, user-created horse trails and dispersed camping cause impacts to soil and water resources, disturb wildlife, and affect other recreationists. Commentors also have expressed concern about damage to soil, water, vegetation, and wildlife habitat from recreation use. Some commentors related stories of recreation use in streams that affected their own recreational pursuit. Anglers were especially concerned about ATV and horse use in streams.

b. ATV Use

Resource specialists have concerns that ATV use off designated trails results in impacts to soil and water resources, disturbs wildlife, and affects other recreationists. Some commentors asked for additional ATV trails in the SCPA, or being allowed to use ATVs on roads. They claim that building more trails will reduce unauthorized use. Many objected to all the unauthorized use, which impacts their activity or the environment. Many requested additional law enforcement to control use off designated trails.

Camping at ATV trailheads has increased rapidly in popularity, and has resulted in crowding and inappropriate uses at trailheads. An ATV campground was proposed along FR 401 to address this demand. Concern was expressed that the ATV camping area proposed along FR 401 would bring more problems to local residents. Additional areas were examined to see if they are suitable for ATV camping.

c. Horse Use

Resource specialists are concerned that concentrated horse use may result in impacts to soil and water resources. Some members of the public raised concerns that horse use affects their recreation activity and create impacts to soil and water resources. Horse riders expressed concern about losing a unique riding opportunity or being regulated in their activity. There was mixed support for constructing and designating horse trails.

Areas of concentrated recreation use need to be managed to provide safe facilities, reduce user-conflicts and protect natural resources. This issue is addressed by developing alternatives that propose various methods for managing recreation opportunities, from facility construction to regulation and closure.

Measures used to evaluate alternatives include miles of designated recreation trails, miles of undesignated user-created trails and number of stream crossings, number of dispersed and developed recreation site proposals and treatments, areas treated to rehabilitate stream crossings & block unauthorized OHV access.

DEVELOPMENT OF ALTERNATIVES

Alternatives Considered but Eliminated From Detailed Study

Several alternatives (or parts of alternatives) from both public and internal scoping, were considered by the ID Team and Deciding Officer but eliminated from detailed study for various reasons. The following are those alternatives:

The proposed action was presented during the scoping period to the public. After scoping, more intensive fieldwork was conducted by members of the ID team. Information that was gathered during this time period and consideration of the comments submitted during scoping were used to refine and improve the proposed action. Alternative 2 (see below), based on these changes, will be considered in detail and replaces the proposed action that was presented in scoping. Other alternatives considered but eliminated include: a) no herbicide alternative; b) apply un-even age management in all stands proposed for even-age management; c) develop Forest Road 130 as a through road; d) consider a salvage vegetation treatment option only; e) no logging alternative and/or zero logging/restoration alternative; f) change the management of the area in the manner prescribed in HR 2789, the National Forest Protection and Restoration Act; g) manage for forest interior species and fragmentation reduction; h) wilderness alternative; and i) a roads to trail alternative, convert logging roads to trails, obliterate all roads beyond gates. Although these alternatives were not entirely considered in full detail, many of the aspects of these alternatives are included in the four alternatives considered in detail below:

Alternatives Analyzed in Detail

After the team and deciding official established the four major issues, four alternatives were developed that would respond to the these issues, while still meeting all or part of the site-specific needs and Forest Plan goals. The Forest Service developed four alternatives in detail, including the No Action and three additional alternatives in response to the significant issues. Forestwide Standards and Guidelines in the ANF LRMP (pp. 4-5 through 4-53) and management direction in the Forest Plan on pages 4-60 through 4-69 for MA 1.0, 4-82 through 4-96 for MA 3.0, 4-110 through 4-124 for MA 6.1, and 4-138 through 4-148 for MA 6.3 guided the development of alternatives. Alternatives also include mitigations measures, which are fully described in Appendix D of the FEIS.

Alternative 1 (No Action)

This alternative provides a baseline or reference point against which to describe the environmental effects of the action alternatives, and responds to the concerns of those who would like no additional activities to take place in the SCPA. No new federal management activities would be initiated under this alternative, but activities that have been approved in previous documents would still occur.

Alternative 2

This alternative is based on the Purpose and Need outlined in this summary and Chapter 1 of the FEIS, which would move the SCPA from the present condition towards the desired condition identified in the Forest Plan during the next decade to achieve the age class distribution and harvest levels for MA 1.0, 3.0, and 6.1. Timber harvest, reforestation treatments, and wildlife habitat improvement work would be accomplished during the next decade for all MAs within the watershed. In addition, over the next ten years in this alternative, strides will be made towards an environmentally safe and long-term transportation system and recreation improvements will be made to meet user demand, while protecting the environment. The proposals are directly tied to the site-specific need statements addressed.

Using even-aged management techniques, approximately 6% of the SCPA in MA 3.0 would be regenerated through this project, and become part of the 0-10 year age class once fully implemented. Even-age regeneration treatments will occur in a variety of different ways ranging from overstory removals to shelterwood sequences. There is a total of 2366 acres of regeneration expected to occur over the next decade in the all MAs within the SCPA as a result of this alternative. A variety of intermediate silvicultural treatments are also proposed. In MA 1.0 approximately 10% of the area would be regenerated and in MA 6.1 approximately 2% would be regenerated. There are no even-age regeneration treatments proposed to occur in MA 6.3. Within the project area, UEAM occurs in a very limited way to address site specific areas of special concern.

This alternative responds to the July 2003 storm damage by proposing salvage harvests in areas where trees were damaged and reforestation treatments in areas where stand replacement blowdown occurs.

In Alternative 2, vegetative treatments through timber harvesting could result in an estimated 15.4 million board feet (MMBF) produced from intermediate and first entry regeneration harvests. Completing regeneration harvests during the second entry, which would generally take place before the end of the decade (2013), could produce an additional 16.8 MMBF. Vegetative proposals address Need Statements #2-8, 11.

Wildlife habitat improvement treatments would occur on over 2905 acres. These proposals address Need Statements #1, 5, 7-12. Soil and Water treatments consist of rehabilitation and mitigation would occur in several areas and address Need Statements #1, 10, 13, 14, 16, & 17. Recreational improvements including horse trail construction and designation, low development ATV campground construction, and improving dispersed recreation activities are directly tied to the Need Statements #1, 14-18 which would occur to meet user demand in the watershed while protecting soil and water quality elements.

New road construction would occur on 6.6 miles, extending an existing Forest Service system road, while providing both short and long term management access. Reconstruction would occur on 12.5 miles of road. Spot limestone surfacing would be applied on 23.5 miles of road, consistent with the Fisheries amendment to the Forest Plan guidelines for stream crossings and roads within close proximity to riparian areas. Approximately 22 miles of both system and non-system roads will be decommissioned. Twenty additional gates would be constructed or moved to seasonally restrict access and protect natural resources. There will be eleven acres of pit expansion and four acres (3 new pits) of pit development. The transportation proposals address Need Statements 1 and 13.

Alternative 3

This alternative focuses on utilizing a specific landscape approach in managing the present condition in the watershed in achieving multiple use objectives towards the desired condition. The overall focus is to implement silvicultural, recreation, and wildlife habitat objectives, while maintaining contiguous core forest patches and travel corridors and minimizing the effects of fragmentation where it is biologically feasible. This alternative acknowledges the ecological significance of maintaining contiguous core forest patches as well as reducing isolation of communities for the purpose of genetic transfer and maintaining connectivity (travel corridors). Several fragmentation models and Global Information System (GIS) indexes were used. The initial principle considered is the fundamental idea of island biogeography that immigration and extinction is a direct function of island (patch) size. The concepts and principles of landscape analysis were used to develop this alternative. The landscape distribution of vegetative age classes and the location and size of large forested core areas plays an important role in this development. Chapter 3 of the FEIS, Wildlife Section has a description of this analysis tool.

Based on the analysis, modifications to the proposed action (Alternative 2) were made to some silvicultural treatments, which include changes in treatment types, placement and deferment of some stand treatments. Silvicultural treatments, depending on the type of treatment, could occur over a period of 3-10 years depending on the type of treatment prescribed. Volume estimates for first entry would be approximately 13.5 MMBF and second entry 14.1 MMBF.

This alternative responds to the July 2003 storm damage by proposing salvage harvests in areas where trees were damaged and reforestation treatments in areas where stand replacement blowdown occurs.

No new road construction will take place in this alternative. This will reduce the acres of harvest activity in this alternative. Some treatments will still be implemented utilizing long skids depending on type, size, and location of vegetation treatment. Reconstruction of both non-system and system road will still occur. Less stone will be needed which has resulted in fewer pit proposals. Spot application of limestone and road decommissioning (both system and non-system roads) will occur in the appropriate areas.

A lower level of recreation investment will be implemented. No horse trail construction, or low development ATV campground construction will take place. No new campsite/parking areas will be constructed nor will scenery enhancement along State Route 66 be implemented. However, areas with soil and water damage resulting from concentrated recreation use will be addressed using rehabilitation methods, closure devices, and area closures. This will include areas of ATV use, horse use, OHV use, and campsite/parking areas. The realignment of snowmobile connector #12 will still take place.

Wildlife habitat improvements are the same as Alternative 2

Alternative 4

This main focus of this alternative is to achieve silvicultural harvest objectives through uneven-aged treatments where they are biologically feasible in stands now prescribed for even-age management in the SCPA (Alternative 2). Those stands included in this alternative meet the biological criteria for UEAM. The criteria used for biological feasibility include looking at each stand for:

a. Stands that have the potential seed source for shade tolerant regeneration (35 BA of hemlock, beech, and sugar maple).
b. Stands that have adequately established, shade tolerant regeneration.

In addition, UEAM will be considered in visually sensitive areas, riparian areas and those areas containing wet, Group III soils. Also, silvicultural objectives could occur through both salvage and reforestation efforts in areas where prescriptions meet site-specific conditions. Both salvage and reforestation efforts do not preclude the use of either even-age or uneven-aged management in the future. In addition to the biological characteristics mentioned above, stands will be suitable for ground-based harvest activities, based on soil and slope.

This alternative responds to the July 2003 storm damage by proposing salvage harvests in areas where trees were damaged and reforestation treatments in areas where stand replacement blowdown occurs.

Road management will support the silvicultural treatments in this alternative. Recreation, Wildlife, and Soil and Water proposals will remain the same as in Alternative 2.

COMPARISON OF ALTERNATIVES BY RESOURCE

The following section provides a comparison of alternatives using several different methods. Table 2,Table 3, and Table 4 summarizes the comparison of alternatives to the desired conditions in MAs 1.0, 3.0, and 6.1. Table 5 display the amount of proposed activities by alternative and their responsiveness of the proposed activities to Forest Plan goals and needs and opportunities identified in the SCPA. Table 6 displays a comparison of the alternatives and their response to the four major issues identified in the SCPA. Note: Percentages based on number rounding. Totals do not always add up to 100%. Following the tables is a brief summary of effects, by resource, of the alternatives considered in detail. More detail discussion of effects is available in the FEIS.

Table 2: Comparison of Alternatives to the Desired Future Condition and Present Condition of MA 3.0 in the SCPA

Desired Future Condition				Present Condition	In 10 years – 2013			
					Alt. 1	Alt. 2	Alt. 3	Alt. 4
Vegetative Management								
Age-class distribution	Even-aged timber stands distributed across a variety of age classes	0-10 (seeding)	**9%**[1]	**5%**	**2%**	**8%**	**8%**	**2%**
		11-20 (sapling)	**9%**	**5%**	**5%**	**5%**	**5%**	**5%**
		21-50 (pole timber)	[2]	**7%**	**12%**	**12%**	**12%**	**12%**
		51-110 (saw timber)	[2]	**78%**	**70%**	**64%**	**65%**	**70%**
		111+ (old growth)	Min 5%	**2%**	**9%**	**8%**	**8%**	**9%**
Wildlife								
0-20 year age class	Not greater than 20-25%			**10%**	**7%**	**14%**	**13%**	**7%**
Mast-producing timber (greater than 35 years old)	50% or more			**81%**	**83%**	**77%**	**78%**	**83%**
Permanent openings	3-10%			**3%**	**3%**	**3%**	**3%**	**3%**
Conifer component	No more than 10% in conifer cover			**6%**[3]	**6%**[3]	**6%**[3]	**6%**[3]	**6%**[3]

1. The Forest Plan does not directly state the desired Future Condition for the 0-10 year age class as a percentage of any given land area. In MA 3.0, the 9% DFC for 0-10 age class is derived from the Forest Plan estimated amount of final harvest cutting in MA 3.0 over the first decade of plan implementation (29,200 acres). This represents 9% of the total MA 3.0 on the Forest.

2. The Forest Plan does not specify distribution amounts for these age classes in this MA

3. The % reflects stands that are actually typed as conifer. A stand must contain a conifer component of >50% to be typed as conifer. However, this % does not reflect the conifer component across the SCPA in this MA as a whole. See Chapter 3, wildlife section, for a description of available conifer.

Table 3: Comparison of Alternatives to the Desired Future Condition and Present Condition of MA 6.1 in the SCPA

Desired Future Condition				Present Condition	In 10 years – 2013			
					Alt. 1	Alt. 2	Alt. 3	Alt. 4
Vegetative Management								
Age class		111+ (old growth)	Min 10%	**0%**[1]	**0%**[1]	**0%**[1]	**0%**[1]	**0%**[1]
Wildlife								
Poletimber and sawtimber (greater than 20 years old)	Minimum of 70%			**89%**	**96%**	**94%**	**95%**	**96%**
Permanent openings and other brood habitat	5-10%			**4%**	**4%**	**4%**	**4%**	**4%**
Conifer component	Generally no more than 20% in conifer cover			**20%**[2]	**20%**[2]	**20%**[2]	**20%**[2]	**20%**[2]

1. Presently there are no acres greater than 111years old within this MA in the SCPA. No acres reach 111+ by the year 2013. During the time period 2014 through 2023, some stands will reach 111 years.

2. The % reflects stands that are actually typed as conifer. A stand must contain a conifer component of >50% to be typed as conifer. However, this % does not reflect the conifer component across the SCPA in this MA as a whole. See Chapter 3, wildlife section, for a description of available conifer.

Table 4: Comparison of Alternatives to the Desired Future Condition and Present Condition of MA 1.0 in the SCPA

Desired Future Condition				Present Condition	In 10 years – 2013			
					Alt. 1	Alt. 2	Alt. 3	Alt. 4
Vegetative Management								
Age-class distribution	Even-aged timber stands distributed across a variety of age classes	0-10 (seeding)	**20%**[1]	**10%**	**0%**	**9%**	**7%**	**0%**
		11-20 (sapling)	**20%**[1]	**4%**	**10%**	**10%**	**10%**	**10%**
		111+ (old growth)	None	**0%**	**0%**	**0%**	**0%**	**0%**
Wildlife								
Permanent openings and other brood habitat	Maximum 3%			**13%**	**13%**	**13%**	**13%**	**13%**
Conifer component	Minimum 2-5%			**3%**[2]	**3%**[2]	**3%**[2]	**3%**[2]	**3%**[2]

1. The Forest Plan does specify that a minimum of 20% in the 0-9 age class and 20% in 10-19 age class for MA 1.0 for age class distribution. Age class 0-10 and 11-20 used for consistency.

2. The % reflects stands that are actually typed as conifer. A stand must contain a conifer component of >50% to be typed as conifer. However, this % does not reflect the conifer component across the SCPA in this MA as a whole. See Chapter 3, wildlife section, for a description of available conifer.

Comparison of Alternatives to Goals and Needs

Table 5 displays the amounts of proposed management activities by alternative. It also displays the responsiveness of the proposed activities to the needs and opportunities identified in Chapter 1.

Table 5: Responsiveness of Alternatives to Forest Plan Goals and to Needs and Opportunities Identified for the SCPA

Treatment	FP goals[1]	Need/Opportunity[2]	Alt. 1	Alt. 2	Alt. 3	Alt. 4
Shelterwood seed cut/shelterwood removal sequence	A, B, C, E, G, J, K, M, N, O	2, 3, 4, 5, 6, 7, 8, 11	0 acres	1691 acres	1473 acres	0 acres
Overstory removal	A, B, C, E, K, M, N, O	2, 3, 4, 5, 6, 11	0 acres	485 acres	483 acres	0 acres
Two-age prep/seed cut	A, B, C, E, M, N, O	2, 3, 4, 5, 6, 7, 11	0 acres	97 acres	51 acres	0 acres
Two-aged harvest	A, B, C, E, M, N, O	2, 3, 4, 5, 6, 11	0 acres	12 acres	0 acres	0 acres
Thinning (includes salvage thin)	E, G, M, N, O	2, 3, 4, 5, 6, 7, 11	0 acres	1717 acres	1677 acres	0 acres
Thinning (salvage only)	E, G	5, 6	0 acres	0 acres	0 acres	617 acres
Clearcut (catastrophic)[3]	A, B, C, E, G, M, N, O	2, 5, 6, 7, 11	0 acres	81 acres	81 acres	0 acres
Salvage windthrow	E, G	5, 6	0 acres	488 acres	488 acres	646 acres
Single tree selection	B, C, E	2, 4, 6, 7, 8, 11	0 acres	63 acres	63 acres	1888 acres
Herbicide	C, J, N	2, 3, 4, 5	0 acres	2376 acres	2113 acres	2086 acres
Site preparation (mech./manual)	C, N	2, 3, 4, 5	0 acres	2090 acres	1900 acres	2281 acres
Planting	A, B, C, J, N, O	2, 3, 4, 5	0 acres	453 acres	431 acres	561 acres
Fertilization	C, N	2, 3, 4, 5	0 acres	142 acres	141 acres	0 acres
Fencing	C, N	2, 3, 4, 5	0 acres	1603 acres	1336 acres	564 acres
Tree shelters	C, N	2, 3, 4, 5	0 acres	535 acres	496 acres	1362 acres
Release cuts	C, N	2	0 acres	3316 acres	3130 acres	3418 acres
Re-establish streamside vegetation	A, B, C, D, T	1, 10	0 acres	79 acres		
Place coarse woody debris	B, D	5, 10	0 mile	16 mile		

Treatment	FP goals[1]	Need/Opportunity[2]	Alt. 1	Alt. 2	Alt. 3	Alt. 4
Rehabilitate erosion areas	B, D	1, 10	0 acres	3 acres		
Plant/control aquatic vegetation	A, B, D	1, 10	0 acres	27 acres		
Place aquatic habitat structure	B, D	12	0 str	64 str		
Plant native deciduous trees, shrubs, and aspen	A, B, C, J, O, S, T	7, 8, 9, 11	0 acres	578 acres		
Fencing	A, B, C, J, O, S	7, 8, 9, 10, 11, 12	0 acres	168 acres		
Release/prune/maintain/replace apple trees	A, B, C, J, O	11	0 acres	144 acres		
Prescribe burn	A, B, T	9, 11	0 acres	25 acres		
Re-establish /plant conifer (white pine/red spruce) in upland areas	A, B, C, J, O, S	7, 8, 11	0 acres	718 acres		
Manage upland opening vegetation	A, B, J, T	7, 8, 9, 11	0 acres	145 acres		
Re-establish native herbaceous vegetation/openings/warm season grasses	A, B, C, J, T	7, 8, 9, 11	0 acres	55 acres		
Regenerate aspen	A, B	11	0 acres	16 acres		
Release conifer, shrubs, and mast trees	A, B, C, J, O, S	11	0 acres	49 acres		
Create snags	A, B, S	11	0 acres	671 acres		
Place nest structures	B, S	12	0 str	105 str		
Reserve coarse woody debris	A, B, S	5, 11	0 acres	227 acres		
Provide access/improve parking at wildlife viewing areas	L, R, U	12	0 sites	4 sites		
Replace impoundment water control device	B, D, U	12	0 str/sites	3 str/sites		
Construct and designate equestrian trail w/trailheads (includes closure to cross-country riding in core area)	L, P, R	1, 16	0 miles	42 miles	0 miles	42 miles

Treatment	FP goals[1]	Need/Opportunity[2]	Alt. 1	Alt. 2	Alt. 3	Alt. 4
Designate and improve stream and seep crossings on horse trails	L, P, R	1, 16	0 sites	26 sites	5 sites	26 sites
Close areas unsuited for horse use	L, P, R	1, 16	0 sites	N/A	3 sites	N/A
Enhance scenic quality	Q	15	0 acres	50 acres	0 acres	50 acres
Construct dispersed campsites	L, P, R	1, 17	0 sites	9 sites	0 sites	9 sites
Rehabilitate dispersed campsites	L, P, R	1, 17	0 sites	9 sites	9 sites	9 sites
Camping restrictions	L, P, R	1	0 areas	2 areas	2 areas	2 areas
Expand Timberline ATV Trailhead campsites	P	18	0 sites	1 sites	0 sites	1 sites
Realignment of Snowmobile Connector #12	P	1, 13	0 feet	430 ft	430 ft	430 ft
Stabilize abandoned sections/stream crossings of horse trails	D, P, R	1, 16	0 sites	7 sites		
Improve access paths to streams near dispersed sites	D, P, R	1, 17	0 sites	2 sites		
Stabilize streambanks and block (OHV) vehicle use	D	1, 14	0 sites	5 sites		
Channel stabilization and erosion control	D	1	0 sites	4 sites		
New road construction	H, I	1, 13	0 mile	6.6 mile	0.0 mile	4.0 mile
Reconstruction improvement	F, H, I	1, 13	0 mile	10.8 mile	9.1 mile	7.0 mile
Reconstruction realignment	F, H, I	1, 13	0 mile	1.3 mile	0.9 mile	0.3 mile
Row on private - reconstruction		1, 13	0 mile	0.4 mile	0.4 mile	0.0 mile
Road maintenance	D, F, H, I	1, 13	0 mile	114 mile	114 mile	114 mile
Add existing road to Forest Service system	F, H, I	1, 13	0 mile	11.7 mile	9.7 mile	6.6 mile
Obtain right-of-way access on existing private road	F, I	1, 13	0 mile	0.4 mile	0.4 mile	0.0 mile

Treatment	FP goals[1]	Need/Opportunity[2]	Alt. 1	Alt. 2	Alt. 3	Alt. 4
Limestone surfacing/other watershed mitigations	D, F, H, I	1, 13	0 mile	23.5 mile	23.5mile	23.6 mile
Decommission of existing roads (both system and non-system roads)	D, F, H, I	1, 13	0 mile	22 mile	22 mile	21 mile
Install or move gates	F, H, I	1, 13, 14	0 each	20 each	13 each	16 each
Pit expansion areas	I	13	0 acres	11 acres	8 acres	10 acres
Pit development	I	13	0 acres	4 acres	1 acres	2 acres
Needs addressed through mitigation measures		1, 13, 19		Mitigation Measures (Appendix D)		

1. Identified in Chapter 1.

2. Identified in Chapter 1.

3. Catastrophic is the management objective, since the treatment is in response to a natural catastrophic event such as wind, insect, or disease

Comparison of the Alternatives to the Issues

Table 6 displays a comparison of the alternatives and their response to the issues identified in Chapter 1.

Table 6: Comparison of Alternatives to the Issues

How can the effects of fragmentation be reduced or avoided while implementing the Forest Plan and meeting multiple use resource needs in the Spring Creek Watershed?				
	Alternative 1	**Alternative 2**	**Alternative 3**	**Alternative 4**
Changes that occur in Alternative 3 from Alternative 2 as a result of analysis in Alternative 3				
Intermediate Harvest treatment dropped (acres) because of no new road construction	N/A	N/A	-96	N/A
Final Harvest treatment dropped because of high core value or no new road construction (acres))[1]	N/A	N/A	-278	N/A
Final Harvest (harvest treatment changed to intermediate harvest because of high core value (acres)) [2]	N/A	N/A	+56	N/A
New Road Construction (miles)	0	6.6	0.0	4.0
Decommission (miles) – Includes both system and nonsystem roads	0	22	22	21
Final available habitat and age class (%) in 2013 on federal land				
Early Successional Habitat (seedling 0-10 years (%))	2%	8%	7%	2%
Mature Age Class (51-110 years (%))	71%	66%	67%	71%
Old Growth (111+ years old (%))	8%	7%	7%	8%
Plant native deciduous trees, shrubs, and aspen (acres)	0	578	578	578
Fencing (acres)	0	168	168	168
Release/prune/maintain/replace apple trees (acres)	0	144	144	144
Re-establish /plant conifer (white pine/red spruce) in upland areas (acres)	0	718	718	718
Manage upland opening vegetation (acres)	0	145	145	145
Regenerate aspen (acres)	0	16	16	16

What silvicultural system should be used in the Spring Creek Watershed?				
	Alternative 1	**Alternative 2**	**Alternative 3**	**Alternative 4**
Even-aged management (acres)	0	4083	3765	0[3]
Uneven-aged management (acres)	0	63	63	1888
Volume of timber harvested (MMBF)	0	32.2	27.6	6.7
Cash Flow Analysis				
Total Cost: includes planning costs, all roadwork (including deferred road maintenance.), and cost of reforestation	$1,910,864 (Planning and Def. Rd. Mtnc.)	$11,969,618	$10,381,974	$7,900,281
Total Revenue	0	$23,005,299	$19,772,589	$4,829,622
Net Cash Flow	-$1,910,864	$11,035,681	$9,390,615	-$3,070,659
Annual erosion rate over the next 20 years[4] (tons/ac/year).	0.007	0.013	0.012	0.008

What level of road management is appropriate to achieve multiple use resource objectives and retain land stewardship values within the Spring Creek Watershed?				
	Alternative 1	**Alternative 2**	**Alternative 3**	**Alternative 4**
In all alternatives, road densities will be within the Forest Plan standards and guidelines in MA 1.0, 3.0, and 6.1. MA 1.0 = 1-3 mi/sq. mi MA 3.0 = 2-4 mi/sq. mi MA 6.1 = 1-3 mi/sq. mi	There would be no change in the amount of roads or the management of roads in the SCPA. Deferred maintenance on some roads will continue. No new stone pits will be opened.	New road construction, reconstruction, maintenance, and decommissioning would occur. There would be a total increase of 16.1 miles of system roads (includes construction, decommissioning (system roads), and miles of existing road corridor added to	No New road construction would occur and reconstruction would occur at levels below Alternative 2. There would be a total increase of 7.8 miles of system roads (includes decommissioning (system roads) and miles of existing road corridor added to	New road construction and reconstruction would occur at levels below Alternative 2. There would be a total increase of 9.6 miles of system roads (includes construction, decommissioning, (system roads) and miles of existing road corridor added to

		the system).	the system).	the system).
	Alternative 1	**Alternative 2**	**Alternative 3**	**Alternative 4**
Forest Service Road Density[5] - MA 1.0	1.4 mi/sq mi	2.6 mi/sq mi	1.4 mi/sq mi	2.6 mi/sq mi
Forest Service Road Density[5] - MA 3.0	1.7 mi/sq mi	2.0 mi/sq mi	1.8 mi/sq mi	1.8 mi/sq mi
Forest Service Road Density[5] - MA 6.1	1.9 mi/sq mi	1.9 mi/sq mi	1.8 mi/sq mi	1.8 mi/sq mi
Existing Road Corridor Added to FS System[6] (miles)	0	11.7	9.7	6.6
New Road Construction (miles)	0	6.6	0.0	4.0
Reconstruction – Improvement (miles)	0	10.8	9.1	7.0
Reconstruction - Realignment (miles)	0	1.3	0.9	0.3
Reconstruction - ROW (miles)	0	0.4	0.4	0.0
Maintenance[7](miles)	114	114	114	114
Spot Limestone Surfacing (miles)	0	23.5	23.5	23.6
Decommission (approx. miles) system roads	0	2.2	1.9	1.4
Decommission (approx. miles) non-system roads	0	19.8	20.1	19.6
Amount of road investments	$1,410,864	$3,200,987	$2,739,978	$2,880,170
Open	37%	32%	34%	34%
Restricted	34%	36%	37%	37%
Closed	29%	32%	29%	29%
Install or move gates	0	20	13	16
Expand Existing Pit (acres)	0	11	8	10
New Pit Development (acres)	0	4	1	2
How can areas with concentrated recreation use, unauthorized recreation use, or unmet demand be managed to reduce user conflicts, to protect user health and safety, and to protect soil and water resources.				
	Alternative 1	**Alternative 2**	**Alternative 3**	**Alternative 4**
Construct and designate equestrian trail w/trailheads (miles)	0	42	0	42
Restrict cross-country horse use	None	Zone around trails	3 sites	Zone around trails
Designate and improve stream crossings for horse use.	0	26	5	26

Enhance scenic quality (acres)	0	50	0	50
Construct new dispersed campsites (sites)	0	9	0	9
	Alternative 1	**Alternative 2**	**Alternative 3**	**Alternative 4**
Rehabilitate dispersed campsites (sites)	0	9	9	9
Camping restrictions (areas)	0	2	2	2
Expand Timberline ATV Trailhead campsites	0	1	0	1
Realignment of Snowmobile Connector #12 (feet)	0	430	430	430
Construction cost of recreation improvements	$0	$402,918	$26,815	$402,918
Stabilize abandoned sections/stream crossings of horse trails (sites)	0	7	7	7
Improve access paths to streams near dispersed sites (sites)	0	2	2	2
Stabilize streambanks and block (OHV) vehicle use (sites)	0	5	5	5
Channel stabilization and erosion control (sites)	0	4	4	4
Miles of Forest Service roads open to hunting/ or other seasonal recreational use (open and restricted category)	78	86	83.4	84.9

1. 60 acres of this value met the criteria for both core value area and no new road construction.

2. 56 acres changed to intermediate treatment. This is included in number for final harvests dropped as well.

3 Salvage only treatments will still occur, but are not considered even-age management or un-even age management.

4. Rates Based on Soils Specialist report and USFS WEPP model. Consult Chapter 3 Soils for further discussion

5. Road Density = # of miles of road/square mile of area

6 These are existing OGM roads (non-system) that will be added to the Forest Service Road System and will be maintained by both the Forest Service and PGM operators.

7. Maintenance includes deferred road maintenance needed for future upkeep of the transportation system

Physical Environment

Soils

Alternative 1

Because there are no Spring Creek vegetation and transportation proposals, soil quality would remain relatively unchanged. Based on the soil quality modeling there would be a watershed erosion rate of an average of an estimated 0.007 tons/ac/yr. There would be no road construction activities to cause short-term erosion, but there will also be no road decommissioning which would reduce long-term erosion and sedimentation. There will also be no other road related activities or wildlife, recreation, and hydrology proposals that would improve soil quality conditions. Under this alternative there would be no new road construction as well as vegetation treatments in areas susceptible to landslides. However, certain roads that currently cross historic landslides for at least part of their length will not receive relocation or decommissioning and this may contribute to the deterioration of a road section. Because there are no Spring Creek proposals, there will be no direct effects to wetlands and riparian areas, however, with no watershed improvements, such as those related to the hydrology, road decommission, wildlife, and recreation proposals, wetland and riparian areas and areas susceptible to soil compaction will continue to deteriorate and chronic inputs of soil sedimentation will continue.

Alternative 2

This Alternative has the greatest amount of vegetative treatment proposals, resulting in the highest average annual erosion rate over the next twenty years across the entire project of 0.013 tons/ac/yr of any of the alternatives. Forest Plan standards and guidelines are followed to reduce the erosion and sedimentation effects for vegetation and road construction activities. New road construction results in short term erosion and in the long-term takes land out of forest production. Recreation, hydrology, and wildlife proposals have short-term negative effects for initial construction activities but will benefit long-term soil quality by concentrating user effects to areas with acceptable soils and allowing other areas to recover from heavy use. There are a few road segments located on historic landslide areas. Those roads are slated for either maintenance, reconstruction, or decommissioning, which slightly reduces the hazards of landslides. Small pockets of historic landslides are located within some of the proposed vegetation treatments, but the potential for slides to become active are minimal. All treatments proposed for recreation, wildlife, and hydrology are expected to benefit wetland and riparian areas by avoidance, buffering, mitigation, and treatment of affected areas. Both non-system roads within designated wetlands will be decommissioned. These treatments will improve the hydrological and wetland functions in these areas. Vegetation proposals contain mitigations to avoid wetlands.

Alternative 3

This Alternative, based on the soil quality modeling results, has the second highest average annual erosion rates over the next 20 years at 0.012 tons/acre/year. The reduction in erosion rate from Alternative 2 is due to a reduction in vegetation activities. Also, no new road construction is proposed which would have taken land out of production and increased erosion. By following Forest Plan standards and guidelines erosion and sedimentation from road activities and vegetation treatments would be minimized. The effects to historic landslide areas are essentially the same as in Alternative 2. The effects to designated wetlands and riparian areas are essentially the same as Alternative 2 as a result of road activities and vegetation treatments proposed. Wildlife and hydrology proposals will have benefiting effects to soil quality and wetland and riparian areas. Since horse trail construction and other recreation proposals will not occur in this alternative there could be long- term effects to both soil

quality and wetland and riparian areas, especially in hillside slope areas and stream crossings. If the recreation use is not concentrated or directed to more stable sites, areas susceptible to erosion will continue to deteriorate and remain a chronic problem on certain parts of the watershed. Any recreation rehabilitating work on poor sites will help reduce effects to soil quality.

Alternative 4

This Alternative, based on the soil quality modeling, has the lowest average annual erosion rates over the next 20 years of all the action alternatives at 0.008 tons/acre/year. This is due to fewer vegetation treatments and less ground disturbance in the proposed vegetation activities than both Alternative 2 and 3. The effects of new road construction are less than Alternative 2 but greater than Alternative 3. By following Forest Plan standards and guidelines erosion and sedimentation from road activities and vegetation treatments would be minimized. The effects to historic landslides because of road proposals are essentially the same as in Alternative 2. Since all vegetation treatment proposals are intermediate or partial cuts in some form there are less likely to accelerate an historic landslide site. Proposals in wildlife, hydrology, and recreation resources for this Alternative are the same as Alternative 2; therefore their effects are essentially the same. Both non-system roads within designated wetlands will be decommissioned. These treatments will improve the hydrological and wetland functions in these areas. Vegetation proposals contain mitigations to avoid wetlands.

Hydrology

Alternative 1

The current streamflow regime of the Spring Creek Watershed would not be affected by this alternative because there are no proposals, therefore no direct effects would occur. However, the current adverse indirect effects associated with elevated streamflow peaks would continue because of the increase in impermeable area (e.g., roads and well pads) that have elevated rates of runoff. Also, long term effects associated with not correcting chronic soil/water problem areas due to improperly located trails associated with horse use, illegal OHV use, and dispersed camping could affect stream flow regime. The current adverse direct and indirect effects associated with open channel conditions and road derived runoff would continue to degrade water quality, and thus the support of protected used as defined by the State of PA would remain at risk. Without the wildlife, recreation, and hydrology proposals in the action alternatives, water quality could be degraded because erosion prone areas would continue to contribute to sedimentation. This alternative would not change the currently altered streamflow and sediment regimes, therefore there would not be direct or indirect effects on stream channel morphology. As a result, the channel network would remain in its current state of dynamic equilibrium, although impaired from fully meeting Commonwealth of Pennsylvania designated protected water uses due to road related impacts and the lack of adequate aquatic habitat in the form of pools. These road-related impacts and habitat structure could be corrected and improved in the action alternatives. Reduction in sedimentation through improvements at stream crossings, blocking illegal OHV access and the other road restoration work associated with the activities proposed in the three action alternatives (road decommission and reconstruction, maintenance, and spot surfacing with limestone) would not occur.

Alternatives 2 - 4

Alternative 2 proposes the highest level of timber harvest activity within the Spring Creek Watershed over the next two decades, followed by Alternative 3 and then Alternative 4. Direct effects of harvesting timber on the streamflow regime and stream channel morphology are not likely since all equipment would be excluded from a streamside zone 50 to 100 feet from all stream channels. Indirect effects of

harvesting on the streamflow regime may include short-term (<10-years) increases in water yield during summer storm runoff events where the harvested unit removes more than 25 percent of the basal area from small drainages. At the Spring Creek watershed scale, the proposed reduction in basal area across the watershed would likely be less than half of 16.3 % for Alternative 2. Alternative 3 would be likely less than half of 15.7%, and Alternative 4 would likely be less than half of 12.3 %. Changes in streamflow would not be measurable at the watershed scale as a result of proposed timber harvest in all alternatives. Streamside buffers are designed to protect stream channel physical integrity as well as water quality by providing adequate filtering of sediment and allowing for the recruitment of large woody debris into the channel. Alternative 2 has the greatest potential to impact the streamflow regime since it proposes the most new road construction followed by Alternative 4. Alternative 3 has no new road construction, therefore it would have the least potential to affect streamflow regime for the action alternatives. However, guidelines for road design, as outlined in the Forest Plan and Commonwealth Best Management Practices (BMP), would be followed to reduce the risk of surface runoff from concentrating and forming new channels that would route road derived runoff to stream channels. Additionally, most road construction is proposed at distances from streams of at least 300 feet on plateau and upper hill slope areas.

Alternative 2 proposes the greatest amount of road reconstruction and decommissioning, followed by Alternative 3 and 4 with slightly lesser amounts. These road treatments would result in a reduction in hydrologic connectivity in numerous drainages across the watershed, benefiting those drainages as well as the streamflow regime of the entire watershed. The activities that have the potential for adversely impacting streamflow include the construction of equestrian trails and construction of dispersed campsites near stream channels in Alternative 2 and 4. Storm water runoff from these newly compacted sites could be routed to the stream and contribute to an increases in peak flows. Best Management Practices for trail and campsite construction and maintenance would be implemented to minimize such an adverse effect. By establishing a horse trail system with an accompanying temporary closure zone in Alternative 2 and 4, areas of widespread horse use will be concentrated on sites with acceptable soil conditions and improved water crossings, there by eliminating user created paths on poor soils, steep slopes and deeply trenched water crossings. Alternative 3 with no horse trail construction doesn’t realize this benefit. Other proposed activities are anticipated to have positive effects on the streamflow regime and water quality, include the rehabilitation of several dispersed campsites, the improvement of a drainage where horse trails cross streams, the rehabilitation and closure of trail stream crossings, reestablishment of streamside vegetation, and placement of aquatic habitat structures in streams. These treatments are anticipated to have positive long-term effects on water quality by reducing chronic inputs of sediment to streams, provide stream shading to improve water temperature, and deepening and narrowly stream channels, thereby improving sediment storage, water temperature, and improve aquatic habitat. All of which benefit the protected uses of aquatic life.

Air Quality

Alternative 1

There are no Spring Creek resource proposals in Alternative 1, therefore there are no effects related to those activities on air quality. Normal road maintenance activities on National Forest Roads will still occur and could include brushing, culvert replacement, spot surfacing, and ditch dredging. The amount of airborne dust created by these activities is expected to be negligible as these are isolated activities and occur at infrequent intervals. The direct effects are limited to the initial soil disturbance stage of the road activity when the dust created is minimal for a short time. Indirectly these roads are used by a variety of vehicular traffic, which can create dust under certain conditions.

Alternatives 2-4

Many activities proposed in Spring Creek do not affect air quality. There are a few activities such as road building and prescribed burning that could affect air quality to a degree. All action Alternatives (2-4) have varying degrees of road activities proposed, which include road construction, reconstruction, maintenance, decommissioning, and spot surfacing with limestone.

The direct effects to air quality would be the initial soil disturbance stage when implementing these activities. Since Alternative 3 has no new road construction, the effects at this stage would be less than Alternatives 2 and 4. Alternative 2 has the greatest amount of road activities with Alternative 4 a close second. Indirectly, these road segments are used by a variety of vehicular traffic, which can create dust under certain conditions, and with more roads more dust may be created. However, due to the large number of days with rainfall that occurs throughout the area, the low volume of traffic, and the closed tree canopy, airborne dust emissions are typically not a concern in this area. All action alternatives have over 20 miles of both spot limestone surfacing and road decommission (both system and non-system roads) which would limit the direct and indirect effects associated with dust on those affected road segments. A 25-acre prescribed burn is proposed under all the action Alternatives (2-4). The implementation of the burn will create pollutants in the form of carbon monoxide and particulate matter as a result of burning organic matter. The level of pollutants will be in short duration and smoke concerns will be mitigated with an effective “burn” plan. No appreciable effects to air quality would result from the prescribed burn in all the action alternatives. Management activities proposed in the SCPA are of the same type of activities that occurred in the watershed in the last twenty years. Since the SCPA has remained in balance with the air quality guidelines established in the past, it is anticipated that there will be no noticeable decrease in air quality based on the proposed activities.

Transportation

Alternative 1

Since there are no road proposals for this Alternative, there are no effects to the transportation resources. However there will also be no reduction in sedimentation as would occur due to improvements with road reconstruction, spot limestone surfacing, and road decommissioning that is associated with the action alternatives. Normal road maintenance activities will continue to occur and could include brushing, spot surfacing, culvert replacement, and ditch dredging.

Alternatives 2-4

Alternative 2 proposes the most transportation activities, which include 6.6 miles of new construction and 12.5 miles of reconstruction and Alternative 4 has 4.0 miles of new construction and 7.3 miles of reconstruction and Alternative 3 has no new construction and 10.4 miles of reconstruction. The positive effects of applying limestone surfacing varies little by alternative as all alternatives have approximately 23 miles of spot limestone surfacing. The decommissioning of both system and non-system roads also varies little between alternatives as they all have approximately 21 or more miles of road slated for decommission with Alternative 2 and 3 having the most with approximately 22 miles. Alternative 2 changes the size and shape of the current unroaded areas the greatest and Alternative 3 incurs the least amount of change to unroaded areas in terms of a reduction in acres. Changes in road density occur in small percentages with all alternatives with the exception of MA 1.0 where Alternatives 2 and 4 have the greatest change from 1.4 mi/sq mi to 2.6 mi/sq mi. Alternative 3 has the least amount of change to road density. In terms of road management for Forest Service system roads, Alternative 1 has the most roads in open status (37%) where as Alternative 2, 3, and 4 have 32%, 34%, and 34% respectively. Closed

roads vary little with Alternative 2 having the most at 32%, with Alternative 3 and 4 having the same at 29%. Restricted roads vary little between alternatives, all within 1% point of each other in regards to the action Alternatives (2-4).

Oil, Gas, and Minerals

Alternative 1

There are no resource proposals for the Spring Creek project in Alternative 1; therefore there are no effects to oil, gas, and mineral resources or loss of stone or pit development as a result. However, ongoing OGM activities will continue in the SCPA.

Alternatives 2 - 4

Each action alternative proposes pit activation, expansion, and development for road surfacing materials in support of the resource proposals in Spring Creek. Alternative 2 has the most development with approximately 15 acres, Alternative 4 has 12 acres, and Alternative 3, which has no new road construction, has approximately 9 acres. This will result in additional clearing in the project area and loss of stone at pit sites that is an irretrievable, irreversible action.

Biological Environment

Vegetation

Based on the analysis provided in Chapter 3 of this EIS, there are no significant effects to the vegetative resource anticipated under any alternative. However all of the alternatives have some effect on biodiversity and on the vegetative resource. The alternatives differ in the amount of acres being treated, the silvicultural approaches used, and in the resulting changes in vegetative composition and structure.

Alternative 1

There are no activities proposed under this alternative and anticipated changes in vegetation would be a result of naturally occurring changes and from anticipated changes in deer pressure. Natural changes that are currently taking place due to forest maturity or decline would continue under this alternative. The rate of change will be set by the interaction of natural forces such as drought, defoliation or windstorms. Early successional stage vegetation that has developed as a result of regeneration harvests over the last 30 years will continue to grow and move into mid-successional stage forest. Only silvicultural treatments from prior approved NEPA documents would be carried out which would establish some early successional forest growth. In the long-term the entire SCPA would be characterized by more mature forest conditions. Areas of natural disturbances, such as the areas affected by the severe windstorms would be dominated by areas of fern and grass where seedlings failed to develop or areas with shade tolerant species less preferred by deer such as beech.

Over time, individual declining tops and dying trees would permit more sunlight to reach the forest floor, encouraging expansion and growth of understory vegetation. The amount and type of understory vegetation established will be largely determined by deer pressure. Since no timber harvest is proposed under this alternative, deer carrying capacity would eventually be reduced to a 30 year low. As a result, through time, deer numbers are expected to greatly exceed deer carrying capacity and under this alternative, increased selective browsing of understory plants are expected to result in the establishment of fewer tree seedlings and herbaceous plants, reducing understory diversity.

The increase in selective browsing that would occur under this alternative, is also expected to result in an increase in interfering vegetation, which would further reduce vegetative diversity within the SCPA. Over the long-term, this alternative is expected to result in declining overstory conditions and an increase in shade-tolerant species that are less preferred by deer, such as beech (susceptible to beech bark disease complex).

Alternative 2

Alternative 2 proposes a variety of timber harvesting treatments using mainly even-aged silvicultural techniques to meet MA 1.0, 3.0, and 6.1 objectives described in the Forest Plan. There is 1717 acres of thinning. The effect of thinning is to remove high-risk trees and to promote growth on the better-quality, healthier residual stems. Thinning may also reduce stress on the trees in the residual stand. This alternative proposes 2366 acres of regeneration harvest and by the end of the first decade (2013) the resulting 0-10 year old age class would comprise 8% of the federal land within the SCPA. This number includes any regeneration treatments of previous approved NEPA documents. The effect of regeneration treatments will be to produce new young stands of even-aged trees. Shelterwood seed cut/shelterwood removal cut sequences, two-aged regeneration treatments and other final harvests proposed under this alternative generally favor the growth and development of shade-intolerant and shade mid-tolerant species. As a result, this alternative would maintain the present mix of forest species and communities, including the Allegheny hardwoods, Northern hardwoods, Mixed Upland hardwood, and Conifer types. With greater forage available in the younger age class, deer carrying capacity is expected to increase, therefore tree seedlings and species diversity are anticipated to be greater in Alternatives 2 and 3 than in Alternatives 1 and 4 as a direct result of deer browsing.

The 109 acres of two-aged harvest proposed under this alternative is considered an adaptive management treatment. Some vegetative and wildlife goals necessitate the development of different management solutions. Adaptive management is used when we believe sufficient information is already available to develop these solutions, but some uncertainty of outcomes still exists. This approach allows us to monitor the results with planned measurements and analyses and to modify actions and plans based on what we learn. The Two-aged harvest proposed on these sites may have some silvicultural drawbacks, since seedlings grow more slowly in partial sunlight, and are exposed to deer browsing for a longer period of time. Thus, it may take longer to achieve successful regeneration. Stem quality may also be reduced under a two-aged prescription. Seedling regeneration may contain a greater proportion of shade mid-tolerant species such as red maple and black birch and a lesser proportion of shade-intolerant species such as black cherry.

There are 63 acres proposed for uneven-age management within this alternative utilizing selection harvest. Stands included in this alternative would be monitored as a local test of UEAM feasibility, and to assess the results on these types of sites as part of an adaptive management study. The long-term effect of UEAM is to produce an all-aged forest stand with pockets of regeneration that resemble the effects of small-scale natural disturbance. This treatment would result in the development and establishment of predominantly shade tolerant species. UEAM also favors the development of beech regeneration (susceptible to beech bark disease complex), hemlock, and sugar maple (subject to decline), whose growth rates are generally slower than the shade-intolerant and mid-tolerant species that currently occupy the SCPA.

Alternative 3

Like Alternative 2, Alternative 3 proposes mainly the use of even-aged management, but with less regeneration harvest (2088 acres) and thinnings (1677 acres) within the next 10 years. Also like

Alternative 2, Alternative 3 would strive to meet MA 1.0, 3.0, and 6.1 objectives identified in the Forest Plan, maintain the present mix of forest species, and result in the maintenance of the forest species and communities within the SCPA, including the Allegheny hardwoods, Northern hardwoods, Mixed Upland hardwood, and Conifer types.

Alternative 3 differs from Alternative 2 in mainly reducing or changing the type of harvest treatments based on mature forest core area concerns (areas of mature forest canopy areas and the connectivity between these core areas) and a transportation proposal that proposes no new road construction, both while maintaining efforts to move the area to the desired condition outline in the Forest Plan for different MAs.

Alternative 3 drops 278 acres of regeneration harvest with 56 of those acres being changed to an intermediate harvest. In addition 96 acres of thinning were dropped from further consideration from Alternative 2.

By the end of the first decade (2013) the 0-10 year old age class would comprise 7% of the federal land within the SCPA, which is expected to improve age class and vegetative species diversity within the SCPA.

Like Alternative 2, proposed two-aged harvest (51 acres) and selection harvest (63 acres) under this alternative is considered to be an adaptive management treatment, and sites receiving this treatment will be monitored under the ANFs Adaptive Management Program. See discussion concerning UEAM (in Alt. 2 and 4) and Two-age management in Alternative 2.

Alternative 4

Alternative 4 proposes the use of UEAM. All stands proposed for even-age management were considered for uneven-aged management. Visually sensitive areas, riparian areas and wet soils were evaluated to determine areas that might be biologically feasible and operationally suitable for uneven-aged management. A total of 1888 acres were considered biologically feasible and operationally suitable for the application of uneven-aged management in the SCPA; all 1888 acres are included in this alternative. Stands included in this alternative would be monitored as a local test of UEAM feasibility, and to assess the results on these types of sites as part of an adaptive management study. Also considered in this alternative was 646 acres of salvaging scattered windthrown trees and 617 acres of salvage only harvest which promotes neither even-age nor uneven age management.

The long-term effect of UEAM is to produce an all-aged forest stand with pockets of regeneration that resemble the effects of small-scale natural disturbance. This treatment would result in the development and establishment of predominantly shade tolerant species. UEAM also favors the development of beech regeneration (susceptible to beech bark disease complex), hemlock, and sugar maple (subject to decline), whose growth rates are generally slower than the shade-intolerant and mid-tolerant species that currently occupy the SCPA.

Although some seedling regeneration is expected to occur under this alternative as a result of UEAM, like Alternative 1, the presence of early-successional vegetation and deer forage availability would be at the lowest level in 30 years. As a result, effects of deer browsing are expected to increase, making the success of UEAM treatments uncertain (Stout in Marquis et al. 1994a, p. 334). There is no assurance that uneven-aged management can be used successfully where deer populations are high (Stout in Marquis et al. 1994a, p. 334). There is a risk to the success of UEAM from both Beech Bark Disease and sugar maple growth on sites where nutrients are limited.

Like Alternative 1, the anticipated increase in selective browsing that would occur under this alternative is expected to result in an increase in interfering vegetation, which would further reduce species diversity within the SCPA.

Noxious Weeds/Invasive Plant Species

Alternative 1

Under Alternative 1, no new resource proposals on federally administered land would take place based on a Spring Creek decision. Effects to Noxious Weeds and Plant Species of Special Concern (NWIPSOC) amenable to ground disturbance or increases in light availability would be limited to natural processes and disturbances. Shade tolerant species may invade or spread within the SCPA if seed sources and dispersal vectors are available and adequate.

Alternatives 2 - 4

Alternatives 2-4 would implement ground disturbing activities from vegetation management, transportation system management, wildlife habitat improvement projects, recreation projects, and soil and water protection and improvement.

The complexities and uncertainties with regard to predicting how each type of activity, the scale of each activity, and spatial distribution of each activity will directly and indirectly effect NWIPSOC limit the ability of land managers to predict absolute outcomes. Direct effects to NWIPSOC amenable to disturbance or increases in light availability may include invasion or spread within the stand if changes to physical and environmental barriers are sufficient for a particular species, if appropriate dispersal vectors are available, and if there is an adequate seed source. This could occur in all action alternatives and may include resources proposals such as timber harvest, road construction and reconstruction, opening maintenance and other activities involving recreation and wildlife proposals. Indirect effects of NWIPSOC under Alternatives 2, 3, and 4 may include the introduction or spread from equipment containing viable seeds or reproductive fragments. Since there are more partial harvests associated with Alternative 4 there is more potential, if a particular NWIPSOC species is present or introduced to the stand that is shade tolerant, that the species may be more successful at invasion or spread if its other barriers have been overcome.

Alternative 2 has the potential for the greatest use of herbicide (2376 acres). Alternative 3 proposes 2113 acres, and Alternative 4 proposes 2086 acres. Direct effects of NWIPSOC under Alternatives 2, 3, and 4, include the direct mortality of these undesirable species.

Direct effects to NWIPSOC under Alternatives 2 and 3 may include changes in growth or reproductive capability for species amenable to having increased levels of nitrogen and/or phosphorus due to fertilizer application. Alternative 4 has no proposed fertilization therefore there will be no effects.

For road activities, direct effects to NWIPSOC under Alternatives 2, 3, and 4 include the creation of open-canopy, berm areas where shade intolerant species may become established if changes to physical and environmental barriers are sufficient for a particular species, if appropriate dispersal vectors are available, and if there is an adequate seed source. The areas of disturbance will be seeded. Establishing desired vegetation quickly will aid in reducing the potential for NWIPSOC to become established. Since Alternative 3 has no new road construction the effects will be less.

Since sites proposed for most resource treatments tend to occur in densely forested stands, which are not conducive to the establishment of most of the NWIPSOC species of concern, anticipated effects are not expected to differ significantly from those described under direct and indirect effects and there are no

significant cumulative effects related to the introduction or spread of noxious or invasive plant species anticipated under any alternative. With the implementation of the prescribed mitigations there are no significant direct, indirect, or cumulative effects to NWIPSOC resulting from the proposals under any alternatives.

Wildlife

Alternative 1

This alternative provides the greatest amount of habitat for mature forest wildlife species. There are no new silvicultural harvests proposed in this alternative. The development of seedling habitat would occur following completion of activities approved in previous project decisions and in areas where seedlings develop following natural disturbance. As a result, habitat for early-successional species, as well as mature forest species that utilize a seedling component, would be reduced under this alternative. However this alternative would favor interior forest wildlife species that utilize more mature forest habitat. Approximately 79% of the federal land in the SCPA will be in the 51+ year old age class.

There are no wildlife habitat improvement activities under this alternative, so wildlife species that benefit from tree and shrub planting, wildlife structure placement, and the remainder of the wildlife treatments proposed in the action alternatives will not benefit from the increased habitat food, cover and diversity that would result from these treatments. Reducing selective browsing by deer and associated impacts to understory vegetation is critical in meeting wildlife and diversity related objectives within the SCPA. Under Alternative 1, deer carrying capacity would be reduced to its lowest level in 30 years. As a result, recent gains in understory diversity in portions of the SCPA would be lost. Additionally, since deer numbers are expected to exceed carrying capacity under this alternative, resulting over-browsing will result in greater impacts to forest resources (seedling regeneration, shrubs, herbaceous plants, and songbirds).

Alternative 2

Alternative 2 strives to meet Forest Plan wildlife objectives by using a combination of wildlife habitat improvement work, understory treatments, and primarily even-aged timber harvest to provide the desired mix of forested and non-forested habitat conditions. This Alternative proposes the most regeneration harvest of any of the action alternatives and creates the greatest amount of early successional habitat (approximately 8% in the 0-10 age class by 2013). It also reduces the amount of maturing forest cover type of any alternative, however in 2013 after all Spring Creek proposals are accomplished there will still be approximately 73% of the federal land in the SCPA in a maturing age class (51+ years old).

Although this alternative would result in the greatest reduction in habitat for species that prefer mature forest conditions, due to the variety of habitat conditions provided, Alternatives 2 would maintain or improve present levels of wildlife habitat diversity. See vegetation section above for summary on anticipated effects of deer browsing for all the action alternatives.

Like all the action alternatives (Alt. 2-4), there are proposals to improve wildlife and aquatic habitat in this alternative. These proposals range from tree and shrub planting to providing aquatic in-stream structure to wildlife species structure placement. All activities will provide food and cover as well as enhance habitat diversity in both a terrestrial and aquatic environment. More detail on the effects of these treatments is located in the wildlife section in chapter 3.

New road construction (6.6 miles) within the SCPA and final harvest treatments in the maturing forest canopy core area and linking corridors in the watershed would have more effects to those areas based on the fragmentation analysis than Alternative 1, 3, and 4. See description of Alternative 3 below.

Alternative 3

Alternative 3 strives to meet Forest Plan wildlife objectives by using similar combination of treatments as Alternative 2. This alternative has two distinct differences than Alternative 2. A fragmentation model was utilized to analyze and place individual values on silvicultural final harvest treatments in Alternative 2, giving it a value on how it effects a mature forest canopy core area and linking corridors. Treatments were dropped or changed, resulting in an alternative that would reduce the effects of fragmentation to the mature canopy core areas and their connectivity within the watershed. Also, no new road construction would occur in this alternative.

Alternative 3 emphasizes the need to maintain core areas of continuous forest cover and has slightly less acres of harvest proposed and no new road construction. Alternative 3 proposes 278 fewer acres of regeneration harvest and a net reduction of 40 acres of intermediate thinning. Mature canopy core areas and corridors would remain relatively intact in this Alternative and fragmentation effects from new road construction would be less then Alternatives 2 and 4.

The effects of improving wildlife and aquatic habitat as result of the wildlife habitat improvement proposals are the same for this alternative as they are in Alternatives 2 and 4.

Alternative 4

Alternative 4 strives to meet Forest Plan wildlife objectives by using a combination of wildlife habitat improvement work and uneven-aged management to provide desired wildlife habitat conditions. This alternative favors habitat conditions for mature/late-successional species, as well as many mature-forest species that also utilize a small seedling component. Like Alternative 1, approximately 79% of the federal land in the SCPA will be in the 51+ age class. Approximately 1888 acres of selection harvests will occur with emphasis on establishing pockets of shade-tolerant tree seedlings in the SCPA under this alternative. The exclusive use of uneven-aged management is not expected to result in establishment of the dense seedling regeneration preferred by many early-successional species.

Like Alternative 1, seedling regeneration and deer foraging availability would be reduced to the lowest level in 30 years under this alternative. This reduction in carrying capacity would result in increased browsing on sites receiving an uneven-aged treatment, making the likelihood of success of these treatments uncertain (Stout in Marquis et al. 1994a, p. 334). The reduction in carrying capacity and resulting over-browsing by deer is also expected to result in greater impacts to forest resources (seedling regeneration, shrubs, herbaceous plants, and songbirds).

The effects of improving wildlife and aquatic habitat as a result of the wildlife habitat improvement proposals are same for this alternative as they are in Alternatives 2 and 3.

New road construction (4.0 miles) in this alternative would be less than Alternative 2. Effects to mature canopy core areas would be similar to Alternative 2, but slightly less, in regards to road activities.

Aquatics

Alternative 1

Under Alternative 1, no vegetation treatments will occur as a result of the Spring Creek decision, therefore no anticipated effects to aquatics would occur as result of vegetation management. Ongoing road maintenance will continue to improve stream and aquatic environment. Because many road activities proposed near streams in the action alternatives will not occur, such as reconstruction, limestone application, and road decommission, the aquatic environment will not realize these benefits. All of the soil and water related activities will not occur in this alternative, therefore sedimentation in these areas will continue to negatively affect the aquatic environment.

Alternatives 2 – 4

Under Alternatives 2 – 4, all vegetation treatments in association with or adjacent to riparian and aquatic environments will be required to follow several standards and guidelines in the 2500 and 2600 sections of the Forest Plan, to prevent or minimize effects. Road activities proposed in all the action alternatives, such as road decommission and limestoning are expected to benefit the aquatic environment near where roads are in close proximity to streams by reducing sediment loads and improving water quality. Some OGM roads, however, will continue to be a source of sedimentation due to their location and road surfacing. If a concern exists regarding private oil and gas roads on the National Forest system lands, the Forest works with oil and gas operators to identify opportunities for improvements to these private roads. Soil and water proposals will have relatively the same effect to aquatic habitat for all alternatives. These activities will benefit aquatic habitat through reducing sedimentation, stabilizing stream banks with plantings, providing instream structure, dispersed campsite rehabilitation, and stabilizing trail and stream crossings.

Social Environment

Heritage Resources

Alternative 1

Under Alternative 1 there are no new proposals as a result of the Spring Creek project, therefore there will be no effects to heritage sites. However, some sites will continue to be at risk due to a variety of recreation activities (camping, hiking, horse use etc...), access issues, and vandalism that may occur. A portion of an old RR grade will continue to erode by stream hydrologic action.

Alternatives 2 – 4

Heritage Surveys were undertaken in the SCPA to determine if heritage resources would be adversely affected by the proposed activities. All heritage sites will be protected by avoidance, buffer zones, or other site-specific mitigations in all alternatives.

Scenic Resources

Alternative 1

This alternative would introduce the least amount of landscape change to the Spring Creek watershed. There will be no change to the existing landscape condition if Alternative 1 is chosen. Two areas within the watershed, Sackett oilfield, and Owls Nest, do not meet Forest Plan visual quality objectives (VQO) due the intensive oil and gas development and to a lesser degree forest management. The area around the

Timberline Trailhead and SR 948 does not meet Forest Plan VQO due to the July 21, 2003 storm damage.

Alternative 2

This alternative would introduce the most amount of landscape change to the Spring Creek watershed. All Spring Creek proposals meet Forest Plan VQO. A few of the harvest proposals along State Route 66 were modified in order to meet VQO. Between Watson Branch and the Marienville ATV Trailhead along State Route 66, the roadside will be selectively thinned to enhance the roadside view into the forest.

Alternative 3

This alternative would introduce the second most amount of landscape change to the Spring Creek watershed. All Spring Creek proposals meet Forest Plan VQO. A few of the harvest proposals along State Route 66 were modified in order to meet VQO. The scenic enhancement along State Route 66 would not occur.

Alternative 4

This alternative would introduce the third most amount of landscape change to the Spring Creek watershed. All Spring Creek proposals meet Forest Plan VQO. Uneven-aged harvest treatments introduce less visual change than even-aged regeneration harvest treatments because they remove fewer mature trees. Between Watson Branch and the Marienville ATV Trailhead along State Route 66, the roadside will be selectively thinned to enhance the roadside view into the forest.

Recreation

Alternative 1

There would be no change in current recreation opportunities available and there would be no change in the recreation setting as described by the Recreation Opportunity Spectrum (ROS) system. Visitor impacts may increase because no action would be taken to mitigate the resource impacts from unmanaged recreation use. Demand for dispersed camping and camping at ATV trailheads will remain high which will cause some users to seek other less crowded areas that may not be suited to recreation use. There will be no change from the current policy for horse use, and horse riders will be free to ride where they please. The user-created horse trails will not be managed and no action will be taken to close or rehabilitate horse trails on steep slopes, wet soils, and stream crossings. The illegal ATV routes will continue to worsen and will not be rehabilitated. Law enforcement will continue to be used to control ATV use off trails. Regular trail maintenance will continue at the ATV trail and snowmobile routes as funding allows. Unroaded areas will not be diminished by the Spring Creek project. Road access will remain the same.

Alternatives 2 and 4

In the Roaded Natural and Semi-Primitive Motorized ROS classes, the proposed actions would not change the recreation setting except for Visitor Impacts, which would move from Inconsistent to Meets. Proposals, such as the Timberline Trailhead campground, designation of horse trails, and the rehabilitation of dispersed campsites, seek to manage resource impacts from recreation use. Shifting these activities from an unmanaged environment to a site that is designed and managed for recreation use will reduce visitor impacts.

A proposal to construct a low development campground at the main ATV Timberline Trailhead will address the high demand for campsites with direct access to ATV trails. The Pigs Ear Trailhead and vicinity will be closed to camping to reduce impacts to wetlands and historic sites, and to provide more parking capacity for day use. To address the demand for dispersed campsites in the watershed and reduce impacts to soil and water resources, nine campsites will be constructed and another nine will be rehabilitated. A 42-mile designated horse trail system will be constructed to reduce soil erosion and water quality impacts. The trail system includes two trailheads, which will include improved parking areas, bulletin boards and restrooms. One of the trailheads will be open to camping, the other is limited to day use in order to protect rattlesnake habitat. Restricting horse use to designated trails and roads within a zone around the trail system, and designating a use season will further protect sensitive soils. Efforts to block and rehabilitate illegal ATV routes and old horse trails will be undertaken to reduce soil erosion. Approximately 0.08 miles of Snowmobile Connector #12 will be realigned in order to protect a riparian zone.

In Alternative 2, unroaded areas SC 1 (McCray Run area), 2 (Hunter Creek area) and 4 (Gilfoyle Run area) are diminished by new road construction. SC 1 and 2 are diminished by a small amount on the periphery of the area, but the core area is still sufficient size to provide unroaded recreation opportunities. The current unroaded recreation value of SC 4 is marginal because of its size and configuration, and the area will be diminished by 16% in Alternative 2 because of road construction. In Alterative 4, unroaded areas SC 1 and 4 are diminished by new road construction. The effect to SC 1 is the same as Alternative 2, and SC 4 is diminished by 5%.

Harvest and road activities border recreation sites and trails. Mitigation measures, such as restricting harvest and road activity seasons when recreation use is at its peak, have been prescribed to protect recreation opportunities. Some recreationists will be displaced or disturbed by harvest and road activities, but there will not be any permanent or long-term damage to recreation opportunities and facilities in the Spring Creek watershed. Alternative 2 has the most harvest activity adjacent to trails (16.6 miles within harvest units), with snowmobile trails being the most affected. Alternative 4 has the least amount of harvest along trails (13.3 miles within harvest units), with snowmobile trails being the most affected. Harvest activities will occur next to the Timberline Trailhead. Mitigation measures have been prescribed to reduce impacts to recreations and to reduce damage to the recreation facilities. Some roads that serve as ATV and snowmobile trails will be used to haul stone for roads and to remove harvested trees. Hauling on these roads will not be permitted during peak snowmobile and ATV use periods. None of the ATV and snowmobile roads will be reconstructed, nor will any trail be converted to new roads. Alternative 2 has the highest degree of change in terms of vegetation, but mature forest conditions are expected to be present on over 68% of the area in 2023. In Alternative 4 with an emphasis on un-even age management, mature forest conditions are expected to be present on over 74% of the area in 2023. Experience has shown that recreationists generally move to another location if timber harvesting affects a primary recreation activity. As a result, recreation use is not expected to be significantly affected. Additionally, although all activities would have a slight effect on the amount and quality of recreation opportunities within the SCPA, the effects would not be great enough to change the compatibility of the area with any of the ROS indicators.

Alternative 3

This alternative offers a low recreation investment option. New facilities, such as the Timberline Trailhead Campground, horse trail system, and dispersed campsites, are not proposed. Proposals focus on repairing resource impacts from recreation use, such as closing areas to camping and horse use, rehabilitating dispersed campsites, realignment of Snowmobile Connector #12, and blocking and rehabilitating illegal ATV routes. This alternative focuses recreation management on law enforcement

and education rather than providing appropriately engineered facilities to accommodate recreation use. Impacts to soil and water resources from recreation use are likely to continue under this approach.

In Alternative 3, unroaded area SC 4 is increased through the decommissioning of a spur of FR 226. The other unroaded areas are not affected.

Harvest and road activities border recreation sites and trails. The effects to recreation from these activities are similar to Alternatives 2 and 4 with a few exceptions. Alterative 3 has the second most harvest activity adjacent to trails (16.6 miles within harvest units), with snowmobile trails being the most affected. In Alternative 3, mature forest conditions are expected to be present on over 70% of the area in 2023.

Economics

Alternative 1

Since no resource management proposals would be implemented under this alternative, there would be no implementation costs other than the normal custodial/stewardship costs associated with managing National Forest System Lands. Also, included in this cost is the planning effort involved for the Spring Creek Project EIS. There would be no income generated into the Federal Treasury, which would result in a negative net cash flow. Additionally, due to shading, over-crowded stand conditions and a shift from higher-value shade intolerant species, to lower-value shade tolerant species (including beech, which due to beech bark disease could lead to low-stocked stands), economic value of forested stands would be reduced under this alternative over the long-term. For these reasons, the Forest Plan MA 3.0 and 1.0 goals of providing a sustained yield of high quality sawtimber and a high quality of wood fiber respectively would not be met, and potential future economic benefits would be reduced under this alternative. There will be lower economic benefits to local economies and no income to the Federal Treasury as a result of this project in this alternative.

Alternatives 2 and 3

Improvements in the quality and size of timber are expected within proposed thinning and salvage treatments. Proposed timber management would improve the quality and size of preferred timber species and foster the establishment of high valued shade-intolerant and valuable shade mid-tolerant species, thus providing for a sustained yield of high quality hardwoods in the long term. As a result, implementation of these alternatives would result in an economic benefit both in the short and long term.

These alternatives would provide a substantially greater economic benefit than Alternatives 1 and 4, with Alternative 3 resulting in a net cash flow of $9,390,615 and Alternative 2 having the highest net cash flow of $11,035,681, as a result of the silvicultural treatments and associated activities only. Alternatives 2 and 3 would have additional costs associated with other resource proposals (wildlife, recreation, soil, and water) in the amount of $1,142,514 and $766,411 respectively.

Alternative 4

Like Alternatives 2 and 3, timber harvest proposed under this alternative would provide an economic benefit. However shade tolerant species featured under this alternative have lower economic value, are slower growing and are threatened by insect and disease impacts, which will lead to lower stocking and lower economic returns, both in the short and long term. In addition, reforestation costs and road activities associated with the implementation of uneven age management over the short and long term, results in higher implementation costs (more frequent entries and higher regeneration costs) and results

in reduced economic return. As a result, implementation of this alternative would result in a negative net cash flow of -$3,070,659 and fewer economic benefits to local economies and the Federal Treasury. Additional costs associated with other resource proposals are the same as Alternative 2 noted above.

Human Health and Safety

Alternative 1

Since no treatments are proposed under this alternative, human health and safety would not be affected by proposals, however the risk associated with everyday working and recreating in an outdoor environment remains. Because of the severe storm event on July 21, 2003, there is an increased risk in areas affected by partially windthrown trees

Alternative 2 - 4

Humans use most of the forested areas covered in this analysis. Most of that use is scattered, intermittent, and generally of short duration. The risk of falling (live and dead) trees to human safety always exists in a forested setting. The risk to the public from actual harvest activity proposed is considered to be low in all of the action alternatives. The cumulative effect of salvage harvesting conducted in response to periodic occurrences of tree mortality/decline or storm damage is a decrease in the risk of someone being hit by a falling tree in the general forest area.

These three action alternatives propose the use of timber harvest and herbicide application to develop seedling regeneration in selected areas. Herbicide application proposed ranges from 2086 acres in Alternative 4, to 2376 acres in Alternative 2. No impacts are expected to water quality for domestic or public water supplies within or outside the SCPA, or near sites proposed for herbicide treatment. Herbicides have been used in the SCPA since 1987. No adverse effects on human health or safety have been noted. Mitigation measures listed in Appendix D in the FEIS, including; site specific mitigation measures, public signing, notification of treatment times and locations, and providing treatment buffers adjacent to private land and water sources, plus additional measures outlined in the Understory Vegetation Management EIS (USDA-FS 1991a, pp. 5-1 - 5-4, D-1 – D-12), help ensure that potential effects on human health and safety will be minimal.

Pits will be developed or expanded in all Alternatives 2-4. A pit plan will be developed that will include the restoration of pits when depleted to eliminate, as much as possible, uneven rocky surfaces and to recontour any high walls left from excavation in order to reduce the potential for slipping or falling.

A prescribed burn will be implemented under Alternatives 2-4 to encourage the growth of warm season grasses for wildlife species. A “burn plan” will be developed to include all necessary precautions for both workers and members of the public regarding safety and the burn objectives.

PREFERRED ALTERNATIVE

The Forest Service has identified Alternative 3 as the preferred alternative (vegetation, transportation, wildlife, soil, and water treatment proposals), but the responsible official also stated that he would implement the recreation proposals that were part of Alternative 2. These recreation activities would include all of the recreation proposals in Alternative 2. Some of the major recreation activities include constructing and designating a horse trail, constructing a low development ATV campground, and providing new dispersed camping sites.