

APPENDIX F

RESPONSE TO PUBLIC COMMENTS

To the Draft Environmental Impact Statement for the **GREENDALE PROJECT** Issued March 2003

A total of 79 copies of the Draft Environmental Impact Statement for the Greendale Project were mailed to interested and potentially affected individuals and organization for a 45-day public comment period in. Sixty-seven timely responses were received. A list of commenters follows. All timely responses received were reviewed to identify concerns, issues, alternatives and overall comments. One late comment letter was received and was filed behind the timely letters. It was similar to 32 other comment letters, so the response to it was the same. A second late letter that was sent to consolidate previous responses was also filed behind the timely letters.

Each letter was given a numerical code from 1 through 68 (there is no #14 comment letter). These codes are noted next to the commenter on the list of commenters. Within each letter, those comments that are responded to below have also been numbered (labeled). For example, comment label 3-14 would represent the fourteenth comment in letter 3. That comment, portions of or in its entirety, would be labeled in that letter as “3-14”. Copies of all letters submitted follow the response to comments.

Because of the verbosity of some of the comments, summaries and paraphrases of the comments and issues have been made using, whenever feasible, the respondent’s own words. Comments (in bold type) are listed (grouped) by the topic that best represents the comment made or issue raised. Each topic may have a number of comments associated with it. These are listed numerically beneath each topic. A response to each numbered comment then follows in non-bold type. Please cross-reference the label found at the end of each comment (bold type) with the actual comment letters included in this appendix to track a comment in the respondent’s own words.

List of Commenters

The following is a list of those individuals and organizations that provided timely comments during the 45-day public comment period, April 4 through May 19, 2003, for the Greendale Project. The list is divided into three groups: (1) those who generally support the project, (2) those who generally do not support the project and have raised issues and concerns in that regard, and (3) those who seem to show neither support or non-support and have raised questions or concerns of a technical nature.

A total of 67 timely responses were received. Thirteen showed support for the project. Fifty-two showed non-support of the project including 41 who submitted an e-mail form letter (noted with an asterisk). Two comments were received that neither supported nor disapproved of the project.

INDIVIDUALS AND/OR ORGANIZATIONS EXPRESSING SUPPORT:	LETTER CODE
Bradford Ameden, Weston Board of Selectmen.....	1
Norm Arseneault, Balsam Meadows.....	2
Donald Bartsch, Weston Planning Commission.....	3
Doug Blodgett, VT ANR	4
Lenore F. Budd, Catamount Trail Association	5
William Driscoll, Associated Industries of Vermont.....	6
Ken Gagnon, Gagnon Lumber Inc.....	7
Paul F. Karczmarczyk, The Ruffed Grouse Society.....	8
Leo Laferriere.....	9
Ed Larson, Vermont Forest Products Association.....	10
Jay Maciejowski, VT ANR, Department of Forests, Parks & Recreation...	11
Brother Placid, Weston Priory.....	12
Stanley A. Seward.....	13

INDIVIDUALS AND/OR ORGANIZATIONS EXPRESSING NON-SUPPORT:	LETTER CODE
Bruce Acciavatti.....	16*
Brian Alexander.....	17*
Richard Andrews.....	18*
Charles Frederic Andros.....	19*
Jason Baker.....	20*
Melanie J. Barsamian.....	21*
Eileen Brady-Whitney.....	22*
Erin Brannen (incl.mass e-mailing instruct. for Forest Watch comments)...	23*
Tim Budell.....	24
Kate Burnim.....	25*
Jason Buss.....	26*
Chris (H.L.) Chrissos.....	27*
Gloria Clark.....	28*
Elizabeth Cooper.....	29*

Jad Daley.....	30
Chris Demers.....	31*
Mark Donner.....	32*
Wally Elton.....	33
Jillian Farwell.....	34*
Susanne Fogt.....	35*
Missy Foote.....	36*
Alan Furchtenicht.....	37*
Josie B. Hamilton.....	38*
Laura Herndon.....	39*
Doug Hoffman.....	40*
Steven Kelton.....	41*
Mark Koplik.....	42*
Marc Lapin.....	43
Elizabeth Laumesiter.....	44*
David Leland.....	45*
Douglas MacDonald.....	46*
Joseph Mandell.....	47*
Patrick May.....	48*
Thomas P. McKenna.....	49*
Kathryn Meyer.....	50
Cyndi Miller.....	51*
Tom Mitchell.....	52
James M. Northup, Forest Watch.....	53
Diana Parker.....	54
Kim Peterson.....	55*
Mick Petrie.....	56
Dale Ramsey.....	57*
Martha Rose.....	58
Seth Schofield.....	59*
Eric Seyferth.....	60*
Todd Smith.....	61*
Pamela Starr.....	62*
Michael Trunzo.....	63*
Rob Viglas.....	64*
George Wuerthner, Restore the North Woods.....	65
Chris Zeoli.....	66*
Paul Swanke (late).....	67*

INDIVIDUALS AND/OR ORGANIZATIONS	LETTER
EXPRESSING NEITHER SUPPORT NOR NON-SUPPORT:	CODE
Robert W. Varney, U.S. EPA.....	68
Kenneth C. Carr, U.S.D.I Fish and Wildlife Service.....	15

List of Topics

A. In Support of Alternative IV

Letters 1-1, 2-1, 3-1, 6-1, 7-1, 8-1, 10-1, 11-1, 12-1, 13-1.

B. Role of Private vs Public Land

Letters 16-1 – 23-1, 25-1 – 29-1, 31-1, 32-1, 34-1 – 42-1, 44-1 – 49-1, 51-1, 53-1, 55-1, 57-1, 59-1 – 64-1, 66-1, 67-1, 30-2, 65-7.

C. Natural Disturbance Dynamics

Letters 4-6, 43-1, 53-12, 53-13, 65-11.

D. Preference for Alternative II / Patch Size Modification

Letters 4-4, 16-2 – 23-2, 25-2 – 29-2, 31-2, 32-2, 34-2 – 42-2, 43-2, 44-2 – 49-2, 51-2, 52-1, 53-2, 55-2, 56-1, 56-2, 57-2, 59-2 – 64-2, 66-2, 67-2 .

E. Fragmentation

Letters 30-1, 33-1.

F. Old Growth

Letters 16-3 – 23-3, 24-1, 25-3 – 29-3, 31-3, 32-3, 34-3 – 42-3, 44-3 – 49-3, 51-3, 53-3, 55-3, 57-3, 59-3 – 64-3, 65-9, 65-10, 66-3, 67-3 .

G. Stream Habitat Improvement

Letters 13-2, 53-7, 53-8, 53-9.

H. Age-Class Objective / Early Successional / Neo-Tropical Migrants

Letters 8-4, 53-10, 53-11, 53-18, 53-20, 53-21, 53-22, 58-1, 65-8, 65-16, 65-17.

I. Commercial Harvesting

Letters 58-2, 53-16, 65-4.

J. Perception of Bias

Letters 2-2, 53-14, 53-17, 53-24, 65-1, 65-3, 65-5, 65-12, 65-13, 65-14, 65-18, 65-19, 65-20.

K. Wildlife Habitat / Beech Trees

Letters 4-1, 4-2, 8-3, 8-5, 8-6, 8-7, 53-15, 56-3, 65-2.

L. Impacts on Understory Plants

Letters 4-3, 53-19, 65-15.

M. Economic and Social Accounting of Impacts

Letters 2-3, 53-31, 53-32, 53-33, 53-34, 53-35, 53-36, 53-37, 68-7.

N. Soil and Water / Wetlands

Letters 9-2, 56-5, 56-8, 68-1, 68-3, 68-4, 68-5, 68-6.

O. Recreational Impacts

Letters 4-5, 5-1, 5-2, 5-3, 5-4, 5-5, 11-2.

P. Miscellaneous Topics

P1. Clearcutting/Extensive Logging; Relationship to Economic Impacts

Letter 27-1.

P2. Comments on Restoration Alternatives

Letter 53-4.

P3. Range of Alternatives

Letters 53-5.

P4. Significant Streams

Letter 53-6.

P5. Management Indicator Species

Letters 53-25, 53-26, 53-27, 53-28, 53-29, 53-30.

P6. Biodiversity

Letters 4-7, 65-6.

P7. General Miscellaneous

Letters 9-1, 10-1, 53-38, 54-1, 56-4, 56-6, 56-7, 68-2, 15-1.

RESPONSE TO PUBLIC COMMENTS

As noted, public comments are grouped below by topic. Comments have been summarized and paraphrased for brevity, while still using as many of the commenters' own words as possible. Each topic and the associated comments follow below and are in bold. The Forest Service response is in non-bold type. The numerical labels (e.g. 3-14) at the end of each bold-type comment reference back to the actual comment letters included in this appendix following this Response to Public Comments section.

A. In Support of Alternative IV

- A1. The Weston Board of Selectmen has reviewed the Greendale Project Draft Environmental Impact Statement distributed by your office. As you may recall from past input from town officials, Weston generally favors active management of the forest resource, with balanced management of wildlife habitat and prudent management and harvesting of timber as a sustainable resource. Our opinion in that regard has not changed. We recognize the Proposed Action of the DEIS as consistent with our wishes. We think that you have generated a very well thought out plan and you have our best wishes in its implementation. (1-1)**
- A2. I am in total support of your preferred alternative, Alternative IV Modified Proposed Action. This will be a significant and positive step forward to manage the resources of the GMNF in a balanced, multiple-use manner. (2-1)**
- A3. The Weston Planning Commission has reviewed the Greendale Project Draft Environmental Impact Statement distributed by your office. As you may recall from past input from town officials, Weston generally favors active management of the forest resource, with balanced management of wildlife habitat and prudent management and harvesting of timber as a sustainable resource. Our opinion in that regard has not changed. We believe that the Proposed Action of the DEIS appears to be consistent with Weston's goal of balanced active management of forest resources. (3-1)**
- A4. AIV strongly supports Alternative IV, Modified Proposed Action, as outlined in the Draft Environmental Impact Statement for the Greendale Project. Indeed, AIV believes that this is the minimum step that should be taken to further the sound and responsible management of the Green Mountain National Forest, and commends the Forest Service for its hard work in preparing for such an initiative. As indicated, in the Monitoring and Evaluation Report for 2000, timber management of the GMNF is already far behind schedule in every category if the long term goals already established for the forest are to be achieved. It is quite clear that the Forest Service has made every effort to identify and address any negative impacts from Alternative IV, and that no reasonable objections could now be raised against moving**

forward. As an association representing many sectors of the forest products industry, AIV is keenly aware not only of the importance of forestry to the Vermont economy, but also of the importance of active forest management in the GMNF to a viable forestry industry in Vermont. As a founding member organization of the Vermont Traditions Coalition, AIV is also keenly aware of the importance of multiple use management in creating and protecting recreational and sporting opportunities in the GMNF. A thriving forest ecology underlies and supports each of these activities, and can in turn be supported by them. All of these goals will benefit from proceeding with Alternative IV; (6-1)

- A5. I wish to register my support for Alternative IV Modified Proposed Action. This will improve the timber stands, improve wildlife habitat, and provide much needed timber for Vt's wood products industry, plus provide income (7-1)**
- A6. An extensive base of recent, peer-reviewed, scientific literature (notably the Wildlife Society Bulletin (WSB)¹ on early successional habitat issues) by prominent wildlife scientists highlights the specific need for creation and restoration of early-successional, seedling-sapling forest and shrub-dominated habitats in order to arrest precipitous declines of numerous vertebrate species throughout the region. The GMNF has used the findings of this literature to outline a Proposed Action which is both scientifically valid and defensible, and which makes quality management of wildlife and forest resources a thoughtful priority rather than merely a compromised byproduct of human-centric resource management objectives driven by often uninformed public opinion. (8-1)**
- A7. Hunting recreation, along with wildlife observation and berry picking, are priority dispersed recreational activities on the GMNF². Managed forest venues, particularly young hardwood forest stands under even-age management, provide the primary infrastructure for these activities (much like managed trails and campsites do for hikers and skiers). The Proposed Action, using sound stewardship of forest and wildlife resources as an operational baseline, will consequently also help meet the need for the "managed forest infrastructure" necessary to support these prominent recreational activities. (8-2)**
- A8. Alternative IV offers more value to the forest service, Vermont's economy and the needs of the land for vegetative management. (10-2)**
- A9. The Vermont Department of Forests, Parks and Recreation supports the Modified Proposed Action (alternative IV) outlined within the Draft Environmental Impact Statement prepared for the Greendale Project**

Management Area. I have concluded that the Modified Proposed Action will have a positive impact in moving towards the vegetative composition and wildlife habitat improvement goals that were set when the Green Mountain National Forest Plan was originally approved in 1987. After reviewing the alternatives for implementation of the Proposed Action, I support Alternative IV for reasons detailed below:

1) The timber sales scheduled under Alternative IV are located in areas previously determined by the Forest Service to be suitable for active vegetation management. The type and amount of harvesting appears to have been carefully scrutinized to be responsive to the silvicultural needs of individual timber stands while being more sensitive to visual quality concerns expressed by the public.

2) Although there will be an impact to wildlife during the times when the logging occurs, the long term benefits to maintaining a variety of habitats for wildlife within this region far outweigh any short term negative impacts created during the logging operations.

3) The treatments planned under Alternative IV should increase the amount of early successional forest stands within (0-9 year age class) which appear to be almost non-existent within the project area. Creating a variety of age classes (especially in aspen stands) will be beneficial to grouse and other species which depend upon this type of forest habitat.

4) The additional acreage scheduled for apple tree release will benefit numerous wildlife species in the region by providing a much needed fall food source. If these trees are not released soon they will probably disappear from the landscape.

5) The logging activity outlined under Alternative IV will undoubtedly impact both summer and winter recreational trail use while it is occurring. However, site specific mitigation measures detailed in the DEIS should help to minimize short term impacts. (11-1)

A10. We find the proposal (iv) to be a very balanced and sensitive response to the care needed in the Greendale area. The proposal is a very thoughtful approach which we believe will accomplish the goals of care for the forest and wildlife in the Greendale Area in Weston. We also find the proposal to be sensitive to the particular concerns of the Weston Priory. (12-1)

A11. I am appreciative of the amount of work and study that you have devoted to this project. I feel you have covered all aspects of this plan in a thorough manner.

I strongly support your ideas for the restoration of the apple trees. I have watched these trees die over the years and thought that it was a shame to deprive the deer, bear, and rabbits of this food. The support of wild life is long overdue.

I think the aspen regeneration is ideal and I strongly support the plans for selective cutting and of small, clear cutting areas. Regardless of what some people say, organized cuttings work. They are needed for the revival of available foods for wildlife replacement.

I would like to comment, that from the 1940's through the 1970's, there were plenty of game animals, such as deer, bear, and rabbits throughout this area. However, starting in the 1980's, when the harvesting of the timber ceased, the area began to die. Game animals became scarce, and the moose and the coyote population increased. The reason for this decrease in game animals was due to the lack of food. There were some years from the 1990's on, when I never saw a deer, a bear track, or hardly any rabbits. So, for these reasons, I strongly support your plans to bring this area back to life. (13-1)

The above supporting comments are noted. We believe that Alternative IV best meets the purpose and need of the Greendale Project, and works toward accomplishing Forest Plan goals and objectives while keeping environmental effects well within acceptable limits.

B. Role of Private vs. Public Land

B1. Commercial timber production is not the highest and best use of the public lands. The Forest Service should focus on providing those things such as wilderness protection, biodiversity conservation, restoration of ecological processes, and remote, backcountry recreation that private lands cannot provide. (16-1 – 23-1, 25-1 – 29-1, 31-1, 32-1, 34-1 – 42-1, 44-1 – 49-1, 51-1, 53-1, 55-1, 57-1, 59-1 – 64-1, 66-1, 67-1)

Commercial timber production is one of the allowable uses of the national forest. The GMNF Forest Plan allows for timber harvesting to move the forest toward its desired future condition and to provide other additional benefits such as wildlife habitat and wood products. Page 4.03 of the Forest Plan talks about the role of the GMNF in providing backcountry recreation, wilderness, scenery, wildlife and fish, productive soils, clean water, vegetative diversity, viable populations of wildlife species, and research. It also talks about the Forest's role in timber management on the "more productive and accessible lands". Page 4.08 lists all the goals for vegetation management. Each management area describes how timber management may be used to move toward a desired future condition. Commercial management of timber also helps address conservation of biodiversity. As a tool, commercial timber management provides a cost effective option for the construction of habitat communities important to many of GMNF's life forms (Forest Plan p. 4.59).

B2. As per the direction of the GMNF LRMP, the GMNF should be used to provide those values and resources "that private lands cannot." In this part of Vermont, that means unfragmented interior forest that is suitable for wildlife and non-motorized recreation. (30-2)

Interior forest land and non-motorized recreation opportunities are ‘products’ of the management of the GMNF. The Management Areas (MAs), as defined in the Forest Plan, dictate what activities may occur on national forest lands and what the results might be, including maintaining or enhancing unfragmented blocks of interior forest and non-motorized recreation (Forest Plan, p.4.92). Large blocks of land in remote areas do exist (Forest Plan, p.4.92). Management of the Forest also continues to place high emphasis on backcountry recreation opportunities. However, as described in the Forest Plan, other resource values including those produced by the Greendale project, are also provided as products of management activities. See also, the response to comment B1 above.

B3. This timber sale is justified in part by a flawed Forest Plan that failed to take a regional landscape perspective and has implicit value judgments that are not explicitly stated. Basically the plan assumes that the Forest has to maintain a full range of habitats that ignores the regional context of the forest. Instead of looking at what is not being provided on most private lands in the region—that is large continuous tracts of very old forest stands—the agency has decided to provide basically the same kind of mix that is available everywhere else. (65-7)

A larger landscape perspective was looked at when creating the GMNF Forest Plan (Forest Plan p. 4.03). Emphasis on providing benefits that private land doesn’t and on promoting backcountry recreation are examples that the Forest Service did, indeed, consider how the GMNF can and would fit into the regional landscape. The GMNF did consider the desire for large continuous tracks of forestland and that resulted in the creation of the Wilderness areas on the forest and the White Rocks National Recreation Area.

The adequacy of the Forest Plan is beyond the scope of analysis in the Greendale Project. This issue and others similar to it are being looked at during the Plan revision process currently underway.

C. Natural Disturbance Dynamics

C1. Ecological forestry concepts do not appear to be part of the FS management scheme, yet we look to the FS to provide leadership in new demonstration, management techniques such as this. Perhaps some could be incorporated into this proposal. (4-6)

The Forest Plan was responsive to using ecological forestry concepts. The Forest Plan increased the acreage of unevenaged regeneration, extended the average rotation length in MA 6.2 from 120 to 150 years, prescribed the use of delayed shelterwood cutting and

reduced the maximum harvest size from 40 to 30 acres (Forest Plan Record of Decision). A variety of cutting methods are included in the Greendale project, all according to accepted silvicultural techniques. These different methods are analyzed in the range of alternatives. In addition, other ecologically sound and desirable activities such as apple tree release and placement of large woody debris in Jenny Coolidge Brook are proposed.

C2. I urge you to not accept the preferred alternative, #4, which advocates creation of early successional habitat by implementing silvicultural practices that are far from the natural disturbance dynamic in the Green Mountains. (43-1)

Please reference Wildlife Society Bulletin 2001, 29(2): 413-424; an article entitled *Patterns and trends of early successional forests in eastern United States*, by Margaret K. Trani, Robert T. Brooks, Thomas L. Schmidt, Victor A. Rubis, and Christine M. Gabbard (peer reviewed). This paper reports, “In the Northeast, abandoned agricultural land rapidly returns to forest cover. With the cessation of land abandonment and suppression of forest fires, creation of early successional forests originates from timber harvest and occasional severe storms. However, the extent of timber harvest in the Northeast is limited, typically to intermediate silvicultural treatments (i.e., thinning) and uneven-aged regeneration. Neither harvest method results in creating adequate early successional forest habitat” (Trani et al, p.419). Further, it states, “the availability of seedling-sapling timberland in the East reflects the influence of land-use conversion, ownership, and minimal disturbance. Prior to European settlement, wildfires and other natural disturbances enabled maintenance of early successional forests. Selective harvesting, effective fire suppression, and cessation of agricultural abandonment have contributed to the present distribution of young forests. The current distribution of young forests and other shrubland habitats may be below that needed to sustain desired populations of some wildlife and low range of historic conditions. The greatest concerns are in the Northeast and Central Plains” (Trani et al, p.422). Concluding, “providing young forests contributes to the biological diversity of forested landscape. The continued maturation of timberland in eastern forests will contribute to the decline and potential loss of these species.” (Trani et al, p. 423). This concept is discussed at length in the DEIS, pages IV-23 – IV-27.

The need for creating early successional habitat in order to increase species diversity is described on pages I-1 – I-2 of the DEIS. Further explanation may be found on pages I-5 – I-14, and III-13 – III-18, in the description of the proposed activities and the silvicultural practices that would be used to achieve the early successional habitat goals.

C3. Clearcuts, shelterwoods and intensive group selection cuts an acre in size, as proposed for Greendale, have little ecological justification, according to the estimation of natural disturbance intervals and sizes in this region (Seymour et al. 2002). Mitigating actions, such as leaving a few, scattered snags (a.k.a. “wildlife trees”) often are ineffective, or provide benefits only to a few select species. (53-12)

Using the larger size cuts for the group selection harvests was an alternative attempt (Alternative II; DEIS p. III-2) to mimic even-aged harvest methods of shelterwood and clearcutting but on a much reduced size and scale. In other words, instead of having 5 or 10-acre even-aged cuts, or even larger cuts, in order to achieve early successional habitat goals, an alternative was developed to use groups of varying sizes, consistent with Forest Plan direction, as part of an uneven-aged group selection management scheme. However, in order to achieve even minimal success at creating early successional habitat as desired (DEIS, Purpose and Need, p. I-1), these cuts would most likely need to be larger than those usually prescribed for group selection harvests, in particular where the objective is to encourage aspen regeneration. As such, these proposed group cuts, in an attempt to mimic small naturally created openings for early successional habitat, do have ecological justification.

The Forest Plan describes the use of uneven-aged group selection harvest techniques in two key places. Page 4.68 states that the group cuts would “generally” be less than one acre, and describes where these cuts would be used. Appendix A, page A.06, describes the group selection method in detail. The maximum size allowed by the Forest Plan is stated here as “small groups resulting in openings that do not exceed an acre or two in size”. Further down on A.06, it states “When groups are made of a maximum size, often considered to be 2 acres, they resemble small clearcuts”. When considering cuts approaching the maximum size of two acres, “group selection can be used to encourage a higher proportion of species that are intolerant of shade” (P. A.06). This was the basis for proposing the two-acre group sizes for regenerating aspen in Alternative II (DEIS, p. III-2, para. 1).

The generally recommended group size that is used in many situations on the Green Mountain National Forest, and to be applied in most of the group selection units of the Greendale Project proposal (throughout all alternatives as appropriately described), is 1/3 to 1/2 acre. However, the range of sizes would generally go from about 1/4 up to about one acre, with the exception being the two-acre groups proposed for aspen regeneration in Alternative II. It is most important to note that sound silviculture would dictate the size of the group in any situation, and that the size would vary on the ground, and would depend upon the existing habitat and species, the desired regeneration objective, and the amount of light needed to meet that objective when considering how various species compete for sunlight and growing space.

Clarification of the group sizes that would be used in the Greendale Project, as described here, will also be made in the FEIS Errata.

The DEIS also talks about using group openings as small as 1/4 acre (DEIS p. I-9, para. 2; p. I-10, para. 2; p. III-2, para. 1;). Chapter III, in describing the alternatives, many times refers back to the description of the activities of the Proposed Action as being carried forward to a particular alternative(s) (i.e. also being proposed as part of an alternative). Use of 1/4-acre groups would be limited in most cases, to regenerate small clumps of softwoods, and only when it is determined that a small opening of this size would be effective. The main reason for this is to reduce the amount of competition from

nearby hardwoods by keeping the opening small, and thus allow the softwoods a better opportunity to out-compete those hardwoods for light. Although not specifically stated as such in the DEIS, this was the primary intent for the use of the small (1/4-acre or so) group sizes in all of the management areas. This has also been clarified in the errata of the FEIS.

This comment was also referred to Dr. Robert Seymour for clarification. Dr. Seymour's response was that the article cited above "does make the point [that] large even-aged stands were indeed rare, and that the occasional catastrophic disturbance will create them".

By "large", Dr Seymour stated, he meant 20 acres or so, not one acre. Dr. Seymour is saying that large, even-aged stands over 20 acres would have been uncommon, and that even-aged aged stands less than 20 acres would tend to be more common. He said, "It also depends on what you're starting with. It would be hard to support converting old, highly structured northern hardwood stands to early successional habitat; on the other hand, if you're trying to perpetuate aspen, for example, or maintain some white birch in the mix, then what you're proposing is nearly essential".

His "bottom line" was that "if your objective is wildlife management, includ[ing] an early successional component, one could argue that strict natural disturbance emulation (vis-à-vis landscape age structure) is not all that relevant, since one could not reliably count on nature to create such habitat on a regular basis on the scale of the (national) forest." The entire text of Dr. Seymour's response is included in the project file.

Regarding the last sentence of the comment (wildlife trees), Forest Plan guidelines are in place for wildlife reserve trees (Forest Plan p. 4.32), and that it is commonly accepted that leave trees do provide shelter, nesting habitat, and forage sources for a variety of wildlife species from black bear to birds. See also the response to Comment C5.

C4. But logging introduces all kinds of unnatural changes into the forest including compaction of soils, potential introduction of disease and weedy species, changes in stand composition, and creation of trails and pathways that allow easier access by both humans that can disturb wildlife and even alter wildlife populations and dynamics (e.g., hunters, trappers, motorized vehicle users), as well as generalist predators that can affect everything from salamanders to birds.

One of the stated goals in the proposal is move "the current even-aged forest towards the Forest Plan objective of a visually pleasing, healthy, large tree dominated multi-aged forest." The forest ecosystem is currently in the process itself of making this transition, and is doing it without many of the drawbacks associated with commercial logging. [Logging, especially as proposed in the Proposed Action and Alternatives III and IV, is not necessary to produce multi-age, healthy forests with large trees, and in fact, removes or makes less likely the development of the features (enumerated above) that characterize a "large- tree dominated multi-aged forest." (53-13)

The potential impacts to soils, plants, wildlife, and other resources are thoroughly disclosed in Chapter 4 of the DEIS.

The Forest Plan (page 4.69) states that uneven-aged silviculture can be used to improve timber stands by converting the existing even-aged structure to three or more ages. Conversion of even-aged stands such as those found in the Greendale project area's MA 2.1A lands (DEIS, p. I-5, last para.; p. I-6) to uneven-aged stands would improve species composition and age class distribution, enhance tree growth, and create visually pleasing multi-storied, uneven-aged stands (DEIS p. I-6) while also providing wood products for public use (DEIS Purpose and Need, p. I-2).

The "unnatural changes" in the forest resulting from the harvesting would be short-term. The benefits resulting from the activities, such as an increase in species diversity and a variety of age and size classes, are more immediate than would be found if relying on natural occurrences alone, and would tend to provide longer term benefits.

C5. There is also an implicit assumption that logging mimics natural processes. First, most stand rotation cycles are much shorter than natural disturbance regimes for the region (Seymour et al. 2002) Finally, natural disturbance processes like fire, wind throw, ice storms, hurricanes and insect outbreaks leave behind a biological "legacy" of debris and snags that are critical to the future recovery of the forest ecosystem and many forest dwelling species. Even under the best forest management practices, such biological legacy material is removed by timber extraction. Such "costs" are not evaluated in your document either in the biological evaluation or in the economic sections. (65-11)

This comment implies that snags and down woody material is lacking in harvested stands, or is removed during harvesting. To address this concern, we have looked at some Overstory Removal harvests, a recent aspen clearcut and two areas in Vermont where harvesting or forest management has not occurred to compare numbers of snags and down woody material. We specifically looked at conditions in Vermont considering northern hardwood forest types and Vermont climates. We looked at the current condition of these habitat components in projecting the impact of this project on wildlife using those habitat features.

We found the number of snags per acre is similar within areas we looked at and very little large diameter woody debris (greater than 24 inches in diameter) was found at this time. We did not make any determinations of quality in this sampling and only compared numbers or quantity of material to address what impacts the project might have on wildlife using snags, dead trees, and down material. What may not have been completely disclosed is that within the reserve areas, all trees eventually become snags and down woody material. Large numbers of snags and down woody material are present across the GMNF and ample recruits are anticipated to be present in the future.

"Special habitat components" are discussed (DEIS p. IV-38 - IV-40), and in particular the role played by snags and large dead and down trees. The DEIS concluded that our

Mitigation Measures W-1, W-3 and W-4, “combined with the high proportion of unmanaged forest over 60 years old in the project area and in the adjacent White Rocks NRA, would maintain continued suitable habitat for cavity nester and species using snags or down trees at the landscape level into the foreseeable future.” In addition, discussion on pages IV-33 - IV-34 indicates that wildlife populations in managed mature forests are generally the same as found in unmanaged mature forest. Lastly, Appendix C of this DEIS is a Biological Evaluation (BE) of impacts associated with the proposal (and its alternatives) on Threatened, Endangered and Sensitive species. This BE reviews life requirements for these species and assesses how this proposal impacts the species, or the habitat(s) they rely upon. Were debris and snags “critical”, the nature of their importance would be discussed in this evaluation – in short, the supposition that debris and snags are critical cannot be supported by research.

Forest Plan standards and guides assure that snags and den trees will be left in harvested stands. This has been discussed in the DEIS on pages IV-39 through IV-40, and is included as mitigation in Appendix B, W-4, page B-9, and T-1 and T-2 on page B-11.

D. Preference to Alternative II / Patch Size Modification

D1. I still have a concern regarding successful regeneration of softwoods in deer wintering areas, especially using winter logging. Will the FS employ group selection cuts smaller than ¼ acre to favor softwood regen.? (4-4)

The size of the groups to be used is explained in detail in our response to comment C3. For the Proposed Action, and Alternatives III and IV (the Preferred Alternative), group sizes in the MA 4.1 deer wintering areas would be “less than one acre (generally less than 1/4 acre)” (DEIS, p. I-10, III-8, III-14). For Alternative II, the group sizes would be larger, “1 acre vs. 1/4 acre” as explained in the DEIS, page. III-2; larger groups of up to 2 acres are proposed when desiring to regenerate aspen, particularly in MA 2.1.

As explained in response to comment C3, the size of the group would vary on the ground, and would depend upon the existing habitat and species, the desired regeneration objective, and the amount of light needed to meet that objective. Smaller groups of about 1/4 acre would be used when looking to regenerate small clumps of softwoods; the smaller size is intended to minimize competition from on-site hardwoods (see C3).

D2. However, rather than choosing the current preferred alternative (Alternative 4) for the Greendale Project, I urge you to choose Alternative 2. Logging would involve only individual tree selection and group selection, no clearcuts. Please amend your proposal so that no group selection patches are greater than 1/4 acre in size. Openings of this size would more closely emulate the natural canopy gaps that occur in unmanipulated forests in Vermont. (16-2 – 23-2, 25-2 – 29-2, 31-2, 32-2, 34-2 – 42-2, 44-2 – 49-2, 51-2, 53-2, 55-2, 57-2, 59-2 – 64-2, 66-2, 67-2)

D5. Rather than choosing the current preferred alternative (Alternative 4) for the Greendale Project, Forest Watch urges you to choose Alternative I or

Alternative 2 with modifications. If selected, we ask that you amend Alternative 2 so that individual tree selection is substituted for group selection wherever possible, and that cut patches are less than 1/4 acre in size where group selection must be practiced. (53-2)

Comments D2 and D5 are very similar and are being addressed together here. It is IMPORTANT to note that the DEIS has been corrected (FEIS errata) to more fully explain how the sizes of the groups was intended to be used throughout the alternatives. See also responses to comment C3 and D1 above.

In response to this comment, we considered an ‘alternative’ of modifying Alternative II to substitute individual tree selection for group selection wherever possible and limit the size of group selection harvests to less than 1/4 acre. This was not carried forward for detailed analysis in the FEIS (see FEIS errata, p. 6). Using individual tree selection would not create the conditions needed to regenerate shade intolerant or semi-tolerant species (DEIS, p. III-2, para. 1). Certain species, aspen in particular, need ample amounts of sunlight, much more than would be provided by using individual tree selection and very small group sizes less than 1/4-acre. Those small group sizes could be used to regenerate small clumps of softwoods (see response to comments C3 and D1). The Forest Plan, Appendix A, p. A.06, describes the use of individual and group selection methods, and states that individual tree selection favors shade tolerant tree species such as sugar maple, beech, and balsam fir. Group selection methods would be used “to encourage a higher proportion of species which are intolerant of shade” (p. A.06). These species would include aspen.

The larger group openings to be implemented as part of the uneven-aged group selection method for Alternative II are described on page III-2 and are intended to replace the clearcut and shelterwood harvests. Although these group cuts would most likely not achieve the same, more highly desirable early successional habitat conditions as would the clearcuts and shelterwood harvests, they would no less provide for some beneficial regeneration while addressing issues regarding clearcutting and even-aged management. Alternative II was developed to address these issues.

D3. In order to meet commodity needs for timber and ecosystem protection, Alternative 2 is far superior. (43-2)

This comment is noted. The DEIS analyzed and compared five different alternatives as found throughout the document. Each alternative produced different outputs and generated different impacts, both positive and negative. Reference Table 3.4 (DEIS p. III-19 – III-21), Table 3.5 (p. III-26), and Table 4.11 (p. IV-97 – IV-98) for summary information on comparison of the alternatives.

D4. Specifically, in regard to the proposed Greendale Project we would urge you to choose Alternative 2 rather than the current preferred alternative

(Alternative 4) to more nearly replicate the desired early successional habitat and to allow eventual restoration of an exceedingly rare old-growth forest. (52-1)

The harvesting activities proposed in Alternative IV best meets the needs for creating early successional habitat, a need described in the Purpose and Need (DEIS p. I-1; p. I-5 – I-12). Table 3.4 on DEIS pages III-19 – III-21 describes how each alternative works toward meeting the desired future condition, including creating early successional habitat. See response to comment C2.

The objective is not to restore rare old growth forests in these areas. Other areas on the Forest are better suited to produce old growth habitat. The Forest Plan Record of Decision (p.26) states: “Old growth will occur in Wilderness, National Recreation Area, Management Area 6.1 and some special areas (MA 8.1). The decision is to increase old growth by 9,350 acres above the amount proposed in the Proposed Plan. The decision will bring the total to 100,000 acres (31%) on the GMNF.” See also response to comment F1, ahead.

D5. This comment has been coupled with comment D2.

D6. First, this proposal is for a very large timber sale. While the description suggests that it could be broken into several smaller sales, this distinction is primarily commercial rather than describing the cumulative impact of substantial cutting with stands in close proximity to one another. This one sale, especially in the modified proposed action would generate as much timber per year as the GMNF has averaged over the last decade. This raises questions of the suitability of a sale of these proportions from this National Forest. If a sale is to go forward, Alternative II, with more of an emphasis on retaining a closed canopy forest, might be more appropriate to the GMNF. (56-1)

The Forest Plan does not set any definitive measures regarding timber sale size. The GMNF has completed large sales in the past. The Greendale harvest units would not be cut all at the same time but would be spread out over a number of years through different commercial sales. An output from Alternative IV of approximately 4.16 million board feet (MMBF) spread out over five or more years would average less than 1 MMBF per year. The cumulative effects of the harvesting overall have been disclosed in the DEIS and do not differ significantly from what has resulted from past timber sales.

The rationale for creating early successional habitat in lieu of emphasizing closed canopy conditions in this project area has been explained in responses to comments C2, D2, D4, and D5 above.

D7. Alternative II essentially replaces clear cuts with group selection, but allows a very liberal interpretation of group- up to one acre or up to two acres for aspen regeneration. The Old Joe timber sale has shown that the Forest Service does not require aspen in a stand targeted for aspen re-generation (Old Joe has a

clearcut of a northern hardwood mixed forest described as aspen regeneration). Clearcuts would be a better description of one to two-acre openings. This would also not retain a "continuous forest cover". Group selection implies a limited number of trees in close proximity to one another. In practice this can be anywhere from five or six trees to a quarter-acre opening. Consider a harvest alternative using actual group selection. (56-2)

The size of the groups proposed for Alternative II (and for all the alternatives) has been more fully explained in the response to comment C3, above, and also in the FEIS errata. See also the responses to comments D1, D2, and D5 for additional explanation. Forest Plan Appendix A, on p. A.06, describes the uneven-aged group selection harvest method.

The rationale for using larger group sizes for Alternative II is explained in the response to comment C3. The use of these groups would not be as effective as clearcutting for regenerating some species such as aspen. The size of the groups will depend on the vegetative component and the silvicultural need (i.e. the need to use certain sizes to produce a beneficial result, also as explained in comment C3). The emphasis would be to maintain continuous forest cover as much as possible while still taking advantage of certain conditions to move toward the desired objective of creating some early successional habitat. These conditions would include the presence of aspen clones or evidence of past aspen clones, or opportunities to regenerate softwoods. Therefore, larger group sizes would be applied as needed.

E. Fragmentation

E1. Any further fragmentation of the GMNF in this area with a timber sale of this scale (800 acres and up to 4 million board feet) would be a poor use of the public's forestland. (30-1)

See response for E2, below.

E2. Forest fragmentation is of particular concern to me. It seems that research is regularly uncovering more and more ecological consequences of fragmentation. You probably are aware of a relatively recent report suggesting that the micro-organism that causes Lyme disease is found more widely in smaller forest tracts than in larger ones, thus raising a possible public health aspect of the issue. Our understanding of the impacts of forest fragmentation certainly remains incomplete, and I believe that forest management decisions should fall toward less fragmentation whenever the option exists.

Because it responds to concerns about fragmentation, and because of its concern regarding management of sensitive species, I am inclined to favor Alternative II (Continuous Forest Cover). However, what is most important, I think, is that Forest Service staff carefully consider the fragmentation issue and choose a course of action that is very conservative in this regard, while also offering flexibility in management for sensitive species and other fauna of particular interest. (33-1)

Analysis of concerns for, and risks of, habitat fragmentation can be found in the DEIS, pages IV-28 - IV-32. The proposed action would create temporary patches of young, regenerating forest on approximately 3% of the project area (DEIS p. IV-31, para. 1), a percentage achieved through proposed treatments in the size, shape and array that can be accomplished without causing forest fragmentation.

The Greendale project area is heavily forested, and contains a number of low-end, low use gravel roads (FR16, FR17, FR17A, FR18, FR19, FR29, and FR78) (see DEIS, p. I-17); and as explained on DEIS page I-15, “no new road construction and no changes in system road use and classification would be needed”. The area contains no large openings, farm fields, or developments. The Greendale harvesting activities, by their small size, scale and limited timeframe, would not result in forest fragmentation. The proposed actions would not create isolated woodlots or small patches of forested lands that are detrimental to certain wildlife, nor would they permanently alter the use of the land (i.e. such as suburban development). See the conclusion stated in regards to the findings on habitat fragmentation on page IV-32 of the DEIS.

We are aware of recent paper from Brian Allan, Felicia Keesing and Richard Ostfeld (in Conservation Biology, vol. 17), which discusses relationship between white-footed deer mouse populations and fragmented forest patch size. This research found that fragmented forest patches of 5 acres, or less, demonstrated reduced mammalian species densities – resulting in elevated densities of white-footed deer mice (a natural reservoir of the lyme disease bacterium), suggesting that such fragmentation could influence human health. The Greendale proposal would not create forest fragments, of any size, and as such, this research has no relevance to the Greendale proposal.

F. Old Growth

F1. In Vermont and the Northeast, old-growth forest is the habitat type that is truly rare relative to its former distribution. Old growth, by some estimates, once covered 50-80 percent of northern New England. In Vermont, the proportion of old growth is now approximately one-tenth of one percent. Yet many Vermont forests, such as those in the Greendale area will, if left alone, begin to take on old-growth qualities within several decades. The Forest Service has an opportunity and an obligation to allow the ecological restoration of our public forests. Please give this greater consideration in your Greendale proposal, and for the entire Green Mountain National Forest. (16-3 – 23-3, 25-3 – 29-3, 31-3, 32-3, 34-3 – 42-3, 44-3 – 49-3, 51-3, 53-3, 55-3, 57-3, 59-3 – 64-3, 66-3, 67-3)

The production of old growth stands is not an objective of the Greendale project. There are about 118 acres of old growth on the Green Mountain National Forest, which is MA 8.1, a special area because it is considered a virgin timber stand. Time will restore more old growth on almost 1/3 of the total acres of GMNF. The Forest Plan, Record of Decision, page 26, states that “Old Growth will occur in the Wildernesses, National Recreation Area, Management Area 6.1 and some special areas (MA8.1). The decision is

to increase old growth by 9,350 acres above the amount proposed in the Proposed Plan. This decision will bring the total amount to 100,000 acres (31%) on the GMNF and 350 acres (3%) on the FLNF.” The background materials for the Forest Plan which were compiled in November, 1983 states that old growth characteristics begin at stand ages over 170 years. In 1983, there were 5,510 acres (19%) of the GMNF in overmature stands, 100 – 170 years old. Most forested stands are less than 100 years old as a result of farm abandonment and widespread forest cutting at the turn of the 20th century.

Only a relatively small part of the GMNF is suitable for timber production and could/would be considered for vegetation management treatment with a timber sale. Included in that suitable base is the Greendale project area. All proposed harvesting is consistent with Forest Plan direction and would work toward moving the Greendale management areas toward their desired future conditions (DEIS, p. I-1 – I-20, description of the purpose and need, and proposed activities).

F2. Old growth, which used to dominate in the Northeast, is now extremely rare. The Green Mountain National Forest is an excellent place to re-establish this now missing ecosystem. I encourage the Green Mountain National Forest to pursue a no cut policy at Greendale and elsewhere, in favor of wilderness habitat. (24-1)

See response F1 above. All proposed harvesting in the Greendale project is consistent with Forest plan direction. The issue of additional wilderness will be addressed during Forest Plan revision.

F3. Today less than 1% is in this classification (Cogbill et al. 2003). Robert Leverett (2001) estimates that no more than 400,000-500,000 acres of old growth are found in the entire Northeast! Why no "alarm" over this situation? Is that because an emphasis on increasing old growth and natural undisturbed forest habitat would not justify management or logging? I suspect so. (65-9)

See responses F1 and F2 above.

F4. What is happening is that the forest is increasingly becoming more "natural" and is increasingly what we seen are "normal" ecological conditions. The forest is healing after a century of human abuse and degradation and this is seen as a problem by the Forest Service. (65-10)

The forests of the northeast continue to recover from the harvesting and land clearing of the early century. The State of Vermont is approximately 77 percent forested (as of 1999, 1997 figures presented in the DEIS on page IV-23) and more recent figures may actually show that number to be higher. This is an increase from the 30 percent figure documented in the late 1880s (DEIS, p. IV-23). The Forest Service and other State and federal agencies practice sound ecological forest management. Standards and guidelines, and State Acceptable Management Practices (AMPs), along with specific management

direction, are in place to assure that adverse impacts are minimized to see that some of this historic abuse does not occur again.

G. Stream Habitat Improvement

G1. I am not so enthused with your plan of restoration of the brooks for salmon. I consider these waters to be trout streams and, in some years, during a dry season, they nearly dry up. (13-2)

The streams in the project area (Greendale and Jenny Coolidge Brooks) do support native brook trout populations. In addition, the fish community for these streams includes native Atlantic salmon and native non-game species such as Slimy Sculpin and Blacknose dace (see DEIS Sections 1.2.7, 4.7.1, 4.7.1.2).

Both streams provide suitable spawning and rearing habitat for salmon and are identified for restoration in the Connecticut River Atlantic Salmon Restoration Commission's (CRASC) Strategic Plan for Atlantic Salmon Restoration throughout the Connecticut River Basin (see DEIS Sections 1.2.7, 4.7.1). The GMNF Forest Plan also calls for salmon restoration in historic waters on national forest lands that include Greendale and Jenny Coolidge brooks (see Forest Plan Amendment 6, p. 4.37-1, 4.37-2).

Both streams are considered perennial streams with seasonal low flow periods occurring in August and February. The months of February and August are traditionally the low flow periods for streams in Vermont.

G2. Even if stream habitat improvement can be achieved, an accompanying timber sale is not only not necessary, but arguably exacerbates the types of problems that have led to habitat degradation in the first place. Timber extraction in a watershed can lead to increased soil erosion, soil compaction, earlier and more time-compressed peak runoff flows, less shade over streams, and fewer large, old trees that are the future stock for recruitment of large, woody debris into the stream. (53-7)

The impacts to fisheries habitat from timber harvesting are described in the DEIS in Section 4.7.1.4. Additionally, in order to minimize and/or prevent fisheries and water resource impacts from occurring, the streams and their associated riparian areas would be protected by Forest Plan standards and guides including future recruitment of LWD as a natural component to GMNF stream ecosystems, and mitigation measures. The effects of the proposed stream habitat improvement is described in the DEIS, sections 4.7.1 through 4.7.1.4.

G3. Finally, while it is unclear from the DEIS exactly where the 35 trees will be brought into Jenny Coolidge Brook, observations made on 5/10/03 along this stream indicated abundant woody debris in the stream. (53-8)

LWD would be placed in approximately 2500 linear feet in the stream reach located from the confluence with Greendale brook upstream to about 1000 feet above the stream crossing on FR 17A. The work would be done in compliance with Forest Plan standard and guides and under supervision of experienced Forest Service field staff as described in the DEIS, sections 1.2.6, 4.7.1.2, and 4.7.1.3. Stream habitat surveys of Jenny Coolidge brook in the 1990's identified approximately 180 pieces of LWD in about 2 1/2 miles of stream. However, much of the LWD is associated with unstable stream banks and eroding bank slopes located upslope of the stream channel. Degradation (down-cutting) of the channel by several feet from flood events over the past several decades has resulted in bank slopes that are too steep and erode in response to this effect. The proposed placement of LWD, in some cases using an excavator, on the channel bottom and into the bed would serve as channel slope/grade control that will stop the down-cutting action and assist in stabilizing the channel. It would also create needed pool habitat (the stream is 8 percent pool habitat, only half the desired amount), and add protective cover and habitat diversity for native fish and aquatic macroinvertebrate species. This information is presented here as further clarification of our proposed activities.

G4. Along its lower reaches, the stream is steep, rocky and narrow, and keeping the upper watershed in its natural, undisturbed condition is the best way to keep future flood episodes from blowing out the artificial structures. (53-9)

This issue/statement has been addressed in G2 (see G2 response). It was also addressed in the DEIS, sections 1.2.7, 4.7.1.2, and 4.7.1.3.

H. Age-Class Objective / Early Successional / Neo-Tropical Migrants

H1. Deer Winter Habitat Improvement; Chap. 1; Sec. 1.2.3; pg. I-10; para 3-4.

“...of the 728 acres of softwood, hardwood, and mixed softwood/hardwood MA.4.1 forests...Clearcutting would occur on approximately 35 acres...”
Contemporary scientific literature on early successional forest management suggests (as the DEIS reiterates throughout the document) that the existing Forest Plan goal of maintaining approximately 10% early successional forest habitat is a valid vegetation management target. This contradicts the Proposed Action goal for MA 4.1 acreage, which proposes only a minimal even-age, clearcut habitat treatment of 35 combined acres (less than 5%) across the 728-acre combination of compartments. The Society encourages the GMNF to revisit and increase this goal in MA 4.1 to the suggested target level of 10%. (8-4)

A continuing concern for deer wintering areas is the area's function of providing protection from winter weather. Our Forest Plan, page 4.109, directs that “at least 60 percent of the area should have adequate tree size and density to provide thermal cover and snow interception.” The Forest Plan, page 4.110 gives indication of stand composition objectives “to provided quality shelter”, suggesting tree priority of (1) hemlock, (2) red spruce, (3) balsam fir, and (4) white pine. As discussed in the DEIS (p. I-9 - I-10), the current conditions provide quality thermal and snow protection in about 50% of the area (i.e., close-canopied softwood or mixed hardwood/softwood stands).

Our goal is to (1) maintain, and enhance, the softwood component's protection capabilities, and (2) provide young hardwood forage.

Of the hardwood component, this proposal will utilize even-age regeneration on approximately 8%, and improve softwood conditions in another 1% of the mixed hardwood/softwood stands. Improvements to the softwood component are conducted using uneven-aged management. On page IV-44 of the DEIS, we reference the Management Guide for Wintering Deer in Vermont. This guide: a) (on page 33) provides direction for management of hardwoods adjacent to deer wintering areas, for the expressed purpose of providing "a constant supply of high quality browse, very close to the winter shelter", suggesting management to "regenerate using patch clearcuts from ½ to 2 acres in size"; and b) (on page 11) states that "uneven-age management by area regulation is the best method of wintering area management."

Table 3.4 on DEIS page III-20 lists how well each alternative would meet the desired future condition for MA 4.1. This combination of management activities represents our best attempt at meeting the objectives of MA 4.1 to provide both cover and forage for deer wintering in the Greendale area.

H2. The GMNF FOREST PLAN states that specific composition objectives will be developed for each Opportunity Area-small, local subset of the GMNF. The Greendale DEIS does not provide data on the current vegetation composition objectives (age class distribution) of the Opportunity Area within which the Greendale Timber Sale would occur, nor does it provide the specific composition objectives established by the Forest Service for that Opportunity Area or the rationale for choosing those objectives. (53-10)

The term Opportunity Area was developed in the late 1980s and is no longer used. Area analyses and watershed assessments are the more commonly used terms to describe a large area of Forest Service land that is analyzed for opportunities to meet Forest Plan direction. Some remnants of the old Opportunity Area process remain as does some of the stand data. The Greendale project file contains a large amount of data from stand exams and field surveys that were used to analyze vegetation composition objectives, develop proposals, determine appropriate prescriptions, and guide the overall analysis. See DEIS Chapter 1, pages I-5 to I-12 for a full description of existing forest composition objectives for each MA within the Greendale Project.

H3. The US Forest Service mistakenly applied the age-class objectives to the entire acreage in each Greendale management area, not just the suitable timberland. This needs to be corrected, and the timber-production basis for originally setting age-class objectives must be kept in mind when applying these objectives in the future. (53-11)

The age class objectives were based on the suitable lands within the management area. We have reviewed the compartment records, and all of the forest land in Compartments 27, 29, 30, 31, 32, and 45 is commercial forest land (suitable for timber harvest).

H4. The Greendale DEIS purports to increase early successional habitat in order to increase numbers of species, such as chestnut-sided warbler and bobolink, that are favored by this seral stage. While the decline of *certain* grassland/shrub/early successional forest species across the Northeast may be of concern due to increasing continental, or global scale rarity, it is an abuse of the accepted, scientific notion of biodiversity to say that increasing species that were unusual or even unknown regionally prior to large-scale, human disturbance of the natural vegetative and plant communities (forest clearing and farming of 100 to 150 years ago) (Foster et al. 2002) is increasing or enhancing biodiversity. Indeed, Audubon considered the chestnut-sided warbler one of the rarest birds in North America. It was virtually unknown in New England in the early 1800s. (DeGraaf and Yamasaki 2001). (53-18)

Basic to GMNF management is our goal, displayed in the Forest Plan on page 4.04, to “[M]eet all applicable federal, state and local laws and regulations which pertain to the management of the GMNF. These include but are not limited to the National Forest Management Act, National Environmental Policy Act, Clean Air Act, Clean Water Act, Safe Drinking Water Act, and the Multiple Use and Sustained Yield Act.” 36 CFR [Code of Federal Regulations] 219 guides implementation of the National Forest Management Act; 36 CFR 219.19 directs that “[F]ish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area.” Habitat composition objectives designed “[T]o ensure that vegetative diversity is maintained or increased and the habitat is available to maintain viable populations of all vertebrates presently found in the forest” are displayed in the Forest Plan, page 4.28; these objectives apply to the Forest, as a whole, and are the basis for the proposed vegetation management discussed in the Greendale DEIS (Purpose and Need; Proposed Action, p. I-1 – I-13; Wildlife, Wildlife Habitat & Vegetation Management, p. IV-22 – IV-57, specifically p. IV-22, 24, 26, 27).

Numerous species, relying upon early seral stages, are clearly native to Vermont and New England, including the chestnut-sided warbler. DeGraaf and Yamasaki (2001) state that “[I]n the early 1800’s the chestnut-sided warbler was apparently a rare migrant in New England – Audubon considered it one of the rarest birds in North America. The clearing of the forest for settlement greatly benefited the chestnut-sided warbler; it was common in New England by the mid 1800s.”

No clear consensus is present that guides the Forest Service to manage for regional conditions “prior to large-scale, human disturbance of the natural vegetative and plant communities (forest clearing and farming of 100 to 150 years ago)”; variance from established direction is not within our purview, and thus, we continue to look for opportunities to provide habitat for species such as chestnut-sided warbler.

H5. The DEIS asserts that some 70 percent of neo-tropical migratory birds are in decline, and that many of these birds are associated (at least during some

points of their life history) with early successional habitat. Therefore, the implication is that the decline of these songbirds is due to reductions in the proportion of early successional habitat available. In fact, there is no clear connection between declining early successional habitat in the Northeast and the declining populations of most of the songbirds alluded to. While a few of these species are indeed dependent on early successional forest habitat, most are suffering because of the loss and fragmentation of forest habitat both on summer grounds as well as on wintering areas. Indeed, it is because of logging, housing development, etc. that many of these species are in decline, not because of a limited amount of early successional habitat. (53-20)

Comment H10 is very similar to this comment and will be also addressed by the following response. The DEIS page IV-24 discusses the percentages of this comment; stating that “[S]eventy-six percent of the neo-tropical migratory birds **experiencing declining populations in the Northeast are early successional seedling/sapling habitat associates**”(emphasis added) – not, as this comment suggests, that “some 70 percent of neo-tropical migratory birds are in decline”. In other words, a majority of the neo-tropical breeding birds experiencing population declines are associates of early successional/sapling habitats – not, as this comment suggests, that “a few of these species are indeed dependent on early successional forest habitat”. As stated in DEIS, page IV-26, “[S]cientific studies indicate that wildlife relying on early successional, seedling/sapling habitat and/or a mix of habitat conditions is experiencing declining suitable habitat and increased population risks in Vermont and throughout the Northeast”. While we recognize that the loss of over-wintering habitat is also a contributing factor to population concerns, one of the increased risks to populations that we can reduce somewhat is that risk associated with the lack of early successional habitat by way of harvesting proposals such as the Greendale Project. See also response to comment H4.

H6. The DEIS lacks an accounting of the amount of early-successional habitat or old-growth habitat that exists on private or other public lands in the area and region. In fact, the DEIS ignored the very recent logging on private lands directly adjoining the Greendale Project area. Any justification for the "need" to create more early-successional habitat must be done in the context of current and future conditions on private and other public lands nearby. (53-21)

The agency displays deep concern about the supposed dearth of early successional habitat in the region, but goes so far as to belittle the biological importance of old-growth habitat, which ecologists estimate once covered 50 to 80 percent of New England. (53-21)

The DEIS provides historical and existing amounts of early successional and mature/over-mature forest habitat at the regional, state, local, GMNF (forestwide), and Greendale Project Area level (DEIS, pages IV-23 – IV-26 and IV-29). In the context of the habitat conditions discussed, consideration was given to all land ownerships within and outside the forest proclamation boundary. At the local level, the DEIS specifically

mentions logging on private lands directly adjacent to the project area including lands owned by the Weston Priory (DEIS, p. IV-24 and IV-56) and the Wantastoquet Trout Club (DEIS, p. IV-56). Discussion of the need for creating more early successional habitat conditions within the Greendale Project Area to meet desired conditions as provided for in the GMNF Forest Plan is disclosed in the DEIS on pages I-1 – I-2 and I-5 – I-12. For additional discussion of the need to create early successional habitat in light of a maturing forest within the GMNF and region, please see response to comment H9. Regarding the statement about old-growth habitat, please see responses to comments F1 and F4.

H7. The assertions that early successional habitat is in short supply, is biologically critical to most native species on the Forest or in the region, and must be created on the Forest because it is not being sufficiently provided elsewhere, are all highly questionable, at best. Furthermore, if these arguments gain currency through the achievement of the Greendale project, as proposed, they will pose an enormous threat to opportunities for restoration of missing or severely diminished components of the native Northeast forest ecosystems. E.g., large blocks of unroaded, unmanipulated habitat; wide-ranging large predators; old-growth forest conditions; recovered stream habitats for cold water and anadromous fish species. (53-22)

Declining early forest habitat is discussed in the DEIS, pages I-1, and IV-23, 24, 26. The Wildlife Society's Bulletin 2001 29(2) contained 8 articles specifically discussing early successional habitats. These peer reviewed papers are entitled:

Sustaining biological diversity in early successional communities: the challenge of managing unpopular habitats, by Robert A. Askins.

Patterns and trend of early successional forest in the eastern United States, by Margaret K. Trani, Robert T. Brooks, Thomas L. Schmidt, Victor A. Rudis, and Christine M. Gabbard.

Historical and ecological roles of disturbance in eastern North America; 9,000 years of change, by Craig G. Lorimer.

Conservation of disturbance-dependent birds in eastern North America, by William C. Hunter, David A. Buehler, Ronald A. Canterbury, John L. Confer, and Paul B. Hamel.

Importance of early successional habitat to ruffed grouse and American woodcock, by Daniel R. Dessecker and Daniel G. McAuley.

Importance of early successional habitats to mammals in eastern forests, by John A. Litvaitis.

Human dimensions of early successional landscapes in the eastern United States, by Paul H. Gobster.

Conservation approaches for woody, early successional communities in the eastern United States, by Frank R. Thompson, III, and Richard M. DeGraaf.

This body of work dispels the suggestion that habitat trends of the northeast, and the critical nature of the region's wildlife response to these trends is "highly questionable". This point is well made in the abstract of the Thompson and DeGraaf paper; stating "[T]here is significant concern about the status of some early successional wildlife because of recent declines in populations and amount of habitat in the eastern United States."

The following data demonstrates that the GMNF management, through our Forest Plan, p. 4.92, addresses concerns for issues such as "large blocks of unroaded, unmanipulated habitat; wide-ranging large predators; old-growth forest conditions". Again, the numbers are approximate.

1. Large blocks of unroaded, unmanipulated habitat – Management Areas (MAs) 5.1 Wilderness Areas and 6.1 Primitive areas ... approximately 70,000 acres;
2. Wide-ranging large predators – MAs 2.2A Semi-primitive uneven-aged areas, 2.2B Semi-primitive recreation areas, 4.2 Semi-primitive deer wintering areas, 5.1 Wilderness Areas, 6.1 Primitive areas, 6.2A Semi-primitive, even-aged management, and 6.2B Semi-primitive recreation areas ... approximately 166,000 acres
3. Old-growth forest conditions – MAs 2.2B Semi-primitive recreation areas, 5.1 Wilderness Areas, 6.1 Primitive areas, and 6.2B Semi-primitive recreation areas ... approximately 106,000 acres of the GMNF.

See also the response to comment F1.

H8. Please do not do any clear cuts in Greendale. (58-1)

Clearcutting is allowed by Forest Plan direction and is a very effective silvicultural practice for regenerating certain vegetative species and enhancing species diversity. The GMNF is well behind anticipated Forest Plan objectives for regeneration harvests, which includes clearcutting (DEIS, p. I-1). Clearcutting and other forms of even-aged management can be valuable tools to maintain an array of wildlife habitat across the Forest landscape, including early successional habitat, which is in serious decline on the Forest and throughout Vermont (DEIS, p. I-1; p.II-7; p. IV-23 – IV-27).

The GMNF uses clearcutting primarily when other techniques would fail to produce the desired results. All clearcuts would follow Forest Plan standards and guides, and many times, have additional mitigation to eliminate or minimize adverse effects. We are well aware of the issues surrounding the use of clearcutting. The clearcutting proposed for the Greendale project was considered because it represents the optimum method to achieve the purpose and need of the site-specific proposal of creating adequate early successional habitat given habitat conditions. For instance, clearcutting is by far the most effective,

and many times, the only effective way to regenerate aspen in the northern hardwood forests of New England, in a manner that perpetuates its existence. This is because of the typically quick response of vegetation to opening up the generally fertile, moist soils to full sunlight. It comes back quick and lush, and therefore, desirable species such as aspen, with fairly specific light regime requirements, must out-compete other vegetation.

Alternative II, by proposing to use the unevenaged techniques of group selection in place of clearcutting and shelterwoods, addresses the issues associated with clearcuts (DEIS, p. II-7). As described on page III-2, no clearcutting is proposed in Alternative II. However, the results that we would most likely get for some species such as aspen may not be the most desirable. These factors would all be considered by the decision maker.

Page 4.65 of the Forest Plan displays the six conditions for which clearcutting is considered “the optimum method” for achieving resource objectives. Further information is also found on page A.08 of the Forest Plan. The sizes of clearcut units to address visual quality concerns are displayed on page 4.51 of the Forest Plan. All forest stands proposed for clearcutting in the Greendale project have been reviewed by a certified silviculturist.

H9. On page IV -23 the document states that New England only has 16% of its forests in early successional stages, yet this is still far higher than what existed prior to European intervention. On page IV-29 of the document the FS asserts that the best research suggests that early successional habitat at most occupied only 5% or less of the pre-settlement landscape. It makes no such numerical assertion of the amount of the forest that was true old growth, but certainly far more of the Forest than the less than 1% of the forest that is today virgin old growth remains. Why not emphasis this in the document? (65-8)

As stated in the response to comment F1, the objectives of the Greendale project is not the production of old growth habitat; that will occur naturally in some parts of the project area over time, and mainly, in other places on the forest. Page 26 of the Forest Plan Record of Decision describes the location and the amount of old growth. “Old growth will occur in Wildernesses, National Recreation Area, Management Area 6.1 and some special areas (MA 8.1). The decision is to increase old growth by 9,350 acres above the amount proposed in the Proposed Plan. This decision will bring the total to 100,000 acres (31%) on the GMNF and 350 acres (3%) on the FLNF.”

On pages IV-25 and 26 of the DEIS, we note that a large amount of the project area (65 percent) is “closed canopy mature forest”, and even higher percentages of this habitat is found in areas adjacent to the project area. The GMNF and the project area will continue to be dominated by mature forest habitat (DEIS, p. IV-22), and there is currently a decline in early successional habitat (DEIS, p. IV-23; p. IV-24, first para. under section 4.4.2.2). The discussion on pages IV-23 – IV-24 describes the trends toward a maturing forest and a decrease in early successional habitat that the Greendale proposal addresses.

H10. neo-tropical songbirds. While a few of these species are indeed dependent on early successional forest habitat, most are suffering because of the loss and

fragmentation of forest habitat both on summer grounds as well as on wintering areas. Indeed, it is because of logging, housing development, etc. that many of these species are in decline, not because of a limited amount of early successional habitat. (65-16)

See response to comment H5, above.

H11. Furthermore, the EIS and Forest seems intent on maintaining habitat for species that invaded Vermont during the period of forest removal that artificially created habitat for them. For instance, both the chestnut sided warbler and the New England cottontail were apparently non-existent or rare in Vermont prior to the removal of forests in the 18th century and subsequent creation of shrubby early successional habitat by reversion of farmland back to forest. Indeed, Audubon considered the chestnut-sided warbler one of the rarest birds in NA. (65-17)

See response to comment H4, above.

In his report entitled Distribution of Cottontail Rabbits (*Sylvilagus* spp.), dated 1973, Steven Jackson stated, “[L]iterature of the distribution of cottontail rabbits in northern New England is sketchy and in most cases is poorly documented. In most cases the species being discussed is not known, however, *floridanus* (eastern cottontail) was not established in New England until 1928. Reports prior to that time are presumed to be *transitionalis* (New England cottontail). The origins of *transitionalis* in northern New England may go back well beyond the earliest writing from the area. There has been some controversy in the literature as to the beginnings of cottontails in northern New England. Wood (1634) mentions both the hare and the rabbit in his writing of New England. Morton (1637) spoke of “Conyes” found in southern parts of his study area, which includes much of New England. Belknap (1812) listed both hare and rabbit in New Hampshire. Statements to the contrary are made by the following: Stone and Cram believed that cottontails were not always in New Hampshire; Foote stated in reference to Vermont, “In the early days snowshoe hare was the only rabbit found in the state, but the New England cottontail moved in prior to 1840 and has marched steadily northward since.”

Litvaitis reports (in Importance of early successional habitats to mammals in eastern forests, Wildlife Society Bulletin 2001, 29(2):466-473) that “[H]istorically, New England cottontails likely occupied native shrublands associated with rocky outcrops, wetlands and forest regenerating after a small-scale (e.g., inundation by beavers [*Castor canadensis*], lightning strike, or windthrow) or large-scale (e.g., hurricanes, wildfires, or fires intentionally set by native peoples) disturbance. Clearing of forests for agriculture by European settlers and subsequent abandonment of these lands was an extreme disturbance event that profoundly affected the abundance of early successional habitats. New England cottontails and other successional vertebrates reached unprecedented levels of abundance in the Northeast during the late 1800s and early 1900s. However, most of

these abandoned farmlands matured into closed-canopy forests (circa 1960), and populations of New England cottontails and other taxa quickly reacted. Currently, populations of cottontails are small, disjunct, and span approximately 20% of the area this species occupied historically. In response to this decline, the Northeastern Nongame Technical Committee has listed the New England cottontail as a priority species for additional restoration efforts and several national organizations have petitioned the United States Fish and Wildlife Service to list this species as threatened or endangered.”

It is evident that the New England cottontail is a native of Vermont, and the GMNF, prior to European settlement; and, that forest management proposed for the Greendale area creates habitat conditions beneficial to this species.

I. Commercial Harvesting

I1. For example, "overmature" is used repeatedly to describe older forests, yet this is not a neutral, scientific term, but a term that indicates the utility of the forest for commercial production of lumber. (53-16)

The Forest Plan definition (p. N.23) for overmature is as follows: “ A stand of trees that is older than normal rotation age for the type and provides important habitat conditions not found in younger stands. Northern hardwood and oak stands are overmature if between 120 and 170 years old while the minimum age for other types of trees will vary.” It is used in this context in the DEIS.

I2. BUT I REALLY THINK IT BEST TO NOT CUT ANYTHING--WE NEED THE TREES FOR MANY REASONS--NOT TO SUPPORT COMMERCIAL TIMBER. (58-2)

The National Forest Management Act (NFMA) and the Multiple Use Sustained Yield Act (MUSY) provide for commercial timber harvesting on National Forest System lands. The harvesting in the Greendale Project is consistent with direction in the GMNF Forest Plan (p. 4.59) and as described in the DEIS (p. I-1 – I-2), is proposed to enhance species diversity, improve vegetative composition, and move the area toward its desired future condition, while also being an important contributor to local economies. See also the response to comment B1.

I3. Pejorative terms like "over mature" are regularly used throughout the document. Over mature from whose perspective? That is an economic term referring to trees that are past prime growth for timber production, but from a biological perspective indicates an older forest that is acquiring structural components--that from a forest ecosystem perspective--are ecologically valuable and currently in short supply across the entire region. (65-4)

The response to comment I1 above describes the Forest Plan definition of overmature. See the response to comment F1 regarding the issue of overmature/old growth habitat being in short supply.

J. Perception of Bias

J1. Your ability to tie your decisions to specific scientific research done in the past 15 years or so makes for very strong arguments. This is particularly important because there is so much mis-information (some of it deliberate) among the general public who often view untouched forests as being most valuable for wildlife. (2-2)

This comment is noted. Much effort went into developing a sound, scientifically based wildlife analysis. Untouched forests and managed forests both hold values for wildlife.

J2. The DEIS does not provide the full and objective disclosure and analysis of information intended by NEPA. Instead, it displays a strong bias for more and larger clearcuts and other types of even-aged regeneration on the Green Mountain NF. This bias denies the decisionmaker and the public an opportunity to make a fair and reasoned assessment of the social and environmental consequences of the alternatives, as required by NEPA. (53-14)

The DEIS does provide full disclosure as intended by NEPA. This may be found throughout Chapter 4, The Affected Environment and the Environmental Effects, and is supported by documentation found in the project file. The need for the proposal is described in Chapter 1 and one key aspect of this is the need to increase early successional habitat (p. I-1) which is in short supply across the Forest and in much of the forested areas in the region (DEIS p. IV-22 through IV-27, particularly 4.4.2.1 on p. IV-23).

A variety of harvesting techniques are proposed for use to create early successional habitat, along with other habitats. A wide range of alternatives, fully compliant with NEPA requirements, has been analyzed to achieve various levels of outputs and habitat conditions, is presented in the DEIS, and is the basis for the deciding official to select a preferred alternative. All stands proposed for harvesting, whether by even-aged or uneven-aged methods, have been reviewed by a certified silviculturist. All proposed activities are consistent with Forest Plan direction.

J3. One of the goals of the proposed action is "improvement" in tree growth and species composition. Although throughout the document there is a stated purpose of enhancing biodiversity and managing for ecological processes, improving tree growth and species composition in the manner proposed has nothing to do with ecological processes. Rather, management is being directed in this case, as it has been traditionally, at encouraging rapid tree growth for timber production, and selection of those species deemed most useful and merchantable as lumber. (53-17)

The management activities proposed in the Greendale Project cover a wide range of actions and the outputs from them are varied as well. The DEIS, section 1.2, p. I-2 – I-20, Proposed Action, and Chapter 3, Alternatives to the Proposed Action, describes these

actions and expected outputs (see DEIS, p. I-2, fourth para.; see also Table 3.5, DEIS p. III-26). Resource managers for the GMNF believe that maintaining ecological processes and healthy forests that are useful to people sometimes involves active management, and the Forest Plan allows that to happen (Forest Plan, Roles, Goals, Objectives, p. 4.03 – 4.14). Active management can involve addressing items such as tree crown health, tree damage, tree mortality, vegetation diversity and structure and reduced growth rates of economically valuable timber species. These items are considered and acted upon during forest management activities like timber harvesting and how it is carried out.

While not an exhaustive list, all of these items are important to maintaining ecological processes in the context that people are part of the ecological process and we need and use forests and forest products every day. For example, maintaining forest health is part of the ecological process that involves the natural community, people, and what they value, want and need from their National Forest. Our variety of management areas (MAs) covers this range of public desires (see Forest Plan, Chapter IV, Section F, Management Prescriptions and Their Standards and Guidelines). The harvesting being proposed in MAs where timber harvesting is allowed as the way to achieve the desired future conditions is appropriate in that context. Just as there are large portions of the forest set aside to allow other actions and processes to take place without as much human influence, the harvest actions being proposed in the Greendale Project are useful in maintaining ecological processes in those specific locations.

J4. Much of the scientific literature cited in the DEIS is misrepresented, and much of the literature upon which the DEIS is most heavily based is illogical. The proposed Greendale project strives to hold forests at particular seral stages, in predetermined proportions and arrangements. Yet, this seems to be very much at odds with allowing "ecosystem processes" to prevail. (53-24)

Chapter 5, sections 5.3 and 5.4, and Appendix C, section C.6 lists the references used to support the analysis for this project. Extensive effort went into researching the best and latest available scientific references that have been widely peer reviewed. We recognize that others may have references that may appear to be at odds with some of those listed references.

As far as allowing ecosystem processes to prevail, the Forest Plan sets goals and objectives for vegetative composition. These Desired Future Conditions (DFCs) are defined by Management Area, and resulted from an intensive public involvement process. Timber harvesting is an important tool to create and maintain the mosaic of vegetative conditions called for in many of the MAs' desired conditions, including setting back some areas to early seral stages. The Greendale Project proposes harvesting activities that attempt to move the project area closer to its DFC. The techniques to be used are consistent with Forest Plan direction and are scientifically based. Ecological processes would continue to occur in areas that are harvested as well as in areas that remain untouched.

See also the response to comment J3, above.

J5. In general, the document demonstrates once again the Forest Service bias towards resource extraction. (65-1)

All proposed activities are consistent with Forest Plan direction, and meet the purpose of and need for action (DEIS, p. I-1 – I-2, and more fully described by MA in each of the Proposed Action’s components, p. I-5 – I-15). The proposed harvesting would meet a wide variety of objectives and produce resource benefits (see response to comment J3 above). The analysis, complete with a wide range of alternatives, is clearly and fully presented in the DEIS, and supported by documentation in the project file.

J6. As yet another example of the EIS's bias, the goal of dumping a few logs into the stream to create some structural habitat for fish is cited as a consequence of this project. Yet one doesn't have to have a timber sale in order to place logs in a stream to improve fish habitat. While I support fish habitat improvement, the inclusion of this seems to be a way the FS can claim what would otherwise be a harmful activity to aquatic ecosystems has "benefits" for fish. The real problem for this area and most of the forest is the lack of older trees to provide the best structural habitat. (65-3)

The placement of LWD in Jenny Coolidge brook to improve aquatic habitat for fish and other aquatic organisms is one of the proposed actions, not a consequence of the project. See response for G2 for additional information addressing this issue.

Today’s stream riparian habitats are largely second growth forest consisting of small diameter trees (most less than 12” diameter) not capable of functioning as LWD, except in our smallest headwater streams. Our long-term goal described in the Fisheries Amendment to the Forest Plan (Amendment no. 6), including standards and guides (4.73-1 and 4.73-2), provides for the retention of larger trees in riparian areas as sources of future woody debris for stream channels. Also, by adding LWD to streams now, and mimicking a natural stream ecosystem, we can provide structurally diverse and complex stream habitat as we nurture riparian forests to provide these values in the future.

The last statement in the comment about the lack of older trees has been addressed in various responses in section H, above.

J7. Another example of this fundamental bias is the use of the word "improves" in the first sentence of purpose and needs where the agency asserts that vegetation management will "improve" species diversity. Trying to maintain numbers of early successional forest habitat that was created by destructive human disturbance such as the widespread clearing of the original forest cover for agriculture and then justifying it in the name of "improving species diversity" is somewhat like trying to maintain poor water quality in a river that is gradually improving in water quality so you can maintain a greater diversity of fish species. A diversity of water quality would obviously create more habitat for more species so should the FS also try to maintain poor water quality in some

streams so that fish like carp that would otherwise disappear in the face of higher water quality can be maintained? More species is not always better, yet this is the implied assumption repeated over and over again in the document. Streams with poor water quality support more species of fish than high quality aquatic systems, but I would argue against continued pollution just to "improve" species diversity. (65-5)

The use of the term, "improves" in the purpose and need, DEIS, p. I-1, was meant to imply that vegetation management can be used to create habitats that are in short supply on the Forest such as early successional habitat (DEIS, p. I-1; p.II-7; p. IV-23 – IV-27). That, in turn, would attract wildlife species that otherwise would not be present on the forest due to lack of suitable habitat, and thus "improve" the mix of species (see the thorough discussion on Wildlife, Wildlife Habitat, and Vegetation Management, DEIS, p. IV-22 – IV-57; p. IV-30, para. 4). These improvements would be most noticeable at the localized level (DEIS, p. IV-22 – IV-23), but due to the relatively small amount of habitat changes produced by this project, there most likely would be no measurable change in habitat composition at the larger landscape scales.

No, more is not always better. However, it has been shown in the scientific literature that early successional habitat is needed to support certain species, particularly some neo-tropical migrant birds, and that that habitat is lacking on the forest and regionally. Also, the GMNF has not been able to achieve the vegetative composition objectives set forth in the Forest Plan, particularly in regards to young aged habitats. The Greendale project helps move the forest towards those objectives.

J8. The desire to maintain early successional forests is a happy coincidence for timber cutting. But using habitat degradation to justify management conveniently ignores other effects on forest ecosystems that either is unknown or unstated in your analysis. (65-12)

The Greendale project does not result in habitat degradation. The effects of the proposed actions are clearly described in the DEIS, Chapter 4, with the analysis and disclosure focused around public issues and concerns. In regards to the use of timber cutting as a tool for forest management (interpreted to mean commercial timber harvests), see responses to comments B1 and I2.

J9. The absence of scientific information on negative impacts of logging and resulting forest stand habitat should not be used to justify current management policies. (65-13)

The analysis used scientific information, along with staff expertise and experience, to analyze and disclose the effects of our harvesting activities. Chapter 4 of the DEIS contains thorough discussion on the potential positive and negative impacts of logging and other activities. Chapter 5 contains seven pages of scientific references, most or all of which contain vast information on both positive and negative impacts. These

references, along with monitoring data and hands-on experience, are used to build our “body of knowledge” necessary to determine environmental effects.

J10. Again the bias in your document is demonstrated on page 1-6 where it is stated this proposal will move "the current even-aged forest towards the Forest Plan objective of a visually pleasing, healthy, large tree dominated multi-aged forest..." While I have no objections with this goal, such a change in forest stand composition does not require logging to achieve. Indeed, if left alone, the forest will achieve this goal quite well on its own. (65-14)

A course of action that does not require logging, such as the No Action Alternative, would not meet the Purpose and Need For Action of the Greendale Project (DEIS, p. III-1), nor meet the intent of the proposal to move the area toward its Desired Future Condition (DFC).

The need for vegetation management is described in the DEIS on pages I-1 – I-20. The proposed activities were developed to work toward the Forest Plan goals and objectives, and improve upon the mix of species, ages and sizes defined as the DFC. The comment about moving "the current even-aged forest towards the Forest Plan objective of a visually pleasing, healthy, large tree dominated multi-aged forest", taken from page I-6 of the DEIS, relates to the intended outcome (DFC) for MA 2.1 lands (Forest Plan, p. 4.93 – 4.97). Site-specific stand exams and field surveys have been conducted to determine vegetative composition and improvement opportunities. Increasing the variety of species, ages, and sizes through active management rather than by leaving the forest to achieve these goals on its own, would also produce other by-products called for in the Forest Plan (Forest Plan, Roles, Goals, Objectives, p. 4.03 – 4.14) such as wood products and wildlife habitat. See also the response to comment C4.

J11. While the document is full of citations that appear to justify managing forests, there is little attention paid to the literature that questions management or documents the negative impacts of roads, logging, and manipulation of forests. Again this demonstrates to me a clear bias towards management and logging. (65-18)

As stated in response J9, many scientific references have been used to help determine what effects, both positive and negative, that can be expected from various activities. As would be expected, most or all of the literature contains important background material, the state of the current knowledge at the time of publishing, and conclusions, opinions, and results of case studies and research. There was no attempt to bias the actions toward logging.

J12. For example there is nothing from the massive literature on the negative effects associated with roads. (65-19)

There is no road construction proposed in the Greendale analysis, and therefore no discussion of road construction. All local haul roads (town and Forest Service roads) are in place. See DEIS page I-15, item 1.2.8.2 Roads.

J13. I could just as easily compile a list of scientific literature that cast into doubt any manipulation and logging as was compiled in the EIS to support logging. The selective use of citations is nothing new, but I expect something different from an agency that is supposed to be managing our forests for future generations. (65-20)

See the responses to comments J9 and J11, above.

K. Wildlife Habitat / Beech Trees

K1. I could see no mention or discussion of martens relative to the Greendale project. (4-1)

Discussion specific to pine marten appears on pages IV-49 - IV-52 of the DEIS. This analysis concluded, “it is unlikely that neither the Proposed Action nor its alternatives would change either the habitat composition or human disturbance levels in the Project Area to significantly impact either the pine marten or fisher” (DEIS, p. IV-52).

K2. Areas of particular hard mast importance for bears should entail more significant consideration and management effort than simply retaining scarred trees. (4-2)

Habitat needs and disturbance issues are the two prime management considerations for black bear. The project area has been surveyed for bear use; findings are discussed on page IV-47 of the DEIS. “The greatest evidence of use (bear clawed scarring) was to the north of the Project Area extending into the White Rocks Recreation Area. Low levels of use were found in Stand 10, Compartment 27. Even there, overall use was light with only scattered pockets of moderate use.”

Mitigation Measure W-3 (DEIS, Appendix B, p. B-9) is designed to protect and enhance areas showing bear scarring on beech trees: “All healthy beech trees showing evidence of bear use and other suitable replacement trees will be identified and retained during tree harvest unit layout (Forest Plan p. 4.33). This is particularly important in Compartment 29 where signs of bear are evident. Provisions for their protection will be part of timber sale contracts. Post-sale bear habitat monitoring will be included as part of the Sale Area Improvement Plan to ensure that beech retention objectives were met for bear use of the area”.

DEIS pages IV-10 and IV-11 discuss how this project may influence future use of the area by off-highway vehicles (use that could influence the area’s suitability for black bear). Our analysis concluded “[G]iven the past effectiveness of road closures, the currently low levels of illegal OHV activities, the use of improved closures and law

enforcement in the Project Area, illegal OHV use due to the proposed activities should not increase above current levels”.

K3. However, the GMNF is mandated to manage vegetation to include the creation and maintenance of the full range of wildlife habitats, including those required by indigenous species such as the ruffed grouse, American woodcock, brown thrasher, golden-winged warbler, whip-poor-will, black racers and other wildlife utilizing early successional forest cover. The Proposed Action will allow for active vegetation management options that will partially mitigate for this failure, and likewise help offset cumulative, adverse effects on wildlife and habitat diversity which have resulted from it. (8-3)

The GMNF manages vegetation in accordance with our Forest Plan. The Plan identifies goals and objectives, and certain conditions that the forest should be moved toward (desired future conditions as defined by management areas). These conditions include a variety of habitats ranging from young-aged, early successional habitat to older, contiguous forest habitat. The Plan ‘allows’ the GMNF to use various timber harvesting techniques as tools to manage vegetation and move toward the desired vegetative composition.

The GMNF admittedly has not been able to meet Forest Plan objectives for vegetative composition (DEIS p. I-1, p. IV-22 through IV-24). As a consequence, some habitats such as young age classes (early successional) are lacking. The Greendale project presents a wide range of alternatives that look to improve vegetative composition and create early successional habitat.

K4. (MA 6.2A); Extensive portions of the DEIS are devoted to providing evidence that the most limited wildlife habitat on the GMNF is early-successional young forest cover, and a statement is made in this Section that even age management is the preferred silvicultural method for MA 6.2A. However, the Proposed Action for the subject DEIS fails to provide for, or even suggest, that stand-alone habitat regeneration treatments will be conducted in MA 6.2A even though the purpose of this area is specifically to manage for production of wildlife habitat. Further, the only treatments stated as planned for MA 6.2A are identified thinning and shelterwood harvest, neither of which, if not conducted in a manner which removes sufficient basal area (a parameter not qualified for either treatment in the DEIS), will create site conditions necessary to promote establishment of dense stands of shade-intolerant, pioneer tree species critically needed to provide early successional forest wildlife habitat. (MA 6.2A); the treatments identified for MA 6.2A in the Proposed Action are not sufficiently detailed to allow for assessment as to whether they will truly provide any meaningful early-successional forest component in “...this habitat...”. (8-5)

Shelterwood harvesting is the primary even-aged regeneration method for MA 6.2A (DEIS, p. I-11). It has been demonstrated that shelterwood harvesting can and does establish early successional habitat. When the project proposal for the Greendale area was developed, opportunities for regeneration harvests were found on 40 acres of MA

6.2A lands, and it was decided that shelterwood harvesting would be used to accomplish this rather than other methods such as clearcutting (none of the conditions for optimum use of clearcutting as stated in the Forest Plan, page 4.65, were found to occur in sufficient amounts in MA 6.2A lands).

The objective for these MA 6.2A lands is to favor softwood regeneration. The acreage of shelterwood harvesting on these lands was reduced to 32 acres in Alternative IV, the preferred alternative (DEIS, section 3.4.1.3, p. III-14; Table 3.3, p. III-17). It is anticipated that the unit proposed for delayed shelterwood harvesting (Compartment 32, stand 34) would be reduced to a basal area 70 to 80 square feet which we feel would provide conditions favoring the desired softwood regeneration.

K5. The subject text infers that creating habitat suitable for non-game or dubiously labeled “deep woods” species is in some manner contradictory to managing for habitats benefiting game species This inference tends to reinforce the commonly held misconception that most or all non-game species require mature forest conditions, and contradicts other sections in the DEIS which accurately report the high percentage of non-game vertebrate species utilizing young forest habitats. (8-6)

See response to comment K6, below.

K6. The subject text perpetuates the commonly held misconception that fisher, black bear and wild Felids (bobcat and, by association, Canada lynx) are dependant on “deep woods” (commonly interpreted by the public as extensive tracts of remote, unmanaged forest). Recent work on Canada lynx by Maine Inland Fisheries and wildlife biologists was highlighted at the 59th Northeast Fish and Wildlife Conference in Newport, R.I., and provided scientific evidence that actively managed, early successional forest cover is a beneficial habitat component for this species. Additionally, there is ample evidence in the literature that fisher and black bear make significant use of managed and early-successional forest cover³ and are frequently observed in close proximity to both roads, and residential areas throughout their ranges. To simply characterize these species as “deep woods” fauna only serves to exacerbate an already troublesome lack of public awareness as to the true habitat needs of these species and benefits of managing forest wildlife habitats. (8-7)

We concur that the term “deep woods” has variety of meanings, and uses; we’ve purposefully not used that term. “Deep woods” speaks more to human occupancy (both use type and extent) of a parcel, than it speaks of vegetative condition. In Vermont, reclusive species (like bear, bobcat and fisher) seek deep woods for dinning and rearing of young; while reclusive species may be observed near human occupancy, generally this is related to food searches.

The GMNF Forest Plan (p. N.07) defines deep woods as “large, remote area where mature and older wooded vegetation dominates and human activities may be present but few major disturbances occur”. Fisher, black bear, bobcat, and four-toed salamander represent deep woods species on the GMNF (Forest Plan p. N.08).

We concur that quality habitat for reclusive carnivores (e.g., fisher) and omnivores (e.g., black bear) is composed of a wide variety of vegetative conditions including wetlands, non-forested habitats, early successional forests and mature forests. The DEIS, page IV-47, states that “[B]ear require diverse habitat condition, including mature American beech in the autumn and berry producing shrubs found in swamps, natural and manmade openings, and old logging roads during other seasons.” The DEIS, pages IV-47 – IV-53, discusses the habitat needs of black bear, fisher, and bobcat, and how the Greendale project proposal addresses those needs.

K7. One of the justifications for timber cutting is to provide early successional habitat for white-tail deer. This ignores the fact that white-tail deer numbers are likely elevated far above pre-European settlement numbers and certainly are abundant throughout the U.S. to the point of "pest" status in many areas including nearby Massachusetts. (53-15)

K9. For example, one of the justifications for timber cutting is to provide early successional habitat for species like whitetail deer. This ignores the fact that whitetail deer numbers are likely elevated far above pre European numbers and certainly are abundant throughout the US to the point of "pest" status in many areas including near-by Massachusetts, New Jersey and elsewhere. Trying to increase whitetail deer numbers is a questionable goal given other priorities that the FS could be trying to achieve such as adding to old growth forest habitat and increasing habitat for species that are dependent on old growth forests. (65-2)

Comments K7 and K9 will be addressed together here. The Forest Service and the State of Vermont work closely together to manage white-tailed deer (see also response to comment H1). Forest Service policy related to fish and wildlife populations can be found in Forest Service Manual 2610.3 (1), which states the Forest Service will “[R]ecognize the role of the States to manage wildlife and fish populations within their jurisdictions...”

Vermont has developed a white-tailed deer management plan for the decade of 1997 through 2006. This plan establishes population goals for each Wildlife Management Unit (WMU) in Vermont. The annual deer harvest goal for WMU L, which contains the Greendale project area, is 325 bucks; this WMU’s average annual harvest (for the 5 years preceding this plan) was 299 bucks, a difference of 8%. WMU L’s harvest for 2001 was still below the State established goal for the unit.

Direction for MA 4.1 can be found in the Forest Plan, pages 4.107 - 4.114. Stated purpose of this MA “emphasizes deer wintering area and provides, suitable stable habitat to meet deer needs during the winter”; this purpose is reiterated on DEIS page I-9.

Efforts to improve white-tailed deer habitat, as part of the Greendale proposal, is aligned with both State of Vermont and GMNF management goals.

The Forest Plan also discusses goals for old growth habitats, and establishes management direction to add (through aging) nearly 160,000 acres to GMNF's old growth community. See also response to comments F1 and H7. We feel that the Forest Plan adequately addresses the needs for both deer winter and old growth habitat, that these conditions are not mutually exclusive, and that each can exist on the GMNF. Deer are just one of many of the approximately 65 percent of the GMNF's vertebrate species that utilize early successional habitat (DEIS, p. I-2).

K8. The GMNF should retain all healthy beech in the hope that genetic variety will allow some individuals resistance to the epidemic now destroying this species. Much has been said about the importance of beech mast to bear populations, but there is every reason to fear that healthy, mature, productive beech may soon be nonexistent here in Vermont. Stump- sprouted genetic clones of sick trees may be all that will remain of this beautiful tree. Preserve any and all trees that show resistance here on the GMNF. (56-3)

The Forest Plan (p. 4.31-4.33) has determined standards and guidelines for beech mast trees. "Snags, den trees, nest trees and mast trees will be reserved during timber management activities in sufficient quality, quantity, and distribution to maintain well dispersed, self-sustaining populations of all snag, den, nest, and mast dependent wildlife indigenous to the Green Mountain National Forest." "Mast Trees- Species, which provide nuts and fruits. These include the oak group, American beech, hop hornbeam, and black cherry." "Leave large mast trees because they can provide mast, cavities and dens at the same time. Species to be considered will be oaks, bear clawed beech, hop hornbeam, and black cherry." The Greendale Project applies these standards and guidelines (DEIS, p. I-14 – I-15; p. IV-47; Appendix B, p. B-9).

Dr. David Houston (retired), Forest Service pathologist, was the principle researcher working on beech resistant to the beech bark disease. Dr. Houston was consulted and reviewed the Forest Plan standards and guidelines regarding beech leave trees. The Beech Bark disease "killing front" in Vermont occurred in the 1960's. During that time, large numbers of beech trees were killed. The aftermath forest now is composed of beech trees with varying degree of resistance to beech bark disease. The better looking (phenotype) trees will have a greater probability of having resistant genes. These characteristics are incorporated in the selection of reserve trees.

L. Impacts on Understory Plants

L1. I still question the appropriateness of all the proposed overstory removals particularly as relates to adequate protection of the understory. (4-3)

We recognize, and are concerned, that some understory trees will be damaged from logging equipment or by felling of larger trees. Our experience however, over decades,

has shown that using the shelterwood system of regeneration is very successful in growing new stands of timber. Because of the large number of seedlings/saplings per acre, and the fact that damaged young trees will resprout if damaged during the winter months, we feel this would not negatively affect stand development in the long term. In addition, once the mature trees have completed their role in establishing the new stand, harvesting these trees while they still have economic value provides valuable wood products for public consumption.

L2. Throughout the DEIS there is almost no concern expressed for herbaceous and shrub understory floral composition. (53-19)

L3. Throughout the document there is almost no concern expressed for understory floral composition. Yet at least some studies suggest that logging can affect understory composition for decades or centuries. (65-15)

Comments L2 and L3 will be addressed together here. Prior to this proposed harvest, just as with any other ground-disturbing project, plant surveys were conducted by a botanist with particular emphasis on all potential rare plant habitat for plants that are on the RFSS (Regional Forester's Sensitive Species) list. Reviews of existing botanical documents that pertain to that area were also conducted. Any plants on the RFSS list that are found either during field surveys or literature review would be protected through mitigation measures and/or their entire habitat/area would be removed from the project site. Monitoring would also be scheduled for post-harvest, to ensure that mitigation measures were properly implemented and effective (see DEIS, Appendix C, p. 48). A more general discussion of the understory occurs in the DEIS, pages IV-36 – IV-38.

M. Economic and Social Accounting of Impacts

M1. Alternative IV will have the greatest positive impact on economic benefits and creation of jobs. Also, thanks for showing the dollar return to local towns (\$340,850) which will be generated. Since all Vermont towns with national forest lands receive a proportionate share of these revenues, the Town of Granville where I live and serve on the selectboard will be directly and positively benefited. Sale of this timber will be profitable for the taxpayers by a large margin and that is a good thing. (2-3)

This comment is noted. Alternative IV does show the highest estimate of returns to local towns. The actual return would be dependent on what gets harvested (stumpage revenues).

M2. The accounting of the economic and social impacts of the alternatives is incomplete and inadequate. One fundamental flaw in the analysis is the failure by the agency to consider, as required by law and agency direction, the full range of economic and social benefits and costs that would result if logging did not occur. The Greendale DEIS addresses only economic values relating to

timber production, and only a fraction of those; it does not consider all the non-timber economic values as required by law. (53-31)

The information provided is complete and adequate. An economic analysis was completed and may be found in the Greendale DEIS, pages IV-86 - IV-94. The rationale for the analysis method is explained, as is the use of the Quick-Silver Investment Analysis software to arrive at the figures shown in Table 4.9.3 on page IV-91. Present Net Value was calculated by the Quick-Silver program and is presented in the table for comparison by alternative. Other data was produced by the program and may be found on the Quick-Silver runs included in the project file.

As is pointed out on page IV-86 - IV-87 of the DEIS, the disclosure of economic effects under NEPA is limited. NEPA does not require an analysis of a full range of economic and social benefits and costs with or without logging, nor does NEPA require a quantitative, monetary analysis of non-commodity resources (40 CFR 1502.23). The Forest Service Manual (FSM 1970.6) provides non-binding guidance as to the scope of economic analysis required in project decision-making: “the responsible line officer determines the scope, appropriate level, and complexity of economic and social analysis needed.” The Deciding Official has considerable discretion in determining the appropriate level and type of economic analysis required for the project decision. For this analysis, the Deciding Official determined which costs and benefits were needed to present a clear picture of the project’s economic efficiency and feasibility, provide a thorough understanding of the net public benefits to be produced and at what cost, and determine the economic impacts. With guidance from the Deciding Official, the project interdisciplinary team (IDT) developed the economic model and completed the analysis for all alternatives considered (DEIS, p. IV-86 - IV-96; Quicksilver printouts, economic data in project file).

The National Forest Management Act (NFMA) states that environmental decisions be made for reasons other than to produce the greatest economic return, and it directs us to consider “the management of all the various renewable resources....so that they are utilized in the combination that will best meet the needs of the American people....with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output” (36 CFR 219.3 & 219.27(b)(3)). The benefits of this project are both monetary and non-monetary. Creation of needed wildlife habitat, enhancing vegetative diversity, improving stream and fish habitat, promoting healthy, vigorous forest, and providing wood products for consumption are just some of the added benefits of the Greendale Project. The effects of our proposed actions on these “environmental amenities” are fully disclosed in Chapter IV of the DEIS. The analysis of these effects was completed by the project IDT in accordance with NEPA.

As noted above, an economic analysis for the individual Greendale timber sale was completed by the project ID team as directed by the Deciding Official, and in accord with his/her discretion. This sale analysis is only one small component of the overall timber

sale program and is in compliance with all Forest Plan direction and Forest Service handbook guidance for managing timber sales on the GMNF.

M3. Not only is the Forest Service's estimate of timber sale costs incomplete, the costs that it has included in its analysis are based entirely on average costs incurred per MBF (thousand board feet). The agency applied these "multipliers" to the total MBF expected from each alternative to calculate the timber-sale-related costs. This approach is too simple and yields misleading and illogical results. (53-32)

Using average costs for estimating overall project costs is not unusual. We have used this process many times in the past as it gives the decision maker a reasonable breakdown of costs per alternative. We have considered past outputs from previous similar harvests. We compiled some work sheets on types of harvest to get an estimate of what the average volume might be if the timber were harvested as proposed. These estimates are included in the project file, item D-10d4 (back page) and item 10d5. By making these estimates, the Deciding Officer then can easily compare the economics of the various alternatives.

M4. Compounding this problem is the agency's estimates of timber yields generated by alternatives. The per-acre yields assumed by the agency were sometimes illogically applied, resulting in misestimates of total timber volume and, therefore, of timber-related revenues and costs. For example, the following yields were used by the Forest Service for logging hardwoods in the Greendale Project area:

Type of Cut	MBF/Acre Yield
Clearcut	6.0
Shelterwood—1 st Cut	6.0
Delayed Shelterwood—1 st Cut	9.0
Individual Tree Selection	5.5

The illogic of using these yields interchangeably on the same acres in the Greendale Project area should be apparent to anyone with a basic understanding of these different types of cuts, as should be the incorrect estimates of total yields, timber-related costs, and timber revenues that would result from their application. Moreover, the DEIS provides no explanation of the substantially greater volume the agency intends to remove in areas proposed for Delayed Shelterwood cuts. Instead, the Forest Service promotes the benefits to visual quality provided by Delayed Shelterwoods. How the agency can remove 50 percent more volume per acre without diminishing visual quality is puzzling, and deserves explanation in the DEIS, as does the nearly equal timber yields due to clearcuts, standard shelterwoods, and individual tree selection. (53-33)

The use of estimated per acre average yields to estimate the amount of timber potentially produced is a typically logical process used to provide equally comparative output

estimates among alternatives. At an earlier point in this project, the detailed cruising needed to determine true yields would have been costly and time prohibitive. Instead, we estimated yields from similar completed harvests. There are a number of reasons why the estimated yields might not follow the trend of having the heaviest (most intensive) type of harvest always yielding the most timber (MBF yield). Timber harvests occurs on a variety of sites, with a range of tree stocking and tree quality. Therefore, the sample size of the pools of harvest yields from which we obtain average figures can vary. The larger the sample size, the more confident we are of the estimate. In some cases, the sample size for some harvests may be small due to lack of past examples.

The delayed shelterwood prescription is not used as commonly as the standard two-cut shelterwood method. Therefore, at the time of this analysis, an average figure from only four delayed shelterwood harvests could be calculated. This may yield a high estimate. You question why a stand being clearcut would have a yield estimate the same as a stand receiving a delayed shelterwood? One reason is because the Forest Plan, in certain cases only, restricts the use of clearcuts to stands in poor condition, and therefore, they generally have poorer stocking, timber quality, and therefore, lower yields. Also, clearcuts are not clear felled; they do have a minimum of 5-7 trees/acre in wildlife reserve trees and this could result in less volume being harvested. Thus, in this case it is possible that higher estimated yields may occur for delayed shelterwoods than for clearcuts. One key point to keep in mind, is that regardless of the accuracy of the yield estimates, these estimates are being applied to all alternatives, thus not hindering the decision maker's ability to compare alternatives.

However, your concern is valid. Implementing two different harvests on the same piece of ground would most likely generate different volume outputs. We find that with more recent gathering of stand data information, the silviculturist is now able to provide a better estimate of yields resulting from Compartment 27, stand 10. This stand is where we believe the issue exists, regarding the various alternatives proposing either delayed shelterwood harvest for a portion of the stand, or clearcutting. The information for that stand has been refigured for the Proposed Action, Alternative III, and Alternative IV. The data has been run through the software program to recalculate the estimated revenues and other economic information that results. This has resulted in an edited version of Table 4.9.3, included in the Final EIS. We intend to provide the best stand yield estimates possible.

We acknowledge that revenues generated by the sale of timber are significant and are the only action in this project that generates such a direct level of revenue compared to other actions described in the EIS. However, the maximum financial rate of return, revenue generated, or profit to the Forest Service is not the primary reason for taking a course of action (i.e., making a decision).

In regards to visual impacts of harvests, by following the Forest Plan guidelines, the moderation of visual effects resulting from a delayed shelterwood occurs because more trees are left in the stand but they are smaller size than in a typical shelterwood, and therefore, may produce less adverse visual effects. This implies that larger trees, and thus

more volume, would be removed from a delayed shelterwood cut. Visual impacts are also lessened by reserving the remaining trees on site for 40-60 years as opposed to final overstory removal harvest typically done within 6-10 years. This is not to say that there would be no visual impacts from the harvesting. It is simply that the Forest Plan specifically encourages us to employ this type of harvest as desired, to minimize visual impacts in certain situations.

M5. The DEIS does not consider the economic impact that logging will have on non-timber values. The Forest Service does not consider these externalized costs in the DEIS. (53-34)

M6. Failure to incorporate externalized costs into the DEIS violates numerous statutes, regulations, and rules governing Forest Service management. (53-35)

Comments M5 and M6 will be addressed together here. Please see response for M2, wherein the rationale for the level of economic analysis completed for the Greendale Project is explained. An extensive quantitative and qualitative economic analysis was completed in accordance to regulation during formulation of the GMNF Land and Resource Management Plan. Details may be found in its DEIS, Final EIS, and Record of Decision for the Forest Plan. It included a full economic assessment of the GMNF timber program.

The Multiple-Use Sustained-Yield Act (MUSY), 16 U.S.C. 528, states that the national forests shall be administered for outdoor recreation, range, timber, watershed, and wildlife and fish purposes. In regards to the definition of “multiple use” found in 16 U.S.C. 531, it also states that consideration [shall be] given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output.” MUSYA does not require the agency’s resource management decisions to be determined by economic efficiency. MUSYA’s mandate to give “due consideration” to the “relative values” of “various resources” gives considerable discretion to the Deciding Official with regard to the type, amount, and degree of analysis needed to support its management actions. Furthermore, consideration of resources is provided throughout the discussion of environmental effects in Chapter IV of the DEIS.

M7. Failure to incorporate into the EA information about the social and economic implications of the proposed action violates numerous statutes, regulations, and rules governing Forest Service management. The requirements to consider all benefits and costs are found in the Multiple-Use and Sustained Yield Act, the Forest and Rangeland Renewable Resources Planning Act, the National Forest Management Act, the National Environmental Policy Act, and Forest Service regulations and rules. (53-36)

An economic analysis for the Greendale Project was completed and discussion may be found in the DEIS, pages IV-86 - IV-94. The footnote section of Table B.04 (p. B.13) in the GMNF Forest Plan lists 32 selected benefits of vegetative treatments. These are in

three main categories, Wildlife, Recreation, and Timber, and these benefits result from the implementation of an integrated timber sale program. Since it is difficult to determine costs and revenues accurately for benefits like creating early successional habitat, providing pedestrian access, hunting, fishing, or offering opportunities to cut fuel wood, these items are thought of as non-priced benefits that occur when a project is implemented. The ‘effects’ of these non-priced benefits and the value that they give to the project is fully discussed in qualitative terms in Chapter IV of the DEIS. See also the response to comments M2, M5, and M6.

M8. The Forest Service acknowledges that the Greendale DEIS does not account for all of the financial costs and benefits of timber production.²⁴ This means the agency has no way to determine, as required by the GMNF LRMP, if the proposed timber sales will generate financial revenues greater than financial costs. Approving the Greendale Project without performing the required financial benefit-cost analysis would be arbitrary and capricious, and a violation of the GMNF LRMP. Forest Watch requests that the required full accounting of financial benefits and costs be performed in the Final EIS. (53-37)

The economic analysis presented on pages IV-86 - IV-94 of the DEIS considers the appropriate costs and revenues according to direction (see responses M2, M5-M8 above). The summary of costs and revenues, along with present net values, is shown in Table 4.9.3 on page IV-91. These figures show a positive “above cost” result. The ‘value’ of this figure is the ability of the Deciding Officer to compare it against the present net values for all alternatives. As explained in many of the comments above, the qualitative ‘value’ of non-priced benefits is disclosed in Chapter IV.

M9. The economic analysis in Section 4.9.4.3.2 of the DEIS should be expanded to better describe the cost of recreational and other use values foregone temporarily or permanently as a result of harvesting activities. Adding a discussion of the social benefits and costs of the various harvesting alternatives would help to balance the current discussion presently dominated by projections of the project's forecasted revenues and costs. An example of areas that could be expanded in the discussion is the potential for the temporary loss of angling opportunities. (68-7)

This project generally would provide many of the non-priced benefits listed on Forest Plan page 4.60, in Section C of Chapter IV (Goals, p. 4.04-4.09), and in the footnote for Table B.04 (p. B.13) in the Plan. We are not required to do this at the site-specific level. This topic was fully addressed when developing the Forest Plan per NFMA regulations. Some indication of the general magnitude of the foregone opportunities, in particular those related to social values such as recreation, may be useful. Some of these are inherent in the discussion of the effects of harvesting on various resources in Chapter IV of the DEIS.

The following additional benefits to the public would result from implementation of the types of harvests proposed in Alternative IV. They are in three main categories listed in

the footnotes to Table B.04 in the Forest Plan. In addition to the specific non-priced benefits in Section A.7., points a.-e., listed on Forest Plan page 4.60, the benefits listed below would occur with the implementation of Alternative IV.

	Wildlife	Recreation	Timber
Clearcuts	1,2,3,4,7,9	1-7	1,2,3,4,5,6
Delayed Shelterwood	1,3,4,7	1-7	1,2,3,4,5,6
Thinnings	7	1,2,3,7	2,4,6
Group Selection	1,4,5,7	1,2,4,5,6	1,2,3,4,5,6
Single Tree Selection	1,5,7	2,3,4	1,2,4,5,6

The following tables are taken directly from page B.13 of the Forest Plan.

Wildlife

1. Regenerate winter cover for deer
2. Regenerate aspen
3. Establish permanent wildlife openings
4. Create temporary openings – early successional habitats
5. Convert to softwood in deer wintering areas
6. Convert to aspen
7. Improve regeneration of mast producing species
8. Perpetuate hemlock
9. Preserve or regenerate uncommon vegetative types

Recreation

1. Enhance Off Road Vehicle opportunities
2. Improve opportunities for dispersed camping, hiking and cross-country skiing
3. Improve visual quality along road
4. Provide pedestrian access
5. Provide opportunities for berry picking
6. Create vista(s)
7. Provide parking opportunities

Timber

1. Replace mature, high risk, low quality, sparse stands with vigorous, young growth
2. Provide fuelwood
3. Release young softwood stands
4. Salvage dead or dying material
5. Begin conversion from even-aged to uneven-aged condition
6. Improve merchantable growth on highly productive sites

There are no recreation related Special Use Permits (SUP) within the Greendale Project area. Due to this fact, there are no directly measurable recreational economic (revenue) impacts connected to this project.

There would be no indirect negative measurable economic effects of timber harvesting on recreation snowmobile and ski trails as use levels are expected to remain stable, and snowmobilers and skiers use the trails created by timber harvesting.

Some indirect, but not measurable, positive economic benefits may result from improvements to trails that are temporarily impacted. Mitigation Measure R-3 (DEIS, Appendix B, page B-4 has been amended in the FEIS to read “As part of the provisions of the timber sale contract, require the timber purchaser to rehab any impacted trail upon completion of the timber sale. This work would consist of restoration of existing water bars, seeding and mulching areas of disturbed soil, clearing of logging debris from trails, removal of hazardous leaning trees or tops caused by the logging, replacement of any damaged or missing trail signs/blazes, and smoothing of any ruts as a result of harvest activity”.

The requirement for repairing any logging impacts will result in improved long-term recreation trails and more positive visitor experiences. This may result in additional visitor spending on items relating to skiing and snowmobiling.

Indirect, but not measurable, positive economic recreational benefits may be realized from increased hunting opportunities due to improvements to forest and early successional wildlife habitat, including habitat for deer and grouse (DEIS, sections 4.1.3.4 on p. IV-9; 4.1.4.2 on p. IV-12; 4.4.3.5.3 on p. IV-44). Increased hunting opportunities may also result in increased camping at Greendale Campground and/or purchases of items related to hunting.

Additional positive economic recreational benefits may also be realized from improved fishing opportunities resulting from restoration of aquatic habitat and fish habitat on approximately 2,500 feet of Jenny Coolidge Brook. The desired condition calls for stream habitat that increases productivity for native brook trout and Atlantic salmon and restores aquatic habitat for other aquatic species on National Forest System Lands. Increased fishing opportunities may result in increased camping at Greendale Campground and purchases of items related to fishing.

N. Soil and Water / Wetlands

N1. B.1.3 Soil and Water Resources. (B-5) S-2 & S-3 reference "excessive erosion." This is an inviting red flag for those opposing proactive management. You should have a standard, some sort of measure, to identify excessive erosion and how you determine that before it could occur. (9-2)

The term “excessive erosion” has no standard definition. It is a judgment call made during monitoring. Quantifying erosion is a time consuming and expensive task, usually

only done in the context of a research project. In lieu of initiating such a project, excessive erosion may be indicated by the presence of gullies, ruts, or sediment entering a stream. It can occur on improperly designed or maintained haul roads, skid roads, log landings, hiking trails, or any other area where soil is disturbed or exposed. It can also occur in response to unusually heavy rains, even when erosion control measures are in place. The best way to prevent excessive erosion is to monitor management activities to assure that all erosion and sediment control measures (the applicable standards and guidelines (S&Gs), Acceptable Management Practices (AMPs), and mitigation measures) are in place, and functioning properly. This minimizes the risk of sediment entering streams. The FS timber sale administrator does this monitoring on each visit to a harvest unit.

Excessive erosion is uncommon in our harvest units (Soil, Water and Fish Monitoring on Timber Sales on the Green Mountain National Forest, 1992-1999, p.5, 2nd full paragraph, and p. 11, last two rows of the table). If it is observed, erosion control measures are implemented as soon as possible to correct the problem.

Mitigation Measure S-2 in Appendix B of the DEIS (p. B-5) reflects guidance according to standard and guide C.15 (see Forest Plan, p. 4.24), stating: “ Skid trail grades will exceed 15% only in short pitches where soils are drained well enough to allow erosion control structures to be maintained in working order at all times.” In most cases, skid trail grades on the Greendale sale would be on grades of less than 15%. However, skid trail grades over 15% grade would be allowed where they meet the following guidelines:

- a) In general, the length of skid trail grades over 15% does not exceed 200-300 feet.
- b) Erosion control structures can be maintained in working order.
- c) Water bars are spaced close enough such that gully formation is absent or minor. In general, “minor” gully formation means gullies occupy only a small percent of the harvest unit, they are less than 50 feet long, less than one foot deep, do not result in sedimentation, and are repairable (can be filled in or smoothed) following use of the skid trail.
- d) Use of the skid trail will not increase the risk of sedimentation. In general, this is achieved by not allowing grades over 15% near streams.
- e) Construction of or use of the skid trail will not cause sideslope instability.

It is important to note that short pitches of grades over 15% are frequently used to avoid stream crossings, or avoid passing through shallow or wet soil areas. Also, sometimes existing skid trails having grades over 15% are used assuming they meet guidelines a) through e) above, to avoid building new and longer skid trails on grade of less than 15%. By allowing occasional exceedances of the 15% grade, while still fully consistent with the S&G as described above, we minimize the overall adverse soil and water impacts in a harvest unit by reducing the total amount of ground disturbance that would result from using existing skid trails versus constructing new ones.

N2. Compartment 45 is filled with unnamed and unmarked watercourses, small wetlands, and vernal pools. Spring is an ideal time to mark protective boundaries around these areas and only winter logging should be allowed. (56-5)

There are several small streams (ephemeral and intermittent), seeps and wetlands (most less than 500 square feet in size) in the compartment (DEIS, 4.6.2, p. IV-68 - IV-69). We know of no vernal pools in the compartment based on field visits by the Forest Service hydrologist and soil scientist (field notes of field visits dated 7/22/03 and 8/4/03 in the project file). If any vernal pools are found (phone conversation with commenter documented in project file), they will receive the same protection as other wetlands (mitigation measure S-9 from DEIS, Appendix B, p. B-6, as amended in the FEIS; see below in this comment for the new language of S-9). Spring is the easiest time to see the streams, seeps and wetlands, but they can also be identified in summer by observing the soil wetness and vegetation. Mitigation measure S-9 would provide protection. Mitigation measure S-9 has been amended in the FEIS to read as follows:

S-9 - Protect Class II wetlands, Class II riverine wetlands (Greendale Brook, Jenny Coolidge Brook, Utley Brook, and an unnamed stream along the northeast boundary of Compartment 45, near FR 16), and Class III wetlands greater than approximately 1/10 acre in size by not allowing logging within 50 feet of any of these above mentioned wetlands. All other Class III wetland areas are protected by winter logging. In addition, no logging will be done on inclusions of poorly drained soils. Flagging of these areas will be done during sale layout by qualified district staff.

N3. Why is it a good idea to cut around nearly the entire shoreline of the small pond on the east side of Moses Pond Road. The trees on the hillside down to the pond have greater economic value than much of the very young forest that dominates that area, but economics aside, I can see no justification for cutting in a well-spaced hardwood stand with a pond at the bottom. While I endorse roadside cutting (the public should see how its forest is managed), the pond deserves a hundred foot buffer, and this stand should be limited to winter-only cutting. (56-8)

Compartment 30, stand 5 is the area around this small pond and the management proposed is a selection cut during winter only (DEIS, Table 4.6.3, p. IV-75). There would be a 50-foot buffer around the pond where no logging would occur (mitigation measure S-9 from DEIS, Appendix B, p. B-6, as amended in the FEIS; see comment N2 above for the new language of S-9). There would be an additional 15 feet of filter strip. This buffer and filter strip would be adequate to protect the riparian area habitat. An existing skid trail is located in the upper part of the hillside, near FR 29, based on field visits by the Forest Service hydrologist and soil scientist (field notes of field visit dated 7/22/03 in project file). Logs would be skidded to a landing nearby, on the opposite side of FR 29. Erosion and sedimentation would be minimal in the project area, including Compartment 30, stand 5, by following Forest Plan standards and guidelines, Vermont's Acceptable Management Practices (AMPs), and mitigation measures (DEIS, p. IV-70 – IV-71).

N4. The discussion explaining harvest procedures in the riparian zone gives the impression that the proposed activity would not be in compliance with the guidelines set forth in "Acceptable Management Practices (AMP) for Maintaining Water Quality on Logging Jobs in Vermont," published by the Vermont Department of Forest, Parks, and Recreation. For example, information presented in Section 4.6.4.1 of the DEIS and Appendix B.1.3 states that trees that currently provide stream bank stability would be left standing, as well as at least 10 large diameter trees per 1000 feet of stream. However, it remains unclear how many trees within the riparian zone would be removed and whether the Forest Service will apply the AMP to riparian areas to protect water quality. A more detailed discussion on this topic in the FEIS is warranted. (68-1)

The State of Vermont's AMPs focus on preventing sedimentation in timber harvest areas. The AMPs are similar to the GMNF Plan standards and guides, and both provide similar and sufficient protection for riparian areas, including protection of water quality. The GMNF Forest Plan standards and guidelines, Mitigation Measures S-1 – S-11 (DEIS, Appendix B, p. B-5 – B-7), and Vermont's AMPs would be adhered to. Based on past observations of our timber harvest activities, sedimentation would be minor (see DEIS, p. IV-70 – IV-71 for more information).

The reference to a minimum number of large diameter trees (DEIS, Appendix B, p. B-6, Mitigation Measure S-7) is a standard intended for large woody debris (LWD) recruitment. This standard would be met, and in addition, many more trees would be left in the riparian area to maintain a continuous cover.

N5. The discussion of wetland resources at Section 2.2.3 of the DEIS states that both small and large wetland complexes exist within the project area and that the proposed action will not compromise their ecological characteristics or the contribution that surrounding forest stands make toward their value. This statement is apparently contradicted by the discussion in Section 4.3.3 of the DEIS, Environmental Effects, which notes that the proposed action and its action alternatives may impact individuals of or habitat for these species: eastern small-footed bat, Jefferson salamanders, wood turtle, several odonates, Tuckerman's pondweed, floating bur-reed, round-leaved orchis and several other plant species associated with rich woods, wetlands and ponds. This discrepancy should be clarified in the FEIS. (68-3)

Although the discussion in the DEIS may seem contradictory, section 2.23 and 4.32 are referring to two separate (although associated) resources. The *conclusion* for aquatic and wetland species (Appendix C, p. C47) is that, even though the proposed action and its alternatives may impact individuals or their habitat, Forest Plan standards and guidelines should provide adequate protection, which is in keeping with the concern expressed in section 2.2.3.

N6. The analysis should be expanded to include a more comprehensive description of the wetland types and functions in the project area and include illustrations of wetland areas relative to the alternatives identified. (68-4)

Information regarding the location and characterization of the larger wetlands is available on the National Wetlands Inventory maps available in the Supervisor's Office (U.S. Dept. of the Interior, Office of Biological Services, 1977). These will be included in the project file.

Review of these maps reveals there are no Class I, and 62 Class II wetlands in the project area. Out of those 62 wetlands, 15 are within approximately 0.1 mile of a proposed harvest activity. These wetlands vary in size from 0.13 to 5 acres. Five wetlands are streams (riverine); one wetland is lacustrine (lake); and the remainder are palustrine (forested wetlands with evergreen or deciduous trees, or scrub-shrubs). These wetlands function as transitional areas from upland to deep-water habitat, as storage areas to prevent flooding after major storm events, and as filters to purify water. They also stabilize shorelines to prevent erosion, recharge groundwater, provide habitat for fish, wildlife, and migratory birds, and provide opportunities for hunting, fishing, trapping, and other recreational activities (Wetlands, Rules and Regulations, UVM Extension Service). All Class II wetlands are excluded from harvest activities, and also have a 50 foot buffer strip where no harvest is allowed (mitigation measure S-9 from DEIS, Appendix B, p. B-6, as amended in the FEIS; see comment N2 above for the new language of S-9).

Numerous smaller wetlands, most less than one-half acre in size, exist in the project area, and are unmapped. Most of these are forested wetlands. All wetlands greater than 1/10 acre in size would have a 50-foot buffer where no logging is allowed, regardless of the proposed management activity in the stand (again, mitigation measure S-9 as amended). Small wetland areas less than 1/10 acre are protected by winter logging. There would also be a filter strip of undisturbed soil to prevent siltation and to protect the soil's infiltration capacity (Forest Plan, p. 4.19, Section A.4.a). The width of the filter strip depends on the land slope and soil erosion potential:

Slope	Width
1%	50 ft.
10%	65 ft.
20%	95 ft.
30%	125 ft.
40%	155 ft.
50%	185 ft.
60%	215 ft.

These areas would be protected by assuring that the Forest Service hydrologist works with the marking crew to identify sensitive areas, as specified in mitigation measure S-9, (as amended). Forest Service logging activities are in full compliance with Federal and

State Wetland Regulations (33CFR 323.4(6) and Vermont Wetlands-Laws and Voluntary Techniques for Conservation, p.52).

N7. The analysis could be strengthened through the addition of maps depicting environmental resources and unique heritage sites, including wetlands and streams, soils, and potential threatened, endangered and sensitive species within the project area. (68-5)

This type of information is included in the project file and did play an important part in the analysis. Most of this information is available for public review except certain aspects of heritage sites and threatened and endangered species sites that are not made public as a measure of protection. It also is available to the decision maker when evaluating effects and deciding upon actions. Only certain map features can be meaningfully displayed in the DEIS so as to be easily understood by the readers.

N8. There is no description of how the mitigation proposed (Appendix B) will consider the ecological characteristics or the contribution of surrounding forest stands toward the wetland values described in the DEIS in Section 2.2.3. (68-6)

All effects related to resources that have interconnectivity with wetland ecosystem functions (i.e., soils, water, TES, etc.) are disclosed in the DEIS (DEIS, p. IV-21, IV-28, IV-70, and IV-79). AMPs, Forest Plan standards and guidelines, and site-specific mitigation measures designed to protect the soil and water resources and minimize impacts including those to wetlands would be adhered to. Monitoring these types of measures for similar activities in the past have shown them to successfully protect wetland resource values (DEIS, p. IV-70 – IV-71, and DEIS, Appendix B – Mitigation Measures S-4, S-6, S-7, S-8, S-9). Taken together with AMPs and standards and guidelines, mitigation measures specific to minimizing impacts to the wetland resource have taken into consideration the impacts to the surrounding vegetation and other resources that contribute to their healthy function (Forest Plan, Section C.1, p. 4.34). There would be very minor effects to the various resources that make up the existing wetlands within the project area, thus there would be very minor effects to wetland functions or values from the proposed action or alternatives (DEIS, p. IV-41).

O. Recreational Impacts

O1. Would re-routing of recreation trails require new construction of trails or result in re-routing snowmobile traffic in or near deer wintering areas? (4-5)

There would be no new construction of trails in any of the listed alternatives (DEIS, p. IV-6). All re-routes are outside of areas that are classified as deer wintering areas.

O2. We request that the GMNF keeps open to skiers and snowshoers either FR 18 (north of the intersection w/ FR 17) or the combination of FR 17, Coolidge Connector, and Greendale Trail. Otherwise there will be no safe access to the CT as it heads north from the north end of FR 18 toward Route 155. (5-1)

This concern has been addressed by the mitigation measures noted in the DEIS, Appendix B, pages B-3 - B-4, specifically R-1, R-2, R-3, and R-6.

O3. We request that the GMNF takes every effort to keep contractors on schedule to minimize the duration of the impacts on skiers and snowshoers. (5-2)

The Contracting Officer Representatives and Sale Administrators would use all legal tools to ensure contracts are executed as promptly as possible. Additionally, as previously mentioned in response O2, numerous mitigation measures would minimize impacts to skiers and snowshoers.

O4. We request that the GMNF posts sufficient warning and directional signs at parking areas and trail intersections to ensure the safety of skiers and snowshoers. (5-3)

This is a reasonable and desirable mitigation measure that will be incorporated into the FEIS.

O5. We request that the GMNF notifies CTA approximately one month before logging activities begin so CTA can temporarily remove trail blazes and post new ones, as appropriate, and alert trail users of any temporary reroutes. (5-4)

This is a reasonable and desirable mitigation measure that will be incorporated into the FEIS.

O6. We request that the GMNF returns the CT to its condition prior to logging (or better) as soon as possible. (5-5)

As stated in response O3, the Contracting Officer Representatives and Sale Administrators would use all legal tools to ensure contracts are executed as promptly as possible.

Mitigation Measure R-3 (DEIS, Appendix B, p. B-4) has been amended in the FEIS to read, "As part of the provisions of the timber sale contract, require the timber purchaser to rehab any impacted trail upon completion of the timber sale. This work would consist of restoration of existing water bars, seeding and mulching areas of disturbed soil, clearing of logging debris from trails, removal of hazardous leaning trees or tops caused by the logging, replacement of any damaged or missing trail signs/blazes, and smoothing of any ruts as a result of harvest activity. At the completion of summer harvesting, restoration will take place no later than October 15 of each year during the life of the timber sale...".

O7. Some of the winter recreational trails in the Greendale area also travel over portions of Okemo and Coolidge State Forests. It will be important for the Forest Service to work closely with its trail partners and the public to make sure

that alternative trails are well marked and maintained while the logging operations are active. (11-2)

Under all alternatives, recreational trail travel routes would be maintained so that there would be no effect on Okemo and Coolidge State Forests. As noted in Responses to Recreational Impacts O2, O4, and O5 (above), the Forest Service would work closely with trail partners and the public to ensure that alternative trails are well marked and maintained while logging operations are active.

P. Miscellaneous Topics

P1. Clearcutting/Extensive Logging; Relationship to Economic Impacts

P1-1. Clearcutting and extensive logging is a shortsighted approach to managing the forests. These ideas are also passé and will be looked upon in the future as man's inability to give up methods that do not protect our future. Loggers who may get jobs now will cut themselves out of work for decades to come.

Cut the trees...we will not come...the economy will worsen...and the federal government will get blamed again for catering to cooperate dollars without regard to the average citizen. (27-1)

See responses B1, H8, and I2. The Multiple Use Sustained Yield Act of 1960 calls for “the achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewal resources of the National Forests”. The National Forest Management Act (NFMA), and the rules and regulations that guide its implementation, dictate that Forest Plans “provide for multiple use and sustained yield of goods and services” (CFR 219.1).

The GMNF Forest Plan was derived to maximize public benefits with a mix of diverse resource outputs through the planning period (Forest Plan p. 4.03-4.14; Forest Plan Record of Decision, p. 6). It was designed to provide for a sustained yield of forest products (Forest Plan Record of Decision, p. 38). This in turn, will protect our future and ensure jobs in the forest products industry. Economic conditions will be subject to change, as will supply and demand. The relatively small scale of harvesting done on the GMNF is being done in an environmentally sound manner to increase wildlife habitat diversity, provide recreation opportunities, enhance forest health, and provide wood products and economic benefits, all of which make the forest attractive to all of our citizenry.

P2. Comments on Restoration Alternatives

P2-1. A restoration alternative was recommended to the agency for detailed study and evaluation in the EIS. This alternative was dismissed by the Forest Service and was not studied or evaluated in detail. A restoration alternative is a reasonable one to consider given the issues relating to management of the Green

Mountain National Forest and to this project. Failure to develop and study a reasonable, colorable alternative such as this is a violation of the National Environmental Policy Act. (53-4)

CEQ regulations for implementing NEPA require us to “rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated” (40 CFR 1502.14(a).) Alternatives must meet the purpose and need of the proposed action (Forest Service Handbook, FSH 1909.15, Ch. 10, 14.2).

The recommendation of a restoration alternative became issue 2.3.9 on page II-6 of the DEIS. As such, it was then developed as an alternative. This potential alternative was evaluated and not carried forward. As required, the reasons for this are fully explained on pages III-22 - III-24. Among those reasons, it was concluded that this proposed restoration alternative would not meet the purpose and need for the project. In particular, it would not meet the need to improve forest composition, species diversity, and age class composition, and provide wildlife habitat diversity and forest products for public consumption. NEPA does not mandate consideration of any particular kinds of alternative, only that a reasonable range of alternatives, including the No Action Alternative, be thoroughly considered, and that this range “shall encompass those to be considered by the ultimate agency decisionmaker” (40 CFR 1502.2(e)). The decisionmaker for the Greendale project decided upon the Proposed Action and four alternatives to it, as presented in Chapter 3 of the DEIS.

P3. Range of Alternatives

P3-1. Currently, the DEIS includes the Proposed Action alternative and three relatively slight variations on that alternative, as well as the no-action alternative. This is not the "reasonable range" of alternatives required by NEPA. (53-5)

The purpose of alternative development is to evaluate and present environmental impacts in a comparative format, thus sharply defining the issues and providing a clear basis of choice among alternatives by the responsible official and the public (40 CFR 1502.14). For the Greendale project four alternatives to the proposed action were developed, including the No Action Alternative, to address the issues identified through public involvement (DEIS, p. III-1). The responsible official is satisfied that the range of alternatives is reasonable, and compliant with NEPA. The action alternatives all meet the purpose and need for the project, which is a key factor in determining which alternatives are feasible and can be carried forward in the analysis. The action alternatives present different management options, range of effects, and outputs (see comparison tables, DEIS, p. III-26 and p. IV-97 – IV-98). This is fully documented in Chapter 3 and throughout the effects discussion in Chapter 4. To further demonstrate that a reasonable range was developed, a number of other alternative actions were considered but not carried forward (DEIS, p. III-22 through III-26). See also response P2-1.

P4. Significant Streams

P4-1. The GMNF Plan would be violated if the USFS removes vegetation, places large woody debris in streams, and takes other management actions in Significant Stream corridors prior to inventory and evaluation of those stream corridors, and prior to development of specific plans to ensure protection of the special values of those stream corridors. Until the required inventories and evaluations are complete, the Forest Service cannot know that the proposed Greendale Project will "complement and not detract from" the streams' values. The failure to complete the required inventories denies the public and decisionmaker adequate information upon which to comment and base a decision, respectively.

The only way to ensure non-degradation of the special qualities of Greendale Brook is to not log within the corridor at all or to do so in a manner that mimics natural stand dynamics. (53-6)

Your comment as stated assumes that the placement of large woody debris is proposed for implementation on a Significant Stream. The placement of large woody debris is only proposed for Jenny Coolidge Brook which is not listed as a Significant Stream. The proposed large woody debris placement would have no effect to the Significant Stream values associated with Greendale Brook (see p. I-12, section 1.2.5 in the DEIS).

The Forest Plan recognizes the recreational, water quality and fisheries values and natural appearing aesthetics of the listed significant streams including Greendale Brook (pages 4.180-1, 4.180-15, J.01) and calls for management activities to protect, complement or enhance these values (pages 4.58, 4.180-15, J.01). The Forest Plan also states that potential eligibility of significant streams will be assessed over the planning period and until that work is complete, project planning and environmental analysis for any proposals for substantial development or management activity should include a preliminary assessment of the stream's potential eligibility (p. 4.180-15). The Forest Plan does not prohibit management activities from occurring without such an assessment. Implementation of the standards and guidelines for management activities within and adjacent to significant streams (including Greendale Brook) will protect the values which made these streams significant (Forest Plan p. 4.180-15 - 4.180-19).

Comments related to significant streams were submitted during the analysis process. Please see Appendix A, page A-9 of the DEIS, for our response regarding implementation of activities, and application of standards and guidelines. The impacts of the Proposed Action and its alternatives on Greendale Brook are discussed in Chapter 4, Sections 4.1 and 4.2 and 4.7, of the DEIS. Mitigation measures to address visual concerns along Greendale Brook are listed in DEIS Appendix B, section B.1.5.

Starting in January 2003 an interdisciplinary team of specialists on the Green Mountain National Forest evaluated the Significant Streams designated in the current Forest Plan. Greendale Brook was included in the evaluation of over 38 streams on the Forest. Following the national direction for evaluation of potential Wild and Scenic Rivers, the

team gave criteria rankings for the following resources: Heritage, Scenic, Recreation, Geology, Aquatic, Wildlife, Botanical and Ecological.

Although the results are in draft form, the evaluation criteria did not rank Greendale Brook as possessing any “Outstandingly Remarkable Values” that would cause it to be eligible as a Wild and Scenic River. The Wild and Scenic evaluation will be included in the currently on-going revision of the Forest Plan. It should be noted that the Significant Stream designation of MA 9.4 will remain in effect until the Plan revision is completed.

There would be no effects to the values of the Greendale Brook significant stream corridor resulting from implementation of the Proposed Action or any of the alternatives that would preclude the river from future consideration and/or eligibility for inclusion in the National Wild, Scenic and Recreational River System.

P5. Management Indicator Species

P5-1. NFMA regulations state that "planning alternatives shall be stated and evaluated in terms of both amount and quantity of habitat and of animal population trends of the management indicator species."⁶ NFMA requires that plant and animal diversity be considered throughout the planning process, and that "inventories shall include quantitative data."⁷ NFMA regulations also say the Forest Service must "obtain and keep current inventory data appropriate for planning and managing the resources" of national forest lands.⁸

The Forest Service has not collected adequate data on Management Indicator Species (MIS) populations and is not in a position to make judgments about the impacts of its management on MIS and on the wildlife populations for which those MIS are surrogates. (53-25)

P5-2. The USFS has a duty to collect and consider actual population data to ensure viable populations are being maintained. Without such data, the agency has no scientific or evidentiary basis for concluding that the general protection guidelines contained in the Land and Resource Management Plan (LRMP) are sufficient to maintain species viability. Rigorous, systematic monitoring of actual populations has not been done, as required by law, so the agency cannot verify that the current LRMP will maintain viability of TES or other species. (53-26)

P5-4. The agency's failure to collect the data as required prevents it from being able to project the effects of its management actions. (53-28)

Comments P5-1, P5-2, and P5-4 will be addressed here. We dispute the allegation that “systematic monitoring of actual populations has not been done”. Table 4.5.2 (DEIS p. IV-62) displays both the population trend and habitat availability trend for the 14 selected MIS of the GMNF. This data has been gathered from a number of sources (e.g., Breeding Bird Survey, State and regional monitoring of peregrine falcons, State deer harvest reports, aerial flights of beaver flowages, etc.) with data for each of the MIS being collected, in part, from GMNF lands (DEIS, Appendix E). The MIS program is

considered a “coarse-filter” compliment to our Threatened, Endangered and Sensitive (TES) species, or “fine-filter”, program – together the viability of all species can be discussed, and protected as necessary (DEIS, p. IV-58).

P5-3. The DEIS fails to comply with Forest Service regulations regarding utilization of Management Indicator Species (MIS) as a fundamental component of wildlife protection and management. Instead of relying on a fully implemented MIS program with sufficient Monitoring data, the DEIS substitutes a landscape-scale habitat assessment. Inevitably, this analysis concludes that no discernable effects will result from the project. This approach is entirely inconsistent with the approach required by Forest Service regulations. (53-27)

Landscape-scale habitat assessment is a fundamental component of our MIS monitoring, as is population assessment. These assessments do not substitute, for the other, as this comment presumes. Table 4.5.2, on DEIS page IV-62, displays both population and habitat trends for the region, State and Forest. The inability to discern population changes, resulting from this proposal, is due to the limited extent of habitat alteration, and habitat manipulation that has importance primarily to local (i.e., project area) individuals. The entire Greendale project area is less than 1.5 percent of the GMNF, with the acreage proposed to establish early successional habitat totaling 172 acres (less than .05 percent of the GMNF). Our analysis concludes “[T]his project, by itself or combined with other similar projects, would need to collectively increase regenerating hardwood stands to at least 5 to 10 percent of the GMNF to have an impact on the current trend in early successional habitat loss.” The DEIS discloses on page IV-66 – IV-67 and Table 4.5.4, the impacts to MIS within the project area of 5,404 acres.

P5-5. In light of the deficiencies in the Malls program identified by the Forest Service and its scientific consultants, it is impossible for the Forest Service to adequately analyze impacts on MIS or to develop alternatives based on a full understanding of MIS trends. Instead, the discussion in the DEIS of wildlife impacts associated with various alternatives is based on a complete lack of an MIS program. (53-29)

GMNF’s MIS program has gathered and analyzed data since 1987; these analyses, some conducted by “scientific consultants”, have identified program inefficiencies and vulnerabilities. These analyses have not led consultants, or managers, to consider the MIS program inadequate. Difficulties associated with determining local population trends (e.g., limited and widely varying data) are addressed through utilization of larger population data sets (e.g., State and region) that include data from the GMNF. Regional and State-wide information and trends provide context for GMNF management decisions. See also response to comment P5-2.

P5-6. The failure of the Forest Service to acquire population data pursuant to NFMA in a manner consistent with the Forest Plan for the "management indicator species" prior to rendering a decision to proceed with the Greendale

Project creates a risk that Forest Service management activities may cause unanticipated and/or unknown risks to wildlife species and native biodiversity, and is a violation of NFMA and the LRMP. (53-30)

Adjustments to data collection and monitoring techniques are consistent with the Forest Plan. Page C.01 of the Plan states “[D]ate gathered during monitoring will be used to modify implementation schedules, improve mitigation measures and assess the need for amending or revising the Plan.” Inherent inabilities to meaningfully assess locally gathered MIS data has led us to broaden our analyses to State and regional scales.

Adjustments to our MIS program, in combination with continuing analysis and adjustment to our TES program, give GMNF managers sufficient information to make informed decisions; decisions that do not hold “unanticipated and/or unknown risks to wildlife species and native biodiversity”. The effects of our proposed actions on wildlife species, including TES, general wildlife, and MIS are disclosed in the DEIS on pages IV-20 – IV-67, sections 4.3, 4.4, and 4.5. See also response to comment P5-2.

P6. Biodiversity

P6-1. The point I was trying to make here is that it should not be the goal of the FS to necessarily target all diseased and damaged stems for removal in treatment areas. Rather, to recognize the ecological function of diseased stems to attract predacious birds, insects etc. and their resulting contribution to a healthy forest ecosystem. (4-7)

Diseased and damaged trees have the potential to become snag and den trees. The Forest Plan standards and guidelines for wildlife and reserve trees (p. 4.31) states “7. Snags, den trees, nest trees and mast trees will be reserved during timber management activities in sufficient quality, quantity and distribution to maintain well dispersed, self-sustaining populations of all snag, den, nest, and mast dependent wildlife indigenous to the Green Mountain National Forest”. See point 10, page 4.32-1, for Snag Standards. See point 11, page 4.33, for Den Tree Standards. See point 12, page 4.33, for Mast Tree Standards.

P6-2. The true meaning of "biodiversity" from a conservation biologist perspective doesn't necessarily include maximization of numbers of species. However, biodiversity actually encompasses multiple levels of organization and function, from the genetic to the landscape level. More importantly to this discussion biodiversity preservation requires maintenance of species occurrence as well as natural ecological processes that fuel evolution at levels approximating natural, historic ranges (Noss and Cooperrider 1994). Given that early successional stages were extremely rare in northern New England forests, while old growth forests made up the bulk of the forest stands, the agency should be doing everything in its power to further advancement of the forest's overall age structure. (65-6)

See also responses to comments F1 (old growth), and H4 and H7 (early successional habitat). In regards to the issues of old growth and early successional habitat, the Forest Plan discusses goals for old growth habitats, and establishes management direction to add (through aging) nearly 160,000 acres to GMNF's old growth community. We feel that the Forest Plan adequately addresses the needs for both early successional and old growth habitats, and that these conditions are not mutually exclusive and that each can exist on the GMNF.

P7. General Miscellaneous

P7-1. No new construction except where reuse is not appropriate. Is there a standard when "a detailed forest-scale roads analysis and a project level roads analysis" is required? (9-1)

The National Forests System Road Management Rule was finalized in January 2001. This rule ensures that the National Forest road system meets current and future management objectives, provides for safe public access and travel, allows for economical and efficient management, and addresses road maintenance and reconstruction needs.

There is currently a Forest Scale Roads Analysis Process underway for the Green Mountain National Forest. The Roads Analysis Process (RAP) will examine Forest Service roads and will produce a road management strategy that will ultimately lead to guidelines for addressing future road management issues. This effort is part of the current revision of the Green Mountain National Forest Land and Resource Management Plan.

Forest Service standards currently exist for road maintenance and construction for all classes of roads on the National Forest. This includes such things as road width, depth of gravel - native cover or pavement, sight distance, mowing schedule, etc.

Although the Roads Analysis Process report is not a decision document, it is designed for use by Forest Service deciding officials to aid them in their decision making process.

Page I-15 of the DEIS explains why a detailed forest-scale road analysis and a project-level roads analysis are not needed for the Greendale Project.

P7-2. VFPA urges that this project increase in total acres impacted as originally published in the NOI. To use the term inventoried roadless areas is a de facto wilderness and we oppose additional wilderness set-asides. It is our belief that managed forests are important for the ecological needs of the forest and for the economic value the timber resources provide for Vermont citizens. With the acres that were removed due to inventoried roadless areas, added back into the project, VFPA prefers the Alternative IV Modified Proposed Action. (10-1)

The GMNF is constrained in regards to what activities can be done in the inventoried roadless areas (IRA). This is a national issue and has, and continues to, change constantly. These areas are not considered de facto wilderness and are not set aside for

wilderness. Planning for additional wilderness is a requirement of our planning regulations and the ‘if, where, and how’ of additional wilderness is being studied during the currently ongoing Forest Plan Revision process.

P7-3. Let me know if you think it would be helpful for us to walk together into these areas marked for cutting. (53-38)

There are no areas marked for cutting; stands would be painted, or marked for cutting at an appropriate time in the process.

P7-4. Please do not make similar mistakes in the beautiful Vermont Forests. Include global transpiration studies in your potential impacts. (54-1)

Global transpiration studies are well beyond the scope of the activities proposed in the Greendale project. The low level of cutting in this project in comparison to factors that affect transpiration at the global level would produce no measurable impact in this regard.

P7-5. While walking near Holt Mountain (Compartment 45), I came across a plantation of what I guess to be Norway spruce. I found no clear description of the proposal for this area in the EIS. Is this area proposed for group selection? I support the removal of these non-native plants, and the restoration of native forest in this area. (56-4)

Compartment 45, stand 39 is a Norway spruce plantation that is proposed for 3 acres of clearcutting and 2 acres of thinning harvest.

P7-6. Adjacent to this old clearcut is a stand of white pine probably older than 125 years. This is scheduled for group selection in all alternatives. Does this mean that this entire stand of old trees will be removed? I would suggest leaving these healthy, straight trees which will continue to provide a range of benefits from ecological to aesthetic as well as seed from proven genetic stock. (56-6)

The stand (in compartment 31) proposed for a group selection harvest is 11 acres. The groups would be about 1/3 to 1/2 acre in size. Approximately 20 percent would be marked as groups. The objective is to locate the groups to release existing spruce/fir regeneration. The white pine trees referred to in the comment would probably not be marked unless they are high risk (could die within 10 years). The priorities for marking groups for harvest are areas that have pockets of over-mature or high risk spruce and hardwoods.

P7-7. Compartment 32 has some wonderful historic stonewalls and cellar holes which, for the woods walker, tell a lot about our history in this state. There are also some vernal pools that are critical to amphibian populations. The main trail into the harvest area is popular for walking and skiing. Much is made of the need to minimize disruption of snowmobile activities, but I would argue for winter harvest to minimize soil damage, soil compaction, trail damage, and

habitat disturbance. Alternating which areas could be cut at any given time could minimize interference with the winter trail. (56-7)

All harvest units in compartment 32 are planned for winter harvest (see DEIS, p. IV-75, Table 4.6.3), as you recommend. We agree that limiting the cutting units that can be logged concurrently would minimize interference with trail use. Forest Service timber sale contracts limit the number of cutting units to 2 units at one time. All contractual requirements must be completed on a cutting unit before another unit can be released, unless waived by the timber sale contracting officer. Often, water-barring is waived in winter harvest units until spring due to frozen soils.

We also share your interest with stonewalls, cellar holes and vernal pools. These features would be protected during both the sale layout and sale administration activities.

P7-8. The DEIS should explain whether herbicides will be used in clearcut areas to prevent the growth of undesirable vegetation prior to replanting. (68-2)

There are no plans to use herbicides in the Greendale project area and thus, there is no discussion on this in the DEIS.

P7-9. We reviewed the proposed project and biological evaluation with respect to the terms and conditions and the effects analysis to determine project consistency with the Forest Plan programmatic opinion. (15-1)

This comment from the U.S. Fish and Wildlife Service is noted.