

AMENDMENT #6

GEORGE WASHINGTON NATIONAL FOREST
REVISED LAND AND RESOURCE MANAGEMENT PLAN

March 1998

The following changes are made to the Forest Plan through this amendment

1. The following standards are added to the Forest-wide management direction in the George Washington's Revised Forest Plan at the end of the Common Standards (page 3-158) under a separate heading for the Indiana Bat.

INDIANA BAT

Primary Cave
Protection Area

302. Each Indiana bat hibernaculum will have a primary buffer (only as identified on public land) consisting of a radius no less than 0.8 km (0.5 miles) defined by watersheds. No disturbance that will result in the potential taking of an Indiana bat will occur within this buffer. Disturbance includes but is not limited to, timber harvesting and road construction. However, prescribed burning, road maintenance, and pesticide use will be evaluated during project level analysis to determine the direct, indirect, and cumulative effects on Indiana bats and the hibernacula. For clarification, timber harvesting and road construction is prohibited within this primary cave protection area. (USFWS BO Term and Condition 1(A)(a), page 29 and 30)

303. Starr Chapel, Kelly, and Shire's caves will be given a high priority for gating. (Starr Chapel was gated in 1994; Kelly and Shire's Caves were gated in 1995.)

304. Mountain Grove Saltpetre Cave will be gated if monitoring indicates increased human recreation and bat usage. (USFWS BO Conservation Recommendation 2, page 34)

305. If additional hibernacula are found, the caves will be gated, if necessary, to protect Indiana bats during the critical hibernation period.

306. All caves may be opened during the summer months for recreational use from May 1 to September 1.

307. The Rocky Hollow Cave will be given a high priority for acquisition (on a willing seller basis) since it is one of the largest known historic hibernacula in Virginia and is situated adjacent to GWJNFs lands. (USFWS BO Conservation Recommendation 1, page 33)

308. Private inholdings and lands in and near primary cave protection areas will be given a high priority for acquisition (on a willing seller basis). (USFWS BO Conservation Recommendation 3, page 34)

309. Management for other rare species within the primary cave protection areas will be evaluated during project level analysis to determine the direct, indirect, and cumulative effects on Indiana bats and the hibernacula.

Secondary Cave
Protection Area

310. A secondary buffer of approximately 2.4 km (1.5 miles) around the primary buffer will have limited disturbance. The actual area will be determined by on-the-ground conditions and topography. Within this area, the following management activities can occur: regeneration timber sales (no clearcutting), thinning, road construction or reconstruction, prescribed burning, trail construction/reconstruction, special uses, and limited pesticide use. However, each proposed project will be evaluated to determine the direct, indirect, and cumulative effects on Indiana bats and the hibernacula. (USFWS BO Term and Condition 1(A)(b), page 30)

311. In order to promote fall foraging and swarming areas within the secondary cave protection area, timber activities will leave all shagbark hickory trees and retain a minimum average of 6 snags or cavity trees (9 inches DBH or greater) per acre as potential roost sites (except where they pose a safety hazard). For group selection harvest method, all shagbark hickories will be maintained (except where they pose a safety hazard) with no provision for minimum number of snags or cavity trees due to the small opening size (≤ 2 acres). (USFWS BO Term and Condition 1(A)(b), page 30)

312. The Forest land within each secondary cave protection area will be maintained using either of two following criteria:

a. A minimum of 60% of the acreage of all Forest Types will be maintained over 70 years of age; and a minimum of 40% acreage of CISC Forest Types 53 (white oak, red oak, hickory) and 56 (yellow poplar, white oak, red oak) will be maintained at an age greater than 80 years old;

OR

b. When the above age criteria cannot be met, forest stands receiving even-aged regeneration harvesting will be maintained with a minimum of 20 trees per acre in the 25-41 cm (10-16") diameter breast height (DBH) class and 15 trees per acre in the 41+ cm (16"+) DBH class of which two trees per acre must be 51 cm (20") DBH or greater. (USFWS BO Term and Condition 1(A)(b), page 30)

313. The 0 - 10 age class will not exceed 10% at any time (regardless which of the criteria (in #3 above) are used. (USFWS BO Term and Condition 1(A)(b), page 30)

Forest-Wide
Protection

314. In order to promote potential summer roost trees and maternity sites for the Indiana bat throughout the GWJNFs, timber activities will leave all shagbark hickory trees and a minimum average of 6 snags or cavity trees (9 inches DBH or larger) per acre (except where leaving such trees pose a safety hazard). For group selection harvest method, all shagbark hickories will be maintained (except where they pose a safety hazard) with no provision for minimum number of snags or cavity trees due to the small opening size (≤ 2 acres). In clearcut harvest units, the shagbark hickories will be maintained and snags or cavity trees may be scattered or clumped, but will average 6 per acre. (USFWS BO Term and Condition 1(B), pages 30 and 31)

315. To insure a continuous supply of roost trees and foraging habitat and until more data are gathered on Indiana bat roost sites in Virginia, the following forest-wide conditions must be maintained:

a. a minimum of 60% of the acreage of all Forest Types combined on the GWJNFs will be maintained over 70 years of age; and

b. a minimum of 40% acreage of CISC Forest Types 53 (white oak, red oak, hickory) and 56 (yellow poplar, white oak, red oak) will be maintained at an age greater than 80 years old. (USFWS BO Term and Condition 1(B), page 31)

316. As active roost trees are identified on the GWJNFs, they will be protected and managed until such time they no longer serve as a roost (e.g., loss of exfoliating bark or cavities, blown down, or decay). Removal of known Indiana bat roost trees will be avoided, except as specified below. In the event that it becomes absolutely necessary to remove a known Indiana bat roost tree, such a removal will be conducted, through informal consultation with the U.S. Fish and Wildlife Service, during the time period when the bats are likely to be in hibernation (November 15 through March 31). Trees identified as immediate threats to public safety may, however, be removed at any time. For clarification, examples of threats to public safety include trees leaning over a trail, public road or powerline that could fall at any time due to decay or damage; yet their removal cannot occur until consultation with USFWS is complete. (USFWS BO Term and Condition 1(C), page 31)

Non-Cave Roosts

317. The protection area will be defined as the roost tree and a 402 m (1/4 mile) buffer around the roost tree. No disturbance that will result in the potential taking of an Indiana bat will occur within this buffer. Disturbance includes but is not limited to logging, road construction, or pesticide use. Prescribed burning is allowed during the non-roosting season with each project being evaluated during project level analysis to determine the direct, indirect, and cumulative effects on Indiana bats.

318. If during project implementation, active roost trees are identified, all project activity will cease within a 1/4-mile buffer around the roost tree until consultation with USFWS is completed to determine whether project activities can resume.

Upland Forests
Foraging Areas &
Riparian Areas

319. The existing standards and guides identified in the respective GWJNF Forest Plans will be used to protect riparian areas. These standards and guides are presented in the Forest Plans.

320. Prescribed burning is allowed to occur on lands unsuitable for timber production to maintain flight and foraging corridors in upland and riparian areas potentially used by bats in the summer. (USFWS BO Conservation Recommendation 4, page 34)

321. Opportunities should be sought to include creation of drinking water sources for bats in project plans, where appropriate, in areas where no reliable sources of drinking water are available. Opportunities will be considered when the creation is not detrimental to other wetland-dependent species (i.e., damage to natural springs and seeps). (USFWS BO Conservation Recommendation 5, page 34)

Maternity Sites

322. As sites are identified they will be protected and managed. The protection area will be defined as the maternity roost, alternate roost sites, and adjacent foraging areas. If a maternity roost is found a radius of 3 km (2 miles) around each maternity site will be protected. No disturbances that will result in the potential taking of an Indiana Bat will occur within this buffer. Disturbance includes but is not limited to logging, road construction, or pesticide use. All other activities within this buffer will be evaluated during project level analysis to determine the direct, indirect, and cumulative effects on Indiana bats.

323. If during project implementation, active maternity sites are identified, all project activity will cease within a 2-mile buffer around the maternity roost until consultation with USFWS is completed to determine whether project activities can resume.

Fall Foraging &
Swarming Areas

324. No additional strategy is necessary.

Project Monitoring

325. Monitoring of timber sales and other activities will be implemented as follows:

(a) Timber sale administrators or biologists will conduct and report normal inspections of all timber sales to the GWJNFs to ensure that measures to protect the Indiana bat have been implemented. Timber sale administrators will conduct normal inspections of all timber sales to administer

provisions for protecting residual trees. (Residual trees are those trees not designated for cutting under provisions of the timber sale contract.) Unnecessary damage to residual trees will be documented in sale inspection reports and proper contractual or legal remedies will be taken. The GWJNFs will include this information in their annual monitoring reports. These will be made available to the Service, if requested. (USFWS BO Term and Condition 2(a), page 31)

(b) Informal consultations among the USFWS and the GWJNFs will occur as needed in order to review and determine any need to modify provisions of the biological opinion, and other issues regarding the Indiana bat. (USFWS BO Term and Condition 2(b), page 31)

Other

326. Care must be taken in handling dead specimens of listed species that are found in the project area to preserve biological material in the best possible state. In conjunction with the preservation of any dead specimens the finder has the responsibility to ensure that evidence intrinsic to determining cause of death of the specimen is not unnecessarily disturbed. Upon locating a dead, injured, or sick specimen of an endangered or threatened species, initial notification must be made to the nearest USFWS Law Enforcement Office. Additional notification should be made to the nearest U.S. Forest Service Special Agent. (USFWS BO Term and Condition 4, pages 32 and 33)

327. Where appropriate, training should be conducted for employees regarding bats in the National Forests. Training should include sections on bat identification, biology, habitat requirements, and sampling techniques. (USFWS BO Conservation Recommendation 6, page 34)

328. Informational/educational displays about bats should occur to inform the public about this misunderstood group of mammals. (USFWS BO Conservation Recommendation 8, page 34)

2. The following information is added to the George Washington's Revised Forest Plan (page 5-40) after the existing first column titled "Monitoring Item". No change is made to the first column.

Under column - Indicators of Desired Future, Add: "Determine the amount or extent of incidental take across the combined GWJNFs."

Under column - Monitoring Questions, Add: "Were measures outlined in USFWS Biological Opinion of September 16, 1997 on the Indiana Bat implemented? (I)"

Under column - Measurement and Frequency of Measurement, Add: "Acres of potential bat habitat removed or disturbed per year and over a five year period. Number of Indiana bats taken annually."

Under column - Threshold of Acceptable Change, Add: "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."

Under column - Reporting Period and How Long Before Question is Answered, Add: "Report yearly."

3. The following information is also be added to the threatened and endangered (T&E) species monitoring program in the George Washington's Revised Forest Plan (page 5-40) after the existing first column titled "Monitoring Item". No change is made to the first column.

Under column - Indicators of Desired Future, Add: "Determine the amount of Forest Types over certain age classes across the combined GWJNFs."

Under column - Monitoring Questions, Add: "Were measures outlined in USFWS Biological Opinion of September 16, 1997 on the Indiana Bat implemented? (I)"

Under column - Measurement and Frequency of Measurement, Add: "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."

a. a minimum of 60% of the acreage of all Forest Types combined on the GWJNFs will be maintained over 70 years of age; and

b. a minimum of 40% acreage of CISC Forest Types 53 (white oak, red oak, hickory) and 56 (yellow poplar, white oak, red oak) will be maintained at an age greater than 80 years old. (USFWS BO Term and Condition 1(B), page 31)

Under column - Threshold of Acceptable Change, Add: "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."

Under column - Reporting Period and How Long Before Question is Answered, Add: "Evaluate at end of fifth year of implementation."

4. The following information is added to a new section dealing with "Administrative Studies" at the end of Chapter 5 of the George Washington's Revised Forest Plan.

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)

AMENDMENT #7

JEFFERSON NATIONAL FOREST
LAND AND RESOURCE MANAGEMENT PLAN

March 1998

The following changes are made to the Forest Plan through this amendment

1. The following standards are added to the Forest-wide management direction in the Jefferson's Forest Plan at the end of the forest-wide standards and guidelines (page IV-104 as updated with Amendments 1,2, &3) under a separate heading for the Indiana Bat.

INDIANA BAT

Primary Cave
Protection Area

1. Each Indiana bat hibernaculum will have a primary buffer (only as identified on public land) consisting of a radius no less than 0.8 km (0.5 miles) defined by watersheds. No disturbance that will result in the potential taking of an Indiana bat will occur within this buffer. Disturbance includes but is not limited to, timber harvesting and road construction. However, prescribed burning, road maintenance, and pesticide use will be evaluated during project level analysis to determine the direct, indirect, and cumulative effects on Indiana bats and the hibernacula. For clarification, timber harvesting and road construction is prohibited within this primary cave protection area. (USFWS BO Term and Condition 1(A)(a), page 29 and 30)
2. Starr Chapel, Kelly, and Shire's caves will be given a high priority for gating. (Starr Chapel was gated in 1994; Kelly and Shire's Caves were gated in 1995.)
3. Mountain Grove Saltpetre Cave will be gated if monitoring indicates increased human recreation and bat usage. (USFWS BO Conservation Recommendation 2, page 34)
4. If additional hibernacula are found, the caves will be gated, if necessary, to protect Indiana bats during the critical hibernation period.
5. All caves may be opened during the summer months for recreational use from May 1 to September 1.
6. The Rocky Hollow Cave will be given a high priority for acquisition (on a willing seller basis) since it is one of the largest known historic hibernacula in Virginia and is situated adjacent to GWJNFs lands. (USFWS BO Conservation Recommendation 1, page 33)
7. Private inholdings and lands in and near primary cave protection areas will be given a high priority for acquisition (on a willing seller basis). (USFWS BO Conservation Recommendation 3, page 34)

8. Management for other rare species within the primary cave protection areas will be evaluated during project level analysis to determine the direct, indirect, and cumulative effects on Indiana bats and the hibernacula.

Secondary Cave
Protection Area

9. A secondary buffer of approximately 2.4 km (1.5 miles) around the primary buffer will have limited disturbance. The actual area will be determined by on-the-ground conditions and topography. Within this area, the following management activities can occur: regeneration timber sales (no clearcutting), thinning, road construction or reconstruction, prescribed burning, trail construction/reconstruction, special uses, and limited pesticide use. However, each proposed project will be evaluated to determine the direct, indirect, and cumulative effects on Indiana bats and the hibernacula. (USFWS BO Term and Condition 1(A)(b), page 30)

10. In order to promote fall foraging and swarming areas within the secondary cave protection area, timber activities will leave all shagbark hickory trees and retain a minimum average of 6 snags or cavity trees (9 inches DBH or greater) per acre as potential roost sites (except where they pose a safety hazard). For group selection harvest method, all shagbark hickories will be maintained (except where they pose a safety hazard) with no provision for minimum number of snags or cavity trees due to the small opening size (≤ 2 acres). (USFWS BO Term and Condition 1(A)(b), page 30)

11. The Forest land within each secondary cave protection area will be maintained using either of two following criteria:

a. A minimum of 60% of the acreage of all Forest Types will be maintained over 70 years of age; and a minimum of 40% acreage of CISC Forest Types 53 (white oak, red oak, hickory) and 56 (yellow poplar, white oak, red oak) will be maintained at an age greater than 80 years old;

OR

b. When the above age criteria cannot be met, forest stands receiving even-aged regeneration harvesting will be maintained with a minimum of 20 trees per acre in the 25-41 cm (10-16") diameter breast height (DBH) class and 15 trees per acre in the 41+ cm (16"+) DBH class of which two trees per acre must be 51 cm (20") DBH or greater. (USFWS BO Term and Condition 1(A)(b), page 30)

12. The 0 - 10 age class will not exceed 10% at any time (regardless which of the criteria (in #3 above) are used. (USFWS BO Term and Condition 1(A)(b), page 30)

Forest-Wide
Protection

13. In order to promote potential summer roost trees and maternity sites for the Indiana bat throughout the GWJNFs, timber activities will leave all shagbark hickory trees and a minimum average of 6 snags or cavity trees (9 inches DBH or larger) per acre (except where leaving such trees pose a safety hazard). For group selection harvest method, all shagbark hickories will be maintained (except where they pose a safety hazard) with no provision for minimum number of snags or cavity trees due to the small opening size (\leq 2 acres). In clearcut harvest units, the shagbark hickories will be maintained and snags or cavity trees may be scattered or clumped, but will average 6 per acre. (USFWS BO Term and Condition 1(B), pages 30 and 31)

14. To insure a continuous supply of roost trees and foraging habitat and until more data are gathered on Indiana bat roost sites in Virginia, the following forest-wide conditions must be maintained:

a. a minimum of 60% of the acreage of all Forest Types combined on the GWJNFs will be maintained over 70 years of age; and

b. a minimum of 40% acreage of GISC Forest Types 53 (white oak, red oak, hickory) and 56 (yellow poplar, white oak, red oak) will be maintained at an age greater than 80 years old. (USFWS BO Term and Condition 1(B), page 31)

15. As active roost trees are identified on the GWJNFs, they will be protected and managed until such time they no longer serve as a roost (e.g., loss of exfoliating bark or cavities, blown down, or decay). Removal of known Indiana bat roost trees will be avoided, except as specified below. In the event that it becomes absolutely necessary to remove a known Indiana bat roost tree, such a removal will be conducted, through informal consultation with the U.S. Fish and Wildlife Service, during the time period when the bats are likely to be in hibernation (November 15 through March 31). Trees identified as immediate threats to public safety may, however, be removed at any time. For clarification, examples of threats to public safety include trees leaning over a trail, public road or powerline that could fall at any time due to decay or damage; yet their removal cannot occur until consultation with USFWS is complete. (USFWS BO Term and Condition 1(C), page 31)

Non-Cave Roosts

16. The protection area will be defined as the roost tree and a 402 m (1/4 mile) buffer around the roost tree. No disturbance that will result in the potential taking of an Indiana bat will occur within this buffer. Disturbance includes but is not limited to logging, road construction, or pesticide use. Prescribed burning is allowed during the non-roosting season with each project being evaluated during project level analysis to determine the direct, indirect, and cumulative effects on Indiana bats.

17. If during project implementation, active roost trees are identified, all project activity will cease within a 1/4-mile buffer around the roost tree until consultation with USFWS is completed to determine whether project activities can resume.

Upland Forests
Foraging Areas &
Riparian Areas

18. The existing standards and guides identified in the respective GWJNF Forest Plans will be used to protect riparian areas. These standards and guides are presented in the Forest Plans.

19. Prescribed burning is allowed to occur on lands unsuitable for timber production to maintain flight and foraging corridors in upland and riparian areas potentially used by bats in the summer. (USFWS BO Conservation Recommendation 4, page 34)

20. Opportunities should be sought to include creation of drinking water sources for bats in project plans, where appropriate, in areas where no reliable sources of drinking water are available. Opportunities will be considered when the creation is not detrimental to other wetland-dependent species (i.e., damage to natural springs and seeps). (USFWS BO Conservation Recommendation 5, page 34)

Maternity Sites

21. As sites are identified they will be protected and managed. The protection area will be defined as the maternity roost, alternate roost sites, and adjacent foraging areas. If a maternity roost is found a radius of 3 km (2 miles) around each maternity site will be protected. No disturbances that will result in the potential taking of an Indiana Bat will occur within this buffer. Disturbance includes but is not limited to logging, road construction, or pesticide use. All other activities within this buffer will be evaluated during project level analysis to determine the direct, indirect, and cumulative effects on Indiana bats.

22. If during project implementation, active maternity sites are identified, all project activity will cease within a 2-mile buffer around the maternity roost until consultation with USFWS is completed to determine whether project activities can resume.

Fall Foraging &
Swarming Areas

23. No additional strategy is necessary

Project Monitoring

24. Monitoring of timber sales and other activities will be implemented as follows:

(a) Timber sale administrators or biologists will conduct and report normal inspections of all timber sales to the GWJNFs to ensure that measures to protect the Indiana bat have been implemented. Timber sale administrators will conduct normal inspections of all timber sales to administer

provisions for protecting residual trees. (Residual trees are those trees not designated for cutting under provisions of the timber sale contract.) Unnecessary damage to residual trees will be documented in sale inspection reports and proper contractual or legal remedies will be taken. The GWJNFs will include this information in their annual monitoring reports. These will be made available to the Service, if requested. (USFWS BO Term and Condition 2(a), page 31)

(b) Informal consultations among the USFWS and the GWJNFs will occur as needed in order to review and determine any need to modify provisions of the biological opinion, and other issues regarding the Indiana bat. (USFWS BO Term and Condition 2(b), page 31)

Other

25. Care must be taken in handling dead specimens of listed species that are found in the project area to preserve biological material in the best possible state. In conjunction with the preservation of any dead specimens the finder has the responsibility to ensure that evidence intrinsic to determining cause of death of the specimen is not unnecessarily disturbed. Upon locating a dead, injured, or sick specimen of an endangered or threatened species, initial notification must be made to the nearest USFWS Law Enforcement Office. Additional notification should be made to the nearest U.S. Forest Service Special Agent. (USFWS BO Term and Condition 4, pages 32 and 33)

26. Where appropriate, training should be conducted for employees regarding bats in the National Forests. Training should include sections on bat identification, biology, habitat requirements, and sampling techniques. (USFWS BO Conservation Recommendation 6, page 34)

27. Informational/educational displays about bats should occur to inform the public about this misunderstood group of mammals. (USFWS BO Conservation Recommendation 8, page 34)

2. The following information is added to the threatened and endangered (T&E) species monitoring program in the Jefferson's Forest Plan within the "Wildlife and Fish" (Includes TES Species) section (page D-4) of Appendix D.

Under new column - Indicators of Desired Future, Add: "Determine the amount or extent of incidental take across the combined GWJNFs."

Under new column - Monitoring Questions, Add: "Were measures outlined in USFWS Biological Opinion of September 16, 1997 on the Indiana Bat implemented? (I)"

Under new column - Measurement and Frequency of Measurement, Add: "Acres of potential bat habitat removed or disturbed per year and over a five year period. Number of Indiana bats taken annually."

Under new column - Threshold of Acceptable Change, Add: "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."

Under new column - Reporting Period and How Long Before Question is Answered, Add: "Report yearly."

3. The following information is also added to the threatened and endangered (T&E) species monitoring program in the Jefferson's Forest Plan within the "Wildlife and Fish" (Includes TES Species) section (page D-4) of Appendix D.

Under new column - Indicators of Desired Future, Add: "Determine the amount of Forest Types over certain age classes across the combined GWJNFs."

Under new column - Monitoring Questions, Add: "Were measures outlined in USFWS Biological Opinion of September 16, 1997 on the Indiana Bat implemented? (I)"

Under new column - Measurement and Frequency of Measurement, Add: "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."

a. a minimum of 60% of the acreage of all Forest Types combined on the GWJNFs will be maintained over 70 years of age; and

b. a minimum of 40% acreage of CISC Forest Types 53 (white oak, red oak, hickory) and 56 (yellow poplar, white oak, red oak) will be maintained at an age greater than 80 years old. (USFWS BO Term and Condition 1(B), page 31)

Under new column - Threshold of Acceptable Change, Add: "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."

Under new column - Reporting Period and How Long Before Question is Answered, Add: "Evaluate at end of fifth year of implementation."

4. The following information is be added to a new section dealing with "Administrative Studies" at the end of Chapter 2 of the Jefferson's Forest Plan.

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)

The Jefferson's Forest Plan is also amended to identify that research is needed on the Indiana bat. The following research need is added to the end of Chapter II (Page II-4) of the Jefferson Plan.

7. Threatened and Endangered Species

Determine whether the Indiana bat is actually using the Forest in the summer.