

**TABLE 1. Monitoring the Desired Future of Management Area 4 - Special Interest/Research Natural Areas**

Monitoring Item and Desired Future	Indicators of Desired Future	Monitoring Questions	Measurement & Frequency of Measurement	Threshold of Acceptable Change	Reporting Period & How Long Before Question is Answered
<b>BIOLOGICAL AREAS</b> Areas that contain unique biological values are protected.	Individual implementation schedules are developed for each of the SIAs - Biological.	Were individual implementation schedules for each Biological SIA prepared? (I)	Number of plans prepared each year.	Minimum of four Plans prepared each year is not met.	Report yearly. Evaluate in 5 Years.
	Vegetation may be manipulated for the management of the biological values identified as well as for any threatened, endangered, or sensitive species, and their habitat.	Was vegetation manipulated for the management of the area's biological value or for threatened, endangered, or sensitive species or their habitats? (I)	Any vegetation manipulation that occurs.	Vegetation manipulation must be designed to achieve the desired future described for this management area.	Report yearly. Attainment ongoing.
Cow Knob and Tiger salamanders are protected, maintained and restored.	Population trends of management indicator species are determined.	Were viable populations maintained in suitable habitat? (E)	Mark-recapture and plot surveys as measured every 2 years.	Negative population trends in two consecutive surveys.	Report every two years. Monitor minimum of 10 years.
<b>HISTORIC SITES</b> All historic sites that are potentially eligible to the National Register of Historic Places are protected.	→Projects are designed to avoid, minimize, or mitigate adverse effects on potentially significant heritage resources.	Were potentially eligible sites protected from disturbance? (I)	Visual evidence of disturbance from management activities based on annual inspection of sample sites.	No evidence of damage to sites.	Report yearly. Attainment every year.
	Existing National Register sites are protected from natural or man-caused deterioration.	Are existing National Register sites protected? (I)	Visual evidence of disturbance from management activities based on annual inspection of sample sites.	No evidence of damage to sites.	Report yearly. Attainment every year.

**TABLE 1. Monitoring the Desired Future of Management Area 4 - Special Interest/Research Natural Areas (Continued)**

Monitoring Item and Desired Future	Indicators of Desired Future	Monitoring Questions	Measurement & Frequency of Measurement	Threshold of Acceptable Change	Reporting Period & How Long Before Question is Answered
<b>GEOLOGIC SITES</b> All unique or special examples of geologic phenomena, geologic process and landform are protected.	Projects are designed to avoid, minimize, or mitigate adverse effects on geologic sites.	Were geologic sites protected from disturbance? (I)	Visual evidence of disturbance from management activities based on annual inspection.	No evidence of damage to sites.	Report yearly. Attainment every year.

**TABLE 2. Monitoring the Desired Future of Management Area 5 - Sensitive Viewsheds**

Monitoring Item and Desired Future	Indicators of Desired Future	Monitoring Questions	Measurement & Frequency of Measurement	Threshold of Acceptable Change	Reporting Period & How Long Before Question is Answered
<b>VISUAL QUALITY</b> The natural and rugged setting of the steep slopes of Massanutten Mountain are retained.	Management practices are limited to those that maintain the visual quality objective (VQO) of retention.	Did management practices result in attaining a VQO of retention? (E)	Visual confirmation from Interstate 81 that the VQO of retention is being met. Measurement is every 5 years.	Visual quality does not meet the definition of retention.	Report every five years. Desired future presently exists and will be retained.
	→A short-term VQO of rehabilitation can be adopted.	→Where was a short-term VQO of rehabilitation adopted to address restoration of the scenery resources? (I)	Areas needing enhancement based on fifth year assessment.	Viewshed does not meet the definition of retention.	Report every five years. Desired future presently exists and will be retained.

Legend: (I) - Implementation Monitoring  
(E) - Effectiveness Monitoring  
(V) - Validation Monitoring

**TABLE 3. Monitoring the Desired Future of Management Area 6 - The Appalachian Trail**

Monitoring Item and Desired Future	Indicators of Desired Future	Monitoring Questions	Measurement & Frequency of Measurement	Threshold of Acceptable Change	Reporting Period & How Long Before Question is Answered
<p><b>VISUAL QUALITY</b> The visual experience and landscape character seen from the Appalachian National Scenic Trail (AT) is maintained or enhanced.</p> <p>Adjoining lands seen from the AT are managed for multiple use in a manner that reasonably harmonizes with and is complementary to the Trail experience.</p>	<p>Management practices are limited to those that maintain the VQO of retention.</p> <p>→A short-term VQO of rehabilitation can be adopted.</p> <p>Lands outside the management area are managed in accordance with the adopted VQO.</p>	<p>Did management practices result in attaining a visual quality objective of retention? (E)</p> <p>→Where was a short-term VQO of rehabilitation adopted to address restoration of the scenery resources? (I)</p> <p>Are management practices visible from the AT at least meeting the adopted VQO of the applicable management area? (E)</p>	<p>Visual confirmation from the AT that the visual quality objective of retention is being met. Measurement is every 5 years.</p> <p>Areas needing enhancement based on fifth year assessment.</p> <p>Visual confirmation from the Appalachian Trail five years after the record of decision for the Revised Plan has been signed.</p>	<p>Visual quality does not meet the definition of retention.</p> <p>Viewshed does not meet the definition of retention.</p> <p>Management practices do not meet the adopted VQO.</p>	<p>Report every five years. Desired future presently exists and will be retained.</p> <p>Report every five years. Desired future presently exists and will be retained.</p> <p>Report every five years. Desired future will be attained within ten years.</p>

Legend: (I) - Implementation Monitoring  
(E) - Effectiveness Monitoring  
(V) - Validation Monitoring

**TABLE 4. Monitoring the Desired Future of Management Area 7 - Scenic Corridors/Highland Scenic Tour**

Monitoring Item and Desired Future	Indicators of Desired Future	Monitoring Questions	Measurement & Frequency of Measurement	Threshold of Acceptable Change	Reporting Period & How Long Before Question is Answered
<p><b>VISUAL QUALITY</b> The scenic resources of the Forest are maintained and, if necessary, rehabilitated or enhanced.</p>	<p>Management practices are limited to those that maintain the VQO of retention or partial retention on the Scenic Corridors displayed in Table 3-3 and on the Highland Scenic Tour.</p> <p>→A short-term VQO of rehabilitation can be adopted.</p>	<p>Did management practices result in attaining the appropriate VQO? (E)</p> <p>→Where was a short-term VQO of rehabilitation adopted to address restoration of the scenery resources? (I)</p>	<p>Visual confirmation from the Highland Scenic Tour and the Scenic Routes displayed in Table 3-3 that the appropriate VQO is being met. Measurement is every 5 years.</p> <p>Areas needing enhancement based on fifth year assessment.</p>	<p>Visual quality does not meet the definition of retention or partial retention.</p> <p>Viewshed does not meet the the definition of retention or partial retention.</p>	<p>Report every five years. Desired future presently exists and will be retained.</p> <p>Report every five years. Desired future presently exists and will be retained.</p>

Legend:

- (I) - Implementation Monitoring
- (E) - Effectiveness Monitoring
- (V) - Validation Monitoring

**TABLE 4. Monitoring the Desired Future of Management Area 7 - Scenic Corridors/Highland Scenic Tour (Continued)**

Monitoring Item and Desired Future	Indicators of Desired Future	Monitoring Questions	Measurement & Frequency of Measurement	Threshold of Acceptable Change	Reporting Period & How Long Before Question is Answered
<p><b>TIMBER</b> Regulated harvesting of timber products on lands suitable for timber production is used to accomplish timber, wildlife, visual, and other resource objectives.</p>	<p>Any projects involving timber harvesting are evaluated to determine if the proposed harvest units are located on suitable acres as identified in the Revised Forest Plan. This evaluation is documented in the project-level environmental analysis document with the finding incorporated into the decision document.</p>	<p>Did harvesting occur only on land identified as suitable in the Revised Forest Plan? (I)</p>	<p>Plan consistency statement in each decision document for projects involving timber harvests.</p>	<p>Noncompliance with standard.</p>	<p>Report Yearly. Attainment every year.</p>
	<p>Determine if lands identified as unsuitable for timber production have become suitable.</p>	<p>Were there changes in the amount of land identified as suitable? (V)</p>	<p>Number of acres identified as suitable for timber production based on the criteria listed in Appendix A as measured every fifth year.</p>	<p>A change of <math>\pm 10\%</math> in land suitability as compared with the 12,000 suitable acres of this management area based on project-level analysis.</p>	<p>Report every five years. Attainment occurs within ten years.</p>
	<p>Regeneration harvesting is designed to accomplish improvement of visual resources, provide recreation opportunities, promote safety and provide habitat for watchable wildlife.</p>	<p>Is regeneration harvesting designed to meet the desired future? (I)</p>	<p>The rationale for regeneration harvesting in any project-level decision document must explain why regeneration harvesting is needed to accomplish stated purposes. Decision documents are monitored yearly.</p>	<p>Any decision to regenerate areas must be consistent with achieving the desired future of the management area.</p>	<p>Report yearly. Attainment is within ten years.</p>

Legend:

- (I) - Implementation Monitoring
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- (V) - Validation Monitoring

**TABLE 5. Monitoring the Desired Future of Management Area 8 - Wilderness/Wilderness Study**

Monitoring Item and Desired Future	Indicators of Desired Future	Monitoring Questions	Measurement & Frequency of Measurement	Threshold of Acceptable Change	Reporting Period & How Long Before Question is Answered
<p><b>WILDERNESS</b> The ecosystem is the result of natural succession and natural processes. There is little evidence of visitor use.</p>	<p>Appropriate sites are naturalized or rehabilitated. Temporary or permanent site closures are considered when other management techniques are not successful.</p>	<p>Have wilderness implementation schedules been prepared or revised, as needed? (I)</p> <p>Have actions been taken on areas where social and physical impacts exceed the "Limits of Acceptable Change" standards? (I)</p> <p>Are areas recovering to a natural and undisturbed appearance due to corrective actions and rehabilitation efforts? (E)</p>	<p>Number of Wilderness Implementation Schedules prepared or revised each year.</p> <p>Annual inspection of impacted areas to see if actions have been taken.</p> <p>→Minimum biennial inspection of impacted areas to see if "Limits of Acceptable Change" standards are met.</p>	<p>One schedule prepared or revised per year is not met.</p> <p>No action has been taken to correct the impact.</p> <p>"Limits of Acceptable Change" standards are not met.</p>	<p>Report yearly. Attainment in 5 years.</p> <p>Report every year. Attainment yearly at time of review.</p> <p>→Report every second year. Recovery in progress on all impacted areas within 10 years. Attainment within 20 years.</p>

Legend: (I) - Implementation Monitoring  
(E) - Effectiveness Monitoring  
(V) - Validation Monitoring

**TABLE 11. Monitoring the Desired Future of Management Area 14 - Remote Habitat for Wildlife**

Monitoring Item and Desired Future	Indicators of Desired Future	Monitoring Questions	Measurement & Frequency of Measurement	Threshold of Acceptable Change	Reporting Period & How Long Before Question is Answered
<p><b>WILDLIFE</b> A mature forest environment provides a continuous supply of hard and soft mast; large high value timber products; areas of dense vegetation cover; and freedom from continued disturbance.</p>	<p>Treatments such as prescribed burning or adding grape arbors may be practiced to increase herbaceous vegetation, browse, berry production, and to rejuvenate bear oak. Even-aged timber cutting methods are used to meet wildlife habitat requirements.</p>	<p>Did management activities result in attaining the desired habitat? (E)</p>	<p>Number of acres treated as measured yearly. Percent in 0-10 age class as measured every fifth year.</p>	<p>→A change of <math>\pm 10\%</math> in acres prescribed burned or sold as compared with the 614 estimated prescribed burn acres and 52 estimated sold acres of this management area from FORPLAN analysis.</p>	<p>Report yearly. Evaluate at the end of fifth year of implementation.</p>
<p>Motorized vehicle access is controlled between management activities and limited to ensure that habitat for disturbance-sensitive species -- such as the black bear -- is maintained.</p>	<p>The Forest objective is to limit open road densities (all open roads included) to no more than one-quarter mile of open road per 1,000 acres. In cases where stated open road density exceeds one-quarter mile of open road per 1,000 acres, Forest staff strive to reduce the open road densities to the desired standard.</p>	<p>Were open roads in excess of stated density objective closed to public use? (I)</p>	<p>Miles of open road exceeding objective closed to public use as reported yearly.</p>	<p>No documented evidence that opportunities were looked for. Results indicate no open road mileage can be reduced.</p>	<p>Report yearly. Attainment within ten years.</p>

Legend: (I) - Implementation Monitoring  
(E) - Effectiveness Monitoring  
(V) - Validation Monitoring

**TABLE 11. Monitoring the Desired Future of Management Area 14 - Remote Habitat for Wildlife (Continued)**

Monitoring Item and Desired Future	Indicators of Desired Future	Monitoring Questions	Measurement & Frequency of Measurement	Threshold of Acceptable Change	Reporting Period & How Long Before Question is Answered
<p><b>TIMBER</b> Regulated harvesting of timber products on lands suitable for timber production is used to accomplish timber, wildlife, visual, and other resource objectives.</p>	<p>Any projects involving timber harvesting are evaluated to determine if the proposed harvest units are located on suitable acres as identified in the Revised Forest Plan. This evaluation is documented in the project-level environmental analysis document with the finding incorporated into the decision document.</p> <p>Determine if lands identified as unsuitable for timber production have become suitable.</p>	<p>Did harvesting occur only on land identified as suitable in the Revised Forest Plan? (I)</p> <p>Were there changes in the amount of land identified as suitable? (V)</p>	<p>Plan consistency statement in each decision document for projects involving timber harvests.</p> <p>Number of acres identified as suitable for timber production based on the criteria listed in Appendix A as measured every fifth year.</p>	<p>Noncompliance with standard.</p> <p>A change of <math>\pm 10\%</math> in land suitability as compared with the 48,000 suitable acres of this management area based on project-level analysis.</p>	<p>Report Yearly. Attainment every year.</p> <p>Report every five years. Attainment occurs within ten years.</p>
	<p>Through management activities, a variety of age classes are created in even-aged and uneven-aged stands. Areas of regeneration (0-10 year age class) are created to diversify food sources and increase other habitat needs.</p>	<p>Is regeneration harvesting designed to diversify food sources and increase other habitat needs? (I)</p>	<p>The rationale for regeneration harvesting in any project-level decision document must explain why regeneration harvesting is needed to accomplish stated purposes. Decision documents are monitored yearly.</p>	<p>Any decision to regenerate areas must be consistent with achieving the desired future of the management area.</p>	<p>Report yearly. Attainment is within ten years.</p>

Legend:

- (I) - Implementation Monitoring
- (E) - Effectiveness Monitoring
- (V) - Validation Monitoring

**TABLE 12. Monitoring the Desired Future of Management Area 15 - Mosaics of Wildlife Habitat with Freedom from Continued Disturbance**

Monitoring Item and Desired Future	Indicators of Desired Future	Monitoring Questions	Measurement & Frequency of Measurement	Threshold of Acceptable Change	Reporting Period & How Long Before Question is Answered
<p><b>WILDLIFE</b> A mature forest environment with both temporary and permanent openings provides high quality habitat and forest products; and freedom from disturbance during nesting and brood-rearing seasons.</p>	<p>Up to 5 percent of the area should be maintained in grass / herbaceous openings for wildlife. Uneven-aged and even-aged timber cutting methods are used to meet wildlife habitat requirements.</p>	<p>Did management activities result in attaining the desired habitat? (E)</p>	<p>Number of acres treated as measured yearly. Percent in 0-10 age class as measured every fifth year.</p>	<p>→A change of <math>\pm 10</math> % in acres prescribed burned or sold as compared with the 2386 estimated prescribed burn acres and 1361 estimated sold acres of this management area from FORPLAN analysis. Percent of grass / herbaceous openings is not met.</p>	<p>Report yearly. Evaluate at the end of fifth year of implementation.</p>
<p>Motorized vehicle access and management activities are limited in order to provide freedom from continual disturbance during nesting and brood-rearing seasons to species such as the wild turkey.</p>	<p>The Forest objective is to limit open road densities (all open roads included) to no more than one mile of open road per 1,000 acres. In cases where stated open road density exceeds one-quarter mile of open road per 1,000 acres, Forest staff strive to reduce the open road densities to the desired standard.</p>	<p>Were open roads in excess of stated density objective? (I)</p>	<p>Miles of open road exceeding objective.</p>	<p>No documented evidence that opportunities were looked for. Results indicate no open road mileage can be reduced.</p>	<p>Report yearly. Attainment within ten years.</p>

Legend:

- (I) - Implementation Monitoring
- (E) - Effectiveness Monitoring
- (V) - Validation Monitoring

**TABLE 12. Monitoring the Desired Future of Management Area 15 - Mosaics of Wildlife Habitat with Freedom from Continued Disturbance (Continued)**

Monitoring Item and Desired Future	Indicators of Desired Future	Monitoring Questions	Measurement & Frequency of Measurement	Threshold of Acceptable Change	Reporting Period & How Long Before Question is Answered
<p><b>TIMBER</b> Regulated harvesting of timber products on lands suitable for timber production is used to accomplish timber, wildlife, visual, and other resource objectives.</p>	<p>Any projects involving timber harvesting are evaluated to determine if the proposed harvest units are located on suitable acres as identified in the Revised Forest Plan. This evaluation is documented in the project-level environmental analysis document with the finding incorporated into the decision document.</p>	<p>Did harvesting occur only on land identified as suitable in the Revised Forest Plan? (I)</p>	<p>Plan consistency statement in each decision document for projects involving timber harvests.</p>	<p>Noncompliance with standard.</p>	<p>Report Yearly. Attainment every year.</p>
	<p>Determine if lands identified as unsuitable for timber production have become suitable.</p>	<p>Were there changes in the amount of land identified as suitable? (V)</p>	<p>Number of acres identified as suitable for timber production based on the criteria listed in Appendix A as measured every fifth year.</p>	<p>A change of <math>\pm 10\%</math> in land suitability as compared with the 192,000 suitable acres of this management area based on project-level analysis.</p>	<p>Report every five years. Attainment occurs within ten years.</p>
	<p>Even-aged management will be emphasized to maintain oak regeneration, to create open understory conditions, as well as provide stand diversity throughout the management area.</p>	<p>Is regeneration harvesting designed to provide for the wildlife habitat described in the desired future for the management area? (I)</p>	<p>The rationale for regeneration harvesting in any project-level decision document must explain why regeneration harvesting is needed to accomplish stated purposes. Decision documents are monitored yearly.</p>	<p>Any decision to regenerate areas must be consistent with achieving the desired future of the management area.</p>	<p>Report yearly. Attainment is within ten years.</p>

Legend: (I) - Implementation Monitoring  
(E) - Effectiveness Monitoring  
(V) - Validation Monitoring

**TABLE 13. Monitoring the Desired Future of Management Area 16 - Early Successional Forested Habitat for Wildlife**

Monitoring Item and Desired Future	Indicators of Desired Future	Monitoring Questions	Measurement & Frequency of Measurement	Threshold of Acceptable Change	Reporting Period & How Long Before Question is Answered
<p><b>WILDLIFE</b> Mosaic of habitats from mature forests to early successional forests with dispersed permanent herbaceous openings is provided.</p>	<p>At least 10 percent of the management area should be maintained in the 1-10 year class. Even-aged timber cutting methods are used to meet wildlife habitat requirements.</p>	<p>Did management activities result in attaining the desired habitat? (E)</p>	<p>Number of acres treated as measured yearly. Percent in 1-10 age class as measured every fifth year.</p>	<p>→A change of <math>\pm 10\%</math> in acres sold as compared with the 217 estimated sold acres of this management area from FORPLAN analysis. Percent of 1-10 year age class is not met.</p>	<p>Report yearly. Evaluate at the end of fifth year of implementation.</p>
<p><b>TIMBER</b> Regulated harvesting of timber products on lands suitable for timber production is used to accomplish timber, wildlife, visual, and other resource objectives.</p>	<p>Any projects involving timber harvesting are evaluated to determine if the proposed harvest units are located on suitable acres as identified in the Revised Forest Plan. This evaluation is documented in the project-level environmental analysis document with the finding incorporated into the decision document.</p> <p>Determine if lands identified as unsuitable for timber production have become suitable.</p>	<p>Did harvesting occur only on land identified as suitable in the Revised Forest Plan? (I)</p> <p>Were there changes in the amount of land identified as suitable? (V)</p>	<p>Plan consistency statement in each decision document for projects involving timber harvests.</p> <p>Number of acres identified as suitable for timber production based on the criteria listed in Appendix A as measured every fifth year.</p>	<p>Noncompliance with standard.</p> <p>A change of <math>\pm 10\%</math> in land suitability as compared with the 27,000 suitable acres of this management area based on project-level analysis.</p>	<p>Report yearly. Attainment every year.</p> <p>Report every five years. Attainment occurs within ten years.</p>

Legend: (I) - Implementation Monitoring  
(E) - Effectiveness Monitoring  
(V) - Validation Monitoring

**TABLE 13. Monitoring the Desired Future of Management Area 16 - Early Successional Forested Habitat for Wildlife (Continued)**

Monitoring Item and Desired Future	Indicators of Desired Future	Monitoring Questions	Measurement & Frequency of Measurement	Threshold of Acceptable Change	Reporting Period & How Long Before Question is Answered
<p><b>TIMBER</b> Regulated harvesting of timber products on lands suitable for timber production is used to accomplish timber, wildlife, visual, and other resource objectives.</p>	<p>Regeneration areas are used in combination with other habitats to provide high quality wildlife habitat for wildlife species that prefer early successional habitats with dispersed, permanent herbaceous openings.</p>	<p>Is regeneration harvesting designed to provide for the wildlife habitat described in the desired future for the management area? (I)</p>	<p>The rationale for regeneration harvesting in any project-level decision document must explain why regeneration harvesting is needed to accomplish stated purposes. Decision documents are monitored yearly.</p>	<p>Any decision to regenerate areas must be consistent with achieving the desired future of the management area.</p>	<p>Report yearly. Attainment is within ten years.</p>

Legend: (I) - Implementation Monitoring  
 (E) - Effectiveness Monitoring  
 (V) - Validation Monitoring

**TABLE 17. Monitoring the Desired Future of Management Area 21 - Special Management Areas**

Monitoring Item and Desired Future	Indicators of Desired Future	Monitoring Questions	Measurement & Frequency of Measurement	Threshold of Acceptable Change	Reporting Period & How Long Before Question is Answered
<b>ECOSYSTEM</b> Big Schloss, Laurel Fork, Little River, and Mount Pleasant contain a variety of unique natural resources.	Ensure that the ecosystem generally mimics or is the result of natural processes.	To what extent are changes to the ecosystem induced by management practices? (I)	Number of acres treated as measured yearly.	Management activities which treat more than 10% of the area are not considered to mimic natural ecological processes.	Evaluate every five years.
<b>BIOLOGICAL VALUES</b> The unique biological values are protected within Laurel Fork, Little River and Big Schloss.	Vegetation and wildlife management practices are restricted to those necessary to manage habitats and populations of threatened, endangered, or sensitive species, and to maintain natural communities. This is accomplished in consultation with the USDI Fish & Wildlife Service, the Virginia and West Virginia Natural Heritage Programs, and state wildlife agencies.	Were practices used that were necessary to recover threatened or endangered species habitats or populations? Were practices used that were necessary to maintain sensitive species habitats or populations? (I)	Condition of habitat for sensitive plant or animal communities and populations for threatened and endangered species as measured yearly.	Noncompliance with standard.	Report yearly. Attainment will be ongoing.
<b>GEOLOGIC VALUES</b> The unique geologic landform at Big Schloss is protected.	Projects are designed to avoid, minimize, or mitigate adverse effects on Big Schloss.	Was Big Schloss protected from disturbance? (I)	Visual evidence of disturbance from management activities based on inspection every fifth year.	No evidence of damage to sites.	Report every fifth year. Desired future is presently in place and will be maintained.

Legend:

- (I) - Implementation Monitoring
- (E) - Effectiveness Monitoring
- (V) - Validation Monitoring

**TABLE 17. Monitoring the Desired Future of Management Area 21 - Special Management Areas (Continued)**

Monitoring Item and Desired Future	Indicators of Desired Future	Monitoring Questions	Measurement & Frequency of Measurement	Threshold of Acceptable Change	Reporting Period & How Long Before Question is Answered
<b>RECREATION</b> Opportunities are provided for primitive recreation and solitude.	Lands within this management area retain their existing recreation opportunity spectrum classification.	Are opportunities for primitive recreation and solitude being provided? (I)	SPNM ROS areas meet the criteria for providing primitive recreation. Measurement occurs every five years.	→Failure of adopted SPNM ROS areas to meet the criteria for SPNM ROS recreation opportunities.	Report every five years. Desired Future is attained within ten years.

**TABLE 18. Monitoring the Desired Future of Management Area 22 - Small Game and Watchable Wildlife**

Monitoring Item and Desired Future	Indicators of Desired Future	Monitoring Questions	Measurement & Frequency of Measurement	Threshold of Acceptable Change	Reporting Period & How Long Before Question is Answered
<b>ECOSYSTEM</b> Wildlife habitat and associated dispersed recreation are developed to their potential.	Each area focuses on a theme such as wildlife viewing, nature study, small game management, or combinations thereof.	For each unique area, has the theme(s) been identified? (I)	Implementation Schedule developed for each area within 3 years after Plan approval.	No implementation schedule has been developed.	Report yearly. Attainment in 3 years.

Legend: (I) - Implementation Monitoring  
(E) - Effectiveness Monitoring  
(V) - Validation Monitoring

**TABLE 19. Monitoring Items That are Common to Most Management Areas**

Monitoring Item and Desired Future	Indicators of Desired Future	Monitoring Questions	Measurement & Frequency of Measurement	Threshold of Acceptable Change	Reporting Period & How Long Before Question is Answered
<p><b>ARCHEOLOGICAL SITES</b> All archeological sites that are potentially eligible to the National Register of Historic Places are protected.</p>	<p>→ Projects are designed to avoid, minimize, or mitigate adverse effects on potentially significant heritage resources.</p>	<p>Were potentially eligible sites protected from disturbance? (I)</p>	<p>Visual evidence of disturbance from management activities based on annual inspection of sample sites.</p>	<p>No evidence of damage to sites.</p>	<p>Report every year. Desired Future is presently in place and will be maintained.</p>
<p><b>BIOLOGICAL VALUES</b> Old growth is protected.</p>	<p>→ No regeneration harvest practices will be scheduled in any old growth forest type except for group 21. Prior to scheduling any silvicultural practices in old growth forest type group 21 identified as "Present Old Growth" in Table 2-1 and located on lands classified as suitable for timber production, the following will be accomplished: the stand will be inventoried by the criteria in FEIS Appendix H, and site-specific analysis and disclosure includes a discussion on the old growth characteristics found, the effects of the action on these characteristics, and the effect the action will have on the contribution of the area to the Forest's "old growth" allocation.</p>	<p>Is each old growth forest type represented in an old growth condition on the Forest? How much and where is the old growth on the Forest? (V)</p>	<p>→ Acres of each old growth forest type by management area on suitable and unsuitable timberlands as measured yearly.</p>	<p>Depends on inventory finding and site-specific analysis, but no total downward trend in acres.</p>	<p>Report yearly. Evaluate at end of fifth year of implementation.</p>
<p>Yellow Pine community is maintained or enhanced.</p>	<p>Burns are planned and executed to enhance site conditions. Prescribe burns can be accomplished to meet specific resource objectives.</p>	<p>Are associated species of the yellow pine community, dependent on fire or xeric conditions, being maintained and reproducing? (E)</p>	<p>Permanent vegetation plots as measured at 5 and 10 year intervals.</p>	<p>Loss of associated species or total fire exclusion.</p>	<p>Report at five and 10 years. Attainment may be decades away.</p>

Legend: (I) - Implementation Monitoring  
(E) - Effectiveness Monitoring  
(V) - Validation Monitoring

**TABLE 19. Monitoring Items That are Common to Many Management Areas (Continued)**

Monitoring Item and Desired Future	Indicators of Desired Future	Monitoring Questions	Measurement & Frequency of Measurement	Threshold of Acceptable Change	Reporting Period & How Long Before Question is Answered
<b>BIOLOGICAL VALUES</b> Relatively unfragmented late successional forest habitats are maintained.	Determine population trends of the indicator species (worm-eating warbler, ovenbird, brown-headed cowbird and pileated woodpecker) and relationship to habitat changes.	What are the bird population trends on the Forest? (V)	Level one population surveys in cooperation with U.S. Fish and Wildlife Service breeding bird survey as measured yearly. Acres of late successional habitat as measured at 5 and 10 year intervals.	Natural population fluctuations are expected. Long-term (5-10 yr) downward trend will result in implementation of Level 2 surveys.	Report at end of fifth year of implementation. Attainment in 10 years.
Early successional forest habitats are maintained.	Determine population trends of the indicator species (common flicker) and relationship to habitat changes.	What are the bird population trends on the Forest? (V)	Level one population surveys in cooperation with U.S. Fish and Wildlife Service breeding bird survey as measured yearly. Acres of early successional habitat as measured at 5 and 10 year intervals.	Natural population fluctuations are expected. Long-term (5-10 yr) downward trend will result in implementation of Level 2 surveys.	Report at end of fifth year of implementation. Attainment in 10 years.
Caves are protected.	A management plan will be developed for each classified cave. →Determine population trends for cave-dwelling bats.	Have all caves been inventoried on the Forest? What is the classification of each cave inventoried? Have management plans been developed for each cave? (I) →What are the bat's population trends on the Forest? (V)	Completion of cave management plans within five years of the date of the record of decision of the Revised Plan. →Population survey in cooperation with the U.S. Fish and Wildlife Service, Virginia Department of Game and Inland Fisheries, and West Virginia Department of Natural Resources once every two years.	Noncompliance with standard. →Negative population trends in two consecutive surveys.	Report at end of fifth year of implementation. All cave management plans will be completed. →Report every two years. Monitor minimum of 10 years.

Legend:

- (I) - Implementation Monitoring
- (E) - Effectiveness Monitoring
- (V) - Validation Monitoring

**TABLE 19. Monitoring Items That are Common to Many Management Areas (Continued)**

Monitoring Item and Desired Future	Indicators of Desired Future	Monitoring Questions	Measurement & Frequency of Measurement	Threshold of Acceptable Change	Reporting Period & How Long Before Question is Answered
<p><b>FIRE</b></p> <p>A level of protection is provided that results in the least cost of presuppression, suppression, and net value change (cost efficient level).</p> <p>Preattack planning has been completed in the urban / wildland interface.</p> <p>→Fire-dependent ecosystems and wildlife habitats are improved. Open areas along the Appalachian Trail are maintained. Threatened, endangered, and sensitive species habitats are restored and maintained.</p>	<p>The efficient fire program budget is identified by the Level II Fire Analysis and is implemented through the annual fire management action plan.</p> <p>For the urban/wildland interface, representatives of the Forest cooperate with the Virginia and West Virginia Departments of Forestry and local fire authorities: Preattack planning is recommended in and around existing subdivisions.</p> <p>→Prescribed fire is used to achieve specific management objectives.</p>	<p>Is funding being allocated as indicated by the fire analysis to achieve the desired level of protection? (I)</p> <p>Was preattack planning effective in preventing loss of life or homes on private property? (E)</p> <p>→What are the effects of prescribed fire on vegetation, small mammals, herptofauna, and birds on the Forest? (E)</p>	<p>Funding and Capability Index compared yearly.</p> <p>Number of people who die or houses lost due to wildfire for every fire in the urban/wildland interface.</p> <p>→Pre and post burn plots and/or transects. Methods and frequency will vary depending on species group.</p>	<p>Variance greater than 10% from Fire Protection Capability Index of 100%.</p> <p>Any loss of life or house from fire originating on the Forest.</p> <p>→Natural population fluctuations are expected along with changes in species composition and vegetative structure. Threshold will be if approved prescribed burn objectives as stated in the burn plan are not met.</p>	<p>Report yearly. Attainment every year.</p> <p>Report yearly. Desired future attained in ten years.</p> <p>→Will depend on species group. Report at third year following burn with subsequent timing of evaluations determined by species and burn objectives. Evaluate at end of ten years.</p>
<p><b>FOREST HEALTH</b></p> <p>IPM is used to minimize damage from forest pest organism with particular focus on gypsy moth.</p>	<p>Destructive insects and disease organisms do not increase to potentially damaging levels following management activities.</p>	<p>Are silvicultural treatments effectively reducing the susceptibility or vulnerability of stands to damaging pests? (E)</p>	<p>Number of oak regenerated at 2nd, 5th, and 10th year.</p>	<p>Gypsy moth impacts prohibit adequate oak stocking on more than 5% of projects.</p>	<p>Report at the end of fifth year of implementation.</p>

Legend:

- (I) - Implementation Monitoring
- (E) - Effectiveness Monitoring
- (V) - Validation Monitoring

**TABLE 19. Monitoring Items That are Common to Many Management Areas (Continued)**

Monitoring Item and Desired Future	Indicators of Desired Future	Monitoring Questions	Measurement & Frequency of Measurement	Threshold of Acceptable Change	Reporting Period & How Long Before Question is Answered
IPM is used to minimize damage from forest pest organism with particular focus on gypsy moth.	Destructive insects and disease organisms do not increase to potentially damaging levels following management activities.	Are intervention treatments effectively reducing the susceptibility or vulnerability of stands to damaging pests? (E)	Annual population estimates	Post treatment population within $\pm$ 10% of pre treatment population.	Report yearly. Evaluate immediately for attainment.
<b>LANDS</b> National Forest ownership is consolidated with particular emphasis placed on acquiring desirable interior tracts.	Give priority to exchanges that will consolidate large blocks of National Forest land through acquisition of desirable inholdings and disposal of isolated tracts of National Forest land.	Are available private lands being acquired that have been identified on the land ownership adjustment map? (I)  Were exchanges or purchases effective in consolidating large blocks of National Forest land or disposing of isolated tracts of existing National Forest land? (E)	Acres exchanged or acquired as reported yearly.  Acres exchanged or acquired as reported yearly.	Tract exchanged or acquired not identified on Land Ownership Adjustment Map.  Tract acquired did not consolidate ownership or tract disposed was not isolated.	Report yearly. Desired future attained in 50 years.  Report at end of fifth year of implementation. Desired future attained in 50 years.
All landlines are located to Forest Service standard.	Establish all landlines to Forest Service standards within the first plan period.	Is the Forest establishing boundary lines at a rate to meet objectives in Appendix E of the Plan? (I)	Miles of landline located as reported yearly.	Variance greater than 25% from objective.	Report yearly. Attainment end of 1st 10-yr period.
All landlines are maintained to Forest Service standard.	Maintain established boundary lines on a 10-year frequency.	Is the Forest maintaining boundary lines at a rate to meet objectives in Appendix E of the Plan? (I)	Miles of landline maintained as reported yearly.	Variance greater than 25% from objective.	Report yearly. Evaluate at the end of fifth year of implementation.

Legend: (I) - Implementation Monitoring  
(E) - Effectiveness Monitoring  
(V) - Validation Monitoring

**TABLE 19. Monitoring Items That are Common to Most Management Areas (Continued)**

Monitoring Item and Desired Future	Indicators of Desired Future	Monitoring Questions	Measurement & Frequency of Measurement	Threshold of Acceptable Change	Reporting Period & How Long Before Question is Answered
<p><b>PLAN CONSISTENCY</b> All projects are consistent with the Plan.</p>	Projects are evaluated to determine if they are consistent with the management direction in the Plan. This evaluation is documented in the project-level environmental document with a finding of consistency incorporated into the decision document.	Are projects consistent with the Forest Plan? Are the projects being implemented in accordance with the NEPA documents? (I)	Number of projects or project - level Plan amendments as reported yearly.	Noncompliance with NEPA documents or Revised Forest Plan.	Report yearly. Attainment every year.
<p><b>RECREATION</b> Trails will be developed or improved as funding permits.</p> <p>Trails are maintained to standard.</p> <p>The "Share The Trail" concept is promoted.</p> <p>A wide range of recreation opportunities is provided to the Forest visitors.</p>	<p>Outputs shown in the Plan are being accomplished.</p> <p>Trail maintenance activities are commensurate with the existing ground conditions and the level of use the trail receives.</p> <p>The trail system is managed to provide for a variety of trail users and experience levels.</p> <p>The area is managed to meet the adopted Recreation Opportunity Spectrum (ROS) classification. Standards are used in designing and executing management practices in order to successfully meet the assigned ROS.</p>	<p>Are the estimated outputs projected in the Plan being achieved? (I)</p> <p>Are trails being maintained to the standard necessary to adequately support users? (I)</p> <p>Are trails meeting the needs of its users? (E)</p> <p>Are ROS classifications being met in the Management Area? How well do the standards help in meeting the ROS objectives? (E)</p>	<p>Number of Miles of trail constructed or reconstructed as measured yearly.</p> <p>Miles of trail not to standard as measured yearly.</p> <p>One User Survey done during first five years of Plan.</p> <p>Evaluation of 75% of projects yearly.</p>	<p>Variance greater than 25% between projected and actual outputs.</p> <p>Any increase in the backlog of trails not maintained to standard.</p> <p>Survey reveals poor Trail conditions, hazards, or user conflicts.</p> <p>Any human caused deviations from adopted ROS.</p>	<p>Report yearly. Evaluate at end of fifth year of implementation.</p> <p>Report yearly. Evaluate at end of fifth year of implementation.</p> <p>Report at end of fifth year of implementation.</p> <p>Report every five years. Desired future presently exists and will be retained.</p>

Legend:

- (I) - Implementation Monitoring
- (E) - Effectiveness Monitoring
- (V) - Validation Monitoring

**TABLE 19. Monitoring Items That are Common to Most Management Areas (Continued)**

Monitoring Item and Desired Future	Indicators of Desired Future	Monitoring Questions	Measurement & Frequency of Measurement	Threshold of Acceptable Change	Reporting Period & How Long Before Question is Answered
<b>SOIL</b> Soil productivity is protected.	To maintain soil productivity while conducting forest management activities, the organic or litter layer, topsoil, and root mat should be left in place over 85% of the area of the planned activity.	Did activities leave in place at least 85% of the soil surface layer, including organic or litter layer, topsoil, and root mat? (I)	Areas of bare soil on 4 projects per Ranger District per year.	Noncompliance with standard.	Report yearly. Attainment every year.
		Did exposing up to 15% of the soil cause erosion to exceed the forested T-factor? (E)	Areas of bare soil on one project per Ranger District per year.	Soil erosion exceeds forested T-factor.	Report every two years. Answer in 8 years.
<b>→THREATENED, ENDANGERED, &amp; SENSITIVE SPECIES</b> T & E plant and animal species are protected.	Requirements and measures for activities affecting threatened and endangered species are detailed in species recovery plans and FSH 2609.23R.	Were requirements outlined in federal species recovery plans implemented? (I)	Species specific populations. Frequency depends on species.	Evidence that recovery plans are not being implemented.	Report yearly. Attainment every year.
		Is habitat for all existing threatened and endangered species being maintained or improved with no unwanted habitat alterations / degradations happening? (E)	Species specific populations. Frequency depends on species.	Natural population fluctuations are acceptable. Negative trends resulting from management activities will require immediate action.	Report yearly. Attainment will vary by species based on recovery objectives.

Legend: (I) - Implementation Monitoring  
(E) - Effectiveness Monitoring  
(V) - Validation Monitoring

**TABLE 19. Monitoring Items That are Common to Many Management Areas (Continued)**

Monitoring Item and Desired Future	Indicators of Desired Future	Monitoring Questions	Measurement & Frequency of Measurement	Threshold of Acceptable Change	Reporting Period & How Long Before Question is Answered
<p><b>→THREATENED, ENDANGERED, &amp; SENSITIVE SPECIES</b> T &amp; E plant and animal species are protected.</p>	<p>Determine the amount or extent of incidental take across the combined GWJNFs.</p> <p>Determine the amount of Forest Types over certain age classes across the combined GWJNFs.</p>	<p>Were measures outlined in USFWS Biological Opinion of September 16, 1997 on the Indiana Bat implemented? (I)</p> <p>Were measures outlined in USFWS Biological Opinion of September 16, 1997 on the Indiana Bat implemented? (I)</p>	<p>Acres of potential bat habitat removed or disturbed per year and over a five year period. Number of Indiana bats taken annually.</p> <p>Acres of all Forest Types across the GWJNFs over 70 years of age; and acres of CISC Forest Types 53 (white oak, red oak, hickory) and 56 (yellow poplar, white oak, red oak) across the GWJNFs over 80 years old.</p>	<p>Removal or disturbance exceeds more than 4,500 acres annually, or in a five year period more than 22,500 acres, or more than ten Indiana bats annually.</p> <p>60% of the acreage of all Forest Types across the GWJNFs is not maintained over 70 years of age; and 40% acreage of CISC Forest Types 53 (white oak, red oak, hickory) and 56 (yellow poplar, white oak, red oak) is not maintained at an age greater than 80 years old.</p>	<p>Report yearly.</p> <p>Evaluate at end of fifth year of implementation.</p>

Legend:

- (I) - Implementation Monitoring
- (E) - Effectiveness Monitoring
- (V) - Validation Monitoring

**TABLE 19. Monitoring Items That are Common to Most Management Areas (Continued)**

Monitoring Item and Desired Future	Indicators of Desired Future	Monitoring Questions	Measurement & Frequency of Measurement	Threshold of Acceptable Change	Reporting Period & How Long Before Question is Answered
→Sensitive plant and animal species are protected.	→Determine population trends for Alleghany woodrat. Determine presence of the rock vole and water shrew.	→What are the woodrat's population trends on the Forest? (V) Are the rock vole and water shrew present on the Forest? If so, where? (I)	→Population survey for wood rat, presence survey for rock vole and water shrew in cooperation with the U.S. Fish and Wildlife Service, Virginia Department of Game and Inland Fisheries and West Virginia Department of Natural Resources once every two years.	→For the wood rat, negative population trends in two consecutive surveys. For the rock vole and water shrew, evidence that species exist at a specific location.	→Report every two years. Monitor minimum of 10 years.
<p><b>TIMBER</b> Allowable Sale Quantity (ASQ) will not be exceeded.</p> <p>Maximum size limits for harvest areas are those necessary to meet management objectives.</p>	<p>Within the planning period, the volume of timber to be sold in any one year may exceed the average annual ASQ so long as the total amount sold for the planning period does not exceed the ASQ.</p> <p>The maximum size of openings for all management types on the Forest for clearcut, shelterwood and seed tree harvest cutting methods is 40 acres. (25 acres in West Virginia)</p>	<p>Did the volume sold from suitable timberland in any one year exceed the Average Annual ASQ? Was the total volume sold from suitable land for the first decade less than the decade's ASQ? (V)</p> <p>Based on volume harvested, are timber yield coefficients used in FORPLAN accurate? (V)</p> <p>Are the opening size limits needed to meet wildlife habitat or visual quality objectives used more often than the maximum size limit of 40 acres? (I)</p>	<p>Volume chargeable to ASQ as sold yearly.</p> <p>Stand chargeable volume and stand suitable acres as reported yearly by working group.</p> <p>→Number of sold stands and their acres by Management Area except for salvage sales.</p>	<p>None. Adjust ASQ during next planning period.</p> <p>None. Use to adjust coefficients for the next Plan revision.</p> <p>Actual size limit as determined by wildlife habitat or visual quality is exceeded at least 10 % of the time an opening is created.</p>	<p>Report yearly. Evaluate at end of fifth year. Validate at end of first decade.</p> <p>Report at end of fifth year of implementation. Validation in 10 years.</p> <p>Report yearly. Evaluate at fifth year of implementation.</p>

**TABLE 19. Monitoring Items That are Common to Most Management Areas (Continued)**

Monitoring Item and Desired Future	Indicators of Desired Future	Monitoring Questions	Measurement & Frequency of Measurement	Threshold of Acceptable Change	Reporting Period & How Long Before Question is Answered
<b>TIMBER</b> Lands harvested are adequately restocked.	Timber harvesting on suitable lands must be done under a harvest cutting method where adequate stocking of desirable species is expected to occur within 5 years after the final harvest cut.	Are harvested forest lands restocked within five years following harvest? (E)	Number of desirable stems per acre as measured first and third year after harvesting for pine stands and at third year for hardwood stands.	Evidence that land is not restocked within five years following harvest.	End of third growing season following harvest.
	The minimum number of stems per acre for each forest type are: 150 for white pine and hardwoods, and 300 for shortleaf pine, virginia pine, and mixed pine - hardwood.	Are modified shelterwood harvest cuts regenerating forests to desirable species? (E)	Number of desirable stems per acre and average regeneration height as gathered every 2 years on stands identified for monitoring.	Evidence that natural regeneration is not becoming established to meet minimum number of stems per acre.	Attainment in 10 Years.
Harvested pine forests are adequately restocked.	White pine forest types can be regenerated artificially or naturally to white pine. Yellow pine forest types can be regenerated artificially or naturally to yellow pine.	Were pine types successfully regenerated to the appropriate forest type? (E)	Forest type as measured first and third year after harvesting.	More than 10% of the pine regeneration was not to the appropriate forest type.	End of third growing season following harvest.
<b>TRANSPORTATION</b> Roads are designed to the lowest standard necessary to meet management area objectives.	Roads built or reconstructed in Management areas 7, 11, 13, 14, 15, 16 and 17.	Based on acres harvested, are road construction and reconstruction coefficients used in FORPLAN accurate? (V)	→Acres sold and miles of road built or reconstructed each year.	None. Use to adjust coefficients for the next Plan revision.	Report at end of fifth year of implementation. Validation in 10 years.

Legend: (I) - Implementation Monitoring  
(E) - Effectiveness Monitoring  
(V) - Validation Monitoring

**TABLE 19. Monitoring Items That are Common to Most Management Areas (Continued)**

Monitoring Item and Desired Future	Indicators of Desired Future	Monitoring Questions	Measurement & Frequency of Measurement	Threshold of Acceptable Change	Reporting Period & How Long Before Question is Answered
<p><b>TRAVEL MANAGEMENT</b> A road system will be maintained that serves the public, meets management needs, and protects resources in a cost-effective manner.</p>	Road management is consistent with the management area direction and meets standards in the Revised Plan.	<p>Have existing closed roads been opened to public use? (I) Have existing roads currently open to public use been closed? (I)</p> <p>Is the existing complement of open roads adequate to meet the experiences desired by the motorized recreation user on the Forest? (E)</p>	<p>Total Forest miles open and closed to public motorized use as reported yearly in TIS.</p> <p>Yearly Traffic Counts and One User Survey done during first five years of Plan.</p>	<p>Variance greater than 5% from amount of open and closed roads in TIS at the time the Record of Decision is signed.</p> <p>Comments reveal hazards, resource problems or user conflicts.</p>	<p>Report yearly. Evaluate at the end of fifth year of implementation.</p> <p>Report at end of fifth year of implementation.</p>
<p><b>VISUALS</b> Visitors see a forested landscape that appears pleasing to the eye.</p>	→The area is managed to meet the adopted visual quality objective. Contrast reducing techniques are used in designing and executing management practices in order to successfully meet the adopted visual quality objective.	<p>Are visual quality objectives being met in the Management Area? How well do the contrast-reducing techniques help in meeting the visual quality objectives? (E)</p>	<p>Visual evaluation of 75 % of yearly projects.</p>	<p>Any human-caused deviations from contrast reducing techniques.</p>	<p>Report every five years. Desired future presently exists and will be retained.</p>
<p><b>WILDLIFE</b> Quality hunting opportunities are promoted.</p>	Big Game Hunting Demand.	<p>Based on National Forest Stamps sold, are projected big game hunting trends accurate? (V)</p>	<p>National Forest Stamps sold as reported yearly by State wildlife agencies.</p>	<p>None. Use to adjust demand estimates for the next Plan revision.</p>	<p>Report at end of fifth year of implementation. Validation in 10 years.</p>

Legend:

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**TABLE 19. Monitoring Items That are Common to Most Management Areas (Continued)**

Monitoring Item and Desired Future	Indicators of Desired Future	Monitoring Questions	Measurement & Frequency of Measurement	Threshold of Acceptable Change	Reporting Period & How Long Before Question is Answered
→Populations for game (bear, deer, turkey and grouse) species are maintained or enhanced.	Population Trends	→What are the projected population trends for big and small game species on the Forest? (V)	→Hunter harvest information and spring drumming counts, brood surveys, bait station counts, spotlighting or pellet group counts as measured yearly.	None. Use to adjust model population trend estimates for next plan revision.	Report yearly. Evaluate at end of fifth year of implementation.
<b>ACCOMPLISHMENT REPORTING</b> Outputs/costs shown in the Plan are being accomplished.	Quantitatively compare planned versus actual outputs/costs.	Are the estimated outputs projected in the Plan being achieved? (I) Are the costs of implementing the Plan consistent with those projected? (I)	MAR items as reported yearly. Dollars spent as reported yearly.	Variance greater than 25% between projected and actual outputs. Variance greater than 25% between Plan projections and actual unit costs.	Report yearly. Evaluate at end of fifth year of implementation. Report yearly. Evaluate at end of fifth year of implementation.
The use of clearcutting is limited.	The decision document for any project utilizing clearcutting contains a determination that clearcutting is the optimum method to meet the goals, objectives, desired future condition, and standards for that management area as described in the Plan.	How much is being clearcut? (I)	→Acres sold yearly.	Yearly variance greater than 10% between Plan acreage projections and actual accomplishments.	Report yearly. Evaluate at end of fifth year of implementation.
Timber Harvest Methods other than clearcutting are predominant.	Uneven-age management using individual tree or group selection harvest cutting methods and even-age management using the shelterwood timber harvest cutting method may occur.	What are the acres by cutting method within management areas? (I)	→Acres sold yearly.	Variance greater than 25% between Plan projections and actual accomplishments.	Report yearly. Evaluate at end of fifth year of implementation.

Legend:

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**RESEARCH**

Validation monitoring and other complex monitoring questions often require our close coordination with Forest Research Experiment Stations. Research scientists help us design and conduct monitoring studies and analyze and interpret the results. We have identified the following Research needs:

- What is the most cost-efficient, reliable method(s) for collecting wilderness recreation use data? What yearly levels of use are occurring in wilderness?
- What is the most cost-efficient, reliable method(s) for collecting dispersed recreation use data? What yearly levels of use, by RIM activity, are occurring on the Forest?
- What happens to the stands when different timber harvest methods are used to reduce impacts from gypsy moth?
- Can we make the stands less susceptible to gypsy moths even when non-susceptible trees are planted?
- Do regeneration harvest size limits which differ by management areas, significantly affect habitat of management indicator species such as bear or turkey?
- Development of a numerical rating system for each old growth forest type is needed to quantify quality of stands identified based on Forest-wide inventory.
- Identify public attitudes towards visual quality along all sensitivity level 1 and 2 roads.
- Systematic inventory of plant and/or animal communities on the Forest and determination of species rarity and vulnerability to population changes due to natural and man caused influences.
- Identify vegetation and wildlife species composition and abundance changes resulting from gypsy moth defoliation.
- Determination of naturally occurring fire frequency regimes based on dendrochronology studies to establish fire history in all forest types.
- Determine if the endangered Indiana bat actually uses the Forest in the summer.

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**RESPONSIBILITY**

Monitoring and evaluation is an interdisciplinary effort. Project monitoring will be done by personnel at the Ranger District level. Financing will be part of the project costs. District personnel will document their findings and forward the results to the appropriate staff at the Supervisor's Office.

Plan monitoring, as well as some project monitoring, will be done by staff at the Supervisor's Office. Evaluation of the Plan will be done annually by a team of specialists at the Supervisor's Office and documented in a report.

**SPECIFIC PROJECTS AND THEIR LOCATIONS  
FOR ADDRESSING TIMBER REGENERATION MONITORING QUESTION  
(See Item J.)**

<b>Specific Projects And Their Location</b>	<b><u>Ranger District</u></b>	<b><u>Name</u></b>	<b><u>Units</u></b>	<b><u>Acres</u></b>	<b><u>Points</u></b>
	Deerfield	Corbett Branch			5
					3
		Rock Hill		1	16
				3	17
				4	20
				5	13
	Dry River	Not Yet Determined Waiting until some units are sold			
	James River	Not Yet Determined			
	Lee	Not Yet Determined Waiting until some units are sold			
	Pedlar	Humphreys Skid #1		2	11
		Humphreys Skid #2		1	26
				3	19
				4	27
		Humphreys Cable #2		1	18
		Humphreys Cable #3		1	25
		Upper Pedlar		4	18
		Terrapin Creek		2	10
				3	27
	Warm Springs				
		Port Lock		1	37
				5	16
				6	40
		Piney Mountain		1	28
				2	30

### Indiana Bat Administrative Studies

1. The GWJNFs will continue its efforts to determine use of the GWJNFs by Indiana bats during the hibernation, summer roosting/maternity, and pre-hibernation seasons by implementing the following research and monitoring needs. Selection of sites for future monitoring and research will be left to the discretion of the GWJNFs biologists in consultation with VDGIF. (USFWS BO Term and Condition 3, page 32)
2. Cave Sites: The biennial surveys of all Indiana bat hibernacula shall continue following the protocol of the Indiana Bat Recovery Team (IBRT). After any gating of a hibernaculum, yearly surveys shall be conducted to determine the effects of the gates on all bat species. This effort will be conducted for the first three years and then continue with the biennial monitoring according to the IBRT. (USFWS BO Term and Condition 3A, page 32)
3. Mountain Grove Saltpetre Cave will be monitored to determine whether there is increased human recreation and bat usage. (USFWS BO Conservation Recommendation 2, page 34)
4. Roost Trees: Work shall continue to identify the roost trees and areas utilized by Indiana bats in the summer. The habitat at these sites will be characterized and quantified. These habitat data will be used to modify the existing management plan (Forest Plan). (USFWS BO Term and Condition 3B, page 32)
5. Maternity Sites: Studies shall be conducted to identify if and where Indiana bat maternity sites are located on the GWJNFs. If maternity sites are found, they will be protected along with associated roosts and foraging areas. The habitat at these sites will be characterized and quantified. These habitat data will then be used to assist in protecting existing sites and locating additional sites. (USFWS BO Term and Condition 3C, page 32)
6. If Indiana bat maternity colonies are located on the GWJNFs, biologists should conduct habitat suitability index (HSI) studies in the vicinity of each colony site to support validation or modification of the Indiana bat HSI model (Romme et al. 1995), once this model is reviewed and revised by the USFWS and Indiana Bat Recovery Team and is ready for field testing. (USFWS BO Conservation Recommendation 7, page 34)
7. Summer Foraging Areas: Studies and monitoring activities shall continue to identify the forest types and structure used for foraging by Indiana bats. Habitat will be characterized and quantified at both the local and landscape levels. These habitat parameters will be used to develop management strategies for the protection, maintenance, and promotion of foraging areas. (USFWS BO Term and Condition 3D, page 32)
8. Fall Swarming and Foraging Areas: The identification of the areas utilized by the bats in the fall is warranted for the overall protection and maintenance of the wintering population. Studies shall be conducted to identify the major foraging areas used by Indiana bats during the swarming period. The habitat utilized by the bats will be characterized and quantified. Using these habitat parameters and actual foraging ranges, management strategies for protection of swarming areas will be identified. (USFWS BO Term and Condition 3E, page 32)