EAST KENTUCKY POWER COOPERATIVE

June 21, 2005

RECEIVED

JUN 2 2 2005

PUBLIC SERVICE COMMISSION

Ms. Elizabeth O'Donnell
Executive Director
Commonwealth of Kentucky
Public Service Commission
211 Sower Boulevard
PO Box 615
Frankfort, KY 40602-0615

RE: Application for Certificate of Public Convenience and Necessity for the Construction of a 138 kV Electric Transmission Line in Rowan County, Kentucky. PSC Case No. 2005-00089

Dear Ms. O'Donnell:

Enclosed please find an original and ten (10) copies of East Kentucky Power Cooperative, Inc.'s Response to the Commission Staff's Second Data Request Dated June 17, 2005 in the above styled case.

Should you have any questions or concerns, please advise.

Very truly yours,

Sherman Goodpaster III
Senior Corporate Counsel

SG/ti

4775 Lexington Road 40391
P.O. Box 707, Winchester,
Kentucky 40392-0707

Tel. (859) 744-4812
Fax: (859) 744-6008
http://www.ekpc.coop

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE APPLICATION OF EAST KENTUCKY	)	
POWER COOPERATIVE, INC. FOR A CERTIFICATE	)	
OF PUBLIC CONVENIENCE AND NECESSITY FOR	)	**CASE NO**
FOR THE CONSTRUCTION OF A 138 kV ELECTRIC	)	**2005-00089**
TRANSMISSION LINE IN ROWAN	)	
COUNTY, KENTUCKY	)	

RESPONSES OF EAST KENTUCKY POWER COOPERATIVE, INC. TO COMMISSION STAFF'S SECOND DATA REQUEST DATED JUNE 17, 2005

EAST KENTUCKY POWER COOPERATIVE, INC.

PSC CASE NO. 2005-00089

INFORMATION REQUEST RESPONSE

COMMISSION STAFF'S 2ND DATA REQUEST DATED 6/17/05

ITEM 1

RESPONSIBLE PARTY: JOE SETTLES

REQUEST: Provide the following documents related to the Forest Service Special Permit Procedure:

a. The Environmental Assessment.

b. The Forest Service's Decision Notice and Finding of No Significant Impact.

c. The appeal decision by the Regional Forester.

RESPONSE: See the following attached **Exhibit 1a; Exhibit 1b; and Exhibit 1c**

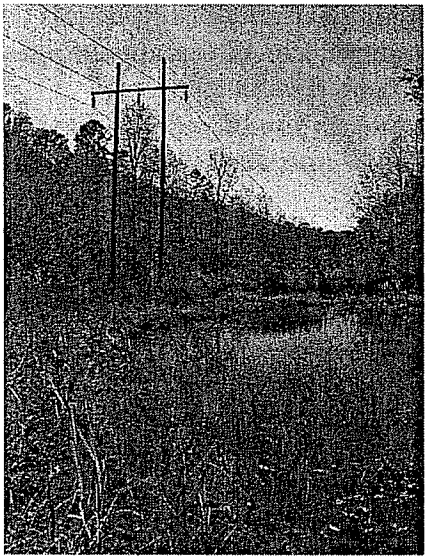
EXHIBIT 1A

ENVIRONMENTAL ASSESSMENT

CONSTRUCTION OF THE ROWAN-CRANSTON 138kV ELECTRIC TRANSMISSION LINE ON THE DANIEL BOONE NATIONAL FOREST IN ROWAN COUNTY, KENTUCKY

Lead Agency:
USDA Forest Service
Daniel Boone National Forest
1700 Bypass Road
Winchester, KY 40391

Cooperating Agency:
USDA Rural Utilities Service



Small wetland established within an EKPC electric transmission line right-of-way

Responsible Officials:
Benjamin T. Worthington, Forest Supervisor &
James R. Newby, Assistant Administrator, Electric

Revised January 28, 2005

For additional information contact:
Tom Biebighauser, USDA Forest Service, 2375 KY Highway 801 South,
Morehead, KY 40351 (606)784-6428, tombiebighauser@fs.fed.us

TABLE OF CONTENTS
Rowan-Cranston 138kV Electric Transmission Line Environmental Assessment

1.0 INTRODUCTION

East Kentucky Power Cooperative, Inc. (EKPC) of Winchester, Kentucky is a non-profit electric generation and transmission cooperative that provides electric power to 16 locally based electric distribution cooperatives. The distribution cooperatives provide power to over 486,000 electric consumers in 89 counties located across the central and eastern portions of the Commonwealth of Kentucky. EKPC is requesting a special use permit from the Forest Service to construct a portion of a new 138 kV transmission line within the boundaries of the Daniel Boone National Forest. In addition, EKPC is requesting assistance from the Rural Utilities Service (RUS) to finance the cost of the transmission line. The entire length of the transmission line will be in Rowan County, Kentucky. The proposed route for the new transmission line traverses private land and National Forest System land that is managed by the Forest Service as part of the Daniel Boone National Forest (DBNF).

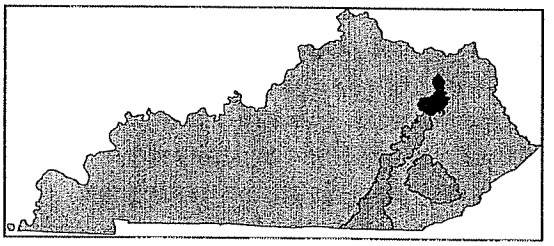


Figure 1. Location of the Morehead Ranger District and the Daniel Boone National Forest

The Forest Service requires that EKPC obtain a Special Use Permit to construct and maintain a new transmission line on National Forest System land. Before issuing a permit, the Forest Service must complete an environmental analysis, which may include the preparation of an environmental assessment in compliance with the National Environmental Policy Act (NEPA), implementing regulations at 40 CFR 1500, and Forest Service Handbook 1909.15. Further, the Environmental Assessment must be provided to the public for review and comment under the *Notice, Comment, and Appeal Procedures for National Forest System Projects and Activities* (36 CFR Part 215).

Prior to taking its action related to the project, RUS must fulfill its requirements pursuant to its environmental policies and procedures, 7 CFR 1794. RUS has agreed to be a cooperating agency with the Forest Service in the preparation of the environmental assessment for this project. RUS' review will cover the entire length of the transmission line. The Forest Service's review will be limited to the portion of the transmission line within the boundaries of National Forest System lands administered by the Daniel Boone National Forest.

The Forest Service acted as the lead federal agency with the RUS serving as a cooperating agency to conduct the environmental analysis for this project. An interdisciplinary team completed the environmental analysis and documentation for the project. This document serves as the detailed record of the environmental analysis completed for the proposed project.

Revisions have been made to the EA prepared on 19 December, 2003 for these reasons:

1) To include direction contained in the revised Forest Plan (April 2004), for the Daniel Boone National Forest.

2) To insure compliance with a ruling made by the Kentucky Airport Zoning Commission concerning the crossing of I-64 and U.S. Highway 60 by the proposed transmission line.

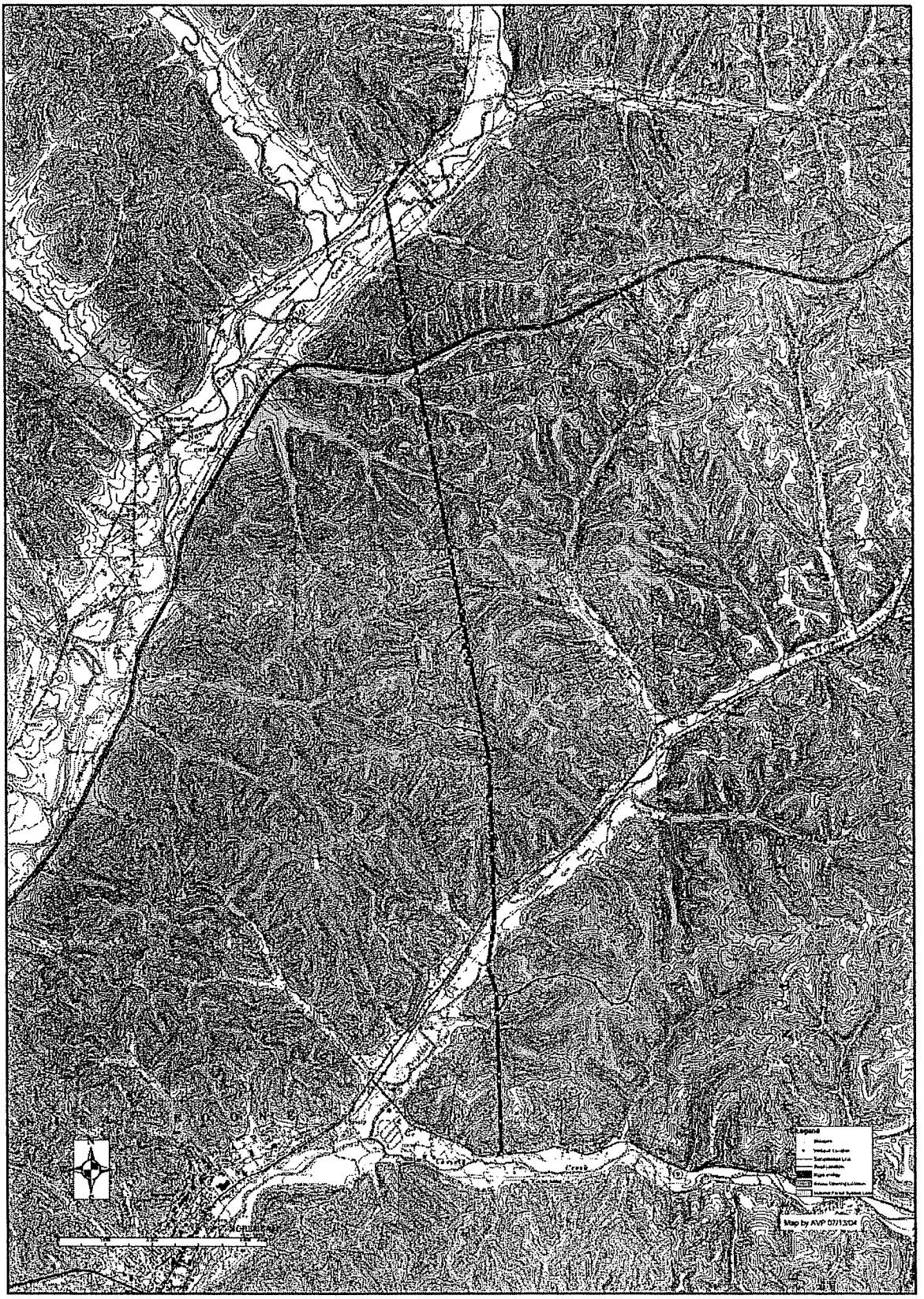
Revisions include an updated analysis for Management Indicator Species and herbicide application, additional details concerning Alternatives, improved maps showing locations of project activities, updated analysis on PETS (Proposed, Endangered, Threatened, Forest Service Sensitive Species), results from the completed cultural resource survey, as well as minor editorial changes.

2.0 PROPOSED ACTION

The Forest Service proposes to issue a special use permit to EKPC allowing them to build an electric transmission line across National Forest System land from EKPC's Cranston substation near Highway 377 to the Rowan substation near Highway 32 in Rowan County (Figure 2). Approximately 4.8 miles of the electric transmission line would cross National Forest System land with approximately 2.0 miles crossing private land. Electricity would be transmitted via 3 conductors to be suspended from steel or wood, 2-pole and 3-pole H-frame structures. Three-pole structures would be used for extra strength where the transmission line makes an angle. Two static wires would parallel the 3 conductors at the top of the poles to protect the conductors from lightning strikes. One of these wires may be bundled with a fiber optic cable for telecommunication purposes. The transmission line would be located so as to reduce the visibility of the line and associated right-of-way (ROW) from where it crosses I-64 and U.S. Highway 60.

Existing roads would be used to access most of the ROW to be cleared, however, new roads totaling approximately 7.0 miles (6.7 miles on National Forest System land) would be built to reach sections of the ROW that cannot be reached by existing roads. The majority of the new roads to be built follow road locations built in the area years ago, but have now grown up to trees and shrubs. Heavy equipment such as dozers and skidders would be used to construct the new roads. These roads, though their use, relative to construction and maintenance activities, would be temporary or intermittent, would be designated as Forest Service System Roads to be managed at maintenance Level 1 (FSH 7709.58, 10). Seed, lime, fertilizer and mulch would be applied to exposed soil areas. Water bars and dips would be placed in the roads to stop erosion, along with silt fences and staked bales of straw. Gravel would be applied to road surfaces as needed. Following construction activities, the new roads would be closed to public vehicular traffic using piles of soil and/or gates. The roads can be expected to grow up to trees and shrubs, and have trees fallen on them. It is possible that the roads may be used in the future by EKPC; they would again be closed to vehicular traffic following use.

Figure 2. Alternative A: Rowan-Cranston 138 kV Transmission Line Project.
Daniel Boone National Forest
Morehead Ranger District



The type, location and height of the structures would be designed so that the transmission line spans above many of the trees growing on the lower slopes and hollows within the potential ROW. Sections of these conductors would span more than 200 feet above the ground. Approximately 76 percent of the transmission line length would be cleared of trees and shrubs to make a 100-foot wide ROW. Individual trees greater than 100 feet in height growing on the lower slopes and hollows within the ROW sections not cleared would be cut or girdled with a chainsaw and left in place to prevent them from contacting a conductor. Felling of trees that are currently suitable for Indiana bat roosting would take place from October 15 to March 31. (Forest Plan Standard DB-WL-9). Any live or dead tree located outside of the ROW to be cleared that threatens a structure or conductor would be trimmed or cut.

The conductors would span less than 200 feet above the ground where the transmission line crosses I-64 and U.S. Highway 60. These conductors would be marked by orange colored balls to make them more visible to aircraft as directed by the Kentucky Airport Zoning Commission. All of the trees and shrubs would be cleared from the ROW in these two sections where the conductors are closer to the ground.

EKPC would purchase merchantable trees that are felled for the ROW and associated access roads on National Forest System land from the Forest Service. The purchased trees may be resold by EKPC. Equipment such as a high line cable truck or a skidder may be used to move the cut trees to loading sites. Trees may also be left in place, or windrowed along the edge of the ROW.

Trees cut for access roads and the ROW on private land would typically be cut into commercial lengths and piled along the edge of the ROW for the landowner to utilize or sell. The trees may also be windrowed along the edge of the ROW according to the landowner's request.

Control of woody vegetation in the cleared portions of the ROW would be accomplished through three main steps on both National Forest System and private lands:

1) Initial treatment to prevent stump sprouts - Stumps of cut trees and shrubs would be treated with the herbicides imazapyr and triclopyr. Treatment would not occur during periods of heavy sap flow in early spring. (See FS-2100-2, Pesticide Use Proposal, #1-Initial Cut Stump Treatment)

2) Follow-up treatment to control woody vegetation growth - Following construction of the transmission line, woody vegetation in the ROW would be allowed to grow for one or two years. The ROW would then be treated during the months of May through October with a directed foliar application of glyphosate and imazapyr. Applications would be accomplished through a combination of manual and mechanical methods depending on accessibility. Manual methods would employ low volume backpack sprayers and hose end sprayers attached to small volume tanks mounted on small vehicles, or reel sprayers connected to large volume tank trucks to apply herbicide. Herbicides would be applied manually or mechanically in accordance with label instructions and USDA approved application procedures. (See FS-2100-2, Pesticide Use Proposal, #2-Followup Directed Foliar Treatment)

3) Routine maintenance treatments of woody-stemmed vegetation growth – Following the initial and follow-up treatments of the ROW, vegetation would be maintained in grass, forbs, and shrub condition. Approximately every three to four years, vegetation would be treated by using brush axes, chain saws, hydro-axes, bush hogs, mowers or other mechanical trimmers. Woody-stemmed vegetation would be selectively treated during the months of July through September with an application of one of three herbicide mixes: a) glyphosate and imazapyr, b) triclopyr and imazapyr, or c) fosamine and imazapyr. Treatment methods would make use of low volume backpack sprayers and hose end sprayers attached to small volume tanks mounted on small vehicles, or hose reel sprayers connected to large volume tank trucks. The manual basal, manual cut-stump, or manual foliar application method would be used to apply the herbicide. The manual basal method directs a spray onto the base of the target stem. The manual cut stump method saturates the cambium area of the stump the same day it is cut. The manual foliar method applies spray to the foliage of the target plant.

Herbicide use would be consistent with: 1) Label specifications; 2) applicable Forest Plan Standards; and 3) Project-Specific Requirements as indicated below:

1) Label Specifications – East Kentucky Power Cooperative, Inc. will provide the Forest Service with a copy of the label for each herbicide to be used.

2) Forest Plan Standards applicable to herbicide use in this proposal:

DB-VEG-8 - Herbicides will be applied at the lowest rate effective in meeting project objectives and according to guidelines for protecting human and wildlife health. Application rate and work time must not exceed levels that pose an unacceptable level of risk to human or wildlife health. The USDA Forest Service, southern Region standard for acceptable level of risk requires a Margin of Safety (MOS) > 100 or, Hazard quotient (HQ) < 1.0.

DB-VEG-9. Monitor weather and suspend project if temperature, humidity, or wind becomes unfavorable according to the criteria below:

Ground:	Temperatures Higher Than (°F)	Humidity Less Than (%)	Wind (at Target) Greater Than (MPH)
Hand (cut surface)	n/a	n/a	n/a
Hand (other)	98	20	15
Mechanical (liquid)	95	30	10
Mechanical (granular)	n/a	n/a	10

DB-VEG-10 - Use only nozzles that produce droplets (mean droplet size of 50 microns or greater) or streams of herbicides. Nozzles that produce fine droplets may be used only for hand treatment, where distance from nozzle to target does not exceed eight feet.

DB-VEG-11 - Areas treated with herbicides are to be clearly posted with noticed signs to warn visitors of the treatment.

DB-VEG-13 - No soil active herbicide will be applied within 30 feet of the drip line of non-target vegetation.

DB-VEG-14 - Do not apply triclopyr within 60 feet of known occupied gray, Virginia big-eared, or Indiana bat hibernacula or known maternity tree.

DB-VEG-16 - No broadcast treatment using herbicide is to be made within 60 feet of any known PETS plant species

DB-VEG-17 - No soil-active herbicide is to be applied within 60 feet of any known PETS plant species.

DB-VEG-18 - Application equipment, empty herbicide containers, clothing worn during treatment, and skin are not to be cleaned in open water or wells. Mixing and cleaning water must come from a public water supply and be transported in separate, labeled containers.

DB-VEG-19 - No herbicide shall be applied within 30 horizontal feet of lakes, wetlands, perennial or intermittent springs (seeps) and streams. However, herbicides approved for aquatic use may be used when such treatment is required to control invasive plants (see Figure 2.1).

DB-VEG-20 - Necessary buffer zone areas must be designated before making herbicide treatments so applicators can easily recognize and avoid the buffer area.

DB-VEG-21 – Herbicide mixing, loading, or cleaning areas in the field are not to be located within 200 feet of private land, open water or wells, or other sensitive areas.

DB-VEG-30 - No herbicide may be broadcast within 100 feet of private land or 300 feet of a private residence, unless the landowner agrees to closer treatment.

5C-VEG-2 - Pesticide use is not allowed in Zone 1 except where necessary to control the spread of insect or disease outbreaks.

3) Project-Specific Requirements: Prior to starting an herbicide treatment activity, EKPC must: 1) have in their possession an approved FS 2100-2(s) – PESTICIDE-USE PROPOSAL for each herbicide formulation and application method for the planned treatment; 2) designate in writing, a Field Representative who will be on site throughout treatment activities and will be responsible for all implementation activities; and 3) The Special Use Field Representative will notify the Forest Service Representative at least one day prior to any planned herbicide treatment day.

Completed PESTICIDE-USE PROPOSAL(s) (FS 2100-2) must be submitted to the Forest Service, Morehead District Ranger. The Forest Service will review and approve submitted forms that are consistent with the Responsible Officials Decision. The Forest Service will provide EKPC with a copy of the approved form. Completed forms should be submitted to the Forest Service at least 1-month prior to any planned implementation dates.

EKPC will be responsible for tracking all herbicide use related to the Special Use permit. They will submit an ANNUAL PESTICIDE-USE REPORT to the Forest Service, Morehead District Ranger by October 15 following the period covered by the report. The Annual Pesticide-use report will cover the period October 1 through September 30. The Forest Service will provide EKPC with a copy of this form.

Monitor weather condition: Each day that herbicide treatments are planned, the EKPC Special Use Field Representative will be responsible for documenting predicted and actual weather conditions the day of treatment and 24 hours following treatment. An implementation monitoring form supplied by the Forest Service is to be completed, signed by the Special Use Field Representative, and provided to the Forest Service.

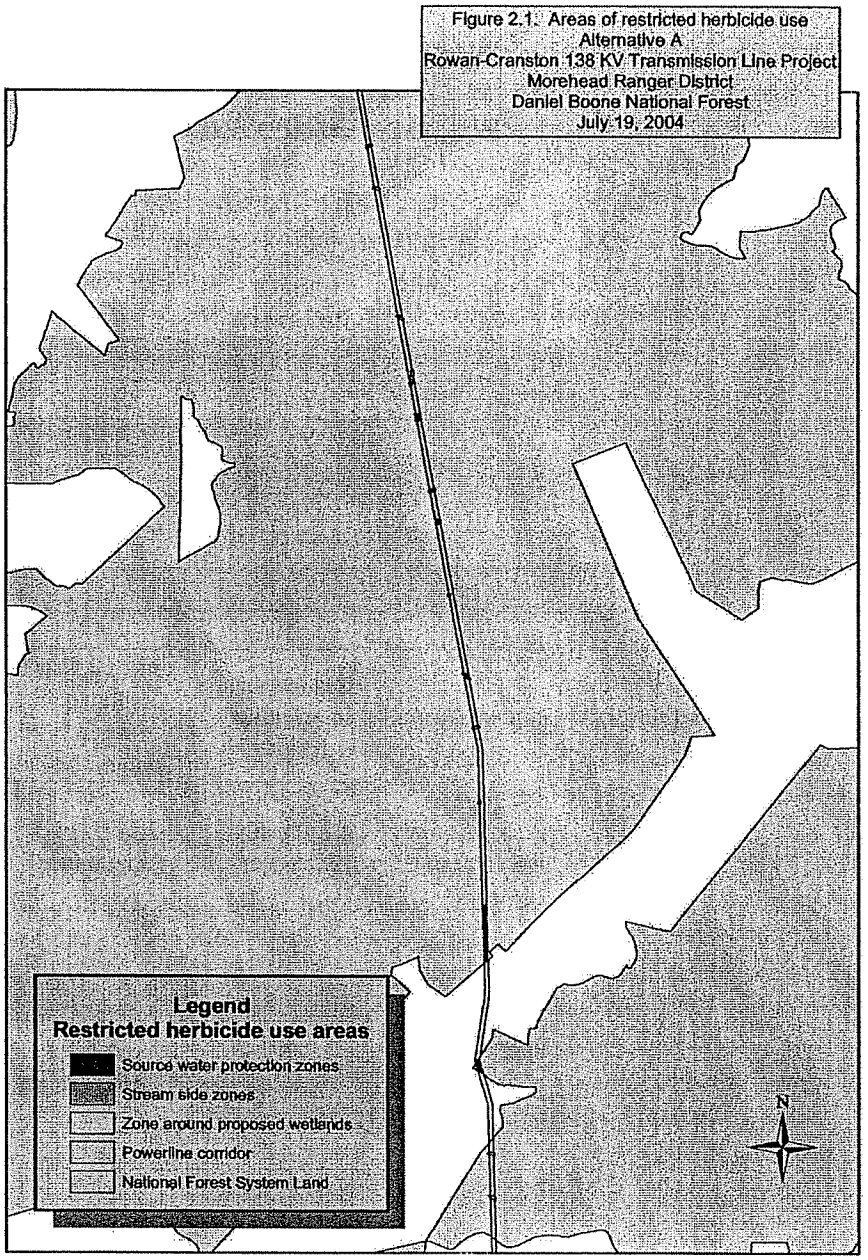


Figure 2.1 Areas of restricted herbicide use
Alternative A
Rowan-Cranston 138 KV Transmission Line Project
Morehead Ranger District
Daniel Boone National Forest
July 19, 2004
Legend
Restricted herbicide use areas
Source water protection zones
Stream side zones
Zone around proposed wetlands
Powerline corridor
National Forest System Land
N

Table 1. Summary of Herbicide Use on National Forest System lands for Alternative A.

	Treatment		
	#1 Initial	#2 Follow-up	#3 Routine Maintenance
Number of Treatments:	1	1	Periodic while under special use permit
Approximate Timing:	Following Clearing of ROW	One year after Initial treatment	Every 3-4 years
Pounds of active ingredient per acre (Percent solution)			
Glyphosate		1.6 (4%)	1.6 (4%)
Triclopyr-ester	4.0 (10%)		
Triclopyr-amine			1.2 (4%)
Imazapyr	0.6 (3%)	0.1 (0.5%)	0.1 (0.5%)
Fosamine			1.6 (4%)
Application			
Gallons Solution/acre	10	10	10
Treatment Method(s)	cut surface	manual and mechanical foliar	manual basal manual cut surface manual foliar
Time of year	Anytime, except during heavy spring sap flow	May through October	July through September
Approximate area to be treated (acres)	51	51	51
Results of Risk Assessment (HQ or MOS)			
Glyphosate HQ		< 1.0	< 1.0
Triclopyr-ester HQ	< 1.0		
Triclopyr-amine HQ			< 1.0
Imazapyr HQ	< 1.0	< 1.0	< 1.0
Fosamine MOS			> 100

To help make the new ROW blend in more with the surrounding landscape, 10 portions of the ROW on National Forest System land would be expanded to establish 7 acres of natural appearing openings (Figure 2). The openings would be located on ridge tops and be shaped irregularly to modify the straight-line appearance of the ROW. Native prairie grasses and forbs such as; big bluestem, little bluestem and Indian grass would be established in these openings. The prairie grasses would provide habitat to birds such as the prairie warbler and blue-winged warbler and mammals such as the cottontail and northern long-eared bat. An emphasis would be placed on using native Kentucky genotype species for the plantings. The prairie grasses would be planted using a tractor pulling a no-till seeder, or by hand with a seed spreader. Areas of the ROW planted to

prairie grasses would be maintained by a combination of methods. Prescribed fire would be the method of choice, providing it could be used without damaging poles, conductors or risking the safety of laborers. Mowing with a tractor or the selective application of herbicide as described above may also be used to control woody plants that invade grassy portions of the ROW.

A total of 29 ephemeral and permanent water wetlands, averaging 60 feet in diameter, would be built in and near the ROW on National Forest System land to provide habitat for species such as the spotted salamander, wood frog, Louisiana waterthrush and Indiana bat. The wetlands would be established in locations that do not interfere with management of the ROW. A small dozer would be used to make shallow depressions in the soil that would hold rainfall, thereby creating the necessary hydrology for natural appearing and functioning wetlands. Exposed soil around each wetland would be seeded to native species including an annual cover crop such as wheat. Straw would be used to mulch around each newly constructed wetland to control erosion. Logs and branches would be placed in the wetlands to improve breeding habitat for salamanders and to provide perches for birds.

3.0 PURPOSE AND NEED

A Forest Service Special Use Permit would make it possible for EKPC to build a new transmission line between the Cranston and Rowan electric substations so that adequate and reliable electric service can be maintained to the Rowan County area at large. The new transmission line would cross approximately 4.8 miles of National Forest System land and approximately 2.0 miles of private land located between the two electric substations. The project would provide the additional electric transmission line support needed to prevent low voltages and conductor overloads from occurring on existing transmission lines serving the area by 2005[1]. By 2005, potential low voltages and/or overloads could occur on the existing transmission lines servicing the area. This project would increase the reliability at the Cranston electric substation by providing a second source of electricity. A single, radial 138 kV transmission line now serves the Cranston electric substation. The projected 2005 winter peak load on this line exceeds EKPC's guideline for a single source by more than a factor of three.

As part of the future system, East Kentucky's Long Range Transmission Plan (approved by the RUS in December 2001) included the Rowan-Cranston line as part of a long range 138kV "east loop" between the J.K. Smith and Spurlock Electric Power Plants. The new transmission line would provide another way to move electricity to the substation. In the event one transmission line is out of service, for whatever reason, the other transmission line could provide adequate service to the substation, thereby enhancing reliability to the customers served in the Rowan County area.

The Special Use Permit from the Forest Service and decision by the RUS would help allow the transmission line to be built at a reasonable cost and help make efficient use of

[1] Based on electric power flow studies conducted by Stanley Consultants, Inc. and EKPC. Contact Tom Biebighauser for a copy of this report.

public funds. EKPC is a non-profit organization that plans to obtain funding for construction of the transmission line in the form of an insured loan from the Rural Utilities Service, a Federal Agency.

Three-pole structures would be used to support the transmission line for extra strength where the transmission line makes an angle. Two static wires would parallel the 3 conductors at the top of the poles to protect the conductors from lightning strikes, thereby decreasing outage risk. One of the transmission line wires may be bundled with a fiber optic cable for telecommunication purposes.

The transmission line would be located at nearly right angles to I-64 and U.S. Highway 60 to reduce the visibility of the line and associated right-of-way (ROW) for people traveling these major roads. However, orange balls would be placed on the conductors spanning I-64 and U.S. Highway 60 to increase their visibility to aircraft.

A cleared 100-foot wide ROW for the transmission line is necessary to provide a reliable flow of electricity to prevent service interruptions in the Rowan County area at large. The ROW for the new transmission line ROW would be maintained in short vegetation such as grasses, sedges, forbs and low growing shrubs to prevent trees from growing in contact with electric conductors and short circuiting lines or establishing ground faults. Cutting trees that threaten to fall on transmission lines would also be necessary to reduce the potential for faults that occur when trees come in contact with an electrical conductor. Any live or dead tree located outside of the ROW that threatens a structure or conductor would be trimmed or cut to reduce the potential for outages. Managing the vegetation in the ROW would allow crews to rapidly access electric lines to complete repairs caused by weather events such as ice and windstorms.

Three main steps would be taken to control woody vegetation in the cleared portions of the ROW so that the potential for outages can be reduced:

1) Initial treatment of herbicide to prevent stump sprouts.

Stumps of cut trees and shrubs would be treated with the herbicides imazapyr (Maximum of 0.75 pounds of active ingredient per acre) or triclopyr (Maximum of 4.0 pounds of active ingredient per acre), or in solution with each other. Treatment would not occur during periods of heavy sap flow in early spring, as heavy rain and sap flow may transport herbicide to non-target areas.

2) Follow-up treatment of herbicide to control woody vegetation growth - Following construction of the transmission line, woody vegetation in the ROW would be allowed to grow for one or two years so that sprouting woody vegetation can be more effectively controlled. The ROW would then be treated during the months of May through October with a foliar broadcast application of glyphosate (maximum pounds of active ingredient per acre stated on the label), fosamine (maximum of 7.8 pounds of active ingredient per acre), imazapyr (maximum of 0.75 pounds of active ingredient per acre) or triclopyr (maximum of 2.0 pounds of active ingredient per acre) either alone or in solution with another of the listed herbicides. Foliar applications would be accomplished through a combination of manual and mechanical methods depending on accessibility. Manual

methods would employ low volume backpack sprayers and hose end sprayers attached to small volume tanks mounted on small vehicles, or reel sprayers connected to large volume tank trucks to apply herbicide. Herbicides would be applied manually or mechanically in accordance with label instructions and USDA approved application procedures.

3) Routine maintenance treatments of woody-stemmed vegetation growth-Following the initial and follow-up treatments of the ROW, vegetation would be maintained in grass, forbs, and shrub condition. Approximately every three to four years, vegetation would be treated by using brush axes, chain saws, hydro-axes, bush hogs, mowers or other mechanical trimmers to reduce woody plant growth in the cleared ROW. Woody-stemmed vegetation would be selectively treated during the months of July through September with an application of glyphosate (maximum pounds of active ingredient per acre stated on the label), fosamine (maximum of 7.8 pounds of active ingredient per acre), imazapyr (maximum of 0.75 pounds of active ingredient per acre), either alone or in solution with another of the listed herbicides. Treatment methods would make use of low volume backpack sprayers and hose end sprayers attached to small volume tanks mounted on small vehicles, or hose reel sprayers connected to large volume tank trucks. The manual basal, manual cut-stump, or manual foliar application method would be used to apply the herbicide. The manual basal method directs a spray onto the base of the target stem. The manual cut stump method saturates the cambium area of the stump the same day it is cut. The manual foliar method applies spray to the foliage of the target plant.

The herbicide types used and techniques for their use would be consistent with: 1) Label specifications; 2) applicable Forest Plan Standards; and 3) Project-Specific Requirements as described in the Section 2.0 to meet legal requirements and direction.

Prior to starting an herbicide treatment activity, EKPC must: 1) have in their possession an approved FS 2100-2(s) – PESTICIDE-USE PROPOSAL for each herbicide formulation and application method for the planned treatment; 2) designate in writing, a Field Representative who would be on site throughout treatment activities and would be responsible for all implementation activities to help insure clear communication with the Forest Service; and 3) the Special Use Field Representative would notify the Forest Service Representative at least one day prior to any planned herbicide treatment day. This action would help insure that herbicides are applied correctly and that EKPC receives the latest information and concerns from the Forest Service.

Completed PESTICIDE-USE PROPOSAL(s) (FS 2100-2) must be submitted to the Forest Service, Morehead District Ranger. The Forest Service would review and approve submitted forms that are consistent with the Responsible Officials Decision. The Forest Service would provide EKPC with a copy of the approved form. Completed forms should be submitted to the Forest Service at least 1-month prior to any planned implementation dates. This action would help insure that herbicides are applied correctly, that EKPC receives the latest information and concerns from the Forest Service, and that there is ample opportunity to answer any questions either party may have concerning the use of herbicide on the ROW.

EKPC would be responsible for tracking all herbicide use related to the Special Use permit. EKPC would submit an ANNUAL PESTICIDE-USE REPORT to the Forest Service, Morehead District Ranger by October 15 following the period covered by the report so that the Forest Service can maintain an accurate record of herbicide use on the ROW. The Annual Pesticide-use report would cover the period October 1 through September 30. The Forest Service would provide EKPC with a copy of this form.

Monitor weather condition – Each day that herbicide treatments are planned, the EKPC Special Use Field Representative would be responsible for documenting predicted and actual weather conditions the day of treatment and 24 hours following treatment to help insure that herbicides are applied under suitable weather conditions. An implementation monitoring form is to be completed, signed by the Special Use Field Representative, and provided to the Forest Service Representative. The Forest Service would provide EKPC with a sample form.

The type, location and height of the transmission line support structures would cause the transmission line to span above many of the trees growing on the lower slopes and hollows within the potential ROW. This would result in a ROW where approximately 76 percent of the transmission line length would be cleared of trees, leaving most of the trees in the hollows along streams uncut. Riparian areas would basically not be affected by the ROW. Possible occasional, individual trees greater than 100 feet in height growing on the lower slopes and hollows within the ROW sections not cleared would be cut or girdled with a chainsaw and left in place to prevent them from contacting a conductor, that could cause an outage. Felling of trees that are currently suitable for Indiana bat use would take place from October 15 to March 31 to reduce the chance of harming an Indiana bat.

The Forest Service requires that EKPC purchase merchantable trees that are felled for the ROW and associated access roads on National Forest System land from the Forest Service. It is possible that EKPC may then sell the trees they had to purchase to a logger or sawmill. Should EKPC sell these merchantable trees, a high line cable truck or a skidder may be used to move the cut trees to loading sites. However, the purchased trees may also be left in place, or windrowed along the edge of the ROW as what was done by EKPC when they built the Cranston TAP ROW across National Forest System land several years ago. The trees cut for access roads and the ROW on private lands would typically be cut into commercial lengths and piled along the edge of the ROW for the landowner to utilize or sell. These trees may also be windrowed along the edge of the ROW according to the landowner's request.

Roads totaling approximately 7.0 miles would be built to provide access for clearing the ROW, installing poles, and the transmission line. The roads to be built would allow access to sections of the ROW that cannot be reached by existing roads. Roads would also allow crews to rapidly access electric lines to complete repairs caused by weather events such as ice and windstorms. Erosion from these roads would be controlled with the application of seed, lime, fertilizer and mulch to exposed soil areas. Water bars, dips, silt fences and staked bales of straw would be placed in roads to stop erosion. Gravel would be applied to road surfaces susceptible to erosion and/or rutting as needed. Roads

to be built would be maintained at Level 1 following construction activities, and be closed to public vehicular traffic with piles of soil or by gates. Such closure action would reduce erosion and possible use by unauthorized motor vehicles.

The proposed action includes changes to more traditional ROW management including activities such as native prairie plantings and wetland establishment to improve habitat for many wildlife species and increase viewing opportunities in the area.

The wetlands to be established would provide habitat to a variety of insects, animals and plants on ridge top locations. Wood frogs, gray tree frogs, spotted salamanders, marbled salamanders and many other species can be expected to use these small wetlands, and the logs and branches placed in them would increase breeding success for these species. Natural wetlands are uncommon on ridge tops in the project area, and the establishment of additional wetlands would increase habitat for many amphibian, reptile and mammal species. Since over 85 percent of the natural wetlands have been drained in Kentucky, these wetlands would help return this ecosystem to the DBNF. Erosion would be controlled on the wetlands to be built with the application of seed and mulch.

The native grasses to be planted in and near the ROW would provide habitat for many bird, mammal and reptile species. Use of native plant species would help reduce the potential for introducing non-native invasive species to the ROW. Birds such as the prairie warbler, yellow breasted chat and field sparrow may nest in the prairie patches. Grassy openings to be established on ridge tops in the ROW would improve the appearance of the ROW by breaking up the traditional straight line appearance of a ROW and provide habitat to species such as the wild turkey, white tailed deer, American woodcock and red tailed hawk. Erosion would be controlled on the sloped portions of the openings by using straw for mulch.

The proposed project is not connected by plan, timing or funding to other actions that are proposed for private and public land in the northern Rowan County area. There are no plans to extend the proposed transmission line to other locations in the future.

4.0 DECISION TO BE MADE

The Forest Supervisor of the Daniel Boone National Forest would make a decision, based on this Environmental Analysis and related documents:

1) Whether or not the Forest Service should issue a special use permit to EKPC to construct and maintain an electric transmission line across National Forest System land as proposed, whether or not to implement all associated activities as described in the proposal.
2) Whether to select an alternative to the proposal.
3) Whether an amendment to the Forest Plan for the Daniel Boone National Forest is needed to implement the selected action.

The RUS would make a decision whether or not to approve financing for the construction of the new electric transmission line based on the Environmental Analysis contained in this and other related documents.

5.0 PUBLIC INVOLVEMENT

The Public was asked to comment about this project in a number of ways. A scoping letter describing the proposal and asking for comments was mailed to 49 individuals, organizations and government agencies on November 13, 2002. A scoping notice describing the proposal and asking for comments appeared as a Legal Notice in the Morehead News on November 15, 2002. A description of the proposal also first appeared in the January 2003 issue of the Daniel Boone National Forest's Schedule of Proposed Actions, a newsletter sent to approximately 500 individuals and groups. Comments concerning the proposal were requested by December 15, 2002. The Forest Service received letters, phone calls and E-Mails concerning the proposal, these comments are located in the project file. People who commented on the scoping notice were also invited to comment on an Environmental Assessment prepared for this project on December 19, 2003.

A Public Notice stating that an Environmental Assessment had been prepared for this project and was available for public review and comment was published in the Lexington Herald-Leader (paper of record) on January 29, 2004. Copies of the Environmental Assessment were also mailed to 17 individuals and organizations on January 26, 2004. The Forest Service received 7 letter and emails in response to this invitation to comment. These responses were read, discussed, and carefully considered to see if changes were needed to this analysis. Copies of the responses received can be found in Appendix 14.4.

On June 15, 2004, EKPC hosted an open-house in Morehead, Kentucky for this project. The open house was advertised in the Morehead News and on radio stations broadcasting in the Rowan County area. Letters were mailed to 13 individuals inviting them to attend. The open house was designed to inform people of the proposed project and to provide them with an opportunity to comment. Forest Service personnel familiar with the project participated in the open house. The open house was attended by 12 individuals from the area.

6.0 ISSUE IDENTIFICATION

The interdisciplinary team reviewed all comments received to identify issues specific to the proposed action. Issues were considered to be statements of discussion, dispute or debate that represent points of unresolved conflict regarding specific environmental effects of the proposed action. These issues, along with the interdisciplinary team's preliminary issues, were analyzed for their significance[2] to the proposed action. The

[2] The use of the word *significant* in this section applies only to issue identification, not to the proposed action as defined by CEQ 1508.27.

responsible official then reviewed and approved the interdisciplinary team's recommended classification of the issues.

Significant issues were used to develop alternatives to the proposed action, prescribe mitigation standards, and determine the appropriate level of environmental analysis. Non-significant issues were dismissed from further consideration in the environmental analysis. They were either outside of the scope of the proposed action, already decided by law, regulation, or the Forest Plan. Non-significant issues may also have been irrelevant to the decision to be made, based on conjecture, not supported by scientific evidence, or had limited extent, duration and intensity. An analysis of responses received to scoping for the identification of non-significant issues can be found in the project file.

6.1 Significant Issues

1) Cutting trees to construct access roads and the right-of-way would negatively change habitat for wildlife species and affect how people use the area.

This issue is considered significant for these reasons:

Long duration of effects:

- Trees that took years to grow would be cut for access roads and the transmission line ROW.
- Animals that use the older trees may be displaced or harmed.

High interest intensity:

- A new ROW may fragment wildlife habitat for species that use older trees.
- The new ROW would increase "edge" habitat, possibly increasing cowbird parasitism of other bird nests.

Indicators or measurement for assessing this issue include:

- Reduction in the acres of older trees brought about by implementing the project.
- Changes in bird species numbers that use the forest near the proposed project.

2) The new transmission line should be located on private land as much as possible to avoid changing National Forest System land.

This issue is considered significant for these reasons:

- Long duration of effects: The new transmission line would be unattractive to people who visit the Daniel Boone National Forest.
- High interest intensity: People are concerned about using more National Forest System land for a utility corridor.

An indicator or measurement to assess this issue includes the number of miles of National Forest System land crossed by the proposed transmission line.

6.2 Non-Significant Issues

The following issue statements were determined to be non-significant:

Roads to be built for the new transmission line would affect parts of National Forest System Land designated as roadless areas and lead to increases in ATV use of the area. *Rationale for non-significance: The area to be crossed by the transmission line is not located within an officially recognized roadless area nor does the area meet the criteria for such designation. ATV's are only allowed on designated routes within the DBNF. The roads being built for this project would not be designated for ATV use, and would be closed to motor vehicle use after constructiont is completed.*

That a new transmission line would reduce air quality on the Daniel Boone National Forest and increase pollution caused by coal fired power plants. *Rationale for non-significance: Under the Clean Air Act Amendments of 1977, National Forest System lands associated with the DBNF have a Class II designation. Only minimal increases in air pollution are allowed in Class I areas and greater increases in air pollution are allowed in Class II areas. All land within the U.S.A. has either a Class I or Class II designation. Construction of the transmission line would result in only a temporary increase in motor vehicle use and emissions from fossil fuel powered engines in the project area. According to the analysis of need prepared by EKPC, this transmission line is designed to maintain the distribution of power to customers already being served. It is beyond the scope of this project to analyze additional electrical production that might serve new customers or the pollution that may be caused by coal fired power plants. . Pollution from coal-fired power plants is also regulated by a different agency and is beyond the scope of consideration in this analysis.*

That the project should not be considered because the Renewable Resources Program Assessment and the Land and Resource Management Plan for the Daniel Boone National Forest were prepared years ago. *Rationale for non-significance: The last Renewable Resources Assessment was completed in 2000. An assessment was also prepared in 1993 to support a Renewable Resources Program Prepared in 1995. The program associated with the 2000 assessment is currently being prepared. Further information related to the Renewable Resources Assessment can be found online at http://www.fs.fed.us/pl/rpa/index.htm or by contacting you local Forest Service office. The Revision to the Forest Plan was approved on April 16, 2004 and has been used to guide this project on National Forest System land.*

Possible negative effects of using herbicides to control woody vegetation in the transmission line ROW on human health, animal species, and water quality.

The effects of herbicide use on humans, animals, water quality, endangered, threatened, rare and sensitive species use were analyzed for the Forest Plan (2004) and the Vegetative Management EIS for the Southern Region (USFS 1989). Should the Forest Service approve using herbicides for construction and maintenance of this transmission line, a Special Use Permit would be issued to EKPC that would include performance standards relating to how and when herbicides can be applied in the permit area. The

Forest Service would then ensure the terms of the permit are followed through periodic inspection. The use of methods other than herbicides for construction and maintenance, such as mechanical and manual means, were also considered in the development of alternatives.

Implementing the project may affect the development of the revised Land and Resource Management Plan for the Daniel Boone National Forest. *Rationale for non-significance: A revised Forest Plan was approved prior to the proposed implementation of this project.*

Electric and magnetic fields would be created in the new right of way, possibly harming public safety and increasing health risks. *Rationale for non-significance: While most public concern about electric and magnetic fields has concentrated on power-frequency, microwave and radio frequency fields, claims have been made that static magnetic fields cause or contribute to cancer. There is very little theoretical reason to suspect that electric and magnetic fields might cause or contribute to cancer or any other human health problems, and there is very little laboratory or epidemiological evidence for a connection between electric and magnetic fields and human health hazards.*

That building a new transmission line would reduce public interest in using alternate sources for electricity. *Rationale for non-significance: The Forest Service and the RUS identify any direct, indirect, and cumulative effects of implementing this project on the environment. According to the analysis of need prepared by EKPC, this transmission line is designed to maintain the distribution of power already being produced. It is beyond the scope of this project to analyze the development of alternate electricity sources and public interest in using these. The decision to grant or deny a special use application must be made within the bounds of the law, regulations, and direction in the Forest Plan. Public policy decisions concerning alternate energy sources are outside of the bounds of this decision.*

That the new transmission line would result in increased soil erosion caused by right-of-way and road construction. *Rationale for non-significance: Standards contained by the Forest Plan would be followed on National Forest System land to control erosion on roads and the ROW to be established for this project. These standards were designed to reduce erosion on disturbed soil areas.*

That EKPC wants to build the new transmission line to increase profits. *Rationale for non-significance: EKPC is a non-profit electric generation and transmission cooperative that provides electric power to 16 locally based electric distribution cooperatives. The distribution cooperatives provide electricity to over 468,000 consumers in 89 counties located across the central and eastern portions of the Commonwealth of Kentucky. The need for this project is justified to maintain adequate and reliable electric service to the Rowan County area at large.*

Constructing the transmission line would result in the loss of land now suitable for timber production. The area dedicated to a new transmission line across National Forest System land should be replaced by EKPC acquiring additional land that would be donated to become part of the Daniel Boone National Forest. *Rationale for non-significance: The*

Forest Plan contains standards for approving Special Use Applications such as utility corridors across National Forest System land. The Forest Plan outlines a number of areas such as clifflines, rare communities, and recreation sites that are also not dedicated to timber production.

That native grasses not be planted on steep portions of the transmission line ROW because they may not have grown on these areas historically. *Rationale for non-significance: There is good evidence that native grasses historically occurred in area near the proposed project. Patches of native prairie grasses have developed soon after fires and following the previous clearing for ROW's in the northern part of Rowan County. There is evidence that a seed bank of native grass species is present in the soil throughout the Morehead Ranger District. Whether this seed bank developed recently from avian deposition or is historical is open to debate. In addition, there are scattered, yet uncommon native prairie grasslands on both ridge-top and bottomland areas in Rowan County on private and National Forest System land. To help clarify what is proposed as part of this project, only the less steep areas that are cleared of trees and shrubs would be planted to prairie grasses. The steeper portions of the cleared ROW would be left to re-vegetate to shrubs and grasses.*

7.0 ALTERNATIVES

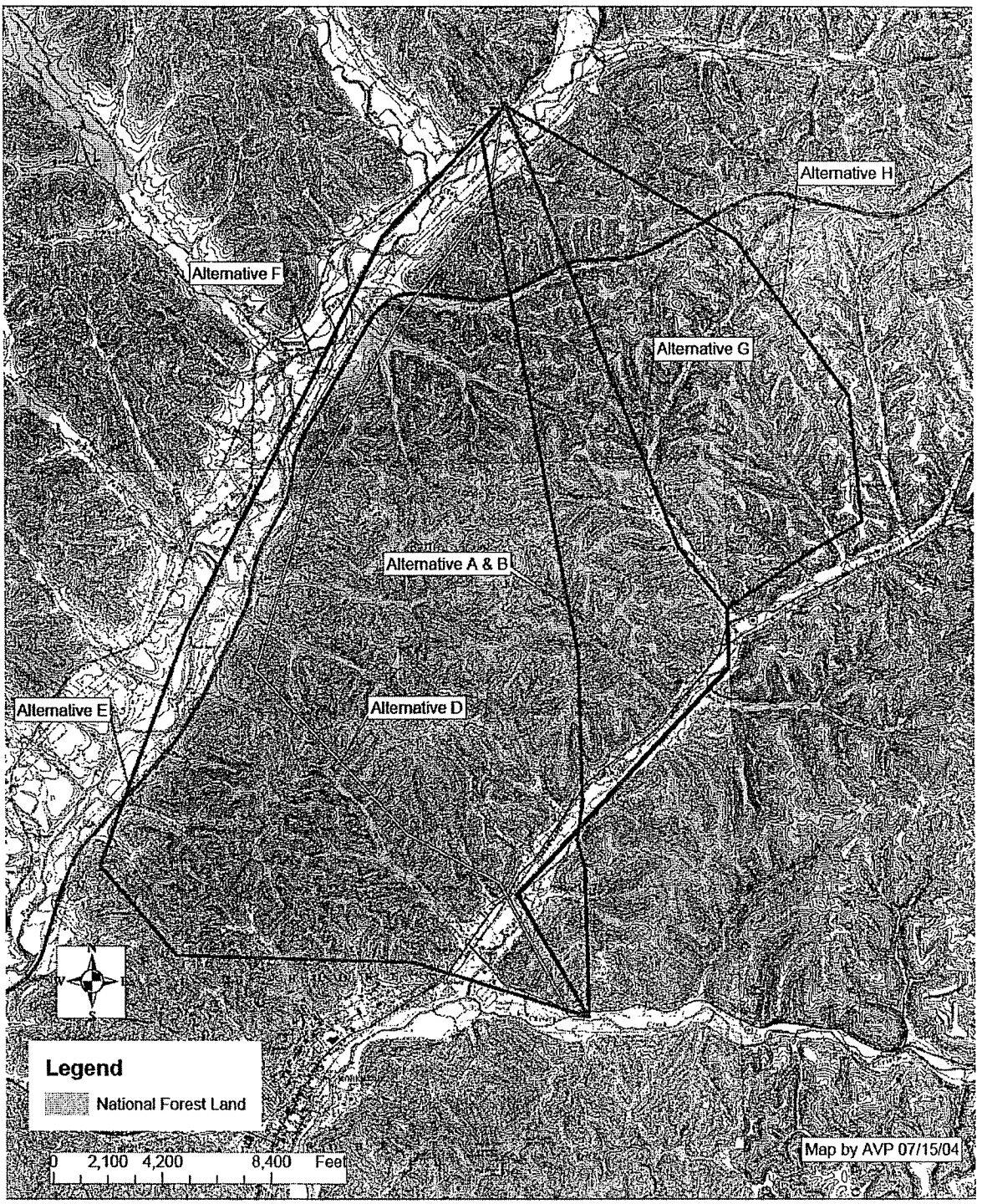
The Interdisciplinary Team developed 7 alternatives including the proposed action (Figure 3). The alternatives respond in varying degree to the significant issues identified in Section 6.0.

Alternative A: This is the proposed action as described in Section 2.0. The Alternative responds to Significant Issue # 1 by cutting fewer acres of trees than Alternatives D, E, G and H.

Alternative B: This is the same as the proposed action described in Section 2.0, except that herbicides would not be used to establish or maintain the ROW. Only mechanical methods such as brush axes, chain saws, hydro-axes, bush hogs, mowers and/or other mechanized trimmers would be used to manage and maintain vegetation in the ROW. The development of this no-herbicide alternative was required by the Forest Service prior to the approval of the revised Forest Plan.

Alternative C: This is the no action alternative; a new electric transmission line would not be built between the Cranston and Rowan electric substations. This Alternative responds to all three Significant Issues by not cutting trees, not building a transmission line across National Forest System land, and not using herbicide to create or maintain the ROW.

Figure 3: All Alternatives Considered.
Daniel Boone National Forest
Morehead Ranger District



Alternative D: This is the same as Alternative A except that the electric transmission line follows a western route. A transmission line at least 8.0 miles long would be built from the Cranston electric substation to the Rowan electric substation. Approximately 5.0 miles of the electric transmission line would cross National Forest System land and 3.0 miles would cross private land. This Alternative would reduce the number of separate ROW's that cross National Forest System land as approximately 2.9 miles of the transmission line on National Forest System land would parallel an existing Kentucky Utilities (KU) transmission line that has a 100' wide ROW. The width of the total ROW would be 200' where the KU and EKPC lines would parallel each other.

This alternative is not considered in detail because it does not meet the purpose and need for the project and does not respond to the significant issues previously identified. The transmission line, cleared ROW and structures would also be highly visible from I-64 and Forest Road 977.

Alternative E: This is the same as Alternative A except that an electric transmission line, approximately 10.4 miles long, would be built around National Forest System land and stay completely on private land along State Highway 377, State Highway 32 west, U.S. Highway 60 east and State Highway 32 east to connect the Cranston and Rowan electric substations. The Alternative responds to Significant Issue #2 in that the transmission line would avoid crossing National Forest System land.

This alternative was not considered in detail for these reasons:

1) The transmission line would cross directly over homes, barns, and other buildings; a practice that is avoided for human safety, electric transmission reliability, and access concerns.
2) The alternative would have a negative impact on the community as EKPC would have to acquire a large amount of private land for access roads and the ROW.
3) The transmission line would pass over densely populated areas in Rowan County, with structures being placed on residential lawns and at business sites.
4) The transmission line and structures would be highly visible from the most traveled roads in Rowan County.
5) The Alternative could only be implemented at a much higher cost than the proposed action, meaning that it does not meet the purpose and need for the project.
6) Placing a new transmission line and associated right-of-way along the North Fork of Triplett Creek may also result in adverse effects on the Kentucky lady's slipper, a Forest Service Sensitive Species. The species grows in wooded areas on private land along portions of the North Fork of Triplett Creek that would have to be cleared to create the ROW.
7) The Alternative is not practical because of the difficulties in placing the line along the North Fork of Triplett Creek near Highway 377. A number of major gas transmission lines are already located in this corridor. There are serious safety concerns with induced currents on gas lines when electric lines are located within a gas line corridor. Because of these safety concerns the gas company has

recommended that EKPC parallel no closer than 0.25 miles of their closest line. It may not be possible to stay more than 0.25 miles from the gas lines because of the way they are buried in the corridor.

Alternative F: This is the same as Alternative A except that a new transmission line, approximately 4.4 miles long, would be built across private land from the Cranston Substation to tie into the existing Kentucky Utilities (KU) Goddard-Rodburn 138 kV transmission line. This alternative would involve reconductoring the existing Cranston Tap-Rodburn 138 kV line (4.35 miles), the existing 13.7 mile Goddard-Hilda 69 kV line and reconductoring the capacitor banks at Rowan and Elliottville substations. Required switching facilities would also have to be constructed.

The alternative responds to Significant Issue #2 in that the transmission line would be located on private land, avoiding National Forest System land.

This alternative was not considered in detail for these reasons:

1) The Alternative does not meet the purpose and need for the project as it fails to form an east loop between the J.K. Smith and the Spurlock Electric Power Plants. A report prepared by Stanley Consultants on the *Justification of Rowan-Cranston 138 kV Line* explains how this alternative is judged to be un-equivalent to the proposed action in terms of overall transmission system reliability.
2) The alternative is estimated to cost approximately 25 percent more than the proposed action.
3) KU has informed EKPC that they do not support this action as a suitable alternative.
4) The Alternative is not practical because of the difficulties in placing the line along the North Fork of Triplett Creek near Highway 377. A number of major gas transmission lines are already located in this corridor. There are serious safety concerns with induced currents on gas lines when electric lines are located within a gas line corridor. Because of these safety concerns the gas company has recommended that EKPC parallel no closer than 0.25 miles of their closest line. It may not be possible to stay more than 0.25 miles from the gas lines because of the way they are buried in the corridor.
5) Placing a new transmission line and associated right-of-way along the North Fork of Triplett Creek may also result in adverse effects on the Kentucky lady's slipper, a Forest Service Sensitive Species. The species grows in wooded areas on private land along portions of the North Fork of Triplett Creek.

Alternative G: This is the same as Alternative A, except that the electric transmission line follows an east route to reduce the amount of National Forest System land crossed. A transmission line approximately 7.7 miles long would be built from the Cranston electric substation to the Rowan electric substation. Approximately 2.1 miles of the electric transmission line would cross National Forest System land; 5.6 miles would cross private land. Approximately 2.3 miles of the transmission line would parallel an existing American Electric Power Company (AEP) transmission line that has a 100' wide ROW

along Triplett Creek. The total width of the new ROW would be 200' along sections where the AEP and EKPC lines would parallel each other.

This alternative responds to Significant Issue #2 in that the transmission line would be located more on private than National Forest System land.

This alternative was not considered in detail for these reasons:

1) The transmission line would cross directly over homes, barns, and other buildings; a practice that is avoided for human safety, electric transmission reliability, and access concerns.
2) The transmission line would cross over an existing AEP transmission line, creating a potentially unsafe and costly situation.
3) The alternative would have a negative impact on the community as EKPC would have to acquire a large amount of private land for access roads and the ROW.
4) A large portion of the now forested riparian area on private land along Triplett Creek would be cleared, potentially having negative effects on water quality and rare plant species.
5) The Alternative could only be implemented at a much higher cost than the proposed action, meaning that it does not meet the purpose and need for the project.

Alternative H: This is the same as Alternative A except that the electric transmission line follows an east route that is designed to minimize the amount of National Forest System land crossed. A transmission line approximately 9.2 miles long would be built from the Cranston electric substation to the Rowan electric substation. Approximately 1.2 miles of the electric transmission line would cross National Forest System land and 8.0 miles would cross private land. Approximately 2.3 miles of this transmission line would parallel an existing American Electric Power Company (AEP) transmission line that has a 100' wide ROW near Triplett Creek. The width of the ROW would be 200' along sections where the AEP and EKPC lines would parallel each other.

This alternative responds to Significant Issue #2 in that the transmission line would be located more on private than National Forest System land.

This alternative was not considered in detail for these reasons:

1) The transmission line would cross directly over homes, barns, and other buildings; a practice that is avoided for human safety, electric transmission reliability, and access concerns.
2) The alternative would have a negative impact on the community as EKPC would have to acquire a large amount of private land for access roads and the ROW.
3) A large portion of the now forested riparian area on private land along Triplett Creek would be cleared, potentially having negative effects on water quality and rare plant species.
4) The Alternative could only be implemented at a much higher cost than the proposed action, meaning that it does not meet the purpose and need for the project.

Table 2. Length of the transmission line that would cross National Forest System land and private land for each Alternative.

ALTERNATIVE	LENGTH (MILES)		
	NATIONAL FOREST LAND	PRIVATE LAND	TOTAL
A	4.8	2.0	6.8
B	4.8	2.0	6.8
C	0.0	0.0	0.0
D	5.0	3.0	8.0
E	0.0	10.4	10.4
F	0.0	4.4	4.4
G	2.1	5.6	7.7
H	1.2	8.0	9.2

The responsible official determined which alternatives would receive detailed consideration after reviewing the proposed action, the alternatives, and by examining how each Alternative would meet the purpose and need for the project. Alternatives A, B and C were chosen to receive detailed consideration in this analysis.

8.0 FOREST PLAN DIRECTION

Directions concerning the approval of special use applications such as the one received by the Forest Service from EKPC for the use of National Forest System land for this project are contained in the Forest Plan. The National Forest System allocates resources and makes management decisions in two stages. The first stage is the Forest Plan, which allocates land to various uses or conditions by establishing Management Areas and Prescription Areas. Site-specific project decisions are made at the second stage. This analysis represents the second stage of decision-making.

The Forest Plan established four management areas designed primarily to establish monitoring protocols, track accomplishments, and the identification of differences in effectiveness of management activities. This project is contained in the Licking River Management Area.

The Forest Plan also established twenty-one prescription areas on the Forest. Allocations to prescription areas were based upon similar resource conditions and management emphasis. How the project is allocated into prescription areas is presented in Table 3.

Alternatives A and B would affect portions of the Riparian Corridor (1E.), Habitat Diversity Emphasis (1.K), Ruffed Grouse Emphasis (3.H.1), Source Water Protection (5.C.) Prescription Areas. A summary of how implementing the actions associated with Alternative A or B would affect these Forest Plan Prescription Areas is as follows:

Riparian Corridor Prescription Area: Electric transmission conductors would span over portions of riparian corridor in Alternative A or B. These alternatives were designed to avoid affecting riparian areas by using tall structures to keep conductors high above trees growing in riparian areas. However, the occasional tree that is greater than 100 feet in height growing on the lower slopes and hollows within the ROW sections not cleared would be cut or girdled to prevent them from contacting a conductor. These trees would be cut with a chainsaw and left in place, and it is possible that some of them would be located in a Riparian Corridor.

Habitat Diversity Emphasis Prescription Area: Sections of the ROW and roads would be located in Habitat Diversity Emphasis Prescription Areas. Implementing Alternative A or B would result in the establishment of non-forest vegetation such as warm season grasses, openings, and old fields along with permanent and ephemeral ponds as listed in the Forest Plan (3-33-35) description for this Prescription Area.

Ruffed Grouse Emphasis Prescription Area: Sections of the ROW and roads would cross Ruffed Grouse Emphasis Prescription Areas. Implementing Alternative A or B would result in portions of the ROW growing up to seedling and sapling forest, with the edges of the ROW and roads eventually providing habitat for berry producing shrubs, improving habitat for the ruffed grouse.

Source Water Protection Prescription Area: Sections of the ROW and roads planned for Alternative A or B are located in Source Water Protection Prescription Areas. Each alternative is designed to maintain water quality by taking measures to control erosion and runoff. No herbicide would be used within 300 feet of perennial water bodies or other areas identified as Zone 1 Source Water Protection Prescription Areas (Forest Plan 5.C-VEG-1, 5.C-VEG-2)

The goals and long-range management for the Forest are presented in the Forest Plan. This direction is expressed in Forest goals, objectives, standards, and specific management area prescriptions. This environmental assessment incorporates by reference the Forest Plan and works in conjunction with the environmental impact statement (EIS) for the Forest Plan. The proposed project has been reviewed in light of the goals and objectives set forth in the Forest Plan and modified where necessary to ensure that it is consistent with that direction. Table 4 summarizes the Forest Plan goals and objectives that are related to this proposed project.

Table 3. Distribution of affected acres on National Forest System land by Forest Plan Prescription Area.

Prescription Area	Project Acreage		Total Acres
	Right-of-Way	Access Roads	
1.C. Cliffline Community	0	0	0
1.E. Riparian Community	11	0	11
1.I. Designated Old-Growth	0	0	0

1.J. Significant Bat Caves	0	0	0
1.K. Habitat Diversity Emphasis	4	12	16
3.B. Large Reservoirs	0	0	0
3.H.2. Ruffed Grouse Emphasis	32	13	45
5.B. Source Water Protection	11	3	14
Total	58	28	86

The proposed action prescribes management activities that would help meet the goals of the Forest Plan. Activities not envisioned by the Forest Plan, but necessary to protect natural resources, may be appropriate based on site-specific examination. Together, these elements form the desired condition for this particular area. The proposed action is one way of moving from the existing resource conditions to the desired future for these resources.

Table 4. Representative Forest Plan Goals and Objectives Related to the Proposed Action.

Forest Plan Goal or Objective	Establish ROW without trees and reduced shrubs	Plant Native Grasses & Forbs	Establish Wetlands
Goal 1.1 Protect and/or enhance current and potential habitat for Proposed, Endangered, Threatened, or Sensitive species		X	X
Goal 1.2 Create and maintain water sources with a mixture of temporary/seasonal and permanent shallow water pools throughout the Forest.			X
Goal 1.5 Provide for grassland habitat	X	X	
Goal 1.7 Provide adequate habitat to support populations of Management Indicator Species	X	X	X
Goal 2.3. Reduce outbreak populations of invasive species, or eradicate isolated infestations of invasive species from becoming established		X	X
Goal 2.4 Re-introduce fire use across the landscape to increase biodiversity and improve resilience and stability of ecosystems		X	
Goal 11 Provide habitat to sustain wildlife populations suitable for recreational pursuits such as viewing, photographing, hunting and fishing.	X	X	X

The Forest Plan established standards, or requirements that impose limitations on management activities to protect resources or public safety. These can apply to the entire DBNF or be specific to prescription areas. Table 5 displays the Forest Plan standards applicable to the proposed action.

Table 5. Forest Plan Standards Related to the Proposed Action.
DB-LAND-2. Evaluate special-use proposals/applications to determine if they are in the public interest. Proposals/applications must:

Table 5. Forest Plan Standards Related to the Proposed Action.
a) Be consistent with Prescription Area Objectives, Standards, and Desired Future Conditions. b) Be consistent with other federal, state, and local statutes and regulations. c) Not be permitted on DBNF land if they can be reasonably accommodated on private land, even if these locations are more expensive for the applicant.
DB-ENG-4. Restrict motorized vehicle use in the scour ephemeral stream zone to designated sites
DB-WLF-9. For non-vegetation management projects, currently suitable Indiana bat roost trees may be felled only from October 15 through March 31, if they are more than five miles from a significant bat caves (Indiana bat).
DB-VEG-3. Logging or site preparation equipment, rubber–tired or tracked, is not to be used on plastic soils when the water table is within 12 inches of the surface or when soil moisture exceeds the plastic limit.
DB-VEG-7. No class B, C, or D chemical is to be used on any project, except with Regional Forester approval.
DB-VEG-8. Herbicides will be applied at the lowest rate effective in meeting project objectives and according to guidelines for protecting human and wildlife health.
DB-VEG-9. Monitor weather and suspend project if temperature, humidity, or wind becomes unfavorable according to the Forest Plan criteria.
DB-VEG-10. Use only nozzles the produce large droplets or streams of herbicides. Nozzles that produce fine droplets may be used only for hand treatment, where distance from nozzle to target does not exceed eight feet.
DB-VEG-11. Areas treated with herbicides are to be clearly posted with notice signs to inform visitors of the treatment.
DB-VEG-12. No herbicide is to be applied aerially.
DB-VEG-13. No soil-active herbicide will be applied within 30 feet of the drip line of non-target vegetation specifically designated for retention within or next to the treated area.
DB-VEG-14. Do not apply triclopyr within 60 feet of known occupied gray, Virginia big-eared, or Indiana bat hibernacula or known maternity tree.
DB-VEG-15. Do not apply 2,4-Dor 2,4-DP
DB-VEG-16. No broadcast treatment using herbicide is to be made within 60 feet of any known PETS plant species.
DB-VEG-17. No soil-active herbicide is to be applied within 60 feet of any known PETS plant species.
DB-VEG-18. Application equipment, empty herbicide containers, clothing worn during treatment and skin are not to be cleaned in open water wells. Mixing and cleaning water must come from a public water supply and be transported in separate, labeled containers.
DB-VEG-19. No herbicides shall be applied within 30 horizontal feet of lakes, wetlands, perennial or intermittent springs and streams. However, herbicides approved for aquatic use may be used when such treatment is required to control invasive plants.
DB-VEG-20. Designated buffer zone areas must be designated before making herbicide treatments so applicators can easily recognize and avoid the buffer area.
DB-VEG-21. Herbicide mixing, loading, or cleaning areas in the field are not to be located within 200 feet of private land, open water or wells, or other sensitive areas.
DB-VEG-27. Resource management activities that may affect soil and/or water quality must follow applicable Kentucky Rules and Regulations for Water Quality Control and Kentucky's Best Management Practices for Forestry (BMP) as a minimum to achieve soil and water quality objectives. When Forest Plan standards exceed Kentucky BMP's or water, Forest Plan standards will take precedence.
DB-VEG-30. No herbicide may be broadcast within 100 feet of private land or 300 feet of a private residence, unless the landowner agrees to closer treatment.
5C-VEG-2. Pesticide use is not allowed in Zone 1 except where necessary to control the spread of insect or disease outbreaks.
1.E-VEG-1. Cable corridors, cable sets, and tail trees may be installed in this Prescription Area only

Table 5. Forest Plan Standards Related to the Proposed Action.
at designated locations. Full suspension will be required if logs are yarded across perennial or intermittent streams.
1.E-VEG-2. All motorized equipment must be serviced outside of riparian corridors.
1.E-VEG-4. Skid roads and skid trails used for management of adjacent Prescription Areas must not encroach upon the riparian corridor.
1.E-VEG-5. The removal of coarse woody debris is allowed only if it poses a risk to public safety or water quality, degrades habitat for aquatic or riparian-associated species, or when it poses a threat to private property or Forest Service infrastructure.
1.K-VEG-1. When 9-inch snags are not available or cannot be created to meet a minimum of 3-snags per acre, snags of at least 6 inches DBH may be retained or created to provide snag habitat.
DB-FIRE-8. Conduct no prescribed burns in areas treated with herbicides until at least 30 days after an herbicide treatment.

The Final EIS for the Forest Plan identifies cumulative effects associated with the implementation of the activities needed to implement the Forest Plan. The EIS also addresses fourteen issues. They are:

1. Fragmentation
2. Old Growth
3. Rare Communities
4. Endangered, Threatened, and Sensitive Species
5. Fish and Wildlife Management
6. Aquatic and Riparian Areas
7. Fire Management
8. Forest Health
9. Timber Products
10. Minerals
11. Recreation Opportunities
12. Scenery Resource Management
13. Access Within the Forest
14. Specially Designated Areas

A complete description of these issues and their development can be found in the Forest Plan EIS. This environmental assessment is tiered to that EIS and it is incorporated by reference.

The Forest Plan includes a description of proposed and probable management practices for vegetation management (H-7). Mechanical mowing, disking, piling, seeding, prescribed fire and herbicide application are listed in the Forest Plan for managing grass and shrub openings. Seeding, prescribed fire, mechanical ripping, grinding, chopping, mowing, disking, and herbicide application are listed for Road and Utility Right of Ways management. The vegetation management practices contained in Alternatives A and B match those described in the Forest Plan.

These programmatic documents are available for public review at the Morehead Ranger District Office or the Daniel Boone National Forest Supervisor's Office, 1700 By-Pass Road, Winchester, Kentucky.

9.0 AFFECTED ENVIRONMENT

The project area includes a portion of the DBNF, Morehead Ranger District, Rowan County that is bordered to the north by Kentucky Highway 377, east by Kentucky Highway 799, South by U.S. Highway 60, and west by Kentucky Highway 32. Portions of the North Fork of Triplett Creek and Triplett Creek are found in this area located north of Morehead, KY.

The vegetation on the project area is in the mixed mesophytic region of the eastern deciduous forest. Two main plant groups are present in the area, upland hardwoods and cove hardwoods. Upland hardwoods contain a combination of white oak, chestnut oak, northern red oak, black oak, scarlet oak, southern red oak and hickories. The cove hardwood type contains northern red oak, white oak, basswood, black walnut, yellow poplar, hemlock, maple and beech.

On February 15, 2003 an ice storm changed the appearance of the project area (Figure 4). A thick layer of ice broke off many branches and tree tops, pushing over numerous trees under the weight of the ice. The Forest Service estimates that 3,542 acres of National Forest System land in the project area were damaged by the ice storm. Visitors may notice how many trees growing in the project area have been disturbed. A number of trees that grew within the proposed ROW for the transmission line and in locations for the proposed access roads fell under the weight of the ice. The Forest Service is planning the *Ice Storm Recovery Project* on National Forest System lands in Rowan County that include the project area for the Rowan-Cranston 138kV Transmission Line. The Ice Storm Recovery Project includes the following actions; tree cutting, tree removal, road construction, log landing construction, invasive plant control by grubbing, invasive plant control using herbicide, pond clearing and pond construction (Figure 4). A decision is expected to be made in the near future to implement the Ice Storm Recovery Project and more information can be obtained by contacting District Ranger, USDA Forest Service, 2375 KY Highway 801 South, Morehead, KY 40351.

The project area provides habitat to a variety of mammal, bird, reptile, amphibian, and fish species. The Federally listed bald eagle and Indiana bat have been observed in the area. Forest Service Sensitive Species found in the project area include the butternut tree and eastern small footed bat. A Biological Assessment/Evaluation (BAE) that was prepared for the project provides detailed information on rare species and their habitat in the project area.

The topography of the project area is composed of sloping hills and valleys ranging from approximately 800 to 1000 feet above sea level. Most of the project area is National Forest System land. Private land is located near the bottomland areas along Christy Creek, North Fork of Triplett Creek and Triplett Creek. The project area does not include wetlands or waters designated as part of the National, or Wild and Scenic River system

Existing traveled roads are found near streams and on top of the mountain ridges. The project area includes I-64, Forest Road 977, U.S. Highway 60 and Kentucky Highway 32. People are most often seen on National Forest System land in the project area during the deer and turkey hunting seasons.

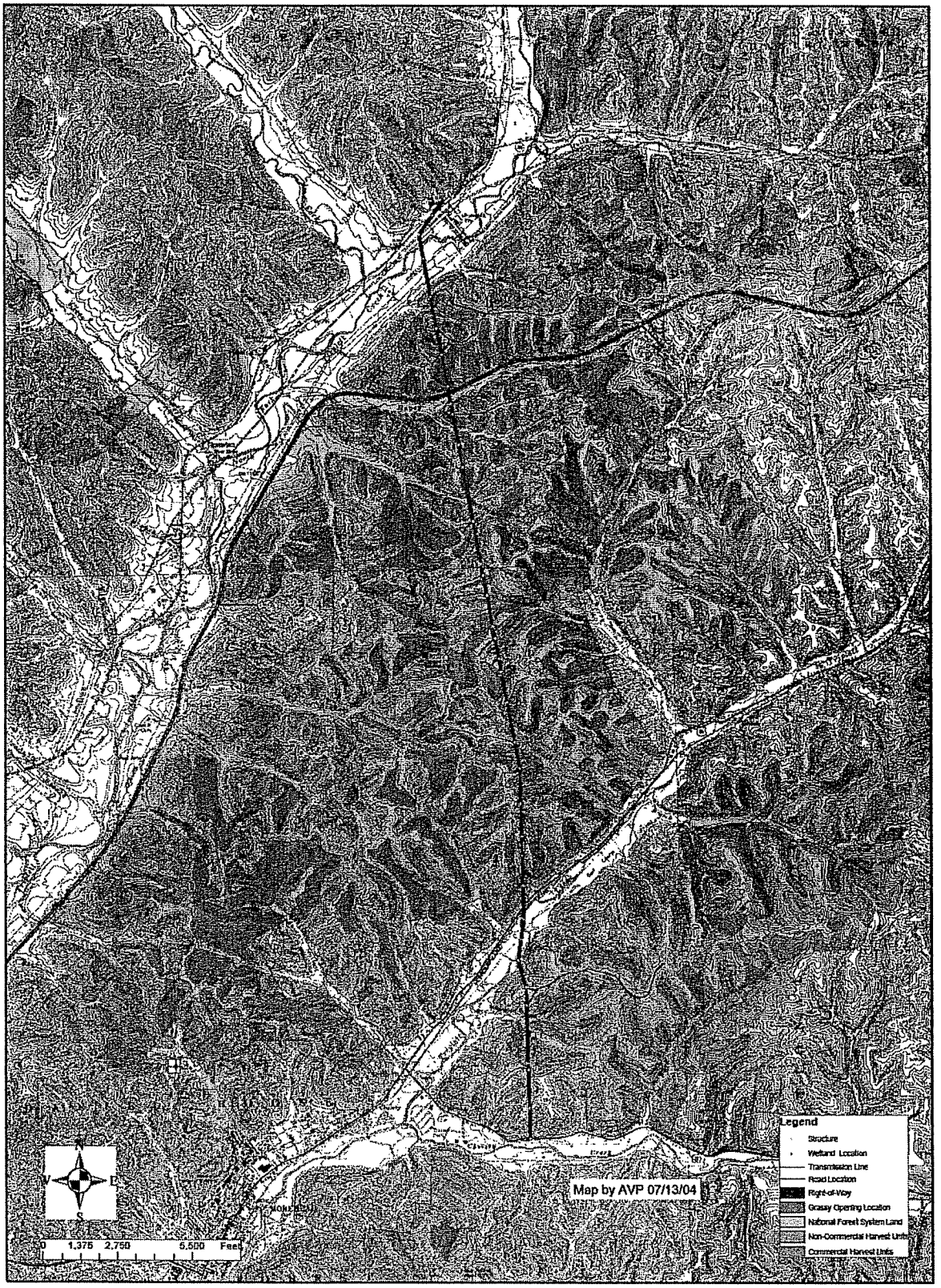
The project area includes 100-year floodplains identified on *Flood Hazard Boundary* maps prepared by the Federal Emergency Management Agency. The USDA Natural Resource Conservation Service (NRCS) classifies a portion of the soils on private land near the larger creeks as prime farmland.

Under the *Clean Air Act Amendments of 1977,* National Forest System lands associated with the DBNF have a Class II designation. Only minimal increases in air pollution are allowed in Class I areas and greater increases in air pollution are allowed in Class II areas. All land within the U.S. has either a Class I or Class II designation. In 1977 when the designations took place only a very small portion of public lands were designated as Class I areas. No Class I areas exist on the DBNF because there were no eligible sites in 1977. Ambient air quality is not measured on the DBNF. However, various air monitoring stations operated by the Kentucky Division for Air Quality and two National Atmospheric Deposition Program stations are located near the National Forest, and ambient air quality within the forest can be inferred from these monitoring stations. Data from these monitoring stations indicate that national ambient air quality standards (NAAQS) are being met on the DBNF (USFS 1998, p. 2-20).

The proposed project is located approximately 25 miles north of the Red River Gorge Geological Area and 22 miles north of the Clifty Wilderness located on the Daniel Boone National Forest. A 0.1 acre natural wetland is known to occur on National Forest System land in the Elk Lick area approximately 6 miles north of the proposed project. The Red River, a designated Wild and Scenic River is located approximately 27 miles south of the proposed project.

The Kentucky Transportation Cabinet is proposing a project that involves constructing a 4-lane highway for connecting I-64 to U.S. Highway 60, approximately 1.7 miles west of the location of the proposed transmission line for this project. This project is known as the *KY 645 Extension Project.* The project is shown as a system addition on the Kentucky Transportation Cabinet's 2005-2010 Recommended 6 Year Highway Plan: http://transportation.ky.gov/progmgmt/2004syp/dist9map.pdf . More information may be obtained by contacting: Kentucky Transportation Cabinet, 200 Mero Street, Frankfort, KY 40622.

Figure 4. Alternative A in Relation to Proposed Ice Storm Recovery Project Treatment Units
Daniel Boone National Forest
Morehead Ranger District



10.0 ENVIRONMENTAL EFFECTS ANALYSIS

This section describes the effects of implementing alternatives described in Section 7.0 on the environment; Alternative A (proposed action), Alternative B (hand & mechanical cutting), Alternative C (no action).

10.1 Management Indicator Species

The Forest Service is charged with preserving and enhancing the diversity of plants and animals consistent with overall multiple use objectives stated in the Forest Plan (16 USC 1604 (g)(3)(B)-Planning Management Requirements). The Forest Plan contains a list of 15 Management Indicator Species (MIS) for the DBNF. A key reason these species were selected is "because their population changes are believed to indicate the effects of management activities" (36CFR 219.19(a)(1). Goal 1.7 of the Forest Plan (2-8) states: "Provide adequate habitat to support populations of Management Indicator Species". Chapter 5 of the Forest Plan describes monitoring MIS on the DBNF.

Management Indicator Species have the potential to indicate effects of implementing the Rowan-Cranston 138kV Electric Transmission Project on animal species that use the forest, identified as Significant Issue Number 1 in Section 6.1. Forest Service Wildlife Biologists used the information contained in the Forest Plan, scientific literature, and their own observations to identify those MIS that the proposed project and its alternatives have the greatest potential to affect, and which would receive more detailed examination in this document. One or more of the following factors apply to the MIS not selected for detailed analysis: 1) their habitat is generally not found in the area affected by the proposed action or its alternatives, 2) the proposed action and/or its alternatives have little if any potential to affect habitat for the species, 3) the proposed project and/or its alternatives have little if any potential to affect individuals or populations of the species. A subset of the MIS identified by the Forest Plan will be analyzed in greater detail in this document because individuals, their population or habitat may be affected by the proposed action and/or its alternatives (Table 6).

Table 6. Forest-level Management Indicator Species; their purpose, whether they are selected for detailed project-level analysis, and reasons for their selection or non-selection relating to the Project.

Species Name	Purpose	Analyzed Further?	Relevance to this Project (Potential Effects of Concern)
Acadian flycatcher	Trends in presence and abundance of this species in mature riparian will be used to help indicate effectiveness of management at maintaining these communities (USDA 2004 5-5).	Yes	Proposed project may affect habitat used by this species.
Black-throated green warbler	Changes in presence and abundance in mature mesic cove deciduous forests will be used to help indicate the effectiveness of management at providing dense under story and mid story structure within these communities (USDA 2004 5-5).	Yes	Proposed project may affect habitat used by this species.

Species Name	Purpose	Analyzed Further?	Relevance to this Project (Potential Effects of Concern)
Cerulean warbler	Changes in presence of this species in areas that provide mature, moderate density (70-90 sq ft/ac) upland oak dominated forest habitats will be used to indicate effectiveness of management in achieving desired conditions within these sites (USDA 2004 5-6).	Yes	Proposed project may affect habitat used by this species.
Chipping sparrow	Trends in presence and abundance of these species in areas restored to woodlands, and wooded grasslands/shrub lands would be used to help indicate effectiveness of management at establishing desired conditions in these restoration areas (USDA 2004 5-5).	Yes	Monitoring may show if the proposed project affects habitat used by the species.
Eastern towhee	Trends in presence and abundance of this species in young (0-10 years old) forests will be used to help indicate the effectiveness of management in achieving desired conditions within these habitats (USDA 2004 5-6).	Yes	Proposed project may affect habitat used by this species.
Field sparrow	Trends in presence and abundance of these species in areas restored to woodlands, and wooded grasslands/shrublands would be used to help indicate effectiveness of management at establishing desired conditions in these restoration areas (USDA 2004 5-5).	Yes	Proposed project may affect habitat used by this species.
Northern cardinal	Trends in presence and abundance of these species in areas restored to woodlands, and wooded grasslands/shrub lands would be used to help indicate effectiveness of management at establishing desired conditions in these restoration areas (USDA 2004 5-5).	Yes	Proposed project may affect habitat used by this species.
Northern bobwhite quail	Trends in this species will be used to help indicate the effectiveness of management at restoring, and maintaining a habitat mosaic of yellow pine and yellow pine-hardwood woodland and woodland grassland and grassland conditions (USDA 2004 5-5).	No	Proposed project is not expected to effect habitat used by this species.
Ovenbird	Trends in presence and abundance of this species in mature deciduous or mixed forests will be used to help indicate the effectiveness of management in maintaining desired condition relative to forest interior habitats (USDA 2004 5-6).	Yes	Proposed project may affect habitat used by this species.
Pine warbler	Trends in populations of this species will be used to help indicate the effectiveness of management at restoring and maintaining remaining mature pine forests in open, fire-maintained conditions (USDA 2004 5-5).	No	Proposed project is not expected to effect habitat used by this species.
Pitch pine	Trends in populations of this species will be used to indicate effectiveness of management activities designed specifically to maintain viability of this species (USDA 2004 5-7).	No	Proposed project is not expected to affect the species.
Prairie	Trends in the presence and abundance of this	Yes	Proposed project may affect habitat

Species Name	Purpose	Analyzed Further?	Relevance to this Project (Potential Effects of Concern)
warbler	species in young (0-10 years old) forests will be used to help indicate the effectiveness of management in achieving desired conditions within these habitats (USDA 2004 5-6).		used by this species.
Summer tanager	Trends in presence and abundance of these species in areas restored to woodlands, and wooded grasslands/shrub lands would be used to help indicate effectiveness of management at establishing desired conditions in these restoration areas (USDA 2004 5-5).	No	Proposed project is not expected to effect habitat used by this species.
White-tailed deer	Trends in harvest levels and hunting will be used to help indicate effectiveness of management in meeting public demand for this species (USDA 2004 5-8).	Yes	Proposed project may affect habitat and indirectly affect populations of the species.
Yellow-breasted chat	Trends in presence and abundance of this species in young (0-10 years old) forests will be used to help indicate the effectiveness of management in achieving desired conditions within these habitats (USDA 2004 5-6).	Yes	Proposed project may affect habitat used by this species.

The following analysis discloses possible effects of implementing each alternative on MIS within the area affected by the proposed Rowan-Cranston 138kV Electric Transmission Project. The affected area for MIS is considered to include National Forest System land within 1,320 feet of the ROW described by Alternative A or B.
The North American Breeding Bird Survey contains information on population trends for breeding birds, including birds used as MIS on the DBNF in Kentucky (Sauer, J. R., J. E. Hines, and J. Fallon. 2003). Two main surveys are used to monitor population trends of bird MIS on the Forest; 1) Forest-wide Point Counts, 2) Road Route Surveys (USDA 2000). The proposed project occurs in areas that are being surveyed by the Point Count method. The Forest Service plans to summarize population data from the Forest-wide Point Counts and Road Route Surveys on the DBNF to help identify possible population trends for MIS on the Forest. This summary has not been completed to date because of the recent implementation of the revised Forest Plan that includes a number of new MIS not used in the 1985 Forest Plan.

Personnel from the Kentucky Department of Fish and Wildlife Resources take the lead in monitoring population levels of white-tailed deer populations on the DBNF (USDA 2000). The primary tool for evaluating terrestrial habitat conditions on the DBNF is the Continuous Inventory of Stand Condition (CISC) database, which is compiled from periodic field inventories throughout the DBNF. CISC data is regularly used to show habitat trends for MIS (USDA 2000). The Forest Plan defines target habitat for MIS. Table 7 shows the target habitats for MIS considered in detail.

Table 7. Target habitat for species considered in detail.	
MANAGEMENT INDICATOR SPECIES	**TARGET HABITAT***
Acadian Flycatcher	Riparian corridor forest, >80 years old
Black-throated green warbler	Dense cove forest, >80 years old
Cerulean warbler	Upland hardwood >BA but 70-90 BA average, >41 years old
Chipping Sparrow	Upland hardwood or mixed hardwood-yellow pine, <30 BA , >50 years old
Eastern Towhee	Any forest type recently cut over 0-10 years old
Field sparrow	Grasslands, including old field, prairie remnants, wooded grasslands.
Northern cardinal	Upland hardwood <30 BA with shrub layer, >50 years old
Ovenbird	Older forest (not necessarily old growth) up to 130 BA for mesic communities
Prairie warbler	Yellow pine communities, 0-10 years old
White-tailed deer	Various.
Yellow-breasted chat	Any forest type recently cut over 0-10 years old
*Forest Plan 2-9.	

Table 8. Management Indicator Species Habitat Affected by Alternatives A & B		
MIS Species	**Habitat Present with 0.25 mile along ROW Corridor (acres)**	**Habitat Changed by ROW (acres)**
Acadian Flycatcher	15	2 (decrease)
Black-throated green warbler	408	18 (decrease)
Cerulean warbler	199	9 (decrease)
Chipping Sparrow	95	5 (increase)
Eastern Towhee	460	20 (increase)
Field sparrow	118	5 (increase)
Northern cardinal	95	5 (increase)
Prairie warbler	0	5 (increase)
White-tailed deer	2318	83 (increase)
Yellow-breasted chat	145	5 (increase)
Calculations based on CISC data.		

Acadian Flycatcher: The North American Breeding Bird Survey reports that Acadian flycatcher populations increased by 0.6 percent (p = 0.64) in Kentucky during the period of 1966-1999 (Sauer, J. R., J. E. Hines, and J. Fallon. 2003). Breeding bird surveys conducted in the area have found the species nesting in hollows and near streams.

Implementing Alternative A, B and C would have no direct affect on the Acadian flycatcher as individuals would not be harmed by actions contained in the alternatives. Implementing Alternative A or B may have an indirect effect on the species by reducing habitat for the Acadian flycatcher by felling trees in hollows and near streams to form the ROW. Possible indirect effects of changing forested to grass/shrub habitat on the Acadian flycatcher are not expected to be high as most of the trees located in hollows and near streams within the proposed ROW would not be felled.

Activities in addition to tree felling associated with Alternative A that involve road construction, herbicide use, chainsaw cutting, native grass/forbs establishment, and wetland establishment are not expected to have direct or indirect effects on the Acadian flycatcher as these activities are not expected to increase or decrease habitat used by the species.

Possible direct and indirect effects of proposed herbicide use on wildlife species including the Acadian flycatcher are further identified by a USDA Forest Service Specialist Report Prepared for herbicide use associated with this project. The report identifies the "Ecological Risk" based on LD_{50} values for fosamine to be very slightly toxic to mammals. Unformulated fosamine is very slightly toxic to birds based on acute oral LD_{50}'s of greater than 5,000 mg/kg in mallard ducks and bobwhite quail. The acute oral LD_{50} of formulated fosamine is greater than 10,000 mg/kg in mallard ducks and bobwhite quail. Fosamine is not considered hazardous to avian species. Fosamine appears to be only slightly toxic to insects. (VMEIS Appendix A, p.6-7).

Fosamine presents a negligible risk of wildlife effects because the fosamine laboratory animal LD_{50}'s range from 5,000 to 24,400 mg/kg. (VMEIS Appendix A, p.8-8) In the event of a spill, fosamine has been determined to be no risk to aquatic species (VMEIS Appendix A, p. 8-22, & Table 8-22 p 8-31.

Activities in addition to tree felling associated with Alternative B that involve road construction, chainsaw cutting, native grass/forbs establishment, and wetland establishment are not expected to have indirect effects on the Acadian flycatcher as these activities are not expected to increase or decrease habitat used by the species.

No cumulative effects are expected by implementing Alternative A, B or C when combined with the actions associated with the proposed KY 645 Extension Road Project, since the I-64 project would reduce acres of habitat available for Acadian flycatcher nesting outside of the affected area. The 2003 Ice Storm possibly reduced habitat for the Acadian flycatcher in the affected area naturally. The proposed actions associated with the Ice Storm Recovery Project are not expected to have a cumulative effect on the

species as the majority activities would take place on uplands not used for nesting by the species.

Alternative C that involves no action would have no direct effect on the species as individual birds would not be harmed by its implementation. No indirect effects are expected as the Alternative would not change habitat used by the species.

Black-throated Green Warbler: The North American Breeding Bird Survey reports that black-throated green warbler populations increased by 23 percent ($p = 0.16$) in Kentucky during the period of 1966-1999 (Sauer, J. R., J. E. Hines, and J. Fallon. 2003). Breeding bird surveys conducted near the proposed project have not found the species nesting in the area.

Implementing Alternative A, B or C would have no direct affect on the black-throated green warbler as individuals would not be harmed by actions contained in the alternatives. Implementing Alternative A or B may have an indirect effect on the species by reducing habitat near coves and near streams to form the ROW. Possible effects of changing forested to grass/shrub habitat on the species are not expected to be high as a majority of trees located in coves and near streams that potentially provide habitat for the species would not be felled.

Activities in addition to tree felling associated with Alternative A that involve road construction, herbicide use, chainsaw cutting, native grass/forbs establishment, and wetland establishment are not expected to have indirect effects on the black-throated green warbler as these activities are not expected to increase or decrease habitat used by the species.

Activities in addition to tree felling associated with Alternative B that involve road construction, chainsaw cutting, native grass/forbs establishment, and wetland establishment are not expected to have indirect effects on the black-throated green warbler as these activities are not expected to increase or decrease habitat used by the species.

There would be no cumulative effect on the species by implementing Alternative A, B or C when combined with the actions associated with the proposed KY 645 Extension Road Project since it would take place outside of the affected area. The 2003 Ice Storm most likely naturally reduced habitat for the black-throated green warbler in the affected area, the proposed actions associated with the Ice Storm Recovery Project are not expected to have a cumulative effect on the species in the affected area as the majority of trees to be cut are located on uplands not used by the species for nesting.

Alternative C that involves no action would have no direct effect on the species as individual birds would not be harmed by its implementation. No indirect effects are expected as the Alternative would not change habitat used by the species.

Cerulean Warbler: The North American Breeding Bird Survey reports that cerulean warbler populations declined by 5.7 percent (p = 0.20) in Kentucky during the period of 1966-1999 (Sauer, J. R., J. E. Hines, and J. Fallon. 2003). Mills (2002) found that cerulean warbler populations increased on the DBNF during the period of 1993-2000 based on an analysis of Road Route Surveys conducted on the DBNF.

Tree felling associated with Alternatives A and B would result in canopy gaps in the forest along ridge top locations. The edges of similar gaps like those along roadsides have been observed to be used by cerulean warblers during the breeding season on the Morehead Ranger District. These observations were made by the Morehead Ranger District Wildlife Biologist and researchers from Morehead State University. Cerulean warblers have been detected on point counts within stands where 70 percent or more of the dominant and co-dominant tree crowns were hardwoods. These stands tend to be older with a higher percent canopy cover compared to young aged stands. Ten cerulean warblers were captured for banding over a 2 year period on the Morehead Ranger District. All of the cerulean warblers were captured in 6-7 year old two-aged shelter wood harvest units adjacent to more mature forest stands. Implementing Alternative A or B of the Project would indirectly affect the Cerulean Warbler by resulting in similar, narrow shaped canopy gaps that may be used by the species.

Implementing Alternatives A, B or C of the project would have no direct affect on the species as individuals would not be harmed by the proposed actions. Trees that could contain nesting birds would be felled outside of the nesting season. Activities associated with Alternatives A or B may have indirect effects on the species by possibly improving nesting and foraging habitat.

Additional activities associated Alternative A involving road construction, herbicide use, chainsaw cutting, native grass/forbs establishment, and wetland establishment are not expected to have indirect effects on the cerulean warbler. Activities associated with Alternative B that are similar to Alternative A, excluding herbicide use and tree felling, are not expected to have indirect effects on the cerulean warbler.

Alternative C would have no indirect effects on the species as the alternative would not change habitat used by the species in the affected area.

Implementing Alternative A, B or C may have a cumulative effect on the cerulean warbler resulting in an increase in habitat available for nesting and foraging when combined with implementing of the Ice Storm Recovery Project in the affected area. The proposed KY 645 Extension Road takes place outside of the affected area, so its implementation along with this project would not result in a cumulative effect on the species.

Chipping Sparrow: The North American Breeding Bird Survey reports that Chipping sparrow populations decreased by 1.2 percent (p = 0.34) in Kentucky during the period of 1966-1999 (Sauer, J. R., J. E. Hines, and J. Fallon. 2003). The species has been found to use grassy and grass/shrub openings including ROW's on the Morehead Ranger District.

The initial construction of the transmission line and associated ROW proposed by Alternative A or B would not directly affect the species as individuals would not be harmed by its actions. Subsequent maintenance of the ROW by motorized equipment has the possibility of crushing chipping sparrow nests if conducted during the nesting season, thereby having a direct effect on the species. Establishing a grass/shrub ROW with associated native grass plantings as proposed by Alternative A or B may indirectly affect the chipping sparrow by increasing habitat it uses for nesting and feeding, resulting in an increased population.

Additional activities associated with implementing Alternative A involving road construction, herbicide application and wetland establishment are not expected to have indirect effects on the chipping sparrow. Additional activities associated with implementing Alternative B involving road construction, manual ROW maintenance and wetland establishment are not expected to have indirect effects on the chipping sparrow.

No cumulative effects on the species are expected by Alternative A, B or C when combined with the actions associated with the proposed KY 645 Extension Road Project, as the actions associated with the KY 645 Extension Road Project are located outside of the affected area for the species. The proposed Ice Storm Recovery Project may have a cumulative effect on the species by improving and increasing habitat in the affected area of the ROW.

Implementing Alternative C that involves no action would have no direct effect on the species as individual birds would not be harmed by its implementation. No indirect effects are expected as the Alternative would not change habitat used by the species.

Eastern Towhee: The North American Breeding Bird Survey reports that eastern towhee populations declined by 1.7 percent ($p = 0.00$) in Kentucky during the period of 1966-1999 (Sauer, J. R., J. E. Hines, and J. Fallon. 2003). Mills (2002) found that eastern towhee populations decreased on the DBNF during the period of 1993-2000 based on an analysis of Road Route Surveys conducted on the DBNF, however, in the same report she found that populations increased on the DBNF from 1997-2000 based on an analysis of DBNF Point Counts.

Road Route bird surveys conducted on the DBNF indicated that eastern towhees are being detected at significantly fewer points over the past eight years (USDA 2000). Forest-wide Point Counts conducted on the DBNF indicate that eastern towhees are being detected at significantly more points over the past four years (USDA 2000).

The initial construction of the transmission line and associated ROW as proposed by Alternative A or B would not directly affect the eastern towhee as individuals would not be harmed by the proposed action. Subsequent maintenance of the ROW by motorized equipment has the possibility of having a direct effect on the species by crushing nests with eggs if done during the nesting season. Establishing a grass/shrub ROW with associated native grass openings associated with Alternative A or B may indirectly affect

the species by increasing habitat it uses for nesting and feeding, thereby increasing population levels.

Additional activities associated with implementing Alternative A involving road construction, herbicide application and wetland establishment are not expected to have direct or indirect effects on the eastern towhee. Additional activities associated with implementing Alternative B involving road construction, manual ROW maintenance and wetland establishment are not expected to have direct or indirect effects on the eastern towhee.

There would be no cumulative effect on the species by implementing Alternative A or B when combined with the actions associated with the proposed KY 645 Extension Road Project as this project is located outside of the affected area for this project. However, the proposed Ice Storm Recovery Project may further improve habitat conditions for the species in the area, which may be considered as a cumulative effect.

Implementing Alternative C that involves no action would have no direct effect on the species as individual birds would not be harmed by its implementation. No indirect effects are expected as the Alternative would not change habitat used by the species. Implementing the Ice Storm Recovery Project along with Alternative C may have cumulative effects on the species by increasing habitat used by the species.

Field Sparrow: The North American Breeding Bird Survey reports that field sparrow populations declined by 3.6 percent ($p = 0.00$) in Kentucky during the period of 1966-1999 (Sauer, J. R., J. E. Hines, and J. Fallon. 2003). The field sparrow has been observed during the breeding season in large grassy openings within the Morehead Ranger District. Qualitative observations indicate that the species is uncommon on National Forest System lands within the Morehead Ranger District.

The initial construction of the transmission line and associated ROW proposed by Alternative A or B would not directly affect the species as individuals would not be harmed by its actions. Subsequent maintenance of the ROW by motorized equipment has the possibility of crushing field sparrow nests if conducted during the nesting season, thereby having a direct effect on the species. Establishing a grass/shrub ROW with associated native grass plantings as proposed by Alternative A or B may indirectly affect the field sparrow by increasing habitat it uses for nesting and feeding, resulting in an increased population.

Additional activities associated with implementing Alternative A involving road construction, herbicide application and wetland establishment are not expected to have indirect effects on the field sparrow. Additional activities associated with implementing Alternative B involving road construction, manual ROW maintenance and wetland establishment are not expected to have indirect effects on the field sparrow.

No cumulative effects on the species are expected by Alternative A, B or C when combined with the actions associated with the proposed KY 645 Extension Road Project,

as the actions associated with the KY 645 Extension Road Project are located outside of the affected area for the species. The proposed Ice Storm Recovery Project may have a cumulative effect on the species by improving and increasing habitat in the affected area of the ROW.

Northern Cardinal: The North American Breeding Bird Survey reports that northern cardinal populations have been stable (p = 0.96) in Kentucky during the period of 1966-1999 (Sauer, J. R., J. E. Hines, and J. Fallon. 2003). The Forest Service plans to summarize population data collected for the species on the Daniel Boone National Forest in the near future (Personal Communication-Kathryn Huie).

The initial construction of the transmission line and associated ROW proposed by Alternative A or B would not directly affect the species as individuals would not be harmed by its actions. Subsequent maintenance of the ROW by motorized equipment has the possibility of crushing northern cardinal nests if conducted during the nesting season, thereby having a direct effect on the species. Establishing a grass/shrub ROW with associated native grass plantings as proposed by Alternative A or B may indirectly affect the northern cardinal by increasing habitat it uses for nesting and feeding, resulting in an increased population.

Additional activities associated with implementing Alternative A involving road construction, herbicide application and wetland establishment are not expected to have indirect effects on the northern cardinal. Additional activities associated with implementing Alternative B involving road construction, manual ROW maintenance and wetland establishment are not expected to have indirect effects on the northern cardinal.

No cumulative effects on the species are expected by Alternative A, B or C when combined with the actions associated with the proposed KY 645 Extension Road Project, as the actions associated with the KY 645 Extension Road Project are located outside of the affected area for the species. The proposed Ice Storm Recovery Project may have a cumulative effect on the species by improving and increasing habitat in the affected area of the ROW.

Ovenbird: The North American Breeding Bird Survey reports that ovenbird populations have increased by 2.8 percent (p = 0.07) in Kentucky during the period of 1966-1999 (Sauer, J. R., J. E. Hines, and J. Fallon. 2003). Mills (2002) found that ovenbird populations increased on the DBNF during the period of 1997-2000 based on an analysis of DBNF Point Counts.

The ovenbird has been observed during the breeding season in areas of taller, older trees on National Forest System land within the Morehead Ranger District. Qualitative observations indicate that the species is common in forested areas. The species has been captured in nets within areas of young forest and along the edge of grassy openings near the proposed project location. Implementing Alternative A or B is not expected to directly affect the species as trees that may contain nesting ovenbirds would be cut outside of the nesting season. The felling of trees to create the ROW as described by

Alternative A or B may have indirect effects on the species by reducing the acreage of mature forest used as nesting and foraging habitat.

Activities in addition to tree felling associated with Alternative A that involve road construction, herbicide use, chainsaw cutting, native grass/forbs establishment, and wetland establishment are not expected to have direct or indirect effects on the ovenbird as these activities are not expected to increase or decrease habitat used by the species.

Activities in addition to tree felling associated with Alternative B that involve road construction, chainsaw cutting, native grass/forbs establishment, and wetland establishment are not expected to have direct or indirect effects on the ovenbird as these activities are not expected to increase or decrease habitat used by the species.

There may be a cumulative effect on the ovenbird by implementing Alternative A or B when combined with the actions associated with the proposed Ice Storm Recovery Project that would reduce the acres of nesting habitat available for the species to use in the affected area.

Alternative C that involves no action would have no direct effect on the species as individual birds would not be harmed by its implementation. No indirect effects are expected as the Alternative would not change habitat used by the species. Implementing Alternative C and the Ice Storm Recovery Project may have a cumulative effect on the ovenbird in the affected area by reducing the number of acres of habitat used by species.

Prairie Warbler: The North American Breeding Bird Survey reports that prairie warbler populations increased by 2.8 percent ($p = 0.07$) in Kentucky during the period of 1966-1999 (Sauer, J. R., J. E. Hines, and J. Fallon. 2003).

The prairie warbler has been observed during the breeding season in grassy/shrub openings, transmission line right-of-ways, two-aged shelter wood harvest units and areas damaged by the February 2003 ice storm on the Morehead Ranger District. Qualitative observations indicate that the species is uncommon on National Forest System lands within the Morehead Ranger District.

The initial construction of the transmission line and associated ROW proposed by Alternative A or B would not directly affect the species as individuals would not be harmed by its actions. Subsequent maintenance of the ROW by motorized equipment has the possibility of crushing prairie warbler nests if conducted during the nesting season, thereby having a direct effect on the species. Establishing a grass/shrub ROW with associated native grass plantings as proposed by Alternative A or B may indirectly affect the prairie warbler by increasing habitat it uses for nesting and feeding, resulting in an increased population.

Additional activities associated with implementing Alternative A involving road construction, herbicide application and wetland establishment are not expected to have indirect effects on the prairie warbler. Additional activities associated with implementing

Alternative B involving road construction, manual ROW maintenance and wetland establishment are not expected to have indirect effects on the prairie warbler.

No cumulative effects on the species are expected by Alternative A, B or C when combined with the actions associated with the proposed KY 645 Extension Road Project, as the actions associated with the KY 645 Extension Road Project are located outside of the affected area for the species. The proposed Ice Storm Recovery Project may have a cumulative effect on the species by improving and increasing habitat in the affected area of the ROW.

White-tail deer: White-tailed deer populations are growing on the Daniel Boone National Forest (USDA 2000). The white-tailed deer is regularly observed on the Morehead Ranger District. The white-tailed deer uses a variety of habitats including mature forest, young forest, shrub edges, skid roads, ridge top wetlands and grassy openings. The deer herd in the project area is growing, and their population on the DBNF is above that where maintaining viability is a concern (USDA 2000).

The initial construction of the transmission line and associated ROW described by Alternative A or B are not expected to directly affect the species as individuals would not be harmed by the proposed actions. Implementing the ROW maintenance actions contained in Alternative A or B may have a direct effect on the white-tailed deer. White-tailed deer often hide their fawns in the grass and shrubs that grow in ROW's. Tractors have harmed and injured fawns while mowing openings.

Alternatives A and B would have indirect affects on the white-tailed deer. The ROW to be established would increase the amount of food available to white-tailed deer. The grassy areas to be established are important to deer in years when few acorns are available for food. Alternatives A and B would establish additional small grassy areas that would provide people with places to watch and/or hunt deer.

Implementing Alternatives A or B may further improve habitat for white-tailed deer by providing them with additional places to drink in the constructed wetlands. The aquatic plants growing in the wetlands are also eaten by deer.

There may be a cumulative effect on the white-tailed deer by implementing Alternative A or B in combination with the actions associated with the proposed Ice Storm Recovery Project that may further improve habitat conditions for the species in the area.

Implementing Alternative C that involves no action would have no direct effect on the white-tailed deer as individuals would not be harmed by its implementation. No indirect effects are expected by implementing this Alternative as habitat used by the species would not be changed. Implementing the Ice Storm Recovery Project along with Alternative C may also have a cumulative effect on the species by improving the quality of habitat for deer in the area.

Yellow-breasted Chat: The North American Breeding Bird Survey reports that yellow-breasted chat populations declined by 2.4 percent (p = 0.00) in Kentucky during the period of 1966-1999 (Sauer, J. R., J. E. Hines, and J. Fallon. 2003). Mills (2002) found that populations decreased on the DBNF during the period of 1993-2000 based on an analysis of Road Route Surveys conducted on the DBNF.

The yellow-breasted chat has been observed during the breeding season in grassy/shrub openings and transmission line right-of-ways on the Morehead Ranger District. Qualitative observations indicate that the species is uncommon on National Forest System lands within the Morehead Ranger District.

The initial construction of the transmission line and associated ROW proposed by Alternative A or B would not directly affect the species as individuals would not be harmed by its actions. Subsequent maintenance of the ROW by motorized equipment has the possibility of crushing yellow-breasted chat nests if conducted during the nesting season, thereby having a direct effect on the species. Establishing a grass/shrub ROW with associated native grass plantings as proposed by Alternative A or B may indirectly affect the yellow-breasted chat by increasing habitat it uses for nesting and feeding, resulting in an increased population.

Additional activities associated with implementing Alternative A involving road construction, herbicide application and wetland establishment are not expected to have indirect effects on the yellow-breasted chat. Additional activities associated with implementing Alternative B involving road construction, manual ROW maintenance and wetland establishment are not expected to have indirect effects on the yellow-breasted chat.

No cumulative effects on the species are expected by Alternative A, B or C when combined with the actions associated with the proposed KY 645 Extension Road Project, as the actions associated with the KY 645 Extension Road Project are located outside of the affected area for the species. The proposed Ice Storm Recovery Project may have a cumulative effect on the species by improving and increasing habitat in the affected area.

Aquatic macro-invertebrate assemblage

The Forest Plan identifies that indices based on aquatic macro-invertebrates may be used in lieu of MIS to reflect the health of an aquatic system on the DBNF (USFS 2004 2-9). The Forest Plan makes it clear that aquatic macro-invertebrate assemblages will not be referred to as MIS but may be used in lieu of MIS. The affected area for macro-invertebrates includes perennial streams within one mile of the proposed ROW.

The need to monitor aquatic macro-invertebrate assemblages is greatest for projects located within or near riparian areas, especially those near perennial streams. The actions associated with Alternatives A and B of the Project are not planned near perennial streams on National Forest System land, therefore, an assemblage of macro-invertebrates

was not be selected to be monitored on an annual basis within perennial streams in the project area.

Implementing Alternative A or B of this Project are not expected to have direct, indirect or cumulative effects on aquatic macro invertebrates in the project area as actions previously described are designed to reduce and/or eliminate the potential of impacting aquatic species. Alternative C would have no direct or indirect affect on aquatic macro-invertebrates as no actions are planned that would affect species or their habitat.

The possible implementation of the KY 645 Extension Road Project may result in a cumulative affect on aquatic macro-invertebrates if perennial streams are impacted by the road project.

10.2 Endangered and Threatened Species

The effects of implementing Alternative A, B or C on all federally Proposed, Endangered, and Threatened species, critical habitat for Endangered and Threatened species, and Forest Service Sensitive Species (PETS) occurring on or adjacent to the Daniel Boone National Forest were considered in this analysis. This analysis of effects to PETS responds in part to Significant #1, concern over cutting trees and possible negative effects on animal species.

The Forest Service prepared a Biological Assessment/Evaluation (BAE) that documents possible effects of implementing Alternative A, B or C on PETS. On January 28, 2003, the U.S. Fish and Wildlife Service concurred with the USDA Forest Service finding that implementing Alternatives A or B would not effect or is not likely too adversely effect federally listed Endangered and Threatened species. Alternative C, the no action Alternative, was also found to have no effect on PETS.

A Supplemental BAE (SBAE) was prepared to provide updated information concerning possible effects of implementing the actions contained in the Rowan-Cranston 138kV Electric Transmission Line on Proposed, Endangered, Threatened and Daniel Boone National Forest Sensitive (PETS) species. The SBAE was prepared to provide Forest Service decision makers with the latest information on PETS within and near the proposed project treatment locations. Both the BAE and the SBAE concluded the same determination of effect concerning PETS with the possible implementation of Alternative A or B.

The BAE and SBAE found that implementing Alternative A or B would have "No Effect" on 31 Endangered or Threatened Species and "Is Not Likely to Adversely Effect" 1 species, the Indiana bat. The following is description of the possible effects that implementing Alternative A or B would have on PETS as drawn from the BAE and SBAE.

Indiana Bat: Implementing Alternative A or B would have no direct affect on the

Indiana bat as no individuals would be injured or harmed by the Alternatives. Trees that may be used by roosting Indiana bats would be cut outside of the roosting season. The Alternatives may indirectly affect the Indiana bat by improving habitat for the species by increasing water availability and foraging areas. Indiana bats may feed on insects found in the ROW and over the grassy openings to be located on ridge tops in and near the ROW. The Indiana bat may also drink from the small wetlands to be established in and near the ROW and roads to be built. The February 2003 ice storm created a large number of trees suitable for bat roosting in the vicinity of the proposed project. Alternative A or B would result in the cutting of approximately 44 acres of trees, some which may be suitable for Indiana bat roosting. This may indirectly affect the species by reducing the availability of roost trees in the area.

Implementing Alternative A, B or C may have a cumulative effect on the Indiana bat in combination with the actions contained in the proposed Ice Storm Recovery Project and the proposed KY 645 Extension Road Project. Both of these proposed projects involve the cutting of trees that may be suitable for Indiana bat use, whose removal may affect the species by reducing the quantity of trees available for roosting in the area.

Alternative A includes herbicide use to establish and maintain the ROW. Herbicide use to control woody-stemmed vegetation from within utility corridors is a common practice by utility companies. Herbicides have been tested by numerous manufacturers and approved for use by the Environmental Protection Agency (EPA). The EPA has previously approved all herbicides included in this proposal for rights-of-way maintenance activities. The Forest Service will consider the Human Health and Environmental Risk Assessments completed for each of the herbicides included in this proposal [3]. Three of the risk assessments incorporate an open literature search using PubMed, TOXLINE as well as the U.S. EPA CBI files, focusing on the post-1993 period. One risk assessment incorporates herbicide use on humans, animals, water quality, endangered, threatened, rare and sensitive species was analyzed in the Vegetative Management EIS for the Southern Region (USFS 1989). This analysis includes an evaluation of effects to determine the Hazard Quotient (HQ), (Table 9), or the Margin of Safety (MOS) to human health and to wildlife. A decision will not be made to use an herbicide where the HQ or is greater than 1, or the MOS is < 100 (Forest Plan Standard DB-VEG-8).

---

[3] Durkin, Patrick R., Syracuse Environmental Research Associates, Inc., Glyphosate Human Health and Ecological Risk Assessment Final Report, March 1, 2003. Prepared for the USDA Forest Service, Forest Health Protection.

Syracuse Environmental Research Associates, Inc., Imazapyr (Arsenal, Chopper, and Stalker Formulations) Final Report, May 6, 1999. Prepared for the USDA Forest Service.

Durkin, Patrick R., Syracuse Environmental Research Associates, Inc., Triclopyr - Revised Human Health and Ecological Risk Assessments Final Report, March 15, 2003. Prepared for the USDA Forest Service, Forest Health Protection.

USDA Forest Service, Vegetation Management in the Appalachian mountains Appendices, Volume II, Appendix A – Risk Assessment (Fosamine)

DB-VEG-8 - Herbicides will be applied at the lowest rate effective in meeting project objectives and according to guidelines for protecting human and wildlife health. Application rate and work time must not exceed levels that pose an unacceptable level of risk to human or wildlife health. The USDA Forest Service, southern Region standard for acceptable level of risk requires a Margin of Safety (MOS) > 100 or, Hazard quotient (HQ) < 1.0.

Table 9. Wildlife Health Quotient & Herbicide Effects, Alternative A.

	Glyphosate	Triclopyr BEE	Triclopyr Acid	Imazapyr	Fosamine
Wildlife Health Quotient (HQ)	All typical HQs are < 1.0	All central HQs applicable to proposal are < 1.0	All central HQs applicable to proposal are < 1.0	All central HQs applicable to proposal are < 1.0	Not Available
Wildlife Protective Measures		Application follows fledging of birds from nests	Application follows fledging of birds from nests	A 30-foot buffer and spray conditions will protect streams / aquatic plants.	

10.3 Daniel Boone National Forest Sensitive Species

The BAE and SBAE document the possible impacts that implementing Alternatives A or B would have the on 71 Forest Service Sensitive species. Details of the possible effects of implementing Alternative A, B or C on those Sensitive species most likely to occur near the proposed project are as follows:

Eastern Small-footed bat: Implementing Alternatives A or B would have no direct impact on the eastern small-footed bat as eastern small-footed bats would not be injured or harmed by the Alternatives. The Alternatives may indirectly impact the eastern small-footed bat by increasing water availability and foraging areas. Eastern small-footed bats may feed on insects found in the ROW and the grassy openings to be located along ridge tops in the ROW. The species may also drink from the small wetlands to be established within and near the ROW. Implementing Alternative A or B is not expected to have a cumulative effect on the eastern small-footed bat.

Kentucky lady's slipper: Implementing Alternative A, B or C would have no direct or indirect effects on the Kentucky lady's slipper. Kentucky lady's slippers were not found during the field examination of the project area so it is doubtful that individual plants would be destroyed by implementing any one of the Alternatives. Portions of the project area along Triplett and the North Fork of Triplett Creeks appear to provide habitat for the species, however, it is not occupied at this time. Implementing the proposed Ice Storm Recovery Project in combination with Alternative A, B or C is not expected to have a

cumulative effect on the species. It is possible that implementing the KY 645 Extension Road Project in combination with Alternative A, B or C would have a cumulative effect on the Kentucky lady's slipper if populations of the species were destroyed by the highway project.

Butternut: Implementing Alternative A, B or C would have no direct or indirect effects on butternut. Butternut trees were not found during the field examination of the project area so it is doubtful that individual plants would be destroyed by implementing any one of the Alternatives. Portions of the project area appear to provide habitat for butternut, however, the habitat is not occupied at this time. Implementing the proposed Ice Storm Recovery Project in combination with Alternative A, B or C is not expected to have a cumulative effect on the species. It is possible that implementing the KY 645 Extension Road Project in combination with Alternative A, B or C would have a cumulative effect on butternut if butternut trees were destroyed by the highway project.

10.4 Plant and Animal Communities

Significant Issue #1 outlines concerns expressed by individuals who commented on the Scoping Notice for this project that cutting trees to make access roads and to establish the ROW has the potential to negatively affect animal species and their habitat. Concern also exists that the project would result in forest fragmentation resulting in a decrease in biodiversity in the area. Significant Issue # 2 states concern over the new transmission line should being located on private land as much as possible to avoid changing National Forest System land. The following analysis responds to these Significant Issues.

Forest fragmentation is defined as that resulting from natural and artificial disturbance mechanisms that break up tracts of forestland into smaller and smaller units of non forest land. Urban areas, large paved highways, parking lots and subdivisions are often viewed as agents of forest fragmentation.

Habitat fragmentation is often viewed to occur when large areas of mature trees are changed to smaller areas of young trees, grasslands and wetlands in an overall area that is primarily forested. The area of land, or ecotone, bordering various tree age classes, plant communities, or habitats is often called "edge" habitat. The creation of edge has historically been a common wildlife habitat management technique aimed primarily at game species, however, many other animal habitat generalists have benefited as well. Transmission line ROW's typically increase edge habitat in forested areas.

Edge habitat may increase species richness and wildlife populations on a localized level because it attracts wildlife species that in habitat the different habitat types as well as those that use the ecotone between the different habitats (Meffe and Carroll 1994, Tilghman and Evans 1986).

Taylor and Taylor (1979) identified 80 bird species associated with upland openings in northern forests. Pagen et al. (2000) illustrated the significance of early and mid-successional forest habitats as post-breeding habitat by some forest interior neotropical

migrants songbirds in Missouri. Rivera et al. (1998) observed similar behavior by post-fledging wood thrush in northern Virginia. They concluded that successful management of migratory species requires protection of habitat used during the post-fledging period as well as the breeding/nesting part of the life cycle. Researchers have also documented woodland opening use by reptiles, amphibians and mammals (Adams et al. 1996, Campbell et al. 1990, Pias et al. 1988). Burford and Lacki (1995, 1998) documented the use of openings as foraging habitat for the federally endangered Virginia big-eared bat. While they observed the highest percentage of use over old fields, they later found the majority of moth species consumed were dependent upon woody plant material for larval development, demonstrating the importance of habitat diversity for this species.

Edge effect has been defined as the negative influence of a habitat edge on interior conditions of a habitat, or on species that use interior habitat (Meffe and Carroll 1994). Generally speaking, these edge effects become more notable as the structural contrast between adjacent terrestrial habitats increases. For example, an opening dominated by short herbaceous vegetation adjacent to mature woodland trees would have a high degree of structural contrast. A patch of pole-sized hardwoods adjacent to the same mature woodland trees would exhibit less structural contrast. Edge effects extend beyond the physical edge into the forest interior. Large contiguous blocks of forestland tend to support more diverse faunas than smaller blocks because they can provide habitat for these forest interior species. Interior species include black and white warblers, cerulean warblers, Acadian flycatchers, black-throated green warblers, and ovenbirds (Franzreb and Phillips 1995). As the amount of edge, relative to interior habitat increases, a point may be reached where forest fragments become small enough to preclude those species that require large blocks of contiguous forest habitat. Some species simply cannot meet their needs in forest fragments smaller than a certain critical size.

Edge habitats and heavily fragmented forests have been documented to have higher levels of disturbance, competition, predation and nest parasitism than interior sites (Muehler 1997, Tilgham and Evans 1986). It is important to view these research results relative to the conditions and locations studied. Studies on the effects of forest fragmentation on bird communities, documented in urban-agricultural dominated landscapes, may not be applicable to forest dominated landscapes (Petit et al. 1995). The project area is located in a county that is situated within the Cumberland Plateau Physiographic Region of Kentucky that is the most heavily forested portion of Kentucky, and is adjacent to the most heavily forested portion of the Southern Appalachian Mountains (Figures 5 and 6).

Forest fragmentation and its associated effects (increased edge, reduced patch size, increased rates of predation, increased rates of nest parasitism) have been identified as a contributing factor in the decline of some songbird species, particularly that group referred to as Neotropical Migrants (Robbins 1988, Robinson 1997, Franzreb and Phillips 1995, Robbins 1998). North American Breeding Bird Survey data from 1966 to 1998 indicates that approximately 32 percent of this species group has exhibited significant ($p<0.1$) negative population trends over the period (North American Breeding Bird Survey). In contrast fourteen percent have exhibited significant ($p<0.1$) increases (North American Breeding Bird Survey). Neotropical migrant birds nest in North America and

winter in Mexico, the Caribbean, Central America, and South America. Not all neotropical migrant songbirds are forest interior species. Some depend upon early successional or scrub type habitats, including several declining species. Short-distance migrant and permanent resident species have also exhibited declines during the same period. Short-distance migrants winter chiefly in the southern United States, particularly along the gulf coast.

Nest parasitism has often been cited as one potential reason for long-term population declines in a number of forest bird species, particularly forest interior species. The brown-headed cowbird *Molothrus ater* is undoubtedly North America's most widespread and well known brood parasite and frequents the agricultural/residential landscape and edge habitats. Rather than building its own nest and raising its own young the brown headed cowbird lays its eggs in the nests of other birds and relies on those other birds, or hosts, to incubate and raise their young. Reproductive success in some host species can be markedly reduced as a result. Other host species may be able to make-up reproductive success lost to parasitism (Muehler 1997, Whitehead et al. 2000). Parasitism rates tend to be low in grassland habitats and many grassland species have developed behavioral adaptations against cowbird parasitism (Muehler 1997, Peer et al. 2000).

This cowbird adaptation may have originated from its historical association with the American Bison. Cowbirds followed the constantly moving herds of bison throughout the Great Plains in order to feed upon the insects and seeds exposed by the herds. Traditional sedentary nesting strategies would be unlikely to work under these circumstances. As the bison herds were diminished following the arrival of Europeans in North America the cowbird shifted its attention to domestic livestock and open land areas cleared for agriculture and suburban development. As a result the brown-headed cowbird expanded its range and is now found throughout North America south of the Arctic.

The brown-headed cowbird is a fairly common to common summer resident in Kentucky, especially where land has been settled or cleared for farming (Palmer-Ball, Jr. 1996). It is most abundant in rural farmland. At least 25 bird species have been documented as host species in Kentucky, the most common ones in woodland areas being the Acadian flycatcher, wood thrush, red-eyed vireo, yellow throated vireo, several species of warblers, and the scarlet and summer tanagers (Palmer-Ball, Jr. 1996). North American Breeding Bird Survey data for 1966-1998, within the Cumberland Plateau Physiographic Region, show brown-headed cowbird populations having statistically significant declines (-1.60 percent) for the period (USGS 2000).

The 22 species exhibiting declines within the Cumberland Plateau Physiographic Region include species displaying a variety of breeding habitat types, nesting strategies, and those preferring early successional stages (Table 10). Fifty-five percent of these declining species are neotropical migrants. The diverse habitat needs of these species cannot be met within one habitat type or successional stage. Factors other than habitat fragmentation identified as possible culprits and/or contributing factors in the declines of neotropical migrant songbirds include changes in land-use on the breeding grounds, losses of wintering habitat, reduction in migratory stopover habitat, climate change,

pollution, and other contributing factors such as the prevalence of domestic cats, and strikes with towers and tall buildings (Robinson 1997, Franzreb and Phillips 1995). Seventeen species exhibit significant ($p<0.1$) increases within the Cumberland Plateau Physiographic Region, including eight short-distance migrants, six neotropical migrants, and three permanent residents (Table 11). Little data is available to illustrate population trends on the wintering grounds.

Table 10. Significant ($p<0.1$) Declining Population Trend Estimates, North American Breeding Bird Survey; Cumberland Plateau Physiographic Region, 1966 to 1998.*

Species	Species Group	Population Trend	Breeding Species Group
Northern Bobwhite	Permanent Resident	-4.78	Successional or Scrub
Field Sparrow	Short Distance Migrant	-4.59	Successional or Scrub
Summer Tanager	Neotropical Migrant	-4.30	Woodland
Prairie Warbler	Neotropical Migrant	-4.18	Successional or Scrub
American Redstart	Neotropical Migrant	-3.31	Woodland
Cerulean Warbler	Neotropical Migrant	-3.27	Woodland
Yellow-breasted Chat	Neotropical Migrant	-2.99	Successional or Scrub
House Sparrow	Permanent Resident	-2.86	Urban
Eastern Towhee	Short Distance Migrant	-2.85	Successional or Scrub
Eastern Wood-Pewee	Neotropical Migrant	-2.61	Woodland
Common Grackle	Short Distance Migrant	-2.41	Urban
Louisiana Waterthrush	Neotropical Migrant	-2.13	Woodland
Gray Catbird	Neotropical Migrant	-2.08	Successional or Scrub
Eastern Meadowlark	Short Distance Migrant	-2.08	Grassland
Wood Thrush	Neotropical Migrant	-1.96	Woodland
Downy Woodpecker	Permanent Resident	-1.83	Woodland
Belted Kingfisher	Permanent Resident	-1.76	Wetland
Brown-headed Cowbird	Short Distance Migrant	-1.60	Brood Parasite in Multiple Habitats
Common Yellowthroat	Neotropical Migrant	-1.57	Successional or Scrub
Acadian Flycatcher	Neotropical Migrant	-1.56	Woodland
Yellow-billed Cuckoo	Neotropical Migrant	-1.05	Woodland
Blue Jay	Short Distance Migrant	-0.73	Urban

*USGS 2000.

Table 11.

Significant (p<0.1) Increasing Population Trend Estimates, North American Breeding Bird Survey; Cumberland Plateau Physiographic Region, 1966 to 1998.*

Species	Species Group	Population Trend	Breeding Species Group
Red-eyed Vireo	Neotropical Migrant	0.70	Woodland
Scarlet Tanager	Neotropical Migrant	0.87	Woodland
Carolina Chickadee	Permanent Resident	1.17	Woodland
Great Crested Flycatcher	Neotropical Migrant	1.56	Woodland
Song Sparrow	Short Distance Migrant	1.69	Successional or Scrub
Carolina Wren	Permanent Resident	1.75	Successional or Scrub
Blue-winged Warbler	Neotropical Migrant	1.79	Successional or Scrub
Mourning Dove	Short Distance Migrant	1.98	Urban
American Robin	Short Distance Migrant	2.58	Urban
Broad-winged Hawk	Neotropical Migrant	2.63	Woodland
White-breasted Nuthatch	Permanent Resident	2.84	Woodland
Killdeer	Short Distance Migrant	3.74	Successional or Scrub
European Starling	Short Distance Migrant	3.79	Urban
Green Heron	Neotropical Migrant	4.82	Wetland
Cedar Waxwing	Short Distance Migrant	5.60	Successional or Scrub
Red-Shouldered Hawk	Short Distance Migrant	7.67	Woodland
House Finch	Short Distance Migrant	17.77	Urban

*USGS 2000.

Figure 5. Percentage of Non-federal Lands in Forest Cover, 1997 (NRCS 2001).

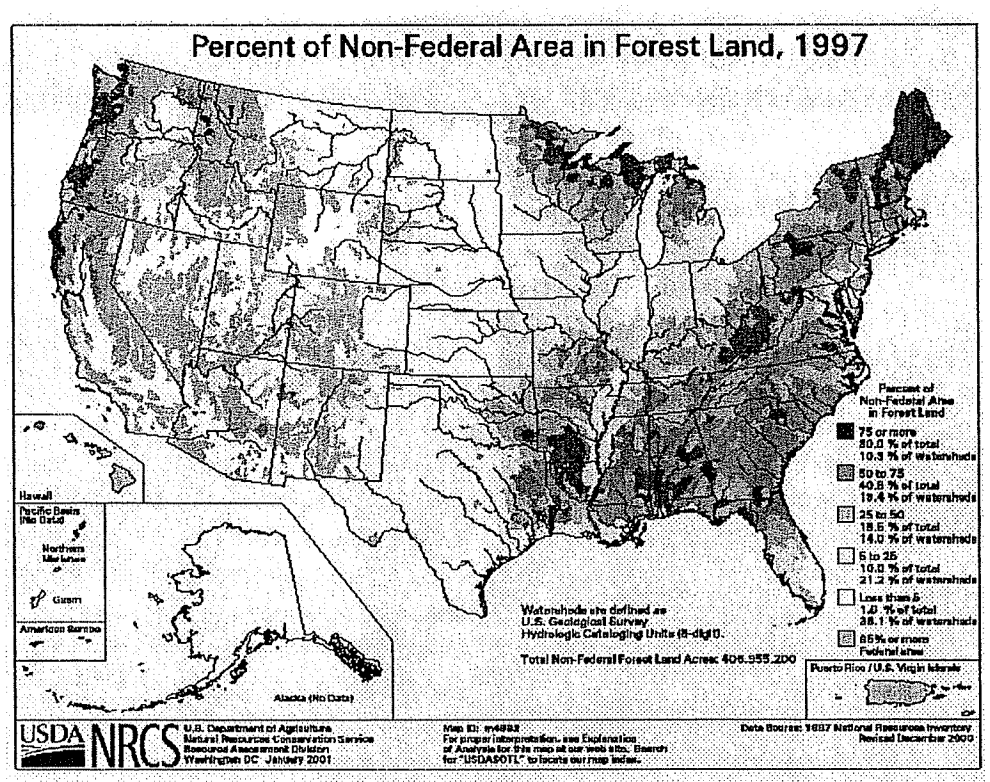
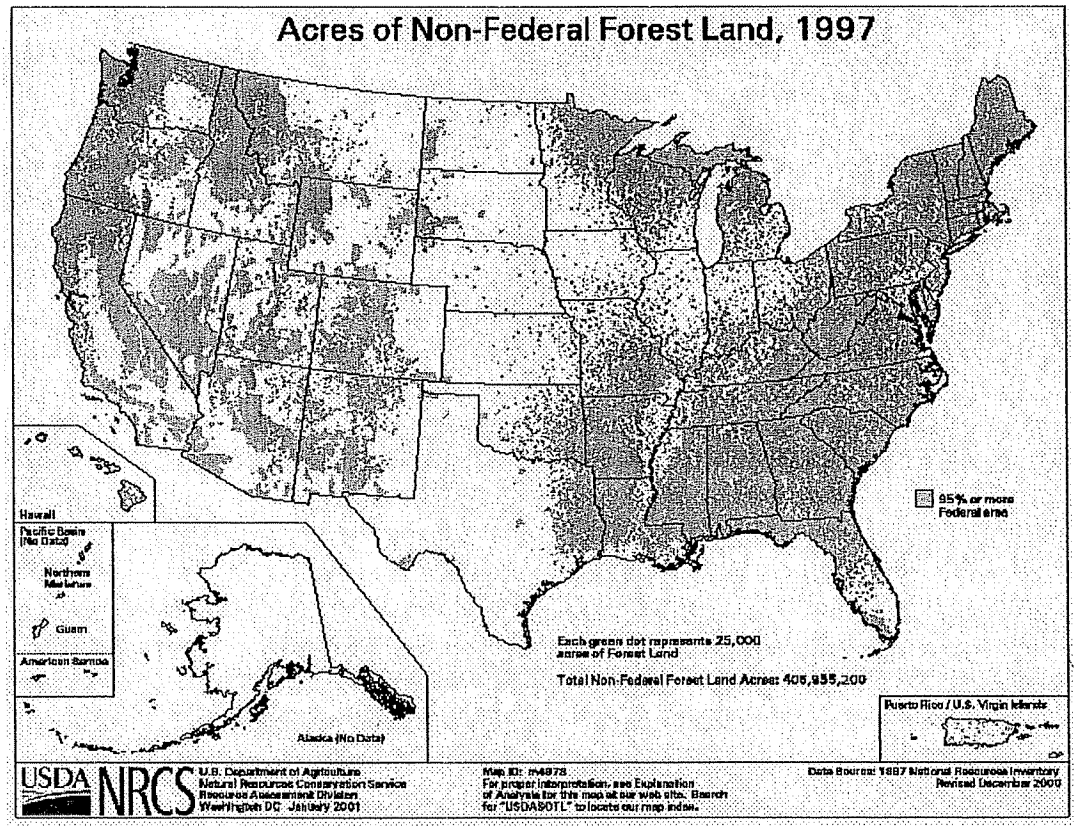


Figure 6. Acres of Non-federal Land in Forest Cover, 1997 (NRCS, Natural Resources Inventory 2001).

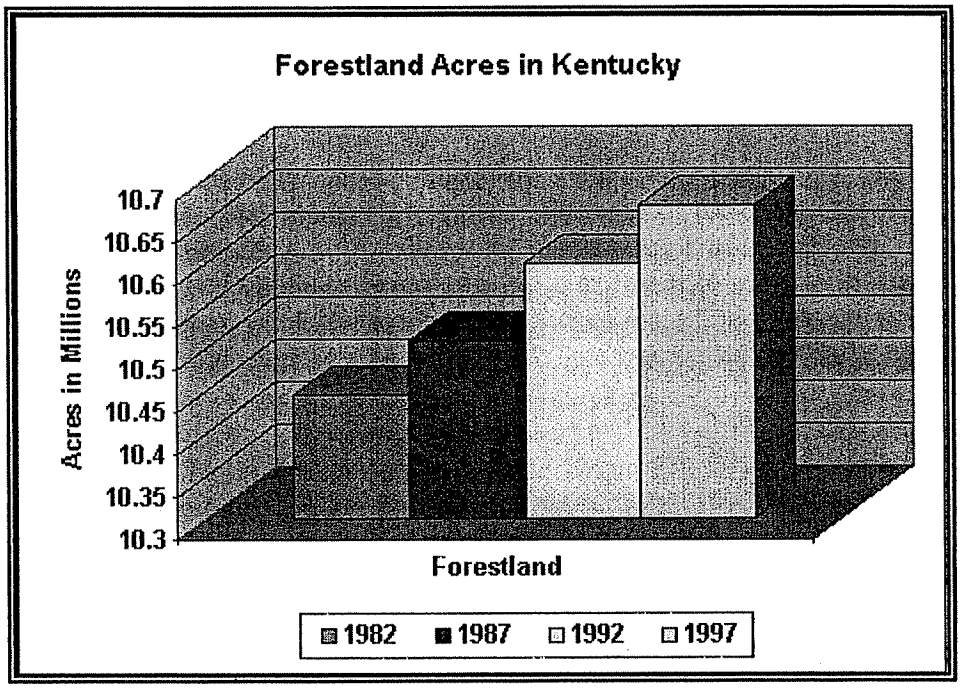


The number of acres of forestland in Kentucky has consistently increased from 1982 to 1997. In 1982 there were about 10.44 million acres of forestland. In 1997, the acreage increased to 10.67 million acres. Most of the increase in forestland acreage can be attributed to pastures reverting to woodland and to tree plantings (NRCS 2000).

The following land use changes have occurred in Kentucky from 1982 to 1997 (NRCS 2000):

- Loss of 726,700 acres Cropland
- Loss of 273,900 acres Pastureland
- Loss of 291,200 acres Other land (Minor Uses)
- Gain of 253,300 acres Forestland
- Gain of 88,700 acres Federal land
- Gain of 595,600 acres of Urban and Roads

Figure 7. Forestland Acres In Kentucky (NRCS 2001).



Effects of Implementing Alternatives:

The affected area for this detailed analysis concerning the effects of implementing the proposed project on plant and animals communities includes National Forest System lands bordered by KY Highway 377 to the north, KY Highway 799 to the east, KY Highway 32 and U.S. Highway 60 to the south, and Highway 32 to the west.

Alternatives A and B

Direct: Implementing Alternatives A or B will not increase "forest" fragmentation as the ROW to be established will be managed in vegetation such as grasses and shrubs, and not

be converted to urban uses such as parking lots and dwellings. The 100 foot width of the ROW would be similar to natural tree gaps caused by wind and disease that are used by many species of birds. Implementing Alternative A or B will have a direct effect on "habitat" fragmentation by increasing the number of acres of grassy openings and shrubs openings in an area now dominated by mature trees. Approximately 45 acres of trees, now suitable for birds that nest in older forest, would be felled for roads and the ROW.

Indirect: Habitat "edge" effects, both positive and negative, would be increased by the new ROW resulting from the implementation of Alternative A or B. Species richness in and around the ROW would increase with this corresponding increase in diversity of habitats. Forest patch size and habitat for breeding forest interior songbirds would not change because the ROW would be maintained in an early stage of forest development, namely grasses and shrubs. Numerous bird species such as the prairie warbler and the white-eyed vireo can be expected to nest in the new ROW. Levels of predation and nest parasitism by brown-headed cowbird may increase slightly with the opening of a corridor in the forest; however, this effect would be minor in light of the ice storm that opened up areas in the February, 2003. Grasses would dominate the new ROW as herbicide use would reduce the abundance of shrubs and young trees in the cleared area associated with Alternative A.

Cumulative: The proposed KY 645 Extension Road Project may cause forest fragmentation in the affected area by converting forest land to cleared and paved non-forest land. The proposed Ice Storm Recovery Project would increase habitat fragmentation in a number of areas near the proposed transmission line by establishing young stands of forest, averaging 15 acres in size, on National Forest System land in the affected area over the next 10 years.

Alternative C

Direct: This alternative would have no direct effect on Forest Fragmentation by changing plant and animal communities. The acreage of old forest, young forest and grassy openings would not be increased or decreased by the Alternative.

Indirect: Habitat Fragmentation, edge effects, both positive and negative, would not be changed by this Alternative. Species richness in the project area would not change. Forest patch size, and habitat for breeding forest interior songbirds, will not be increased or decreased. Existing levels of predation and nest parasitism would be maintained.

Cumulative: The proposed KY 645 Extension Road Project may cause forest fragmentation in the affected area by converting forest land to cleared and paved non-forest land. The proposed Ice Storm Recovery Project would increase habitat fragmentation in a number of areas near the proposed transmission line by establishing young stands of forest, averaging 15 acres in size, on National Forest System land in the affected area over the next 10 years.

10.5 Soil and Water Resources

Effects of implementing each alternative on soil and water resources are identified within an affected area that is defined as those locations where soil or water would be disturbed by the project.

Alternative A: Land clearing for the construction of the ROW, grassy openings, wetlands and roads has the potential for direct effects by increasing erosion and stream sedimentation near the areas disturbed. Erosion is the amount of soil that is displaced and stream sedimentation is the amount of eroded material that is delivered to the stream network. Forest Plan Standards are being used during construction and maintenance as described in the Proposed Action to reduce the potential for erosion and stream sedimentation. However, soil erosion may occur that could run off into streams if a major thunderstorm affects the area during construction, and temporary soil erosion control practices are not yet in place. The sediment load of the creeks and streams would change little, if any, by implementing this alternative. The majority of soil disturbing actions are located on mountain ridges above perennial streams, with large vegetated areas between disturbed areas and streams for trapping any sediment. Erosion control measures contained in this alternative are designed to reduce soil movement from disturbed areas.

Cumulative effects resulting in soil erosion may occur in the area with the proposed Ice Storm Recovery Project, which involves soil disturbing activities such as skid road construction and log landing construction. Erosion control measures are also planned for this project so cumulative effects are expected to little if any on the soil and water resource. To help prevent eroded soils and other contaminants from entering streams and rivers, no mechanized equipment would be permitted within defined intermittent streams, perennial streams or wetlands with either project.

Implementation of the proposed KY 645 Extension Road Project in combination with Alternative A has the potential to result in a cumulative effect causing soil erosion if large amounts of bare soil were exposed during large rain events. However, it is expected that actions would also be taken with the KY 645 Extension Project to reduce the potential for soil erosion.

A possible source of water quality contamination from implementing Alternative A would be from the use of herbicides directly entering surface or groundwater (Table 12). The mobility of each herbicide and its persistence affects the herbicide's potential entry into water resources. Mobility depends on the herbicide's water solubility and ability to bond to soils (USFS 1989, Vol. I, p. IV-104).

Table 12. Herbicide Activity in Soil, Alternative A.					
	Glyphosate	Triclopyr BEE	Triclopyr Acid	Imazapyr	Fosamine
Soil Activity	No	No	No	No – if used from late June through mid September Yes – if used after mid September	No

Glyphosate is readily absorbed by plant foliage and has practically no leaching tendency because it bonds tightly to soil. Glyphosate is also highly susceptible to degradation by micro-organisms in the soil where it is converted to natural substances, such as carbon dioxide and water. Its persistence in the soil is approximately two months or less (USFS 1989, Vol. I, p. II-34).

Imazapyr is absorbed by plants through its foliage and roots, and is rapidly transferred throughout the plant. Imazapyr can persist in soil up to 12 months depending on the amount used, the type of soils involved and the weather, but movement in soil is limited (USFS 1989, Vol. I, p. II-36). Imazapyr is strongly absorbed by plants and in soil it does not leach downward. Photodecomposition of Imazapyr takes place rapidly when it is exposed to sunlight (USFS 1997, p. II-22). Biodegradation by soil microorganism also takes place but to a lesser extent (USFS 1989, Vol. I, p.II-36).

Triclopyr is readily absorbed by plant foliage and roots, and readily moves throughout the plant. Triclopyr is moderately soluble and not strongly absorbed in soils (USFS 1997, p. II-22). Triclopyr is not, however, highly mobile in soils. It is rapidly decomposed by soil microorganisms and ultraviolet light, persisting approximately 30 to 56 days depending on the type of soil and weather (USFS 1989, Vol. I, p.II-37).

Herbicide would not be used in designated Zone 1 Source Water Protection Areas by the Forest Plan. The risk of herbicides entering surface water by direct application would be low because the applicator has great control over where herbicides are applied during ground application, and would not apply herbicide to surface waters. The use of vegetation buffer strips is recognized as an effective mechanism to aid in guarding against herbicides affecting water quality. Research has shown that surface water quality can be protected from ground applications of herbicides through the use of vegetation buffer strips of 25 feet in width or more (USFS 1988, pp. IV-89 & 90). To reduce the possibility of herbicides affecting water resources of the areas involved through water runoff, EKPC would suspend herbicide application during occurrences of precipitation or when precipitation is predicted, and would establish a 30 foot horizontal buffer zone around all streams, wetlands and surface waters. Drift of the herbicide into surface waters is not likely to occur since the herbicide would be ground applied under low pressure with large droplet hose end sprayers. However, to further minimize the potential of drift, manual herbicide application would be suspended when wind speeds exceed 15

miles per hour and mechanical application would be suspended when wind speeds exceed 10 miles per hour. Herbicide label directions would also be strictly followed to aid in preventing water quality contamination. The herbicides proposed for use involve low-toxicity chemicals applied infrequently in relatively small quantities (USFS 1989, Vol. I, p. IV-12). When applied with the requirements outlined above, the use of herbicides to maintain the ROW would not have a measurable effect on the surface water resource of the project areas.

It is possible that groundwater could be affected by herbicide application as part of Alternative A through the vertical seepage of herbicides into aquifers. In addition to the 30 foot buffer requirement outlined above, EKPC would prohibit herbicide application within 100 horizontal feet of any public or domestic water source. Additionally, no herbicide would be broadcast on rock outcrops or sinkholes. Through the implementation of these mitigation requirements the risk to groundwater would be minimal because the buffers would reduce herbicide concentrations through mixing and dilution.

The herbicides would not leach into groundwater, and they would not run off into creeks and streams in amounts that would affect stream organisms or users of the water downstream (USFS 1997, p. IV-116).

The herbicides proposed for use on the ROW would not have a direct effect on the soils in the project area because the herbicides would break down rapidly, would not cause erosion and would not be expected to affect soil productivity (USFS 1997, p. IV-88). The herbicides are degraded relatively quickly in the soil and, as a result, they do not buildup in the soil (USFS 1997, p. Summary-10). There also is general consensus that these chemicals do not notably reduce the activity of the overall community of soil microorganisms when used on a ROW at normal forestry rates. Depending on the application rates and soil environment, herbicides can stimulate or inhibit soil microorganisms, but adverse effects are only observed at concentrations well above those that occur on a ROW. The proposed herbicides would not significantly reduce the activity of soil microorganisms, nor adversely affect them in such a way as to reduce site and soil productivity, when applied at the proposed typical application rates. (USFS 1997, p. IV-87)

Herbicides by themselves do not disturb the soil and cause erosion. It is the application method that can cause minor erosion problems, such as truck mounted spraying equipment driven on the ROW. After the herbicide is applied and the plant dies, the plant material remains until it decomposes by natural means. The dead plant material does not use nutrients from the soil or block the sun from reaching the ground. The growth of new vegetation occurs with the increased availability of nutrients and the increased amount of sun reaching the soil. Meanwhile, the dead plant material leaves an organic layer that mitigates raindrop impact, promotes infiltration, and serves as ground cover to prevent soil erosion.

The proposed use of herbicides would have no cumulative effects to the soils located on the new ROW, since such chemicals would only be infrequently applied to the vegetation on the ROW (USFS 1997, p. IV-115). The herbicides also degrade quickly in the soil and do not build-up (USFS 1997, p. Summary – 10).

Alternative B: Land clearing for the construction of the ROW, grassy openings, wetlands and roads has the potential to increase erosion and stream sedimentation, which would be considered to be a direct effect on soil and water resources. Forest Plan Standards are being used during construction and maintenance as described for this alternative to reduce the potential for erosion and stream sedimentation. However, soil erosion may occur that could run off into streams if a major thunderstorm affected the area during construction, and temporary soil erosion control practices were not yet in place. The sediment load of the creeks and streams would have little, if any change, by implementing the alternative. The majority of soil disturbing actions are located on mountain ridges above perennial streams, with large vegetated areas located between disturbed areas and streams to trap sediment. The erosion control measures described by this alternative are designed to reduce soil movement from disturbed areas.

Cumulative effects resulting in soil erosion may occur in the area with the proposed Ice Storm Recovery Project, which involves soil disturbing activities such as skid road construction and log landing construction. Erosion control measures are also planned for this project so cumulative effects are expected to little if any on the soil and water resource. To help prevent eroded soils and other contaminants from entering streams and rivers, no mechanized equipment would be permitted within defined intermittent streams, perennial streams or wetlands with either project.

Implementation of the proposed KY 645 Extension Road Project in combination with Alternative B has the potential to result in a cumulative effect causing soil erosion if large amounts of bare soil were exposed during large rain events. However, it is expected that actions would also be taken with the KY 645 Extension Road Project to reduce the potential for soil erosion.

Using only mechanical methods to control vegetation on steep slopes in the ROW may have direct effects resulting in more soil erosion compared to Alternative A as the tracks and tires on mechanized equipment can expose soil when used on the steep hillsides in the affected area.

Alternative C: As the no action alternative, there is no potential for increasing soil erosion or affecting water quality in the affected area. There would be no direct or indirect effects on soil and water resources as soils would not be exposed and herbicides would not be used.

Cumulative effects resulting in soil erosion may occur in the area with the proposed Ice Storm Recovery Project, which involves soil disturbing activities such as skid road construction and log landing construction. Erosion control measures are planned for this

project so the possibilities of cumulative effects are expected to little if any on the soil and water resource.

Implementation of the proposed KY 645 Extension Road Project in combination with Alternative C has the potential to result in a cumulative effect causing soil erosion if large amounts of bare soil were exposed during large rain events. However, it is expected that actions would also be taken with the KY 645 Extension Project to reduce the potential for soil erosion.

10.6 Air Quality

Alternative A: Exhaust from machines used to establish and maintain the transmission line may increase emissions in the proposed treatment area on a short-term basis. However, the components of exhaust are volatile and would probably move out of the immediate project area within a short period of time. Additionally, it is doubtful that the exhaust from such machinery would contribute to the overall budget of ozone, nitrogen oxides, aldehydes or other noxious substances. (USFS 1997, p. IV-106)

The dust associated with the proposed maintenance activities would have small potential for affecting the air quality of the immediate work areas where mechanical machinery is used. This source of air quality degradation, however, would be negligible and would not be anticipated to have any major effect on the areas involved. The number of equipment passes usually required too complete a given ROW maintenance procedure, such as, cutting or spraying, is one. Multiple passes of equipment over the same ground is not necessary and, therefore, dust associated with the presence of equipment in the ROW would be minimal, if any. Should any dust be associated with mechanical maintenance activities within the ROW, dust associated with this source would be short-term, lasting only through the maintenance procedure being performed. Once the initial and follow-up foliar applications are completed only manual selective herbicide treatment would be utilized on the existing ROW that would not produce any dust due to the small amount of activity that would be required with this type of treatment.

The herbicides proposed for use as part of this alternative would not have any affect on the air quality of the project area due to the application methods being used. The herbicides would be applied using localized spraying techniques incorporating large droplet nozzles that are not subject to spray drift. No long-range spraying heads or aerial spraying would be utilized. Spraying would also be halted during unfavorable windy conditions to ensure that drift would not occur. As outlined above, the proposed herbicide use would not increase fugitive emissions and any effects from fugitive dust would be negligible to nonexistent.

A cumulative effect of additional emissions from additional internal combustion engines would be emitted into the air at the same time is possible if Alternative A, the proposed Ice Storm Recovery Project and KY 645 Extension Road Project were to be implemented at the same time.

Alternative B: Exhaust from machines used to establish and maintain the transmission line may increase emissions in the proposed treatment area on a short-term basis. However, the components of exhaust are volatile and would probably move out of the immediate project area within a short period of time. Additionally, it is doubtful that the exhaust from such machinery would contribute to the overall budget of ozone, nitrogen oxides, aldehydes or other noxious substances. (USFS 1997, p. IV-106)

The dust associated with the proposed maintenance activities could have a small potential for affecting the air quality of the immediate work areas where mechanical machinery is used. This source of air quality degradation, however, would be negligible and would not be anticipated to have any major effect on the areas involved. The number of equipment passes usually required too complete a given ROW maintenance procedure, such as, cutting, is one. Multiple passes of equipment over the same ground is not necessary and, therefore, dust associated with the presence of equipment in the ROW would be minimal, if any. Should any dust be associated with mechanical maintenance activities within the ROW, dust associated with this source would be short-term, lasting only through the maintenance procedure being performed.

A cumulative effect of additional emissions from additional internal combustion engines would be emitted into the air at the same time is possible if Alternative B, the proposed Ice Storm Recovery Project and KY 645 Extension Road Project were to be implemented at the same time.

Alternative C: As the no action Alternative, implementation would result in no changes to the air quality in the project area. However, the cumulative effect of additional emissions from internal combustion engines that would be emitted into the air at the same time is possible if Alternative C, the proposed Ice Storm Recovery Project and KY 645 Extension Road Project were to be implemented at the same time.

10.7 Cultural Resources

The Forest Service and RUS worked to identify cultural resources that may be affected by the project, assess effects thereto, and develop mitigation measures to offset or ameliorate adverse effects if necessary. A Phase 1 Cultural Resource Survey was conducted to identify the presence or absence of archeological sites on National Forest System lands that could be affected by the project for Alternatives A and B. The purpose of the survey was to identify evidence of cultural resources that may be affected by actions contained in the alternatives. The survey did not locate any archeological sites that would be impacted by the project. A report with recommendations was prepared and submitted to the Kentucky State Historic Preservation Office for review and concurrence. David Morgan, State Historic Preservation Officer approved the Phase 1 Archaeological Survey for the project in a letter dated September 22, 2004. The Forest Service Morehead Ranger District and DBNF Forest-level Archaeologists also reviewed the report to determine if any of the alternatives would have an effect on historic properties listed, eligible or potentially eligible for listing on the *National Register of Historic*

Places. Alternatives A or B are not located near districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places.

Implementing Alternative A or B or C would not cause loss or destruction of significant, cultural, or historic resources and thereby would have no direct affect on cultural resources. There would be no indirect effect on Cultural Resources as public knowledge or access to known cultural resource sites would not be changed by implementing Alternative A, B or C. The Ice Storm Recovery Project and KY 645 Extension Road Project are also proposed in the area, which could possibly result in a cumulative effect on Cultural Resources. However, no cumulative effects are expected as cultural resource sites would most likely be avoided and protected with these proposed projects.

10.8 Visual Resources

Alternative A: This Alternative was designed to reduce effects on the visual quality of the project area. The transmission line and associated ROW were located to reduce visibility where they pass over major roads in the project area. Conductors would stretch above the trees in the deeper hollows, making it unnecessary to cut a ROW along portions of the transmission line. Small natural appearing grassy openings to be established on ridge tops along the transmission line would serve to reduce the straight-line, artificial appearance of the ROW. The ROW would be most noticeable where it crosses Forest Road 977; as the road is located on top of a mountain ridge where people can look down the sides of the mountain at the cleared ROW. The ROW would also be visible from I-64. However, because the conductors cross at a right angle, and people are driving at a high rate of speed, they would have to turn their heads from one side to the other to catch a fleeting glimpse of the cleared path. People will notice the orange balls hung on the conductors over I-64 and U.S. Highway 60. Native prairie grass openings to be established in the ROW would help reduce the overall visual impact of the ROW to visitors. The new ROW would add to the visual impact of the two existing transmission lines already visible on National Forest System land in the same area along Forest Road 977.

During the mechanical and manual cutting of vegetation within the ROW, cut plants would be left on the ROW that would discolor. In most cases, the effect on the visual quality of the areas would be short lived, lasting less than one year. The new ROW would gain a green, more natural appearing color and blend more with the surrounding vegetation over several growing seasons. As a note, similar ROW's constructed across National Forest System land in the Project Area years ago are barely discernable today from where they cross I-64 and U.S. Highway 60. Similar to the cutting, the effect of chemically treating the ROW would also be temporary with the discoloration of vegetation within the ROW lasting for a period of approximately one year or less. In addition, every effort would be made to time the herbicide applications to coincide with the natural browning of vegetation within the ROW as a result of wintering.

The herbicide treatment the ROW could have slightly more of an effect on the visual quality of the areas involved as compared to only cutting the vegetation. When

vegetation is cut from the ROW, the browning plants would not be left standing as with chemical treatment. As a result, the discolored vegetation left lying in the ROW after being cut may be harder to see and less visible than the vegetation standing upright within the ROW. Chemical treatment of the ROW during the follow-up foliar treatment as outlined in the proposed action could also have more of an effect on the visual quality of the area than subsequent selective herbicide applications because the majority of the vegetation within the ROW would be discolored after this application as compared to only a portion of the vegetation after selective applications. In the long-term, less and less vegetation within the existing ROW would require treatment as the woody stemmed vegetation is reduced from the ROW, resulting in a less of an aesthetic effect on the project area.

Implementing Alternative A may have a cumulative impact on the aesthetics of the project area, adding to how disturbed the area now looks following the February 2003 ice storm that knocked over and broke off thousands of trees in the project area. The proposed Ice Storm Recovery Project would have a cumulative effect on the appearance of the area with the construction of additional roads and tree cutting actions. The proposed I-64Connector Road Project would also have a cumulative effect on the appearance of the area with the addition of a major highway in a now predominantly forested area.

Alternative B: This Alternative was designed to reduce effects on the visual quality of the project area. The transmission line and associated ROW were located to reduce visibility where they pass over major roads in the project area. Conductors would stretch above the trees in the deeper hollows, making it unnecessary to cut a ROW along portions of the transmission line. Small natural appearing grassy openings to be established on ridge tops along the transmission line would serve to reduce the straight-line, artificial appearance of the ROW. The ROW would be most noticeable where it crosses Forest Road 977; as the road is located on top of a mountain ridge where people can look down the sides of the mountain at the cleared ROW. The ROW would also be visible from I-64. However, because the conductors cross at a right angle, and people are driving at a high rate of speed, they would have to turn their heads from one side to the other to catch a fleeting glimpse of the cleared path. People will notice the orange balls hung on the conductors over I-64 and U.S. Highway 60. Native prairie grass openings to be established in the ROW would help reduce the overall visual impact of the ROW to visitors. The new ROW would add to the visual impact of the two existing transmission lines already visible on National Forest System land in the same area along Forest Road 977.

During the mechanical and manual cutting of vegetation within the ROW, cut plants that remain in the ROW that would discolor. In most cases, the effect on the visual quality of the areas would be short lived, lasting less than one year. The new ROW would gain a green, more natural appearing color and blend more with the surrounding vegetation over several growing seasons. As a note, similar ROW's constructed across National Forest System land in the Project Area years ago are barley discernable today from where they cross I-64 and U.S. Highway 60.

When vegetation is cut from the ROW, the browning plants would not be left standing as with chemical treatment alone. As a result, the discolored vegetation left lying in the ROW after being cut may be harder to see and less visible than the vegetation standing upright within the ROW.

Implementing Alternative B may have a cumulative impact on the aesthetics of the project area, adding to how disturbed the area now looks following the February 2003 ice storm that knocked over and broke off thousands of trees in the project area. The proposed Ice Storm Recovery Project would have a cumulative effect on the appearance of the area with the construction of additional roads and tree cutting actions. The proposed I-64Connector Road Project would also have a cumulative effect on the appearance of the area with the addition of a major highway in a now predominantly forested area.

Alternative C: As the no action Alternative, Alternative C would have no direct or indirect effect on the visual quality of the area. However, when combined with the proposed Ice Storm Recovery Project there may be a cumulative effect on the appearance of the area with the construction of roads and tree cutting actions. The proposed KY 645 Extension Road Project would also have a cumulative effect on the appearance of the area with the addition of a major highway in a now predominantly forested area.

10.9 Recreation Use

Alternatives A & B: The affected area for this analysis is considered to include lands within one mile of the proposed ROW. The affected area does not contain campgrounds, boat ramps, parking lots or other developed recreation sites used by the public. The primary recreation use in the affected area is by hunters during the squirrel, deer and wild turkey seasons. People are known to fish on private lands along Triplett Creek and the North Fork of Triplett Creek in the project area. There is no National Forest System land that borders these creeks. Noise from vehicle traffic is common in the area at this time, as one can hear vehicle traffic from I-64 and a number of State Highways. The people who hunt or fish in the area may be disturbed by the sound of machines during the actual construction of the transmission line. The hunters will eventually find improved habitat for the wild turkey and white tailed deer they hunt following project completion. Transmission line ROW's are often selected by hunters because of the habitat they provide and the greater distance that white-tailed deer and turkey can be viewed in the area.

The new transmission line would be visible from the Sheltowee Trace Trail, a National Recreation Trail in the affected area. The line would pass over the trail at one location, where it is located on Forest Road 977, a gravel road that is open to public vehicle use. The presence of a new transmission line is expected to have little effect on people biking, hiking or horseback riding as the main use of the Sheltowee Trail at this location is by people driving motor vehicles.

People can be expected to walk the roads leading to the structures when the project is complete, finding small wetlands on the ridges and grassy openings around some of the transmission line structures. The grassy openings and small wetlands are desirable sites for many to visit for their beauty and opportunities to see wildlife. One often sees wild turkey, white-tailed deer and eastern bluebirds in native grass openings and wood ducks, dragonflies, frogs and salamanders in the small wetlands.

People may illegally use ATV's on the roads built during construction of the transmission line. However, these roads would be closed to vehicle use following construction. Horseback riders may also ride the roads built to access the ROW following construction.

Mechanical cutting of the ROW as outlined in Alternative A and B may have short-term effects to individual's recreational experience, as the sounds from equipment making noise during construction can carry some distance. People who drive Forest Road 977 may be delayed and inconvenienced during the actual construction of the transmission line for safety purposes.

Implementing Alternative A or B in combination with the proposed Ice Storm Recovery Project and the KY 645 Extension Road Project may have a cumulative effect on people's recreation experience in the affected area by adding disturbance from motor vehicle activity and noise from earth moving and tree cutting actions. Basically the proposed project in combination with the two other proposed projects would result in a greater chance for people to be disturbed by noise in the area if all projects are taking place at the same time.

Alternative C: As the no-action Alternative, implementing Alternative C would have no effect on recreation use in the area. Noise from vehicle traffic is common in the area at this time and would continue, as one can hear vehicle traffic from I-64 and a number of State Highways. People would continue to hunt and fish the area with no change in their experience. However, implementing Alternative C in combination with the proposed Ice Storm Recovery Project and the KY 645 Extension Road Project may have a cumulative effect on people's recreation experience in the affected area by the disturbance resulting from motor vehicle activity and noise from earth moving and tree cutting actions. Basically the two proposed projects may result in an increased chance for people to be disturbed by noise if the two projects are taking place at the same time.

10.10 Socioeconomic

The affected area for this analysis of socioeconomic effects of implementing the proposed project is considered to include the greater Rowan County area to be served by the transmission line. The USDA is directed to ensure that no identifiable low-income or minority population is disproportionately subjected to adverse environmental or human health effects by the proposed project (USDA Departmental Regulation 5600-2). The actual construction and maintenance activities associated with implementing Alternative A or B are not expected to have adverse impacts on human health or environmental

impacts on minority and/or low-income populations. The actual construction of Alternatives A and B would not affect areas of Rowan County that have a high density of minority or low income populations. The majority of the actions associated with Alternative A and B would take place on National Forest System land that is not populated. Alternative A and B would result in a transmission line being built that would cross private land owned by 9 individuals.

Implementing Alternative A or B would continue to provide people living in the Rowan County area at large with an adequate and reliable source of electricity. Implementing Alternative A or B would help keep homes, businesses, educational and emergency service facilities from experiencing electrical failure under high demand conditions. Alternative A or B would provide an alternate way to move electricity into the area should an environmental factor such as an ice storm or fallen tree affect an existing EKPC transmission line servicing the area.

Alternative A or B would have limited effects on the Civil Rights of individuals and groups that live in the project area. Electricity would continue to be available for schools, businesses, and medical facilities that serve minorities, women and children.

No cumulative effects on minority/low income populations and the civil rights of individuals are expected with proposed implementation of the Ice Storm Recovery Project and I-64 Connector Project, also proposed for the area.

Implementing Alternative C would result in interruptions to the electrical supply serving the Rowan County area at large under high demand conditions, as early as 2005. Interruptions in electrical service could seriously affect people in their homes, businesses, schools and medical facilities.

Alternative C may result in a negative affect on the Civil Rights of individuals and groups that live within the project area. Electricity would not always be available for schools, businesses, and medical facilities that serve minorities, women and children.

No cumulative effects on minority/low income populations and the civil rights of individuals are expected with proposed implementation of Alternative C in combination with the Ice Storm Recovery Project and I-64 Connector Project, also proposed for the area.

10.11 Public Health & Safety

The affected area for this analysis is considered to include the actual locations where roads, the ROW, openings and wetlands would be constructed.

Alternative A: Alternative A would have a direct effect on human health and safety by allowing EKPC to continue providing a reliable source of electricity to the Rowan County area at large. Interruptions in electric service would be less likely to occur,

thereby helping to insure the continued operation of public safety devices such as traffic signals, elevators, emergency lighting, and public health needs such as life support and health care operations.

This alternative uses a combination of manual and chemical techniques to create and maintain the ROW. The manual techniques involve reducing the height of the above ground portion of vegetation within the ROW by cutting the vegetation off at or near ground level. The most common tool for manually cutting vegetation in electric utility line ROWs is the chain saw. The chain saw can be one of the most dangerous hand cutting tools used by ROW management crews and cuts caused by these tools are considered one of the most common hazards encountered by crews. Other hazards associated with chain saw use include flying wood chips, sawdust and bar oil causing eye problems for workers. Even though chain saws are dangerous when not used in a safe manner, EKPC has had only one incident occurring with the use of chain saws since 1990. This incident involved a chain saw kicking back and cutting an employee's wrist. Another hazard associated with chain saw use is hearing loss when proper ear protection is not used.

Mechanical types of ROW vegetation management involve cutting the vegetation within the ROWs with various types of mowing equipment. A major hazard associated with this type of equipment includes debris, such as sticks, rocks, cans, etc., coming into contact with high speed mowing blades and becoming projectiles, striking ROW crewmembers. Mowing equipment can also roll over when operated improperly or on steep grades, injuring the operator and any nearby crewmembers. Since 1990 EKPC has had nine injuries, other than the chain saw incident mentioned above, that occurred while clearing and maintaining electric utility line ROWs. These included back strains and injuries occurring from falling tree limbs, poison ivy and insect bites.

Emissions from the exhaust of chain saws and mechanical equipment could result in exposing operators to a number of carcinogens known to be present in the exhaust of internal combustion engines, such as, benzene, 1,3-butadiene and numerous polyaromatic hydrocarbons. Exhaust from the engines also exposes equipment operators to carbon monoxide and neurotoxic hydrocarbons, as well as irritants, such as, formaldehyde, acrolein and nitrogen oxides (USFS 1997, p. IV-96).

Hazards to the general public occur with cutting operations when individuals enter the ROWs when the machinery is operating and the vegetation is being cut. Individuals of the public present on, or near, the ROWs when the cutting operations are occurring could be struck by objects sent airborne as a result of contact with cutting blades, such as, flying wood chips, sawdust, sticks, stones, trash, etc. Stubble left after cutting operations are completed can also present a hazard to the public by individuals tripping over or falling onto cut stumps and stubble causing injury. The risk to the general public from the ROW cutting operations would be negligible, as the ROW would be located in areas that few people visit.

A specialist report was prepared regarding herbicide use associated with this proposal. The report explains how Risk Assessment worksheets are models that are designed to

disclose effects from a variety of circumstances, some of which may not have anything in common with the proposal. A hazard quotient greater than one does not automatically indicate inconsistency with Forest Plan standard DB-VEG-8. Rather, a hazard quotient that is greater than one is a red flag. Improbability of occurrence may reduce the significance of the hazard quotient, or existing or additional (often minor) mitigation not included in the model may also reduce its risk. Thus interpretation of the data is necessary in a risk management discussion if an individual hazard quotient exceeds one.

The risk assessment worksheets present hazard quotients at three levels of exposure, Central/Typical, Lower, and Upper. The Central or Typical level should be used when evaluating risk for this proposal. The Upper level would be the maximum rates that the Forest Service could use, but chose not to for this proposal.

Common to all application methods and solutions is the fact that the proposal restricts herbicide use in certain areas (FLMP Standards DB VEG 19 & 21, and 5C VEG 2) that limit use of herbicides within 30-feet of streams, lakes, or wetlands; mixing and loading will not occur within 200 feet of private land, open water or wells, or other sensitive areas. No herbicides will be used in Zone 1 of Source Water Protection Areas.

The human health and ecological risk from using glyphosate, triclopyr-amine, triclopyr-ester, and imazopyr as prescribed will result in:

Human Health Risk: All of the Human Health Hazard Quotients are less than 1.0 at the Central-level of exposure or interpretation of data indicates a lower risk is probable. (See Risk Assessment Worksheets in Specialist Report)

Ecological Risk: All of the Ecological Hazard Quotients are less than 1.0 at the Typical-level of exposure or interpretation of data indicates a lower risk is probable. (See Risk Assessment Worksheets in Specialist Report)

The human health and ecological risk from using fosamine as prescribed will result in:
Human Health Risk: Systemic Margin of Safety of 300. Reproductive Margin of Safety of 608.

Table 13. Health Quotient(HQ) and Effects of Herbicide Application, Alternative A.

	Glyphosate	Triclopyr BEE	Triclopyr Acid	Imazapyr	Fosamine
Human Health HQ	All typical HQs are < 1.0	All central HQs that are applicable to proposal are <1.0	All central HQs that are applicable to proposal are <1.0	All central HQs that are applicable to proposal are <1.0	MOS for public is > 5400 MOS for workers is > 120
Human Health Protective Measures		Contaminated gloves would be removed immediately, hands washed, and contaminated	A 30-foot buffer and spray conditions would protect streams. Children are		

		gloves discarded. A 30-foot buffer and spray conditions would protect streams. Children are not expected to be in contact with spray operations. Signing would occur and the area is not typically used by children.	not expected to be in contact with spray operations. Signing would occur and the area is not typically used by children.		

None of the herbicides proposed for use as part of Alternative A are recognized as being carcinogenic and, therefore, represent no carcinogenic risk to workers or the general public (USFS 1997, pp. IV-99); and there is no evidence to indicate that these herbicides are mutagenic (USFS 1988, Vol. II, pp. 3-33 & 3-34). The U.S. Environmental Protection Agency has assigned the herbicides to Group E which has demonstrated no evidence for carcinogenicity. Additionally, cumulative effects are not likely because the herbicides in question are not persistent in the environment or the human body (USFS 1988, Vol. II, p. 5-48). The elimination rates of the three herbicides in rats are as follows: glyphosate – 94% within five days, imazapyr – 87 % within 24 hours, and triclopyr – 83 % within an unspecified period (USFS 1988, Vol. II, p 3-28).

Glyphosate and imazapyr are both recognized as Category III primary eye irritants that demonstrate no corneal opacity 72 hours after exposure. Triclopyr is recognized as a Category II eye irritant for which corneal opacity is reversible within seven days. Primary dermal irritations for the three herbicides are recognized as mild or slight 72 hours after exposure (USFS 1989, Vol. I, p. IV-13). The acute oral toxicities of the herbicides involved range from very slightly toxic for imazapyr to slightly toxic for glyphosate and triclopyr (USFS 1989, Vol I, p. IV-12). For a very slightly toxic herbicide a dose of more than 16 ounces of herbicide is required to cause death of a 150 pound human. For slightly toxic herbicides between one and 16 ounces of herbicide is required to kill the same size human (USFS 1989, Vol. I, p. IV-12).

Research suggests that workers applying herbicides using backpack sprayers should not be affected by a typical dose of the chemicals. A sensitive worker could have a slight chance of experiencing some temporary effects in the event of a maximum dose of herbicide (USFS 1997, p. IV-99). A typical dose would consist of the amount of chemical that could be taken in by a worker through breathing, eating, penetrating the skin, or any other route, resulting from exposure of workers to the chemical during routine operations. A maximum dose would involve the highest probable amount of

chemical taken in by a worker resulting when the highest rate of chemical is applied by a crew member who works a maximum number of hours per day for a maximum number of days per year (USFS 1989, Vol. I, p. IV-7). Normally practiced mitigation procedures, such as wearing protective clothing and washing any exposed areas of skin, make the probability of this actually occurring very low (USFS 1997, p. IV-99).

Workers who spill approximately one pint of herbicide concentrate directly on their skin could possibly experience slight, short-term reproductive or systemic toxic effects if the concentrate is allowed to remain on the skin and is not washed off for an extended period of time (USFS 1997, p. IV-99). Consequently, in order for an exposed worker to receive a dose large enough to cause a reaction the worker would have to ignore safety procedures and let the herbicide remain on the skin for an extended period, not washing it off. Should herbicides be permitted for use on the existing ROWs, all work sites would have water available to mitigate an exposure of this type and all workers will be trained on safety procedures.

The proposed herbicides would not have systemic or reproductive effects on any members of the general public, including sensitive individuals. There is a very slight chance of a systemic effect should an individual drink from standing water into which concentrated triclopyr has been spilled. The probability of an individual drinking from such a source, however, is very low and normal operational procedures make such a spill extremely unlikely. If an individual was sprayed directly there is also a slight chance of skin irritation and transient systemic effects (USFS 1997, p. IV-98). The type of spraying being proposed, however, is much localized with no long-range nozzle type spraying heads and no aerial type spraying. Therefore, it would be virtually impossible to accidentally spray a member of the public. Even though public health risks are negligible, to mitigate against any public exposure to the proposed herbicides, treated areas would be posted as outlined in the *Record of Decision, USDA Forest Service, Final Environmental Impact Statement Vegetation Management in the Appalachian Mountains*, July 27, 1989. Signs would be placed announcing herbicide treatments where the public could come into contact with recently treated ROWs, such as where hiking trails intersect with the existing ROWs.

There are no cumulative effects to public health and safety expected with the combined possible implementation of this Alternative, the proposed Ice Storm Recovery Project, and the proposed KY 645 Extension Road Project. These projects are independent from each other; involve different workers at different locations who would be involved with their implementation.

Alternative B:

Alternative B would have a direct effect on human health and safety by allowing EKPC to continue providing a reliable source of electricity to the Rowan County area at large. Interruptions in electric service would be less likely to occur, thereby helping to insure the continued operation of public safety devices such as traffic signals, elevators, emergency lighting, and public health needs such as life support and health care operations.

Alternative B uses manual and mechanical techniques to create and maintain the ROW that involve reducing the height of the above ground portion of vegetation within the ROW by cutting the vegetation off at or near ground level. The most common tool for manually cutting vegetation in electric utility line ROWs is the chain saw. The chain saw can be one of the most dangerous hand cutting tools used by ROW management crews and cuts caused by these tools are considered one of the most common hazards encountered by crews. Other hazards associated with chain saw use include flying wood chips, sawdust and bar oil causing eye problems for workers. Even though chain saws are dangerous when not used in a safe manner, EKPC has had only one incident occurring with the use of chain saws since 1990. This incident involved a chain saw kicking back and cutting an employee's wrist. Another hazard associated with chain saw use is hearing loss when proper ear protection is not used.

Mechanical types of ROW vegetation management involve cutting the vegetation within the ROWs with various types of mowing equipment. A major hazard associated with this type of equipment includes debris, such as sticks, rocks, cans, etc., coming into contact with high speed mowing blades and becoming projectiles, striking ROW crewmembers. Mowing equipment can also roll over when operated improperly or on steep grades, injuring the operator and any nearby crewmembers. Since 1990 EKPC has had nine injuries, other than the chain saw incident mentioned above, that occurred while clearing and maintaining electric utility line ROWs. These included back strains and injuries occurring from falling tree limbs, poison ivy and insect bites.

Emissions from the exhaust of chain saws and mechanical equipment could result in exposing operators to a number of carcinogens known to be present in the exhaust of internal combustion engines, such as, benzene, 1,3-butadiene and numerous polyaromatic hydrocarbons. Exhaust from the engines also exposes equipment operators to carbon monoxide and neurotoxic hydrocarbons, as well as irritants, such as, formaldehyde, acrolein and nitrogen oxides (USFS 1997, p. IV-96).

Hazards to the general public occur with cutting operations when individuals enter the ROWs when the machinery is operating and the vegetation is being cut. Individuals of the public present on, or near, the ROWs when the cutting operations are occurring could be struck by objects sent airborne as a result of contact with cutting blades, such as, flying wood chips, sawdust, sticks, stones, trash, etc. Stubble left after cutting operations are completed can also present a hazard to the public by individuals tripping over or falling onto cut stumps and stubble causing injury. The risk to the general public from the ROW cutting operations would be negligible, as the ROW would be located in areas that few people visit.

There are no cumulative effects to public health and safety expected with the combined possible implementation of this Alternative, the proposed Ice Storm Recovery Project, and the proposed KY 645 Extension Road Project. These projects are independent from each other; involve different workers at different locations who would be involved with their implementation.

Alternative C: This alternative would have both direct and indirect affects on public health and safety by not providing a reliable source of electricity to the Rowan County area at large. Interruptions in electric service caused by this alternative could knock out the operation of traffic signals, elevators, emergency lighting, medical life support and health care operations, possibly resulting in injury or death to people currently served by EKPC. There would be no cumulative effects to public health and safety expected with the combined possible implementation of this Alternative, the proposed Ice Storm Recovery Project, and the proposed KY 645 Extension Road Project. These projects are independent from each other; involve different workers at different locations who would be involved with their implementation.

11.0 COMPLIANCE WITH LAWS

The implementation of Alternative A, B or C would be in compliance with Federal, State or local law and requirements imposed for the protection of the environment. No alternative would violate a law that directs how National Forest System and private lands are to be managed. How alternatives respond to direction contained in laws that apply to the proposed project is described by the following section in more detail:

Forest and Rangeland Renewable Resources Planning Act of 1974: Section 6(g)(3)(B) of the Act concerns the provision of providing a diversity of plant and animal communities on National Forest system lands based on the suitability and capability of the specific land area. Alternative A and B would increase the diversity of plant and animal communities in the project area by establishing shrub and grass plant communities. Alternative C would result in no change in the diversity of plant and animal communities found in the project area.

Endangered Species Act of 1973: Implementing Alternatives A or B would be in compliance with direction contained in the Endangered Species Act. The Alternatives would have no effect, or be not likely to adversely affect federally listed endangered and threatened species. Alternative C would have no effect on federally listed endangered or threatened species.

The National Historic Preservation Act of 1966 As Amended: This Act establishes a program for the preservation of additional historic properties throughout the Nation along with other purposes. The Act directs federal agencies to provide leadership in the preservation of the prehistoric and historic resources of the United States and of the international community of nations and in the administration of the national preservation program in partnership with States, Indian tribes, Native Hawaiians, and local governments. A cultural resource survey was completed for Alternative A and B to help insure compliance with the National Historic Preservation Act of 1966. Implementing Alternative A, B or C would not affect Cultural Resource sites that are listed or eligible for listing in the National Register of Historic Places.

Farmland Protection Policy Act of 1980 and 1995: The Act requires identification of proposed actions that would affect any lands classified as prime and unique farmlands. The Act contains direction to take into consideration the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses. In addition, Federal programs are to be administered in a manner that, to the extent practicable, will be compatible with State, unit of local government, and private programs and policies to protect farmland. Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. The land must also be available for these uses (cropland, pastureland, forestland, or other land, but not water or urban built-up land).

Alternatives A or B would construct an electric transmission line over prime farmland as identified by the Natural Resource Conservation Service adjacent to Triplett and the North Fork of Triplett Creeks. One transmission line support structure would be located on private land currently being farmed near the North Fork of Triplett Creek. The new transmission line is expected to have minimal affect on the acreage of farmland in Rowan County and the ability of individuals to manage these lands for agricultural purposes.

Federal Water Pollution Control Act of 1972 as amended: This Act basically established a structure for regulating the discharge of pollutants into the waters of the United States. Section 404 of the Act pertains to the discharge of pollutants into navigable waters, such as streams of wetlands. Implementing Alternative A or B would not cause a discharge of pollutants into rivers, streams or wetlands. Alternatives A, B or C would not discharge pollutants into existing streams or wetland areas. A review of the National Wetlands Inventory Maps and field examination found that no wetlands would be crossed by the transmission line in Alternative A or B. An on the ground review of proposed transmission line routes outlined by Alternatives A and B found that no natural wetlands are present within or near the proposed ROW.

12.0 LITERATURE CITED

Adams, J.P., M.J. Lacki, and M.D. Baker. 1996. Response of herpetofauna to silvicultural prescriptions in the Daniel Boone National Forest, Kentucky. Proc. Annu. Conf. Southeast. Assoc. Fish and Wildl. Agencies. 50:312-320.

Audubon, John J. 1861. The birds of America, from drawings made in the United States and their territories. 7 vols. Roe Lockwood and Son, New York, New York.

Barbour, Roger W. and Wayne H. Davis. 1974. Mammals of Kentucky. The University Press of Kentucky. 322pp.

Burford, L.S. and M.J. Lacki. 1995. Habitat use by Corynorhinus townsendii virginianus in the Daniel Boone National Forest. Am. Midl. Nat. 134(2):340-345.

_____ and M.J. Lacki. 1998. Moths consumed by Corynorhinus townsendii virginianus in eastern Kentucky. Am. Midl. Nat. 139(1):141-146.

Campbell, J.J.N., V.L. Andrews, J.R. MacGregor, B. Palmer-Ball, Jr., A.C. Risk. 1990. Cooperative Inventory of endangered, threatened, sensitive, and rare species, Daniel Boone National Forest, Stearns Ranger District. USDA Forest Service, The Nature Conservancy, Kentucky State Nature Preserves Commission, Kentucky Department of Fish and Wildlife Resources, Frankfort.

Franzreb, K.E., and R.A. Phillips. 1995. Neotropical migratory birds of the southern Appalachians. Gen. Tech. Rep. SE-96. Asheville, NC: U.S. Sep. Agric., Forest Service, Southern Research Station. 35 pp.

McCafferty, Katherine A. 2000. Historical and Spatial Analysis of the Fishes of Triplett Creek, Rowan County, Kentucky. Master's of Science Thesis, Morehead State University, 210pp.

Meffe, G.K. and C.R. Carroll. 1994. Principles of conservation biology. Sinauer Associates, Inc., Sunderland, MA. 600pp.

Mills, Lynda. 2002. Summary of Population Trend Data for Some Breeding Birds on the Daniel Boone National Forest. Draft report dated April 22, 2002.

Muehler, V. 1997. Cowbirds and conservation. National Audubon Society .(http://www.audubon.org/bird/research/). Data pulled from web site in March 2001.

NRCS, Natural Resources Inventory 2001. (http://www.nhq.nrcs.usda.gov/land/index/nri97maps.html). Data pulled from website on August 20, 2001.

NRCS 2000. Kentucky-Land Use Acreage By Counties-1997-(Revised December, 2000)

Pagen, R.W., F.R. Thompson, D.E. Burhans. 2000. Breeding and post-breeding habitat use by forest migrant songbirds in the Missouri Ozarks. The Condor 102:738-747.

Palmer-Ball, Brainard L. 1996. The Kentucky Breeding Bird Atlas. The University Press of Kentucky. 372 p.

Peer, B.D., S.K. Robinson, J.R. Herkert. 2000. Egg rejection by cowbird hosts in grasslands. The Auk 117(4):892-901.

Petit, L.J. D.R. Petit, and T.E. Martin. 1995. Landscape-Level Management of Migratory Birds, Looking Past the Trees to See the Forest. Wildlife Society Bulletin, 23(3):420-429.

Pias, R.C., S.A. Bonney, W.C. McComb. 1988. Herpetofaunal species richness and habitat associations in an eastern Kentucky forest. Proc. Annu. Conf. Southeast. Assoc. Fish and Wildl. Agencies. 42:448-455.

Rivera, J.H.V., J.H. Rappole, W.J. McShea, and C.A. Haas. 1998. Wood Thrush Post Fledgling Movements and Habitat Use In Northern Virginia. The Condor. 100: 69-78.

Robbins, C.S. 1988. Forest fragmentation and its effects on birds. In Managing North Central Forests for Non-Timber Values. J. E. Johnson (ed.), Soc. Am. Foresters, Pub. 88-04.

Robinson, S.K. 1997. The case of the missing songbirds. Consequences. 3(1): 1-14. (http://www.gcrio.org/CONSEQUENCES/vol3no1/). Data pulled from web-site in February, 2001.

Slone, Timothy S. 1990. The Ichthyofauna of North Fork Triplett Creek and it's Tributaries. Master's of Science Thesis, Morehead State University, 60pp.

Taylor, C.M. and W.E. Taylor. 1979. Birds of upland openings in Proc. Manage. Of North Central and Northeastern forests for nongame birds. USDA, For. Serv., Gen. Tech. Rep. NC-51. 189-197.

Tilghman, N.G. and K.E. Evans. 1986. A framework for nongame management in midwestern forests. Pages 97-115 in J.B. Hale, L.B. Best, and R.L. Clawson (ed.) Management of Nongame Wildlife in the Midwest: A Developing Art. North Central Section, The Wildlife Society.

U.S.D.A. 1983. Departmental Regulation Number 9500-004. August 22, 1983. Fish and Wildlife Policy directed at the Wildlife and Fisheries Staff, Forest Service.

USDA Forest Service. 1989. Final EIS for Vegetation Management in the Appalachian Mountains, including VMEIS ROD (Record of Decision). USDA Forest Service, Southern Region.

USDA Forest Service 1997. Final Environmental Impact Statement, Vegetation Management on Electric Utility Rights-of-Way, Allegheny National Forest.

USDA Forest Service. 1998. Record of Decision and Final Environmental Impact Statement for Amending the Daniel Boone National Forest Off-Highway Vehicle Management Direction.

U.S.D.A. 2001. Management Indicator Species, Population and Habitat Trends Report 1985-2000. Forest Service, Southern Region, Daniel Boone National Forest. 127pp.

U.S.D.A. Forest Service. 2001. Regional Invasive Exotic Plant Species List. Letter and enclosures. May 18, 2001. U.S. Department of Agriculture, Forest Service, Southern Region. Atlanta, GA.

USDA Forest Service. 2004. Land and Resource Management Plan for the Daniel Boone National Forest. Revised April 2004. Management Bulletin R8-MB-117A.

U.S.G.S.2000. http://www.mbr-pwrc.usgs.gov/bbs/speclist.html and http://www.mbr.nbs.gov/cgi-bin/guild99.pl. Sauer, J. R., J. E. Hines, I. Thomas, J. Fallon,and G. Gough. 2000. The North American Breeding Bird Survey, Results from 1966-1999. Version 98.1, USGS Patuxent Wildlife Research Center, Laurel, MD. Most Recent Update: 22 August 2000.

Whitehead, M.A., S.H. Schweiter, and W. Post. 2000. Impact of brood parasitism on nest survival parameters and seasonal fecundity of six songbird species in southeastern old-field habitat. The Condor 102:946-950.

13.0 INTERDISIPLINARY TEAM

Thomas R. Biebighauser (Wildlife Biologist, USDA Forest Service)
Frank M. Bodkin (Archeologist, USDA Forest Service)
Rita Clay (Special Use Coordinator, USDA Forest Service)
Jeffery Lewis (Silviculturalist and Recreation Forester, USDA Forest Service)
Ronald L. Taylor (Forester, USDA Forest Service)

14.0 APPENDICES

14.1 ANALYSIS OF PUBLIC NEED FOR THE ROWAN-CRANSTON 138 kV ELECTRIC TRANSMISSION LINE [4]

Why is a new transmission line needed?

Electric power flow studies conducted by Stanley Consultants, Inc. and East Kentucky Power Cooperative, Inc. (EKPC) show the need for additional transmission line support in the Rowan County area at large. There is potential for low voltages and/or conductor overloads to occur on existing transmission lines serving the area by 2005 and possibly earlier that can affect transmission system reliability and customer service quality. A new transmission line connecting the Cranston and Rowan electric substations is needed to improve system performance. This project will also increase the reliability at the Cranston electric substation by providing a second source. The Cranston electric substation is now served by a single 12.7 mile, 138 kV transmission line. The projected 2005 winter peak load on this line exceeds EKPC's guideline for a single source by more than a factor of three.

By 2005, potential low voltages and/or overloads could occur on the existing transmission line servicing the area (Kentucky Utilities Goddard-Rodburn 138 kv and EKPC Goddard-Hilda 69 kv lines are becoming overloaded.)

A new transmission line is needed to adequately serve projected electric loads, to provide additional network support, and to provide for future system configuration. As part of this future system, East Kentucky's Long Range Transmission Plan (approved by the Rural Utility Services, U.S. Department of Agriculture, in December 2001) included the Rowan-Cranston line as part of a long range 138kV "east loop" between the J.K. Smith and Spurlock Electric Power Plants.

How does EKPC know that more electricity is needed in the area?

The forecast of increasing electricity use increased based in part on projected population growth in the Rowan County area. In addition to electricity use coming from population growth, EKPC's forecast also shows increasing electricity use by existing households. *(It should be noted that EKPC does not project population growth in Rowan County explicitly, but rather as a part of a larger region of Kentucky.)* EKPC employs county data from the U.S. BEA and BLS, the Kentucky Department of Labor, as well as the Kentucky State Data Center at the University Of Louisville to develop the forecast.

How does EKPC determine peak demand for electricity in an area?

EKPC makes projections for winter peak demand by completing analyses for residential (household) and commercial (industrial) load.

---

[4] Prepared in response to direction contained in the Revised Forest Plan for the Daniel Boone National Forest (page 2-20, DB-LAND-2 (c))

To determine residential peak demand EKPC examines current and projected trends in population and household growth. Second, EKPC examines current and projected trends in major electricity using household appliances, including electric space heating, air conditioning, water heating, and refrigeration and cooking. EKPC then brings together its projections of households with its projections of appliance stock, and develops a profile of winter peak demand for residential load.

To determine commercial peak demand EKPC collects information on the local area economy as well as industrial park development. This information is compiled into a profile of winter peak demand for commercial/industrial load.

Does the new transmission line need to cross National Forest System land?

Yes. EKPC and the Forest Service investigated all possible means for maintaining electric service to the Rowan County area that do not cross National Forest System land. The Environmental Analysis prepared for the project examines a wide range of alternatives in detail that both involve crossing and not crossing National Forest System land.

Why is it necessary to cross National Forest System land?

Most of the land between the Cranston and Rowan electric substations is National Forest System land. The two electric substations are located in narrow bottomland areas on private land where most people live. National Forest System land is found on the mountain ridge tops between the bottomland areas. Connecting the two electric substations involves crossing over the mountains between the bottomland areas. Building an electric transmission line around National Forest System land could only be done at tremendous cost with major impact to numerous residences, churches, schools and businesses.

Why doesn't another electric utility company provide the needed electricity?

In 1972 Kentucky State Law KRS 278.018 authorized the Kentucky Public Service Commission (PSC) to establish Certified Service Territory Boundaries for each electric Utility within the State of Kentucky. Each Utility has the exclusive right and obligation to provide electric service within their specified Certified Service Territories. A retail electric distributor is obligated to provide reasonable and adequate service and electric energy to those consumers within its certified territory. Maps establishing service territory boundaries were generated by the PSC and are on file at their office. The new transmission line is needed to maintain service to a Certified Service Territory where EKPC has the obligation and exclusive right to provide electrical service.

14.2

Biological Assessment/Evaluation for:

Cranston-Rowan Electric Transmission Line Project

Daniel Boone National Forest
Morehead Ranger District
Rowan County Kentucky

I. Introduction

This Biological Assessment/Evaluation (BAE) addresses and evaluates the effects of implementing the Cranston-Rowan Transmission Line Project on federally threatened, endangered, and proposed species, Forest Service Sensitive species, and their respective habitats within the action area of the project. This document complies with requirements of the Endangered Species Act to disclose the effects of an action proposed by a Federal Agency on listed species and their habitats. Additionally, this document provides a standard process to provide full consideration of federally proposed, threatened, or endangered (PET) and sensitive species (S) and their habitats in the decision-making process. For further information regarding the objectives, standards, and procedures used in this BAE process, see section 2672.4 of Forest Service Manual 2600. Specifically, two groups of species are addressed in this document: 1) all federally listed species which appear on the U.S. Fish and Wildlife Service (USFWS) approved list, dated 9 October 2002, for the Daniel Boone National Forest; and 2) those species listed for the Daniel Boone National Forest as Sensitive, on the Regional Forester (R8) approved list, dated 21 August 2001, as corrected. Sensitive species are those for which range-wide viability concern has been identified.

The proposed Cranston-Rowan Transmission Line Project is located on the Cumberland Plateau on the Morehead Ranger District of the Daniel Boone National Forest. The transmission line would be built in the northern part of Rowan County, beginning at the Cranston substation near Highway 377 and ending at the Rowan County substation near Highway 32 and Christy Creek (see attached map). The proposed transmission line would traverse mountainous country with steep hollows. The area is forested with oak, hickory and tulip poplar trees. Existing traveled roads are found in the area near streams and on top of the mountain ridges. The power-line would cross I-64, Forest Road 977, Kentucky Highway 32 and U.S. Highway 60.

II. Consultation History

A "Scoping" letter describing the project was mailed by James David Manner, U.S. Forest Service District Ranger to James Widlak, U.S. Fish and Wildlife Service Biologist in Cookville, TN on November 13, 2002. The letter described the project and provided

an opportunity to comment on the proposed action. The Forest Service did not receive a response to the letter.

III. Proposed Management Action

East Kentucky Power Cooperative, Inc. (EKPC) proposes to build an electric transmission line from the Cranston electric substation near Highway 377 to the Rowan electric substation near Highway 32. Two possible routes were identified for the transmission line. This BAE examines either route, or action Alternatives being considered in the Environmental Assessment being prepared for the project. Alternative 1 would construct an electric transmission line approximately 7.3 miles long; 4.9 miles would cross National Forest System land, with 2.4 miles crossing Private land. Alternative 2 would construct an electric transmission line approximately 8.2 miles long; approximately 5.1 miles would cross National Forest System land, with 3.1 miles crossing Private land. A 100-foot wide right-of-way (ROW) is needed for the power-line. The majority of trees in the ROW would be cut, along with those trees that in falling may contact the power-line. These trees may be cut any time of the year.

Construction personnel would use existing roads to access most of the ROW. Some new roads would be built to reach sections of the ROW that cannot be accessed by existing roads. The new roads would be closed to public vehicle use but may be used to maintain the electric transmission line in the future.

The vegetation in the ROW would be maintained in grasses, forbs and shrubs. All trees and shrubs would be cut by hand or mechanical means to a maximum height of four inches above the ground during establishment of the electric transmission line. The remaining stumps would be treated with the herbicides imazapyr or triclopyr to prevent sprouting. The herbicides would be applied manually or mechanically depending on accessibility in accordance with label instructions and USDA approved application procedures contained in the Forest Plan. Following construction of the electric transmission line, woody vegetation in the ROW would be allowed to grow for one or two years. The ROW would then be treated with the herbicides glyphosate, imazapyr or triclopyr to control woody vegetation growth.

Sections of the ROW on National Forest System land would be planted to native prairie grasses such as big bluestem and Indian grass. The prairie grasses would provide habitat to birds such as the prairie warbler and blue-winged warbler and mammals such as the cottontail and northern long-eared bat. Small wetlands would also be built in the ROW on National Forest System land to provide habitat for species such as the spotted salamander, wood frog, Louisiana waterthrush and the Indiana bat.

IV. Species Considered and Species Evaluated

All federally Threatened, Endangered and Proposed species identified by the US Fish and Wildlife Service as occurring on or adjacent to the Daniel Boone National Forest and all

species identified as Sensitive on the Daniel Boone National Forest by the Regional Forester were considered in this BAE.

Thirty-two federally listed species were identified as potentially occurring on or adjacent to the Daniel Boone National Forest by the Cookeville, Tennessee Ecological Services office of the USFWS on 9 October 2002. These species are listed below.

Table A. Endangered and Threatened Species Considered in the BAE.

Group	Species	Common Name	Status
Mammal	Myotis grisescens	Gray Bat	E
	Myotis sodalis	Indiana Bat	E
	Plecotus townsendii virginianus	Virginia Big-eared Bat	E
Bird	Haliaeetus leucocephalus	Bald Eagle	T
	Picoides borealis	Red-cockaded Woodpecker	E
Fish	*Etheostoma percnurum*	*Duskytail Darter*	**E**
	Notropis albizonatus	*Palezone Shiner*	*E*
	Phoxinus cumberlandensis	*Blackside Dace*	*T*
Mussel	*Alasmidonta atropurpurea*	Cumberland Elktoe	*E*
	Cyprogenia stegaria	Fanshell	E
	Dromus dromas	Dromedary Pearlymussel	E
	Epioblasma brevidens	*Cumberlandian Combshell*	**E**
	Epioblasma capsaeformis	*Oyster Mussel*	**E**
	Epioblasma florentina florentina	Yellow Blossom	E
	Epioblasma florentina walkeri	*Tan Riffleshell*	**E**
	Epioblasma obliquata obliquata	Catspaw	E
	Epioblasma torulosa rangiana	Northern Riffleshell	E
	Epioblasma torulosa torulosa	Tubercled Blossom	E
	Hemistena lata	Cracking Pearlymussel	E
	Lampsilis abrupta	Pink Mucket	E
	Obovaria retusa	Ring Pink	E
	Pegias fabula	*Little-wing Pearlymussel*	**E**
	Pleurobema clava	Clubshell	E
	Pleurobema plenum	Rough Pigtoe	E
	Villosa trablis	*Cumberland Bean*	*E*
Plant	*Arenaria cumberlandensis*	*Cumberland Sandwort*	*E*
	Conradina verticillata	*Cumberland Rosemary*	*T*
	Helianthus eggertii	Eggert's Sunflower	T
	Schwalbea americana	American Chaffseed	E
	Solidago albopilosa	White-haired Goldenrod	T
	Spiraea virginiana	Virginia Spiraea	T
	Trifolium stoloniferum	Running Buffalo Clover	E

Status 'E' means the species is listed as 'Endangered' by USFWS.
Status 'T' means the species is listed as 'Threatened' by USFWS.

Of the 32 federally listed species that occur, or historically occurred, on the Daniel Boone National Forest, eight were eliminated from further consideration. The U.S. Fish and Wildlife Service concurred with the Forest Service that these species would not be affected by activities authorized, funded or carried out by Daniel Boone National Forest

personnel in a letter to Benjamin T. Worthington dated January 30, 2002. The species are the clubshell, dromedary pearly mussel, yellow blossom pearly mussel, purple catspaw, tubercled-blossom pearly mussel, cracking pearly mussel, ring pink, and rough pigtoe. These species are either considered to have been extirpated from Kentucky, have not been found recently on or in the vicinity of the Daniel Boone National Forest (i.e. within the past 30 years), or because suitable habitat no longer exists. Consequently, the proposed action will have **"no effect"** on these species and they will not be considered further in this BAE. Should new information arise concerning these species on the DBNF they will again receive further evaluation. This "no effect" finding is also supported by; 1) "Biological Assessment and Evaluation of the Daniel Boone National Forest Land and Resource Management Plan," dated 3 February 2000, 2) USFWS concurred with this finding in their Biological Opinion (BO) dated May 2000, 3) DBNF annual federally listed species review letter to USFWS dated 11 Oct 2000 and 4) USFWS letter of response to 3 above dated 9 November 2000.

The U.S. Fish and Wildlife Service additionally concurred that the "no effect" finding is justified for the endangered red-cockaded woodpecker in light of the destruction of habitat by the southern pine beetle and subsequent relocation of the population from Kentucky in a letter to Benjamin T. Worthington, Forest Supervisor, dated January 30, 2002. Therefore, possible effects of the proposed project on the red-cockaded woodpecker will not be examined in further detail by this BAE.

Eleven species shown in *italics* in Table A are not considered in greater detail by this Biological Assessment/Evaluation for these reasons: 1) the species is not likely to occur in the project area, 2) records of the species range do not include the project area, 3) habitat for the species is not found on the project area. Consequently, the proposed action will have no effect on these species.

Four Federal Candidate species that may occur on or adjacent to the Daniel Boone National Forest were also considered in this BAE. These candidate species are shown by Table B.

Table B. Federal Candidate Species considered in the BAE.

Group	Species	Common Name	Status
Fish	Etheostoma nigrum susanae	Cumberland Johnny Darter	C
Mussel	Ptychobranchus subtentum	Fluted Kidneyshell	C
Plant	Platanthera integrilabia	White-fringless orchid	C
Plant	Lesquerella globosa	Short's bladderpod	C

Possible effects of this project on the Cumberland Johnny Darter, fluted kidneyshell, Short's bladderpod and white-fringless orchid are not considered in greater detail by this Biological Assessment/Evaluation for these reasons: 1) the species is not likely to occur in the project area, 2) records of the species range do not include the project area, 3) habitat for the species is not found in the project area, 4) there are no historic records of the species occurring in the project area. Consequently, the proposed action will have

"no effect" on these candidate species.

Sixty-nine (69) species are currently on the Regional Forester's Sensitive species list for the Daniel Boone National Forest, dated 21 August 2001, as corrected. These species are listed below.

Table C. Forest Service Sensitive Species Considered in the BAE.

Group	Species	Common Name	Status	Project Area
Mammal	Corynorhinus rafinesquii	Rafinesque's big-eared bat	S	X
	Myotis austroriparius	Southeastern myotis	S	
	Myotis leibii	Eastern small-footed bat	S	X
	Sorex dispar blitchi	Long-tailed shrew	S	
Bird	Aimophila aestivalis	Bachman's sparrow	S	X
	Falco peregrinus	Peregrine Falcon	S	X
	Thryomanes bewickii altus	Appalachian Bewick's wren	S	X
Fish	Ammocrypta clara	Western sand darter	S	
	Ammocrypta pellucida	Eastern sand darter	S	X
	Etheostoma susanae	Cumberland Johnny darter	S	
	Etheostoma cinereum	Ashy darter	S	
	Etheostoma maculatum	Spotted darter	S	
	Etheostoma tippecanoe	Tippecanoe darter	S	X
	Ichthyomyzon greeleyi	Mountain brook lamprey	S	
	Noturus stigmosus	Northern madtom	S	
	Percina burtoni	Blotchside logperch	S	
	Percina macrocephala	Longhead darter	S	X
	Percina squamata	Olive darter	S	
	Typhlichthys subterraneus	Southern cavefish	S	
Mussel	Anodontoides denigratus	Cumberland papershell	S	
	Cumberlandia monodonta	Spectaclecase	S	
	Epioblasma triquetra	Snuffbox	S	X
	Fusconaia subrotunda subrotunda	Long-solid	S	
	Pleurobema oviforme	Tennessee clubshell	S	
	Pleurobema rubrum	Pyramid pigtoe	S	
	Ptychobranchus subtentum	Fluted Kidneyshell	S	
	Quadrula cylindrica cylindrica	Rabbitsfoot	S	
	Simpsonaias ambigua	Salamander mussel	S	X
	Toxolasma lividus	Purple lilliput	S	
	Plethobasus cyphyus	Sheepnose	S	X
Gastropod	Paravitrea placentula	Glossy supercoil	S	
	Pleurocera curta	Shortspire hornsnail	S	

	Rhodacme elatior	Domed ancylic	S	
	Vertigo bollesiana	Delicate vertigo	S	
	Vertigo clappi	Cupped vertigo	S	
Crustacean	Cambarus bouchardi	Big South Fork crayfish	S	
Insect	Cheumatopsyche helma	Helma's net-spinning caddisfly	S	
	Manophylax butleri	A limnephilid caddisfly	S	
	Ophiogomphus howei	Pygmy snaketail	S	
	Pyrgus wyandot	Appalachian grizzled skipper	S	
	Speyeria diana	Diana fritillary	S	X
	Speyeria idalia	Regal fritillary	S	
Vascular Plant	Aster saxicastellii	Rockcastle aster	S	
	Aureolaria patula	Spreading yellow false foxglove	S	
	Berberis canadensis	American barberry	S	
	Carex juniperorum	Juniper sedge	S	
	Cleistes bifaria	Small spreading pogonia	S	
	Collinsonia verticillata	Stoneroot	S	
	Cypripedium kentuckiense	Northern Lady's slipper	S	X
	Dodecatheon frenchii	French's shooting star	S	X
	Hexastylis contracta	Mountain heartleaf	S	
	Juglans cinerea	Butternut	S	X
	Lesquerella globosa	Globe bladderpod	S	X
	Marshallia grandiflora	Large-flowered Barbara's buttons	S	
	Monotropsis odorata	Sweet Pinesap	S	X
	Paxistima canbyi	Canby's mountain-lover	S	
	Platanthera integrilabia	White fringeless orchid	S	
	Schisandra glabra	Bay starvine	S	
	Scutellaria saxatilis	Rock skullcap	S	X
	Shortia galacifolia var. galacifolia	Southern Oconee bells	S	
	Silene ovata	Blue Ridge catchfly	S	X
	Silene regia	Royal catchfly	S	
	Thalictrum mirabile	Little Mountain meadowrue	S	X
	Thaspium pinnatifidum	Cutleaved meadow parsnip	S	
	Vitis rupestris	Sand grape	S	
Nonvascular Plant	Hygrohypnum closteri	Closter's brook-hypnum	S	
	Plagiochila austinii	A liverwort	S	
	Plagiochila sullivantii var sullivantii	Sullivant's leafy liverwort	S	
	Radula sullivantii	A liverwort	S	

Status 'S' means the species is listed by the Regional Forester (R8, Southern Region) as 'Sensitive' and occurs or is likely to occur on the Daniel Boone National Forest.

The project will have "No Impact" on species not marked with an "X" in Table C for these reasons: the species is not found in the Project Area, there are no historic records of the species occurring in the Project Area, and suitable habitat for the species is not found in the Project Area.

The section titled "Environmental Baseline and the Effects of the Proposed Management Action on each Sensitive Species Evaluated in this BAE" describes possible impacts of the project on the Sensitive species marked with an "X" in Table C. One or more of the following conditions apply to each species considered in detail:

1) Species is found on the Morehead Ranger District.
2) Historic records show that the species once occurred on the Morehead Ranger District.
3) Suitable habitat for the species is found on the Morehead Ranger District.

V. Evaluated Species Survey Information

The project area was field examined by the author and biological personnel from East Kentucky Power Cooperative, Inc. in July, August and September 2002. Field examination involved walking the proposed routes to identify the presence of rare species and their habitat. The project area was examined for the presence of caves; sink holes and other karst features. Logs and rocks in and near the project area were turned over to identify amphibian, reptile use. Records were kept of birds heard and observed. Vernal and permanent ponds located on and near the project areas were examined for amphibian and reptile use. A flashlight was used to look under loose tree bark for bats in and near work areas. Trees in the project area were examined for bald eagle nests and streams were examined for the presence of mussels. Plant surveys were conducted by the following EKPC personnel: Seth Bishop, Mark Gumbert, Joy O'Keefe, Joe Settles and Josh Young.

Mark Gumbert directed EKPC personnel in an extensive mist netting effort for bats in the Project area from 29 July to 12 August 2002. These findings are summarized in the attached report "Indiana Bat (*Myotis sodalis*) Survey to Minimize Construction Impact for the proposed Cranston to Rowan County Transmission Line, Rowan County, Kentucky".

VI. Environmental Baseline and the Effects of the Proposed Management Action on each Threatened and Endangered Species Evaluated in Detail in this BAE.

WHITE-HAIRED GOLDENROD

White-haired Goldenrod inhabits generally dry but occasionally moist sandstone rock

shelters and cliff faces. The species is known from Wolfe, Powell and Menifee Counties in Kentucky within the Red River Gorge Geological Area on the Stanton Ranger District. This species requires high nitrogen (nitrate) levels in the soil. The rock shelters in which it lives have high levels of nitrate, probably from saltpeter (KNO3) leached from the sandstone. The species does not require dry conditions, but probably thrives in dry sites that contain higher levels of nitrate than wet sites. The plant does not compete well, and dry sites probably offer less competition than wet sites. Light requirements appear to be light shading, but full sun is tolerated for at least short periods each day (Taylor, personal communication, 1995). The documented distribution indicates that it is endemic to the Red River Gorge drainage. It is found only on the Stanton Ranger District on both public and private land. It occurs in colonies of a few to hundreds of plants. Upwards of 90 colonies and 45,000 plus plants are known. Most of the colonies and plants are on National Forest land centered near Tunnel Ridge in the Red River Gorge Geologic Area. Very few sites are known from the Clifty Wilderness Area.

White-haired goldenrod is not known to occur on the Morehead Ranger District. To date over 193 miles of sandstone cliffs on the Morehead Ranger District have been examined for the presence of Endangered, Threatened and Forest Sensitive Species. White-haired goldenrod has not been found on any of these surveys.

The Cranston-Rowan Transmission Line Project would have no direct, indirect or cumulative effect on the white-haired goldenrod. The project area does not contain sandstone cliffs that provide suitable habitat for the species. The species has not been recorded from the project area. Implementing Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project would have "no effect" on the white-haired goldenrod.

VIRGINIA SPIRAEA

Virginia Spiraea inhabits deposition rock-bars along large rivers that are subject to yearly high water scouring. Current documented distribution indicates the species is an Appalachian endemic with extant or historic occurrences from Pennsylvania to Alabama and Georgia. In Kentucky (Ogle, 1991a; USFWS, 1992) documented occurrences on Kinniconnick Creek near the Ohio River and on the Rockcastle River, part on private land, part on National Forest land. The species is also found on Laurel River below the dam on Laurel River Lake on private land. Habitat that appears suitable for the species may occur on tributaries to the Red, Licking, Kentucky, and Redbird Rivers

Most populations of Virginia spiraea are established near driftwood piles where flood events have deposited soil and vegetation. These sites are where deposition occurs after high water flow.

The plant is strongly clonal and evidence suggests that is spread by the rooting of separated branches. Although the plant often flowers profusely, seed set is erratic and germination is poor (Ogle, 1991b).

Two of the four populations with 8 or more clones each occur in Kentucky. One of these

populations is on Sinking Creek of the Rockcastle River. Two clones on the Rockcastle River are on private land. The recovery plan specifically calls for conservation easements for the sites. The recovery plan also calls for reintroduction of the species within the historic range after thorough searches for existing populations.

Virginia spiraea has not been recorded from the project area. Potential habitat for the species may be found along the North Fork of Triplett Creek within the Project Area, however, the habitat is not occupied at this time. The species was not observed during field examination of the project area. The project would have no direct, indirect or cumulative effect on Virginia spiraea.

Implementing Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project would have "no effect" on Virginia spiraea.

AMERICAN CHAFFSEED

American chaffseed inhabits open, acidic sandy loam or sandy peat loam soils. Coastal plain populations are usually found in moist sites (exceptions in South Carolina), while interior populations (Kentucky and Tennessee on Cumberland Plateau and Highland Rim) are on dry sites. In Kentucky, the last documented observations of the species are from 1934 and 1935 on dry, sandy knobs and flats in McCreary County, one site off of Ky Hwy 700 on the Stearns District and one site near Natural Arch on the Somerset District. The Tennessee Plateau record is from Fentress County, just SW of McCreary County, KY. Habitat for American chaffseed is characterized by species-rich, grass & forb communities associated with open pine or pine-oak woods that are maintained by fire or in some cases, fire and dryness. On the coastal plain, it is often associated with red cockaded woodpecker habitat, where both benefit from prescribed burning (USFWS 1994).

American chaffseed is a hemiparasite that produces haustoria that attach to roots of host plants. From the host, chaffseed acquires water, minerals and some carbohydrates. It is known to attach to dwarf huckleberry and St. John's-wort in the wild. In culture it has attached to tuliptree, sweetgum, white pine, and blackgum.

The seed germinates readily which probably contributes to low seed bank numbers. Mineral soil may be required for germination. Vegetative propagation is poor, but the plants are long-lived. They apparently can go dormant for short periods of time, and in the absence of fire can persist for a while as small vegetative sprouts. Fire appears essential for reproduction and triggers both flowering and larger, pre-flowering vegetative stages (Kirkman and Drew, 1995a, 1995b).

American chaffseed has not been recorded from the project area. The species was not observed during field examination of the project area. The project would have no direct, indirect or cumulative effects on the species.

Implementing Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project

would have "no effect" on American chaffseed.

RUNNING BUFFALO CLOVER

Running buffalo clover is found on disturbed sites ranging from open woodlands to lawns or pastures. The latter habitat, frequent in Kentucky, is not considered typical habitat. West Virginia sites, considered typical, are largely along old logging/wagon roads which have not over grown, but which have some canopy shading (Taylor, personal communication 1997). The discovery of thousand's of plants on the Monogahela National Forest in West Virginia found a large portion of the population under open woods (Taylor, personal communication 1994). Soils are generally associated with limestone or calcareous siltstones and shales, but are not always alkaline. Two sites in Ohio are near an escarpment on the Allegheny Plateau. It is basically an Ohio Valley species, but is known in other watersheds. Documented populations are in scattered locations from Arkansas, Indiana, Illinois, Kansas, Kentucky, Missouri, Ohio, and West Virginia. In Kentucky, it is documented from the Inner Bluegrass (Bourbon, Fayette, Jefferson, Woodford counties) and the Outer Bluegrass (Boone, Clark, Harrison, Kenton, Madison, and Nelson counties). Additionally, historical accounts suggest the species was also in Franklin, Garrard, Harlan, Mason, and Mercer Counties (Campbell et al., 1988; Campbell et al., 1991a) and place names suggest additional counties - Breathitt, Jackson, and Perry (Campbell et al., 1991a). At least one Outer Bluegrass site (Madison County) is not far from the Eastern Knobs region of the state.

A discussion concerning the habitat and historical distribution of this species in eastern Kentucky presented by Campbell and others (Campbell et al., 1988; Campbell et al., 1991a) makes a strong case for the species being present in the mid-late 1700's and later within what is now the Daniel Boone National Forest. It was apparently associated with large game trails along rivers and upland routes. In common at these sites are rich soils (not necessarily basic, but with base saturation), forest edge habitat (at trail, meadow, etc.) that were annually disturbed by herbivore movement.

Running buffalo clover has not been recorded from the project area. The species was not found during field examination of the project area. The project would have no direct, indirect or cumulative effect on running buffalo clover.

Implementing Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project would have "no effect" on running buffalo clover.

EGGERT'S SUNFLOWER

Eggert's sunflower is a species of open grasslands and the grassland/woodland interface. The latter is probably, in part, an artifact of reduced or eliminated burning of barrens and similar habitats (Campbell et al., 1991b). The species is known from three states and three physiographic provinces: Tennessee (eastern and western Highland Rim, Cumberland Plateau), Kentucky (Shawnee Hills) and Alabama (Cumberland Plateau). Other populations appear to be hybrids of this species and the common, wide spread H.

strumosus. These hybrids have been found in Tennessee (Cumberland Plateau) and Kentucky (Knobs and Cumberland Plateau- Jackson & Powell Counties). Present day populations of Eggert's sunflower likely represent relict populations of a once more widespread species (Taylor personal communication 1995). This may explain the Cumberland Plateau populations on or near the Daniel Boone National Forest today. One population in Jackson County (Campbell et al., 1991a) has been confirmed not true H. eggertii (Jones, 1994). Another population in Powell County on KY 77 is of uncertain status, but probably represents a hybrid form (Taylor personal communication 1995).

The species grows and flowers best in full sunlight, but is frequently found along forest edge (Jones, 1994). Plants found in the latter habitat frequently exhibit reduced or eliminated flowering. Seed set appears good, but is subject to extensive weevil and bird predation (Taylor personal communication 1995). The chief reproductive means appears to be vegetative. The plant produces extensive, strong rhizomes. These rhizomes transplant well and quickly produce large clones (Taylor personal communication 1995). Soils in which populations have been found range from rocky, cherty or clayey limestone soils (Mississippian) to sandy soils associated with sandstones (both Mississippian and Pennsylvanian). Sites are upland and often dry, but larger plants are frequently found on moist sites such as roadside ditches (Jones, 1994).

Assuming a wider range of the species in the past, an assumption supported by apparent hybrids on the Cumberland Plateau in Kentucky and Tennessee, the presence of the species on the Cumberland Plateau in Tennessee and Alabama, and evidence of past fire history on the plateau, the Daniel Boone National Forest is probably within the former range of the species. Appropriate habitat for the species is located across the forest with the exception of the Redbird District (Taylor personal communication 1995). It may be possible for the Daniel Boone National Forest to have a role in recovery of the species by establishing forest populations from several different genotypes. Population sites could include both limestone sites, such as at Clack Mountain on the Morehead District (which has limestone types the same as CP sites in TN and AL), and sandstone sites such as on the London District, which are similar to sites in the Shawnee Hills (Taylor personal communication 1995).

Eggert's sunflower has not been recorded in the project area. The project area does not appear to provide habitat that is suitable for the species. Eggert's sunflower was not found during field examination of the project area. The project would have no direct, indirect or cumulative effects on the species. Implementing Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project would have "no effect" on Eggert's sunflower.

BALD EAGLE

Bald Eagles are observed on a regular basis around Cave Run Lake and its associated wetlands on the Morehead Ranger District during the winter months and on an occasional basis during the summer months. However, the Bald Eagle is not known to nest on the Morehead Ranger District. Bald Eagles are known to reside year-round at Land Between

the Lakes, at scattered points in the floodplain wetlands along the Ohio and Mississippi Rivers upstream to Henderson, and Laurel Lake on the London Ranger District (Campbell et al.1994). Winter observations on the Daniel Boone have occurred over large, open bodies of water, reflecting the habitat requirements stated in Hamel (1992). A bald eagle nest was located at Laurel River Lake on the London Ranger District of the Daniel Boone National Forest in 2002.

Two bald eagle surveys of Cave Run Lake are conducted annually. One survey is conducted by automobile for one day in January. It was started in 1981 by Fred Busroe, Lewis Kornman and Albert Surmont. The Kentucky National Guard conducts the second survey from a helicopter each January. This survey examines Cave Run Lake for possible bald eagle roosting sites.

No bald eagle nests are recorded from the project area. A bald eagle was observed flying over a large pond near the Tennessee Gas Pumping Station near the Project Area a number of years ago. Bald eagles would not be harmed by this project. The Cranston-Rowan Transmission Line Project would have no direct, indirect or cumulative effect on the bald eagle. Implementing Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project would have "no effect" on the bald eagle.

GRAY BAT

Gray Bats are found in the eastern United States in the southern parts of Illinois and Indiana, south to northwest Florida and from the Appalachians in the east to eastern Oklahoma in the west. In Kentucky, the gray bat is known primarily from the south-central portion of the state, although there are scattered transient records from caves all across Kentucky. The gray bat is, perhaps, of all U.S. mammals, the most restricted to cave habitat (Hall and Wilson, 1966; Barbour and Davis, 1969). With rare exception, it roosts in caves year-round (Hays and Bingham 1964).

The Gray Bat was previously known at the Stanton District based on two summer records of single individuals in Stillhouse Cave and Cave Hollow pit, and one individual was mist netted over Gladie Creek by the Kentucky Department of Transportation. Old guano piles and ceiling stains in Cave Hollow Pit may indicate be past evidence of Gray Bat occupation.

No records exist of the gray bat occurring on or near the Morehead Ranger District and it has not been found in caves on the Morehead Ranger District. Sampling for bats by the mist netting method on the Morehead Ranger District has resulted in the capture of hundreds of bats since 1988. No gray bats have been captured by this sampling. There is no indication that the gray bat occurs or ever occurred within the Morehead Ranger District.

Human disturbance of gray bats in hibernation and maternity caves appears to be the primary cause of their decline (USFWS 1982). Protecting gray bats in caves from adverse human disturbance is important to the species recovery (USFWS 1982). Caves

on the Morehead Ranger District are examined for endangered species periodically. If gray bats were found in a cave, needed protective measures would be prescribed.

The gray bat is not recorded from the project area. Potential habitat for the species is not found in the project area. The species was not observed during field examination and mist netting in the project area. The project would have no direct, indirect or cumulative effects on the gray bat.

Implementing Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project would have "no effect" on the gray bat.

INDIANA BAT

Significant populations of Indiana bats can be found on the Daniel Boone National Forest during the winter hibernation season. Most of these populations occur on the Stanton, Berea and Somerset Ranger Districts. Two small caves provide winter habitat for the Indiana bat on the Morehead Ranger District. One is Murder Branch Cave, located on private land in Menifee County. Murder Branch Cave has been used as hibernacula by a maximum of 4 Indiana bats. Three Indiana bats were last observed in Murder Branch Cave on February 8, 1994. The second hibernation site is Spaws Creek Sodalis Cave, located in Morgan County. One Indiana bat was found hibernating in the cave on March 21, 1991.

After leaving hibernation, it was presumed that most Indiana bats that hibernated on the Daniel Boone National Forest migrated north into Ohio or west into Illinois to establish maternity colonies, with only a few males remaining near the hibernacula through the summer months. This assumption appeared to be true since all of the summer captures for the species on the Forest up to 1994 had been males. One male Indiana bat was captured in a mist net set in the entrance to a rock shelter in the Triangle Tower area in Rowan County on July 25, 1991. Another male Indiana bat was captured in Menifee County on August 13, 1991 in a mist net set over the dry bed of Spaws Creek, Menifee County.

Knowledge of Indiana bat use during the summer months on the Daniel Boone National Forest greatly changed in 1994. Two reproducing female Indiana bats were captured on the Morehead Ranger District over two separate ridgetop woodland ponds in Bath County in 1994 and 1995. These captures indicated that summer maternity colonies occurred on the Morehead Ranger District. The first female Indiana bat was lactating when captured on June 29, 1994 over a ridge top pond that the Forest Service constructed in Bath County. Another female Indiana bat was captured over the same pond after the maternity season on August 20, 1995. The pond was located in a mature yellow poplar and white oak stand that was about 95 years old. A 5 year old stand of yellow poplar and white oak was located about 900 feet from the pond. A gravel road was located about 100 feet down hill from the pond. The forest canopy was open over the road.

The second reproducing Indiana bat that was captured on the Morehead Ranger District

was a pregnant, lactating female on June 19, 1995. The bat was captured over a woodland pond that had been built by the Forest Service. The woodland pond was located in a small grassy area that served as a log landing for a timber sale. The log landing and pond were located near the edge of the timber harvest area. The timber harvest area was logged under the shelterwood system. The bat was radio-tagged and followed on June 23 and 24, 1995. Results of the tracking found that the Indiana bat traveled a straight-line distance of 1.6 miles from where it was first detected.

In June and August 2000 Doug Dawson and Brian Moyer from the Commonwealth of Kentucky Transportation Cabinet claim to have captured Indiana bats in mist nets set over Lower Lick Fork Creek in Rowan County near Highway 519. Here is a summary of the Indiana bats they captured:

Indiana Bats Captured in Rowan County by Transportation Cabinet in 2000

Date	Sex	Number	Notes
06-05-00	Female	2	Pregnant
06-06-00	Male Female	2 1	 Pregnant
06-07-00	Female	2	Pregnant
08-07-00	Male	1	Adult

It is possible that these Indiana bats were mistakenly identified. Subsequent netting at the same site has resulted in the capture of little brown and northern long-eared bats, not Indiana bats.

On July 6, 2001 Eric Britzke, James Kiser and Joy O'Keefe captured two lactating female Indiana bats over a permanent water woodland pond that had been constructed by the Forest Service on National Forest land in Bath County within the Morehead Ranger District. Radio transmitters were placed on the Indiana bats. The bats were located the next day in a dead slippery elm snag approximately 1.0 mile from the capture site. The Indiana bats were using the snag as a maternity site. The snag was approximately 50 feet tall with a 14" diameter. It had large patches of exfoliating bark. The large bark patches protected Indiana bats from rain. The bats used the tree during severe thunderstorms that were frequent during the summer of 2001. The snag was located near a ridge top within a timber sale area on private land. The snag was exposed to sunlight for most of the day. A maximum of 32 Indiana bats were observed emerging from the tree at one time. The bats would forage around and above the maternity tree within the timber sale area. Indiana bats used the tree from July 7 to August 27, 2001. They may have continued using the tree, however monitoring stopped on August 27. The tree was visited again on December 4, 2001. All the patches of bark had fallen off the tree. The tree was no longer suitable for use by the Indiana bat.

Kiser (1996) conducted a study of the foraging habitat, food habits and roost tree characteristics of the Indiana bat during autumn in Jackson County on the Daniel Boone

National Forest. He found that Indiana bats utilized three forest types: 1) white oak, red oak, hickory, 2) yellow poplar, white oak, red oak) and 3) white oak, black oak, yellow pine) more than any other forest type. These forest types were mainly upland areas on ridgetops and upper dry to moist slopes. Indiana bats were found to use upland and forested ridgetops for roosting. Trees used for roosting included, but were not limited to; shagbark hickory, pignut hickory, scarlet oak, sourwood, red maple, and Virginia pine. With the exception of hickory, Indiana bats only used dead standing trees for roosting.

The following direction concerning management of the Indiana bat was reviewed and considered in identifying and evaluating potential effects of this project on the Indiana bat: 1) A Proposed Strategy for the Management of the Indiana bat on the Daniel Boone National Forest (USFS 1995). 2) The "Reasonable and Prudent Measures", "Terms and Conditions" and "Conservation Recommendations" contained in the Biological Opinion on the impacts of forest management and other activities to the Indiana Bat on the Daniel Boone National Forest, Kentucky (Widlak 1997), 3) The "Reasonable and Prudent Measures", "Terms and Conditions" and "Conservation Recommendations" contained in the Biological Opinion on the Special Habitat Needs and Silviculture Amendment to the Land and Resource Management Plan for the Daniel Boone National Forest (Widlak 2000). The proposed project incorporates the direction contained in these documents.

The Project would not have a direct effect on the Indiana bat. The Indiana bat would not be harmed or harmed by the project. However, Alternative 1 and 2 of the Cranston-Rowan Transmission Line Project may cut trees that are suitable for Indiana bat use during the roosting and maternity period of April 1 to October 15. Mist netting and radio-tracking surveys conducted in the Project area found that potential roost trees in and near the planned ROW for each Alternative Are not used by the Indiana bat (Gumbert & O'Keefe 2002).

A single adult male Indiana bat was captured in a mist net set over a ridgetop pond in the Project Area on August 7, 2002. Radio telemetry was used to document the use of one roost tree by the radio-tagged Indiana bat for two consecutive days (Gumbert & O'Keefe 2002). Emergence observations on 4 different evenings revealed that 1-4 bats used the tree as a day roost. Including the radio-tagged bat, 4 and 2 individual bats were counted emerging from beneath the bark of the tree from 2040-2050 EST on the evenings of 8 and 9 August, respectively (Gumbert & O'Keefe 2002). Though the radio tagged bat was not found after the second night's emergence count, a single bat was observed at the roost for three consecutive days thereafter (10-12 August). The roost tree is located 2.2 miles from the closest ROW in Alternative 1 and 1,266 feet from the closest ROW in Alternative 2.

Herbicide use is planned to help establish and maintain the transmission line ROW. It is possible the herbicide could have a direct and/or indirect effect on the Indiana bat. Direct effects may occur if an Indiana bat is sprayed with herbicide. Registration standards were developed under the Federal Insecticide, Fungicide and Rodenticide Act for the protection of humans and the environment. Four classes were developed for humans to describe the effects on dermal and eye irritation. The same level of precision was not required for animals. The following data applies to dermal irritation for rats and rabbits

as the chief test animals: imazapyr and glyphosphate: none to slight, triclopyr: slight. Eye irritation was reported as follows: triclopyr: none, glyphosate, imazapyr: none to slight (USFS 1989). The EPA standard for evaluating the risk from herbicides to wildlife is the comparison of actual dosage with the LD-50. The EPA standard for chemical exposure considers a dose of less than 1/10 LD-50 as not presenting a significant risk for any threatened or endangered species. Glyphosate and imazapyr do not present a significant risk to the Indiana bat when applied at typical rates. Triclopyr was found to present a significant risk to the Indiana bat when applied at typical rates (USFS 1989). However, the herbicides should not have a direct effect on the Indiana bat because they are used in an open, non-forested ROW that does not provide roosting or maternity habitat for the Indiana bat. Because the Indiana bat does not roost in the ROW where herbicides would be applied there is no chance that the species would be sprayed by herbicide.

The Project may indirectly affect the Indiana bat. Alternative 1 and 2 of the Cranston-Rowan Transmission Line Project establish linear grass-shrub openings in a predominantly forested area. Alternative 1 would result in a maximum of approximately 80 acres of forest being changed to openings while Alternative 2 would establish a maximum of approximately 92 acres of openings. The new openings would have a small affect on the amount of forested land in Rowan County; 74 percent of Rowan County is forested land. Indiana bats may actually forage over the linear openings to be established in the ROW.

Small ridgetop wetlands would be built on National Forest System land in both Alternative 1 and 2. The Indiana bat has been found to use ridgetop wetlands in the Project area.

Alternative 1 would establish approximately 2.5 miles of new roads while Alternative 2 would establish approximately 3.8 miles of new roads to access the ROW. Most of these new roads would be located on ridges. A canopy of trees can be expected to cover the new roads in about 10 years. Indiana bats have been found to forage in canopy-covered road corridors on the Morehead Ranger District.

The project would not have a long term-cumulative affect on the Indiana bat. Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project is "not likely to adversely affect" the Indiana bat".

VIRGINIA BIG-EARED BAT

The Virginia big-eared bat has been identified using limestone cave, sandstone cave and sandstone rock shelter habitat on the Morehead Ranger District. Mist netting for the species has been most successful in two types of habitat on the National Forest. The first is in the entrance of limestone caves or sandstone rock shelters, the second is over water filled road ruts and ponds along old logging roads.

The Virginia big-eared bat forages over a variety of habitats. A radio telemetry study

conducted by Adam, Lacki and Barnes (1994) found that most foraging took place along cliff lines and in forested areas. Burford and Lacki (1995) found that activity of bats was greatest in old field, and that small weed fields (openings) and the upper sections of cliff lines were used much more frequently by the Virginia big-eared bat than the base of cliff lines, forested habitats 30 years old or older, or forested habitats less than 30 years old. Old fields represented a small (1.3%) of the study area. John MacGregor captured Virginia Big-eared and Rafinesque's big-eared bats in mist nets set at the tops of weeds and grasses (MacGregor 1993, personal communication). Dalton (1989) found that Virginia Big-eared bats foraged over open pasture, corn and alfalfa fields and around the crowns of trees in Virginia. They also foraged over a pasture in which their maternity cave was located.

Buford and Lacki (1998) found that the Virginia big-eared bat fed on a wide variety of moth species in Kentucky, and that most of the prey species consumed in Lee County depended on woody plants for larval development.

One Virginia big-eared bat maternity site is known on the Morehead Ranger District. Named Plecotus Canyon Cave, it is located in Menifee County. Donahue Cave, a sandstone cave located in Morgan County provided habitat to 1 Virginia big-eared bat in the winter of 1990. Surveys conducted since 1990 have not identified any more Virginia big-eared bats in Donahue Cave.

Radio-telemetry research on the Daniel Boone National Forest suggests that pregnant and lactating female Virginia Big-eared Bats range up to 1.1 miles away from maternity sites to forage. Post lactating females range up to 2.5 miles away and males up to 6 miles or more away from maternity sites (MacGregor 1993, personal communication).

The Project area does not provide habitat for the Virginia big-eared bat. The species has not been recorded from the Project area. No limestone caves, sandstone cliffs, caves or rock-shelters that would provide habitat for the species are found in or near the Project area. Alternative 1 or 2 of the Project would have no direct, indirect or cumulative effect on the Virginia big-eared bat. The Cranston-Rowan Transmission Line Project would have "no effect" on the Virginia big-eared bat.

NORTHERN RIFFLESHELL

The northern riffleshell mussel has been found in the Licking River (Bishop, personal communication, 1995) however, Cicerello et.al. (1991) considers the Licking River records to be historic. Historically, this species is also known from the Ohio and Kentucky Rivers (Bishop 1995 personal communication). Preferred riverine habitat for the northern riffleshell includes shallow riffles and shoals that have sand and gravel substrate and rapid currents. Smathers (1990) completed an extensive investigation of the mussel community in the Licking River at Moores Ferry, 22 miles downstream from the Cave Run Lake dam. The northern riffleshell was not found in her study. Impounding the Licking River to form Cave Run Lake greatly changed habitat conditions for mussels. Cave Run Lake does not provide suitable habitat conditions for the northern

riffleshell (Surmont 1997, 1995 personal communication).

The North Fork of Triplett Creek in the project area may contain habitat that is suitable for use by the northern riffleshell, however, it is not occupied at this time. No mussel species were found during the field examination of the project area.

The herbicides glyphosate, imazapyr and triclopyr would be used to maintain the new ROW. The herbicide glyphosate is readily absorbed by plant foliage and has practically no leaching tendency because it bonds tightly to the soil. Glyphosate is susceptible to degradation by microorganisms in the soil where it is converted to natural substances such as carbon dioxide and water. Imazapyr is absorbed by plants through its foliage and roots, and is rapidly transferred throughout the plant. Imazapyr can persist in the soil up to 12 months depending on the amount used, soil types involved and the weather. Its movement in the soil is limited. Triclopyr is readily absorbed by plants foliage and roots, and readily moves throughout the plant. Triclopyr is not highly mobile in the soil. Soil organisms and ultra violet light rapidly decompose triclopyr (USFS 1989).

The EPA standard for threatened and endangered aquatic animals identifies an herbicide exposure of greater than 1/20 of the LD-50 as presenting a significant risk. Based on predictions regarding exposure of representative species analyzed in the risk assessment to two accidental spill scenarios, the herbicides glyphosate, imazapyr and triclopyr do not pose a significant risk to the northern riffleshell (USFS 1989). The herbicides planned for use on the ROW would have no effect on the species even if it were located downstream of the Project area.

The project would have no direct, indirect or cumulative effects on the species. Implementing alternative 1 or 2 of the Cranston-Rowan Transmission Line Project would have "no effect" on the northern riffleshell.

PINK MUCKET

One live pink mucket individual was found in the Licking River at Moores Ferry, 22 miles downstream from the Cave Run Lake dam by Jim Layzer from Tennessee Tech in 1997. Identification of the mussel was confirmed by Ron Cicerello. The mussel later died. This represents the only known observation of the pink mucket in the Licking River.

The pink mucket is found in larger rivers such as the Ohio River, Green River and Lower Tennessee River. Historically it occurred in the upper portions of the Cumberland River (Cicerello 1999, personal communication). It is doubtful that it would occur in tributaries to the Licking River (Cicerello 1999, personal communication).

Preferred riverine habitat for the pink mucket includes shallow riffles and shoals that have sand and gravel substrate and rapid currents. Smathers (1990) completed an extensive investigation of the mussel community in the Licking River at Moores Ferry. The pink mucket was not found in her study.

The herbicides glyphosate, imazapyr and triclopyr would be used to maintain the new ROW. The EPA standard for threatened and endangered aquatic animals identifies an herbicide exposure of greater than 1/20 of the LD-50 as presenting a significant risk. Based on predictions regarding exposure of representative species analyzed in the risk assessment to two accidental spill scenarios, the herbicides glyphosate, imazapyr and triclopyr do not pose a significant risk to the pink mucket (USFS 1989). The herbicides planned for use on the ROW would have no effect on the species even if it were located downstream of the Project area.

The pink mucket is not recorded in the project area. Potential habitat for the species is not found in the project area. The project would have no direct, indirect or cumulative effects on the pink mucket.

Implementing Alternative 1 or 1 of the Cranston-Rowan Transmission Line Project would have "no effect" on the pink mucket.

FANSHELL

Dr. Layzer from Tennessee Tech located a live fanshell mussel in the Licking River at the confluence of Greasy Creek in Harrison and Robertson Counties in 1994. This represents the most upstream record of the species for the Licking River (Layzer 2000, personal communication). The location is approximately 40 miles downstream of the Cave Run Lake Dam. The Fanshell has been found at additional locations downstream of this point in the Licking River. The species inhabits medium to large sized rivers. According to Bishop (2000), the Fanshell reproduces in shallow riffles and shoals that have sand and gravel substrate. These areas have rapid currents with little sediment.

The herbicides glyphosate, imazapyr and triclopyr would be used to maintain the new ROW. The EPA standard for threatened and endangered aquatic animals identifies an herbicide exposure of greater than 1/20 of the LD-50 as presenting a significant risk. Based on predictions regarding exposure of representative species analyzed in the risk assessment to two accidental spill scenarios, the herbicides glyphosate, imazapyr and triclopyr do not pose a significant risk to the fanshell (USFS 1989). The herbicides planned for use on the ROW would have no effect on the species downstream of the Project area.

The fanshell is not known from the project area. Potential habitat for the species is not found near the project area. The species was not observed during field examination of the project area. The project would have no direct, indirect or cumulative effects on the species.

Implementing Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project would have "no effect" on the fanshell.

VII. Effects of the Proposed Management Action on Forest Service Sensitive Species.

Eastern Small Footed Bat

The Eastern small-footed bat is known to occur in Bath, Menifee and Rowan Counties on the Morehead Ranger District. Four small-footed bats were captured over woodland ponds on the Morehead District in 1995. Two were lactating females, captured in Rowan County. Two of the capture sites were woodland ponds located in grassy openings. The small-footed bat has been found in cracks in sandstone cliffs, limestone caves, mines, tunnels under a bridge and under a cabin on the Daniel Boone National Forest.

Eric Britzke from Tennessee Tech. captured a small-footed bat in a mist net set over a woodland pond in Bath County on June 8, 2000. He placed a radio transmitter on the bat and recorded it flying around the pond the next evening. He located it again on June 10 during the day as it was roosting in large crack in a sandstone cliff.

Eric Brizke, James Kiser and Joy O'Keefe captured two lactating female small-footed bats over a constructed, permanent water ridge top pond on National Forest land in Bath County on July 6, 2001. Other small-footed bats have been captured over woodland ponds, the entrance to sandstone rock shelters and under cement highway bridges on the Morehead Ranger District.

The small-footed bat appears to use a variety of plant communities on the National Forest. The species is not known to roost in dead trees or under the bark of trees (MacGregor 1999, personal communication). It is widespread yet low in numbers on the Daniel Boone National Forest. The eastern small-footed bat is not known to form nursery colonies.

The project area contains habitat that is suitable for use by the small-footed bat. The Project may indirectly impact the small-footed bat. Alternative 1 and 2 of the Cranston-Rowan Transmission Line Project establish linear grass-shrub openings in a predominantly forested area. Small-footed bats may forage over these linear openings. Small ridgetop wetlands would be built on National Forest System land in both Alternative 1 and 2. The small-footed bat has been found to use ridgetop wetlands in the Project area.

Herbicide use is planned to help establish and maintain the transmission line ROW. It is possible the herbicide could have a direct and/or indirect effect on the small-footed bat. Direct effects may occur if a small-footed bat is sprayed with herbicide. Registration standards were developed under the Federal Insecticide, Fungicide and Rodenticide Act for the protection of humans and the environment. Four classes were developed for humans to describe the effects on dermal and eye irritation. The same level of precision was not required for animals. The following data applies to dermal irritation for rats and rabbits as the chief test animals: imazapyr and glyphosphate: none to slight, triclopyr: slight. Eye irritation was reported as follows: triclopyr: none, glyphosate, imazapyr:

none to slight (USFS 1989). The EPA standard for evaluating the risk from herbicides to wildlife is the comparison of actual dosage with the LD-50. The EPA standard for chemical exposure considers a dose of less than 1/10 LD-50 as not presenting a significant risk for any threatened or endangered species. Glyphosate and imazapyr do not present a significant risk to the small-footed bat when applied at typical rates (USFS 1989). However, the herbicides should not have a direct effect on the small-footed bat because they are used in an open, non-forested ROW that does not provide roosting or maternity habitat for the small-footed bat. Because the small-footed bat does not roost in the ROW where herbicides would be used there is no chance that the species would be sprayed by herbicide.

Alternative 1 and 2 would establish new roads to access the ROW. Most of these new roads would be located on top of ridges. A canopy of trees can be expected to cover the new roads in about 10 years. Small-footed bats forage in canopy-covered road corridors on the Morehead Ranger District.

The project would not have a long term-cumulative impact on the small-footed bat. Implementing Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project would have "No Impact" on the small-footed bat.

Rafinesque's big-eared bat

Rafinesque's big-eared bats have been found at over 37 locations on the Morehead Ranger District. The species has been found in sandstone caves, limestone caves and sandstone rockshelters. Rafinesque's big-eared bats have been captured in mist nets set over constructed wetlands on the Morehead Ranger District. These wetlands have all been located near sandstone cliffs. Observations vary from sightings of individuals to groups of 50 or more.

One Rafinesque's big-eared bat hibernation site and two maternity sites are known for the Morehead Ranger District. These are located in sandstone caves in sandstone cliff areas. The hibernation site is called Donahue Cave. It's located in Morgan County. The maternity sites are named Betty Gap (Menifee County) and Passenger Branch (Rowan County).

The Project area does not provide habitat for the Rafinesque's big-eared bat. No limestone caves, sandstone cliffs, caves or rock-shelters are found in or near the project area. Alternative 1 or 2 of the Project would have no direct, indirect or cumulative impact on the Rafinesque's big-eared bat. Implementing Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project would have "no impact" on the Rafinesque's big-eared bat.

Peregrine Falcon

The American peregrine falcon was formerly known throughout the United States, but was subsequently extirpated from the East, including Kentucky (Barbour, et. al. 1973) by the widespread use of organochlorine pesticides (Campbell et. al. 1989). There is strong evidence suggesting that the peregrine falcon historically bred, at least locally in eastern Kentucky, on high cliffs associated with the Pine Mountain Thrust Fault and the Pottsville Escarpment on the western edge of the Cumberland Plateau (Campbell et. al. 1989).

The peregrine falcon was known to occur on the Stanton Ranger District as documented by several sight records by Mengel (1965) of both adult and immature birds during the summers of 1948 and 1949. Although no eyries were located by Mengel, the presence of these birds during this time of year suggests breeding on the high cliffs associated with the Red River Gorge Geological Area (Campbell et. al. 1989).

The peregrine falcon nests in Kentucky. Young have fledged from a nest built on the Interstate 65 bridge over the Ohio River. The bridge connects Louisville, KY to Jeffersonville, IN. A peregrine falcon hacking program began in 2001 on National Forest land within the Stanton Ranger District

No evidence of peregrine falcon foraging or nesting was found during field examination of the project area. The Project may indirectly impact the peregrine falcon. Alternative 1 and 2 of the Cranston-Rowan Transmission Line Project establish linear grass-shrub openings in a predominantly forested area. The peregrine falcon may forage over these linear openings. Implementing Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project is likely to have "no impact" on the peregrine falcon.

Appalachian Bewick's Wren

Bewick's wren populations have declined rapidly in Kentucky in the past 20 years (Palmer-Ball 1996). The species was considered a common summer resident throughout the Commonwealth as late as the 1950's (Mengel 1965). There are no recent reports of the species in eastern Kentucky (Palmer-Ball 1996).

The Bewick's wren is found in a variety of open areas. It can be found in rural farmland, suburban yards and forest clear-cuts (Brainard Palmer-Ball 1996). The species will nest in both natural and artificial cavities.

The Bewick's wren has not been observed in the project area. Suitable habitat for the species is found throughout the Morehead Ranger District, however it is not occupied at this time. Implementing Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project would have no direct, indirect or cumulative impact on the Bewick's wren. The project would have "no impact" on the Bewick's wren.

Bachman's Sparrow

Bachman's Sparrows formerly inhabited a variety of early successional habitats in Kentucky, including old fields and pastures, young pine plantations, and regenerating clear-cuts (Palmer-Ball 1996). Mengel (1965) described the species as having rather rigid habitat requirements, inhabiting an area only if it possessed the right combination of conditions: preferably (but not always) a hillside, some bare ground, some native grasses and forbs, patches of blackberry briars, and scattered small trees. The species has not been reported for a number of years and may now be absent from Kentucky (Palmer-Ball 1996).

The Bachman's Sparrow was not observed during the fieldwork conducted for the project. The project area does not appear to contain habitat that is suitable for the species. Alternative 1 and 2 of the Cranston-Rowan Transmission Line Project establish linear grass-shrub openings in a predominantly forested area. These openings may one day provide suitable nesting habitat for the Bachman's sparrow.

Implementing Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project would have no direct, indirect or cumulative impact on the species. The project is expected to have "no impact" on the Bachman's sparrow.

Diana Fritillary

The Diana fritillary is found throughout the southern Appalachians and the Daniel Boone National Forest. The species has been found in Menifee County on the Morehead Ranger District. Opler (1992) states that males may use a variety of habitats, but their primary habitat consists of openings and fields in wet, rich woods. The Diana fritillary inhabits fields, edges, and openings in moist, rich, forested mountains and valleys (Streetman 2000). During its life cycle it utilizes a number of different habitat types found on the Daniel Boone National Forest. For example, the caterpillars feed on a number of species of violets growing under at least partial forest canopy while adults get nectar from wildflowers found mainly in openings within the forest. Violets serve as the host plant for the larvae (Scott 1986). At the end of the summer eggs are laid next to dried up violets, where they hatch in the fall. The young caterpillars over-winter without feeding until spring, when they begin feeding on adjacent violets (Opler 1992).

The Diana fritillary was not observed during the fieldwork conducted for the project. The project area does not contain habitat that is suitable for the species. Alternative 1 and 2 of the Cranston-Rowan Transmission Line Project establish linear grass-shrub openings in a predominantly forested area. These openings may provide suitable habitat for the Diana fritillary.
The project would have no direct, indirect or cumulative impact on the Diana fritillary. Implementing Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project is expected to have "no impact" on the Diana Fritillary.

Butternut

Butternut grows in a number of locations on the Morehead Ranger District. It is generally found near streams where soil moisture is abundant. Most of the butternut trees on the Morehead Ranger District are infected with the butternut canker. Butternut canker generally kills its host. Five trees that are potentially resistant to the butternut canker have been identified on the Morehead Ranger District. The Forest Service has collected cuttings and seed from these "resistant" trees for a research project being conducted by the University of Tennessee. The University of Tennessee plans to complete screening resistance and progeny tests with this material. One of the screening tests was established on the Morehead Ranger District in March 2002.

Butternut was not observed during field examination of the project area. The project area appears to provide habitat that is suitable for the species, but it is not occupied at this time. The project would have no direct, indirect or cumulative impact on butternut. Implementing Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project would have "no impact" on the butternut.

Rock Skullcap

Rock skullcap grows along rocky woods, talus slopes and bluffs. Its range extends from Delaware to Indiana and southward to South Carolina and Tennessee.

Rock skullcap was found on the Morehead Ranger District in two locations in 1967. One was on private land near Mudlick Creek in Bath County, the other is now inundated by Cave Run Lake. The species is not known to grow on National Forest land within the Morehead Ranger District at this time.

The project area does not provide habitat that is suitable for rock skullcap. The project would have no direct, indirect or cumulative impact on rock skullcap. Implementing Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project would have "no impact" on the rock skullcap.

Northern Lady's Slipper

The northern Lady's slipper grows in riparian areas on National Forest and private land on the Morehead Ranger District. The species is most common in the North Fork of Triplett Creek area on private land in Rowan County, where it is found 5-10 feet above normal water level.

The northern Lady's slipper was not observed during field examination of the project area. The project area appears to provide habitat that is suitable for the species, but it is not occupied at this time. The project would have no direct, indirect or cumulative impact on the northern lady's slipper. Implementing Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project would have "no impact" on the northern lady's slipper.

French's Shooting Star

French's shooting star grows on the floors of sandstone cliff overhangs in Missouri, Illinois and Kentucky. Most Kentucky sites are in the Dripping Hills escarpment between Pennyrile and Shawnee Hills. It is also known in the Carter Caves area. The species was located in 1991 at the head of Botts Fork in Menifee County. Over 1000 plants, including seedlings were found.

French's shooting star was not observed during field examination of the project area. The project area does not provide suitable habitat for the species. The project would have no direct, indirect or cumulative impact on the species. Implementing Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project would have "no impact" on French's shooting star.

Globe Bladder Pod

Globe bladder pod grows in soils associated with rocks, ledges and limestone glades. It is found in Indiana, Kentucky and Tennessee. Globe bladder pod is not known to occur on the Morehead Ranger District however, the Morehead District appears to contain suitable habitat for the species (Taylor 2000, personal communication).

Globe bladder pod was not observed during field examination of the project area. The project area does not provide suitable habitat for the species. The Project would have no direct, indirect or cumulative impact on the species. Implementing Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project would have "no impact" on Globe bladder pod.

Sweet Pinesap

Sweet pinesap is a saprophyte associated with acid soils and pine trees. It has been found growing in a pine plantation on the Stearns Ranger District (Campbell 1990). Alan Risk discovered a flowing population of at least 40 stems, growing on a steep west-facing slope just below the natural sandstone arch on the SW side of Chestnut Cliffs on the Morehead Ranger District (Campbell 1992).

Sweet pinesap was not observed during field examination of the Project area. The Project area does not contain suitable habitat for the species. The project would have no direct, indirect or cumulative impact on the species. Implementing Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project would have "no impact" on sweet pinesap.

Blue Ridge Catchfly

Blue ridge catchfly grows in rocky, open limestone woods in mixed oak hardwood

stands. The Morehead Ranger District appears to provide suitable habitat for the species (Taylor 2000, personal communication). The species has not been found on the Morehead Ranger District.

Blue ridge catchfly was not observed during field examination of the project area. The project area does not provide suitable habitat for the species. The Project would have no direct, indirect or cumulative impact on the species. Implementing Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project would have "no impact" on the blue ridge catchfly.

Little Mountain Meadow Rue

Little mountain meadow rue may grow in seeping, shaded, sandstone, shale or limestone cliffs and rock shelters (Georgia DNR 2000). It has been found associated with sandstone cliffs and rockshelters in Kentucky (Taylor 2000, personal communication). The species has not been found on the Morehead Ranger District.

Little mountain meadow rue was not observed during field examination of the project area. The project area does not provide suitable habitat for the species. The project would have no direct, indirect or cumulative impact on the species. Implementing Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project would have "no impact" on little mountain meadow rue.

Eastern Sand Darter

The eastern sand darter is found to inhabit the clean sandy bottoms of medium size streams" (Clay 1975). It primarily occurs in upland streams and rivers where it is most often taken in moderate current over small gravel and sand substrates. The species usually avoids the swiftest portions of riffles and heavily silted substrates, frequenting the less turbulent, but clean-swept margins of the main current (Burr et al. 1996).

The eastern sand darter is found from Kentucky and Illinois northeastward through the Ohio River Basin into the Great Lakes drainage of southern Michigan and northern Ohio to Quebec (Clay 1975). The species has been found in the Red River on the Stanton Ranger District (Campbell et al. 1988). There are three pre-impoundment records for the species within the Morehead Ranger District, all from segments of the Licking River inundated by the Cave Run reservoir (Campbell et al. 1992). The Eastern sand darter was collected upstream of Cave Run Lake in Morgan County in 1958 (Campbell et al. 1992). However, Prather did not secure specimens during sampling of the upper Licking River where silt and muck deposits appeared to reduce habitat quality in pools and riffles.

Locations for this species near the Morehead Ranger District are found to be on the Licking River at mouth of Slate Creek, at Claysville, on Middle Fork of Kentucky River at Stinnett-Wendover Road crossing, South Fork of Kentucky River at KY 30 bridge, the Little Sandy River at Pactolus, at Hwy 1 at Argillite and below dam at Leon and on Big

Sinking River west of Hwy 7 near Abbott (KDOW 1999).

The project area is not located near habitat occupied by the eastern sand darter. The species was not located during field examination of the project area. The Project area may provide suitable habitat for the species however, it is not occupied at this time. The project would have no direct, indirect or cumulative impact on the species. Implementing Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project would have "no impact" on the eastern sand darter.

Longhead Darter

The longhead darter lives only in relatively large, high-gradient streams with bottoms that have not become highly silted (Clay 1975). It is often associated with boulder and cobble-strewn flowing pools and the areas above and below deep, fast riffles underlain with cobble (Burr and Warren 1986). The longhead darter inhabits warm, clear streams and rivers of moderate gradient. In much of its range it occupies well-flowing pools, runs, and deep riffles with substrates ranging from weed beds to bedrock; apparently the bottom usually is rocky (Jenkins and Burkhead 1993).

The longhead darter is found in larger streams of the Ohio River System from Tennessee and Kentucky through southern Ohio, West Virginia, and Virginia to Pennsylvania and New York (Clay 1975). It is a widespread but rare species of the Ohio River basin (Burr and Warren 1986). The closest location for this particular species to the Morehead Ranger District is in the Kinniconick Creek system (Burr and Warren 1986).

The project area is not located near habitat occupied by the longhead darter. The species was not located during field examination of the project area. The Project area may provide suitable habitat for the species however, it is not occupied at this time. The project would have no direct, indirect or cumulative impact on the species. Implementing Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project would have "no impact" on the longhead darter.

Tippecanoe Darter

The Tippecanoe darter inhabits upland rivers of the Highland Rim, Blue Grass, and Cumberland Plateau. It. occurs in moderate to rapid currents of long, shallow gravel riffles. They inhabit fairly large, free flowing upland rivers, basically not found on the Morehead Ranger District (Campbell et al. 1992). Breeding males occupy territories over clean-swept pebble and gravel (Burr et al. 1996). The Tippecanoe darter occurs only in medium to large rivers and occupies shallow riffle areas with substrates of fine, cherty gravel approximating the background color of the male. Spawning occurs in July in Kentucky, apparently in deep gravel run (Etnier and Starnes, 1993). The species is found in warm, moderate-gradient, large streams and rivers. Adults occupy shallow to deep, moderate to swift runs and riffles having little or no silt. They retire to deeper, slower water in winter and are typically associated with major areas of pea-sized loose gravel (Parmalee and Bogan, 1998).

The species was once found on the Morehead Ranger District. A pre-impoundment record verifies its former presence within a Licking River segment inundated by the Cave Run Lake Reservoir (Campbell et al. 1992).

The Tippecanoe darter is located in tributaries of the Ohio River, from the Wabash River system of Indiana through the Kentucky and Licking River systems of Kentucky. It is also known from a few localities near the mid-portions of the Kentucky and Licking Rivers (Clay 1975). The closest locations found for the Morehead Ranger District was the Licking River at Claysville and at Butler (KDOW 1999).

The Project is not located near habitat occupied by the Tippecanoe darter. The species was not located during field examination of the project area. The project area does not provide suitable habitat for the species. The project would have no direct, indirect or cumulative impact on the species. Implementing Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project would have "no impact" on the Tippecanoe darter.

Snuffbox

The snuffbox mussel is found living in shallow riffles with swift current in a gravel and sand substrate rivers, they are usually deeply buried (Parmalee and Bogan 1998). Parmalee and Bogan (1998) report that the breeding bradytictic host fish are the logperch (Percina caprodes) and banded sculpin (Cottus carolinae).

A snuffbox mussel shell was found in the North Fork of the Licking River on the Morehead Ranger District by Dan Dourson in the fall of 2000 (Dourson 2000, personal communication). The species was found in a portion of the North Fork that is not part of Cave Run Lake. Specimens have been found near the Morehead District in Slate Creek, Licking River in Bath County, Licking River in Rowan County, South Fork Kentucky River and Cow Creek in Owsley County (Schuster 1988).

The project area is not located near habitat occupied by the snuffbox mussel. The species was not located during field examination of the project area. The Project area may provide suitable habitat for the species however, it is not occupied at this time. The project would have no direct, indirect or cumulative impact on the species. Implementing Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project would have "no impact" on the snuffbox mussel.

Sheepnose

The sheepnose occurs in a variety of different habitats depending upon which water system it is found. It has been found in relatively fast current in less than two feet of water and at depths of 12 to 15 feet in reservoirs. The most suitable substrate is a mixture of coarse sand and gravel (Parmalee and Bogan 1998). The sheepnose is tachytictic and the host fish is thought to be the sauger (Stizostedion canadense) (Parmalee and Bogan 1998).

The Sheepnose is found in the Ohio, Cumberland, and Tennessee River systems (Parmalee and Bogan 1998). Records of the species near the Morehead Ranger District include the Licking River in Bath and Fleming Co at the State Route 111 bridge in Wyoming and the Licking River near Salt Lick (Schuster 1988).

The project area is not located near habitat occupied by the sheepnose mussel. The species was not located during field examination of the project area. The Project area may provide suitable habitat for the species however, it is not occupied at this time. The project would have no direct, indirect or cumulative impact on the species. Implementing Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project would have "no impact" on the sheepnose mussel.

Salamander Mussel

The salamander mussel is typically encountered living under flat rocks in a sandy substrate, it also occurs in mud or on gravel (Parmalee and Bogan 1998).

The range of the salamander mussel is from the Ohio River system north to Michigan, west to Iowa, south to Arkansas, and east to Tennessee (Parmalee and Bogan 1998). The species has been found in the Licking River at mouth of Slate Creek in Bath County, Little Sandy River and Tygart's Creek at Cave Branch below State Route 182 in Carter County and Tygarts Creek at U.S. 60 crossing in Carter County (Schuster 1988). A single specimen was collected from Blackwater Creek in the backwaters of the Cave Run Lake Reservoir. Dourson (personal communication) found live salamander mussels in the North Fork of the Licking River during the fall of 2000. He found the mussels in the part of the North Fork that is not affected by the impoundment of Cave Run Lake.

The project area is not located near habitat occupied by the salamander mussel. The species was not located during field examination of the project area. The Project area may provide suitable habitat for the species however, it is not occupied at this time. The project would have no direct, indirect or cumulative impact on the species. Implementing Alternative 1 or 2 of the Cranston-Rowan Transmission Line Project would have "no impact" on the salamander mussel.

VIII. References and Data Sources

Adam, M., Lacki, M., and T. Barnes. 1994. Foraging areas and habitat use of the Virginia big-eared bat in the Daniel Boone National Forest, Kentucky. J. Wildlife Management, 58: 462-469.

Barbour, R.W. and W.H. Davis. 1969. Bats of America. The University Press of Kentucky, Lexington, 286 pp.

Barbour, R.W., C.T. Peterson, D.Rust, H.E. Shadowen, and A.L. Whitt Jr. 1973.

Kentucky Birds, A Finding Guide. The University Press of Kentucky, Lexington, KY.

Barbour, R.W. and W.H. Davis. 1974. Mammals of Kentucky. The University Press of Kentucky, 321pp.

Burford, L. and M. Lacki. 1995. Habitat Use by Corynorhinus townsendii virginianus in the Daniel Boone National Forest. American Midland Naturalist 134: 340-345.

Burford, L. and M. Lacki. 1998. Moths Consumed By Corynorhinus Townsendii Viginianus In Eastern Kentucky. American Midland Naturalist, Vol. 139, No 1.

Burr, Brooks M. and Melvin L. Warren Jr. 1986. A Distributional Atlas of Kentucky Fishes. Kentucky Nature Preserves Commission. Scientific and Technical Series Number 4. Frankfort, Kentucky.

Campbell, J.J.N., M. Evans, M.E. Medley, and N.L. Taylor. 1988. Buffalo clovers in Kentucky (Trifolium stoloniferum and T. reflexum): historical records, presettlement environment, rediscovery, endangered status, cultivation and chromosome number. Rhodora 90:399-418.

Campbell, J.J.N., D.T. Towes, J.R. MacGregor, R.R. Cicerello, B. Palmer-Ball, M.E. Medley, S. Olsen. 1989. Cooperative inventory of endangered, threatened, sensitive, and rare species, Daniel Boone National Forest, Stanton Ranger District. United States Forest Service, The Nature Conservancy, Kentucky State Nature Preserves Commission, Kentucky Department of Fish and Wildlife Resources, Frankfort.

Campbell, J.J.N., V.L. Andrews, J.R. MacGregor, B. Palmer-Ball, Jr., A.C. Risk. 1990. Cooperative Inventory of endangered, threatened, sensitive, and rare species, Daniel Boone National Forest, Stearns Ranger District. U.S. Forest Service, The Nature Conservancy, Kentucky State Nature Preserves Commission, Kentucky Department of Fish and Wildlife Resources, Frankfort.

Campbell, J.J.N., J.E. Flotermersch, J.R. MacGregor, D. Noe, A.C. Risk, M.D. Studer, and T.T. Towles. 1991a. Cooperative Inventory of endangered, threatened, sensitive, and rare species, Daniel Boone National Forest, Berea Ranger District. U.S. Forest Service, The Nature Conservancy, Kentucky State Nature Preserves Commission, Kentucky Department of Fish and Wildlife Resources, Frankfort.

Campbell, J.J.N., J.D. Kiser, L.E. Kornman, J.R. MacGregor, L.E. Meade, A.C. Risk. 1992. Cooperative Inventory of endangered, threatened, sensitive, and rare species, Daniel Boone National Forest, Morehead Ranger District. U.S. Forest Service, The Nature Conservancy, Kentucky State Nature Preserves Commission, Kentucky Department of Fish and Wildlife Resources, Frankfort.

Campbell, J.J.N., D.D. Taylor, M.E. Medley, and A.C. Risk. 1991b. Floristic and historical evidence of fire-maintained, grassy pine-oak barrens before settlement in

southeastern Kentucky. p.359-375. IN: Nodvin, S.C. and T.A. Waldrop (eds.). Fire and the environment: ecological and cultural perspectives. Southeastern Forest Experiment Station. Asheville.

Campbell, J.J.N., J.R. Abbott, R.R. Cicerello, J.D. Kiser, J.R. MacGregor, J.G. Palis. 1994. Cooperative inventory of endangered, threatened, sensitive, and rare species, Daniel Boone National Forest, London Ranger District. United States Forest Service, The Nature Conservancy, Kentucky State Nature Preserves Commission, Kentucky Department of Fish and Wildlife Resources, Frankfort.

Cicerello, R.R., M.L. Warren, Jr. 1991. A distributional checklist of the freshwater Unionids (Bivalvia:Unionidea) of Kentucky. American Malacological Bulletin 8:113-129.

Clay, William M. The Fishes of Kentucky. 1975. Kentucky Department of Fish and Wildlife Resources. Frankfort, Kentucky.

Dalton, Virginia. 1989. Foraging Ecology of the Virginia Big-Eared bat. Performance Report for project EW-2-1, Study Number III, Job Number III-A. Virginia Division of Game. 14pp.

Etnier David A. and Wayne C. Starnes. 1993. The Fishes of Tennessee.. The University of Tennessee Press/ Knoxville.

Georgia DNR. 2000. Watched List of Prescribed Burning Concern Plants of Georgia. www.dnr.state.ga.us/dnr/wild/sppl_w.htm.

Hall, J.S. and N. Wilson. 1966. Seasonal populations and movements of the gray bat in the Kentucky area. American Midland Naturalist, 75:317-324.

Hamel, P.B. 1992. The Land Manager's Guide to the Birds of the South. The Nature Conservancy, Chapel Hill, North Carolina. U.S. Forest Service, Atlanta, Georgia.

Hays, H.A. and D.C. Bingham. 1964. A colony of gray bats in southeastern Kansas. Journal of Mammalogy, 45:150.

Jenkins, Robert E. and Noel M. Burkhead. 1993. Freshwater Fishes of Virginia. American Fisheries Society. Bethesda, Maryland.

Jones, R.L. 1994. The status of Helianthus eggertii in the Southeastern United States. Castanea 59:319-330.

Kentucky Division of Water (KDOW). 1999. Ecological Data Application System (E.D.A.S. – electronic database).

Kirkman, L.K. and M.B. Drew. 1995a. Abstract: Population responses of the

federally endangered Schwalbea americana to experimental fire management regimes- a 2 year assessment. ASB Bull. 42:161.

Kirkman, L.K. and M.B. Drew. 1995b. Presentation: Population responses of the federally endangered Schwalbea americana to experimental fire management regimes- a 2 year assessment. 56th Annual ASB Meeting, Knoxville, TN.

Kiser, James D. 1996. Foraging Habitat, Food Habits, and Roost tree Characteristics of the Indiana Bat (Myotis sodalis) During Autumn in Jackson County, Kentucky. Report Submitted to the Nongame Program, Kentucky Department of fish and Wildlife Resources, #1 Game Farm Road, Frankfort, KY 40601. July 1, 1996.

MacGregor, J.R., J.D. Kiser, M.W. Gumbert and T.O. Reed. 1999. Autumn Roosting Habitat of Male Indiana Bats: Roost Tree Selection and Use in Response to Natural Disturbance, Prescribed Burning and Timber Mamagement on the Daniel Boone National Forest, Kentucky. Daniel Boone National Forest, KY. 28pp.

Mengel, R.M. 1965. The birds of Kentucky. American Ornithologists Union Monograph No. 3. The Allen Press, Lawrence, Kansas, USA.

Ogle, D.W. 1991a. Spiraea virginiana Britton: I. delineation and distribution. Castanea 56:287-296.

Ogle, D.W. 1991b. Spiraea virginiana Britton: II. Ecology and Species Biology. Castanea 56:297-303.

Opler, P.A. 1992. Diana Speyeria Diana. Page 150 in: A Field Guide to Eastern Butterflies. Houghton Mifflin Company, New York.

Palmer-Ball, Brainard L. 1996. The Kentucky Breeding Bird Atlas. The University Press of Kentucky. 372 pp.

Parmalee, Paul W. and Arthur E. Bogan. 1998 The Freshwater Mussels of Tennessee. The University of Tennessee Press/ Knoxville.

Schuster, G. A. 1988. The distribution of unionids (Mollusca:Unionidae) in Kentucky. Project No. 2-437R. Report to Kentucky Department of Fish and wildlife Resources, Frankfort, Kentucky. 1099 pp.

Scott, J.A. 1986. Speyeria diana great Smokies Fritillary. Page 324 in: The Butterflies of North America. A Natural History and Field Guide. Stanford University Press. Stanford, CA. 583pp.

Smathers, Karen L., 1990. An analysis of a bivalve (mollusca:bivalvia) community in the Licking River at Moores Ferry, Kentucky. Masters of Science Thesis, Eastern Kentucky University, Richmond, KY. 65pp.

Struttmann, Jane M. 2000. Butterflies of Kentucky web page. http://159.189.96.215/resource/distr/lepid/bflyusa/KY/76.htm.

U.S. Fish and Wildlife Service. 1982. Gray Bat Recovery Plan. U.S. Fish and Wildlife Service.

U.S. Fish and Wildlife Service. 1984. Recovery Plan For the Ozark big-eared bat and Virginia big-eared bat.

U.S. Fish and Wildlife Service. 1987. Eastern Peregrine Falcon Recovery Plan. Region 5, 36pp.

U.S. Fish and Wildlife Service. 1992. Virginia spiraea (Spiraea virginiana Britton) recovery plan. Newton Corner, Massachusetts. 47 pp.

U.S. Fish and Wildlife Service. 1994. American chaffseed (Schwalbea americana recovery plan. Technical/Agency Draft. Hadley, Massachusetts. 58 pp.

U.S. Forest Service. 1989. Final EIS for Vegetation Management in the Applachian Mountains. USDA Forest Service, Southern region.

U.S. Forest Service 1995. Draft Proposed Strategy for the Management of Roosting and Foraging Habitat for the Indiana Bat. October 25, 1995 letter. File Code 2670.

U.S. Forest Service 2001. The SHNS Amendment. An Amendment for the Daniel Boone National Forest Land and Resource Management Plan.
Widlak, James C. 1997. Biological Opinion On The Impacts Of Forest Management And Other Activities To The Indiana Bat On The Daniel Boone National Forest Kentucky . U.S. Fish and Wildlife Service. 24pp.

Widlak, James C. 2000. Biological Opinion For The Land And Resource Management Plan And The Proposed Prescribed Burning Habitat Needs and Silviculture Amendment, Daniel Boone National Forest, Kentucky. U.S. Fish and Wildlife Service. 39pp.

IX. Personal Communication

Bishop, Vicktoria. 1995. Personal Communication regarding the management of Endangered and Threatened Aquatic Fauna on the Daniel Boone National Forest.

Bishop, Vicktoria. 2000. Personal Communication regarding the management of the Endangered Fanshell Mussel on the Daniel Boone National Forest.

Britzke, Eric. 2001. Personal Communication regarding bat use of grassy openings and power line right-of-ways on the Morehead Ranger District. Graduate Student, Tennessee Technological University.

Cicerello, R.R. 1999. Personal Communication regarding the management of the Pink Muckett Mussel.

Dourson, Dan. 2000. Personal communication concerning possible affects of the proposed Prescribed Burning on listed and Sensitive species.

Gumbert, Mark W. and Joy M. O'Keefe. 2002. Indiana Bat (*Myotis sodalis*) Survey to Minimize Construction Impact for the Proposed Cranston to Rowan Transmission Line, Rowan County, Kentucky. East Kentucky Power Cooperative, Cranston-Rowan County Transmission Line Project No. 21140.

Layzer, James. 2000. Personal Communication regarding the Fanshell mussel on the Daniel Boone National Forest.

MacGregor, John. 1993. Personal communication regarding the management of Endangered and Threatened Species on the Daniel Boone National Forest.

MacGregor, John. 1999. Personal communication regarding the management of Endangered and Threatened Species on the Daniel Boone National Forest.

Surmont, Albert. 1997. Personal communication regarding the management of Endangered and Threatened Plants on the Daniel Boone National Forest. Kentucky Department of Fish and Wildlife Resources.

Surmont, Albert. 1995. Personal communication regarding the management of the Northern Riffleshell Mussel in the Licking River.

Taylor, David. 2002. Personal communication regarding the management of Endangered and Threatened Plants on the Daniel Boone National Forest.

Taylor, David. 2000. Personal communication regarding the management of Endangered and Threatened Plants on the Daniel Boone National Forest.

Taylor, David. 1997. Personal communication regarding the management of Endangered and Threatened Plants on the Daniel Boone National Forest.

Taylor, David. 1995. Personal communication regarding the management of Endangered and Threatened Plants on the Daniel Boone National Forest.

X. DETERMINATION OF EFFECT

1. Implementing the Cranston-Rowan Transmission Line Project is likely to have this effect on Threatened and Endangered Species:

NO EFFECT:
Gray Bat
Red-cockaded Woodpecker
Bald Eagle
Duskytail Darter
Palezone Shiner
Blackside Dace
Cumberland Elktoe
Fanshell
Dromedary Pearlymussel
Cumberlandian Combshell
Oyster Mussel
Yellow Blossom
Tan Riffleshell
Catspaw
Northern Riffleshell
Tubercled Blossom
Cracking Pearlymussel
Pink Mucket
Ring Pink
Little-wing Pearlymussel
Clubshell
Rough Pigtoe
Cumberland Bean
Cumberland Sandwort
Cumberland Rosemary
Eggert's Sunflower
American Chaffseed
White-haired Goldenrod
Virginia big-eared bat
Virginia Spiraea
Running Buffalo Clover

NOT LIKELY TO ADVERSELY EFFECT:
Indiana bat

2. Implementing the Cranston-Rowan Transmission Line Project is likely to have this effect on official candidate species:

NO EFFECT
Cumberland Johnny Darter
Fluted Kidneyshell
White-fringless orchid
Short's bladderpod

3. Implementing the Cranston-Rowan Transmission Line Project is likely to have this effect on Daniel Boone National Forest Sensitive Species:

NO IMPACT:

Southeastern myotis
Long-tailed shrew
Bachman's sparrow
Peregrine Falcon
Appalachian Bewick's wren
Western sand darter
Eastern sand darter
Cumberland Johnny darter
Ashy darter
Spotted darter
Tippecanoe darter
Mountain brook lamprey
Northern madtom
Blotchside logperch
Longhead darter
Olive darter
Southern cavefish
Cumberland papershell
Rafinesque's big-eared bat
Eastern small-footed bat
Spectaclecase
Snuffbox
Long-solid
Tennessee clubshell
Pyramid pigtoe
Fluted Kidneyshell
Rabbitsfoot
Salamander mussel
Purple lilliput
Sheepnose
Glossy supercoil
Shortspire hornsnail
Domed ancylic
Delicate vertigo
Cupped vertigo
Big South Fork crayfish

NO IMPACT:

Helma's net-spinning caddisfly
A limnephilid caddisfly
Pygmy snaketail
Appalachian grizzled skipper
Diana fritillary
Regal fritillary
Rockcastle aster
Spreading yellow false foxglove
American barberry
Juniper sedge
Small spreading pogonia
Stoneroot
Northern Lady's slipper
French's shooting star
Mountain heartleaf
Butternut
Globe bladderpod
Large-flowered Barbara's buttons
Sweet Pinesap
Canby's mountain-lover
White fringeless orchid
Bay starvine
Rock skullcap
Southern Oconee bells
Blue Ridge catchfly
Royal catchfly
Little Mountain meadowrue
Cutleaved meadow parsnip
Sand grape
Closter's brook-hypnum
A liverwort
Sullivant's leafy liverwort
A liverwort

BENEFICIAL IMPACT: none

MAY IMPACT INDIVIDUALS BUT NOT LIKELY TO CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF VIABILITY

none

LIKELY TO RESULT IN A TREND TO FEDERAL LISTING OR A LOSS OF VIABILITY:

none

XI. Mitigation Measures

All mitigation measures, if any, that are necessary to protect threatened, endangered, proposed, or sensitive plant and animal species as a result of actions incurred by this project are included in Section III "Proposed Management Action" of this BAE.

Prepared by: *(s) Thomas R. Biebighauser* 12-16-02
Thomas R. Biebighauser Date
Wildlife Biologist
U.S. Forest Service
2375 KY HWY 801 South
Morehead, KY 40351
(606)-784-6428 (tombiebighauser@fs.fed.us)

Reviewed by: *(s) James David Manner* 12-16-02
James D. Manner Date
District Ranger
U.S. Forest Service
Morehead Ranger District
Morehead, KY 40351

14.3 Supplemental Biological Assessment/Evaluation

Supplemental Biological Assessment/Evaluation
ROWAN-CRANSTON 138kV ELECTRIC TRANSMISSION LINE PROJECT
Rowan County
Daniel Boone National Forest

This document provides updated information concerning possible effects of implementing the actions contained in the Rowan-Cranston 138kV Electric Transmission Line on Proposed, Endangered, Threatened and Daniel Boone National Forest Sensitive (PETS) species. It is designed to provide Forest Service decision makers with the latest information on PETS within and near the proposed project treatment locations.

On December 16, 2002 I prepared a Biological Assessment/Evaluation (BAE) for the Rowan-Cranston 138kV Electric Transmission Line Project that documented possible effects that implementing Alternative 1 or 2 (now named Alternative A or B) that involve tree cutting for Right-of-Way establishment, Right-of-Way maintenance by mechanical and herbicide methods, road construction, structure placement, opening establishment, wetland establishment) would have on PETS. The BAE described why the proposed actions "will not effect" or were "not likely to adversely affect" Endangered and Threatened species on the Daniel Boone National Forest. Mr. Virgil Lee Andrews, Jr., Field Supervisor for the U.S. Fish and Wildlife Service concurred with the Forest Service findings in a letter dated January 28, 2003.

In February, 2003 an Ice Storm affected the area, killing and damaging a number of trees within and near the proposed treatment areas. The Ice Storm generally improved the quality of roosting habitat for the Indiana bat in the project area by creating snags and damaging live trees. In consideration of the Ice Storm and the approval of the Revised Forest Plan (2002) the Forest Service included a time frame on when trees suitable for Indiana bat roosting could be felled, from October 15 to March 31. (Forest Plan Standard DB-WL-9).

Proposed Project

Updated descriptions for Alternatives A, B and C for the Rowan-Cranston Transmission Line Project were examined to identify possible effects to PETS. The following information describes the proposed actions that were re-examined by this SBAE:

Alternative A: This is the proposed action as described in Section 2.0 of the September 23, 2004 EA.

Alternative B: This is the same as the proposed action described in Section 2.0 of the EA, except that herbicides would not be used to establish or maintain the ROW. Only mechanical methods such as brush axes, chain saws, hydro-axes, bush hogs, mowers

and/or other mechanized trimmers would be used to manage and maintain vegetation in the ROW.

Alternative C: This is the no action alternative; a new electric transmission line would not be built between the Cranston and Rowan electric substations.

Actions proposed in the Rowan-Cranston 138kV Electric Transmission Line have not been implemented to date. Implementation would possibly begin in December, 2004. I have been involved with the design and development of the proposed Rowan-Cranston 138kV Electric Transmission Line Project as a member of the Interdisciplinary Team since the Forest Service received the special use application from East Kentucky Power Cooperative for the project. Since the development of the BAE, I have re-visited portions of the proposed project in 2003 and again in 2004 to assess how changes in habitat conditions resulting from the February 2003 ice storm may have affected PETS. I have not identified conditions nor have I received information that would change my findings as to the possible effects of implementing Alternative A, B or C on PETS.

Species Evaluated and Actions Considered

All federally Threatened, Endangered or Proposed species and critical habitat identified by the U.S. Fish and Wildlife Service as occurring on or adjacent to the Daniel Boone National Forest and all species identified as Sensitive on the Daniel Boone National Forest were considered in this supplement BAE. All actions comprising Alternatives A and B (including tree cutting for Right-of-Way establishment, Right-of-Way maintenance by mechanical and herbicide methods, road construction, road closure, structure placement, opening establishment, wetland establishment) and Alternative C as described by the Environmental Assessment were also considered in this supplemental BAE.

Thirty-two federally listed species were identified as potentially occurring on or adjacent to the Daniel Boone National Forest by the Cookeville, Tennessee Ecological Services office of the USFWS in a list dated 9 October 2002 (Table A). This list was further substantiated by the "Programmatic Biological Assessment for the Revised Land and Resource Management Plan, Daniel Boone National Forest", dated 6 November 2003 and in a March 20, 2004 letter to Regional Forester Mr. Robert T. Jacobs.

Table A. Endangered and Threatened Species Considered.

Group	Species	Common Name	Status
Mammal	*Myotis grisescens*	Gray Bat	E
	Myotis sodalis	Indiana Bat	E
	Plecotus townsendii virginianus	Virginia Big-eared Bat	E
Bird	*Haliaeetus leucocephalus*	Bald Eagle	T
	Picoides borealis	Red-cockaded Woodpecker	E
Fish	*Etheostoma percnurum*	Duskytail Darter	E
	Notropis albizonatus	Palezone Shiner	E
	Phoxinus cumberlandensis	Blackside Dace	T
Mussel	*Alasmidonta atropurpurea*	Cumberland Elktoe	E
	Cyprogenia stegaria	Fanshell	E
	Dromus dromas	Dromedary Pearlymussel	E

	Epioblasma brevidens	Cumberlandian Combshell	E
	Epioblasma capsaeformis	Oyster Mussel	E
	Epioblasma florentina florentina	Yellow Blossom Pearly Mussel	E
	Epioblasma florentina walkeri	Tan Riffleshell	E
	Epioblasma obliquata obliquata	Purple Catspaw Pearly Mussel	E
	Epioblasma torulosa rangiana	Northern Riffleshell	E
	Epioblasma torulosa torulosa	Tubercled Blossom Pearly Mussel	E
	Hemistena lata	Cracking Pearly Mussel	E
	Lampsilis abrupta	Pink Mucket	E
	Obovaria retusa	Ring Pink	E
	Pegias fabula	Little-wing Pearlymussel	E
	Pleurobema clava	Clubshell	E
	Pleurobema plenum	Rough Pigtoe	E
	Villosa trablis	Cumberland Bean Pearlymussel	E
Plant	*Arenaria cumberlandensis*	Cumberland Sandwort	E
	Conradina verticillata	Cumberland Rosemary	T
	Helianthus eggertii	Eggert's Sunflower	T
	Schwalbea americana	American Chaffseed	E
	Solidago albopilosa	White-haired Goldenrod	T
	Spiraea virginiana	Virginia Spiraea	T
	Trifolium stoloniferum	Running Buffalo Clover	E

Status 'E' means the species is listed as 'Endangered' by USFWS.
Status 'T' means the species is listed as 'Threatened' by USFWS.

Nine federally listed species, from Table A were eliminated from further consideration for projects on the DBNF. These nine species are;

1) clubshell
2) dromedary pearly mussel
3) yellow blossom pearly mussel
4) purple catspaw pearly mussel
5) tubercled-blossom pearly mussel
6) cracking pearly mussel
7) ring pink
8) rough pigtoe
9) red-cockaded woodpecker

These species are now considered either: (1) likely to be extinct or (2) likely extirpated from the DBNF area with no suitable habitat remaining that would allow for recovery. Consequently, Alternatives A or B will have **"no effect"** on these species and they will not be considered further in this supplemental BAE. Should new information arise concerning these species on the DBNF they will again receive further evaluation. This "no effect" finding is supported in; 1) "Programmatic Biological Assessment of the Forest Revised Land and Resource Management Plan, Daniel Boone National Forest," dated 6 November 2003, and 2) the USFWS concurrence with this programmatic determination in their letter dated 20 March 2004.

Eleven additional species;

1) Duskytail Darter
2) Palezone Shiner
3) Blackside Dace
4) Cumberland Elktoe
5) Cumberlandian Combshell
6) Oyster Mussel
7) Tan Riffleshell
8) Little-wing Pearlymussel
9) Cumberland Bean
10) Cumberland Sandwort
11) Cumberland Rosemary

are not considered in greater detail by this supplemental BAE for these reasons: 1) the species is not likely to occur on the Morehead Ranger District, and/or 2) records of the species range do not include the Morehead Ranger District, and/or 3) habitat for the species is not found on the Morehead Ranger District. Consequently, implementing Alternative A or B will have "**no effect**" on these species.

Since the BAE was prepared four stream segments occurring on or adjacent to the Daniel Boone National Forest were proposed for designation as critical habitat by the U. S. Fish and Wildlife Service in the Federal Register notice dated 3 June 2003. These four stream segments are listed below.

Four stream segments occurring on or adjacent to the Daniel Boone National Forest were designated as critical habitat by the U. S. Fish and Wildlife Service in the Federal Register notice dated 31 August 2004. These four stream segments are listed below.

U.S. Fish and Wildlife Service Designated Critical Habitat for Mussel Species on the Daniel Boone National Forest.			
Stream Name	**Associated Species**	**Administrative Location**	**Segment Proposed for Designation**
Buck Creek	Cumberlandian combshell and oyster mussel	Somerset Ranger District	Buck Creek mainstem from State Road 192 bridge, upstream to the State Road 328 brigde
Marsh Creek	Cumberland elktoe	Stearns Ranger District	Marsh Creek mainstem from its confluence with the Cumberland River, upstream to State Road 92 bridge
Rock Creek	Cumberland elktoe	Stearns Ranger District	Rock Creek mainstem from its confluence with White Oak Creek, upstream to River Mile 15.9
Sinking Creek	Cumberland elktoe	London Ranger District	Sinking Creek mainstem from its confluence with the Rockcastle River, upstream to its confluence with Laurel Branch

Implementing Alternative A, B or C would have no effect on critical habitat for these species as their habitat is not found on the Morehead Ranger District. Therefore, effects of the proposed project on the critical habitat for these species will not be considered in greater detail by this supplemental BAE.

Seventy-one (71) species are currently on the Regional Forester's Sensitive species list for the Daniel Boone National Forest, dated 21 August 2001. These species are listed below.

Table B. USDA Forest Service Sensitive Species Considered.

Group	Species	Common Name	Status	Morehead District
Mammal	*Corynorhinus rafinesquii*	Rafinesque's big-eared bat	S	X
	Myotis austroriparius	Southeastern myotis	S	
	Myotis leibii	Eastern small-footed bat	S	X
	Sorex dispar blitchi	Long-tailed shrew	S	
Bird	*Aimophila aestivalis*	Bachman's sparrow	S	X
	Falco peregrinus	Peregrine Falcon	S	X
	Thryomanes bewickii altus	Appalachian Bewick's wren	S	X
Fish	*Ammocrypta clara*	Western sand darter	S	
	Ammocrypta pellucida	Eastern sand darter	S	X
	Etheostoma susanae	Cumberland Johnny darter	S	
	Etheostoma cinereum	Ashy darter	S	
	Etheostoma maculatum	Spotted darter	S	
	Etheostoma tippecanoe	Tippecanoe darter	S	X
	Ichthyomyzon greeleyi	Mountain brook lamprey	S	
	Noturus stigmosus	Northern madtom	S	
	Percina burtoni	Blotchside logperch	S	
	Percina macrocephala	Longhead darter	S	X
	Percina squamata	Olive darter	S	
	Typhlichthys subterraneus	Southern cavefish	S	
Mussel	*Anodontoides denigratus*	Cumberland papershell	S	
	Cumberlandia monodonta	Spectaclecase	S	
	Epioblasma triquetra	Snuffbox	S	X
	Fusconaia subrotunda subrotunda	Long-solid	S	
	Pleurobema oviforme	Tennessee clubshell	S	
	Pleurobema rubrum	Pyramid pigtoe	S	
	Ptychobranchus subtentum	Fluted Kidneyshell	S	
	Quadrula cylindrica cylindrica	Rabbitsfoot	S	
	Simpsonaias ambigua	Salamander mussel	S	X
	Toxolasma lividus	Purple lilliput	S	
	Plethobasus cyphyus	Sheepnose	S	X
Gastropod	*Paravitrea placentula*	Glossy supercoil	S	

Table B. USDA Forest Service Sensitive Species Considered.				
Group	**Species**	**Common Name**	**Status**	**Morehead District**
	Pleurocera curta	Shortspire hornsnail	S	
	Rhodacme elatior	Domed ancylid	S	
	Vertigo bollesiana	Delicate vertigo	S	
	Vertigo clappi	Cupped vertigo	S	
Crustacean	*Cambarus bouchardi*	Big South Fork crayfish	S	
Insect	*Cheumatopsyche helma*	Helma's net-spinning caddisfly	S	
	Manophylax butleri	Cliffline caddisfly	S	X
	Ophiogomphus howei	Pygmy snaketail	S	
	Pyrgus wyandot	Appalachian grizzled skipper	S	
	Speyeria diana	Diana fritillary	S	X
	Speyeria idalia	Regal fritillary	S	
Vascular Plant	*Aster saxicastellii*	Rockcastle aster	S	
	Aureolaria patula	Spreading yellow false foxglove	S	
	Berberis canadensis	American barberry	S	
	Carex juniperorum	Juniper sedge	S	X
	Cleistes bifaria	Small spreading pogonia	S	X
	Collinsonia verticillata	Stoneroot	S	
	Cypripedium kentuckiense	Kentucky Lady's slipper	S	X
	Dodecatheon frenchii	French's shooting star	S	X
	Hexastylis contracta	Mountain heartleaf	S	
	Juglans cinerea	Butternut	S	X
	Lesquerella globosa	Short's (Globe) bladderpod	S	X
	Marshallia grandiflora	Large-flowered Barbara's buttons	S	
	Monotropsis odorata	Sweet pinesap	S	X
	Paxistima canbyi	Canby's mountain-lover	S	
	Platanthera integrilabia	White fringeless orchid	S	
	Schisandra glabra	Bay starvine	S	
	Scutellaria arguta	Hairy skullcap	S	X
	Scutellaria saxatilis	Rock skullcap	S	X
	Shortia galacifolia var. galacifolia	Southern Oconee bells	S	
	Silene ovata	Blue Ridge catchfly	S	X
	Silene regia	Royal catchfly	S	
	Thalictrum mirabile	Little Mountain meadowrue	S	X
	Thaspium pinnatifidum	Cutleaved meadow parsnip	S	X
	Vitis rupestris	Sand grape	S	
Nonvasc. Plant	*Hygrohypnum closteri*	Closter's brook-hypnum	S	X
	Plagiochila austinii	A liverwort	S	

Table B. USDA Forest Service Sensitive Species Considered.				
Group	**Species**	**Common Name**	**Status**	**Morehead District**
	Plagiochila sullivantii var sullivantii	Sullivant's leafy liverwort	S	X
	Radula sullivantii	A liverwort	S	
	Scopelophila cataractae	Agoyan cataract moss	S	X

Status 'S' means the species is listed by the Regional Forester (R8, Southern Region) as 'Sensitive' and occurs or is likely to occur on the Daniel Boone National Forest.

The project will have "No Impact" on Forest Service Sensitive species not marked with an "X" in the Table for one or more of the following reasons: the species is not found in the Morehead Ranger District, there are no historic records of the species occurring in the Morehead Ranger District, or suitable habitat for the species is not found in the Morehead Ranger District.

Possible impacts of implementing Alterative A or B on additional Sensitive species marked with an "X" in Table B that were not considered in detail by the BAE are considered in detail by this supplemental BAE . One or more of the following conditions apply to these Sensitive species considered in greater detail:

1) Species is found on the Morehead Ranger District.
2) Historic records show that the species once occurred on the Morehead Ranger District.
3) Suitable habitat for the species is found on the Morehead Ranger District.

Additional analysis was completed concerning possible risks of using herbicides on PETS associated with implementing Alternative A. Risk Assessments and Risk Assessment Worksheets were completed for each herbicide planned for use in Alternative A. The Risk Assessment worksheets present hazard quotient at three levels of exposure, Central/Typical, Lower, and Upper. The Central or Typical level was used to evaluate risk for this proposal. The Upper level would be the maximum rates that the Forest Service could use, but chose not to for this proposal.

Common to all application methods and solutions is the fact that the proposal restricts herbicide use in certain areas (FLMP Standards DB VEG 19 & 21, and 5C VEG 2) that limit use of herbicides within 30-feet of streams, lakes, or wetlands; mixing and loading will not occur within 200 feet of private land, open water or wells, or other sensitive areas. No herbicides will be used in Zone 1 of Source Water Protection Areas. Herbicide would not be applied to trees, caves, rock-shelters or crevices suitable for bat roosting.

The human health and ecological risk from using glyphosate, triclopyr-amine, triclopyr-ester, and imazopyr as prescribed will result in:

Human Health Risk: All of the Human Health Hazard Quotients are less than 1.0 at the Central-level of exposure or interpretation of data indicates a lower risk is probable.

Ecological Risk: All of the Ecological Hazard Quotients are less than 1.0 at the Typical-level of exposure or interpretation of data indicates a lower risk is probable. Based on LD_{50} values, fosamine is very slightly toxic to mammals. Unformulated fosamine is very slightly toxic to birds based on acute oral LD_{50}'s of greater than 5,000 mg/kg in mallard ducks and bobwhite quail. The acute oral LD_{50} of formulated fosamine is greater than 10,000 mg/kg in mallard ducks and bobwhite quail. Fosamine is not considered hazardous to avian species. Fosamine appears to be only slightly toxic to insects. (VMEIS Appendix A, p.6-7).

Fosamine presents a negligible risk of wildlife effects because the fosamine laboratory animal LD_{50}'s range from 5,000 to 24,400 mg/kg. (VMEIS Appendix A, p.8-8) In the event of a spill, fosamine has been determined to be no risk to aquatic species (VMEIS Appendix A, p. 8-22, & Table 8-22 p 8-31.

The following provides updated information on individual Endangered and Threatened Species described in the BAE since it was prepared:

Bald Eagle: A bald eagle territory consisting of one nest and a nesting pair was confirmed for Bath County near Cave Run Lake within the Morehead Ranger District in January, 2004. Two bald eagles fledged from this nest, and up to 3 immature bald eagles have been observed perched within the territory and flying over Cave Run Lake in July, 2004. Up until this observation, bald eagles had been observed foraging over Cave Run Lake and its associated wetlands on the Morehead Ranger District during the winter months and on an occasional basis during the summer months.

The Forest Service is following the zone management concept described in the Habitat Management Guidelines for the Bald Eagle as suggested by the U.S. Fish and Wildlife Service for the Cave Run Lake bald eagle nesting territory. The territory is located approximately 10 miles from the proposed project. No activities involved with the proposed project are located within the Primary Zone extending 1,500 feet from the bald eagle nest tree or the Secondary Zone extending from 1,500 feet to 1 mile from the nest tree on Cave Run Lake. Implementing the actions associated with the proposed project is not expected to directly affect the bald eagle, nor would they indirectly affect the species by modifying habitat it uses. There are no known actions related to this project that are planned by the Commonwealth of Kentucky or by private individuals that would result in a cumulative effect (as defined by the Endangered Species Act of 1973) on the species.

Indiana Bat: On February 15, 2003, below freezing air temperatures and heavy rain combined to deposit up to 2 inches of ice on tree limbs across most of central and eastern Kentucky. The weight of this ice caused limb breakage and uprooting of trees on tens of thousand acres of forest across the commonwealth. On the Morehead Ranger District, the hardest hit area was in northern Rowan County surrounding the community of Cranston with scattered and sporadic damage occurring over most of the rest of the district. It is estimated that at least 25,531 acres of forest on the Morehead Ranger District were damaged to some extent by the storm, including the proposed project area. The number of dead, dying, splintered and broken off trees suitable for use by bats for roosting was increased by the ice storm.

The Final Biological Opinion (FWS #04-0227) for implementation of the 2004 Forest Plan, including its information on the Indiana bat was considered in identifying and evaluating potential effects of this project on the Indiana bat. The proposed project is consistent with standards contained in the Forest Plan that are designed to protect the Indiana bat.

The Forest Plan (USDA 2004, 3-29) defines a Significant Indiana Bat Cave as one containing 50 or more Indiana bats. The closest Significant Indiana Bat Cave to the Morehead Ranger District is Little Amos Cave, located on the Stanton Ranger District. Little Amos Cave is located approximately 1.5 miles from the southern boundary of the Morehead Ranger District. Alternatives A or B would not change the condition of this cave, or any other cave that is or could be used by the Indiana bat. Neither would Alternative A or B result in the cutting of any tree known to be used by the Indiana bat for maternity or roosting.

Field examination of the project treatment locations and surrounding areas shows that a large number of trees are available for Indiana bat use. Implementing Alternative A or B of the Proposed Project would eliminate roost trees that occur on approximately 45 acres. Vegetative sampling plots taken in the project area within forested stands damaged by the ice storm reveal an approximate density of roost trees present on both National Forest and private lands to be 77 per acre. This density is close to four times that found in areas not damaged by the ice storm. Roost trees located in the proposed Right-of-Way for Alternatives A and B would be felled from October 15 to March 31 to keep from any possibility of directly affecting the Indiana bat.

Some of the proposed actions involved with the may have positive indirect effects on the Indiana bat. Tree cutting for the Right-of-Way may improve the suitability of existing damaged trees to support roosting or maternity colonies of Indiana bats by increasing the amount of sun reaching damaged trees in now shaded areas. The Indiana bat is likely to drink and forage over the small wetlands to be established in and near the Right-of-Way and access roads.

The Indiana bat may use the new ROW for travel and foraging, including the native grass openings to be established along the ROW. Therefore, the Project may have beneficial effects on the Indiana bat by providing it with additional water and foraging areas on both National Forest System and Private land.

Possible direct, indirect and cumulative effects of using herbicide to help establish and maintain the ROW as proposed by Alternative A were re-examined using the updated information contained in the revised Forest Plan and FWS #04-0227 , Final Biological Opinion from the U.S. Fish and Wildlife Service. The review found no need to change the determination of effect concerning the possible implementation of Alternative A on the Indiana bat or other PETS.

Human caused noises associated with workers establishing and maintaining the ROW have the possibility of disturbing a roosting Indiana bat, causing it to leave a tree during the day and become more susceptible to predation. While this type of disturbance can occur, it is believed to present a minimal risk to the Indiana bat. The plants being controlled in the ROW do not provide roosting habitat for the Indiana bat. Activities would also occur at or near the ground where the Indiana bat does not roost, which would further avoid and minimize potential affects to the Indiana bat. We know of no instances on the Morehead Ranger District where Forest Service Personnel or contractors have disturbed or caused the mortality of Indiana bats by working with hand tools to complete projects similar to this one.

Herbicide use is planned to control woody plants in the ROW. It is possible that herbicide could have a direct effect on the Indiana bat if one was actually sprayed with herbicide. This is unlikely as the application of herbicides to control plants would not be applied to bats nor would it be applied to trees that may be used by the Indiana bat. The toxicity of these chemicals to species such as bats can be inferred from registration standards that were developed under the Federal Insecticide, Fungicide and Rodenticide Act for the protection of humans and the environment. Four classes were developed for humans to describe the effects on dermal and eye irritation. The same level of precision was not required for animals. The following data applies to dermal irritation for rats and rabbits as the chief test animals: imazapyr and glyphosphate: none to slight, triclopyr: slight. Eye irritation was reported as follows: triclopyr: none, glyphosate, imazapyr: none to slight (USFS 1989 Standards controlling how these herbicides are to be applied would be included in all contracts for their use.

The Forest Service would conduct periodic onsite inspections to insure contractors are adhering to specification and clauses. We know of no instances on the Morehead Ranger District where Forest Service Personnel or contractors have disturbed or caused the mortality of Indiana bats by using herbicide to complete projects similar to this one.

There are no known actions related to this project that are planned by the Commonwealth of Kentucky or by private individuals that would result in a cumulative effect (as defined by the Endangered Species Act of 1973) on the species.

Forest Service Sensitive Species

I have examined the list of Sensitive Species to identify those where additional analysis is beneficial for documenting potential impacts resulting from implementation of Alternative A, B or C. A detailed analysis of possible impacts the project may have these Sensitive species follows:

Diana Fritillary: Dr. Al Smith reported observing one male Diana Fritillary on 2 July 2000 and another one on 6 July 2000 at his home in Morehead near Highway 32 and I-64. He first observed the Diana Fritillary on July 2 feeding on a butterfly bush in his backyard. These are the only know observations of the species in Rowan County and from the Morehead Ranger

District. The Diana Fritillary was not observed during field examination conducted for the proposed project. There is a possibility that the species was missed during field examination of proposed work units and that individuals could be harmed by the activities if they were present in the area.

The proposed project is not expected to have indirect or cumulative impacts on the Diana Fritillary. Implementing Alternative A or B of the Rowan-Cranston 138kV Electric Transmission Line Project "may impact individuals but not likely cause a trend to federal listing or a loss of viability" for the Diana Fritillary.

Cliffline Caddisfly: The cliffline caddisfly is currently known from West Virginia and Kentucky. The species is remarkable in that it appears to be the most terrestrial caddisfly known. It lives on exposed Pennsylvanian age rock walls that may be moist to the touch or have a very thin film of water present for only a few months out of the year; the rest of the time the walls are completely dry (Schuster, 1997). The habitat of this species is located in areas where large, vertical, and bare rock faces are sheltered by a very dense tree or rhododendron cover. These cliffs may or may not be close to surface water. The cliff caddisfly can be found in three relatively different habitats including rock walls directly adjacent to stream channels, rock walls that have eroded to form cave-like depressions often with waterfalls, and rock walls that are in dense vegetation, but not closely associated with surface water. The larvae have never been found in adjacent streams or waterfalls but always on the nearby rocks that may be moist to the touch but are generally wet. The adults are poor fliers, and generally make only short hopping flights when disturbed. They remain almost exclusively on the walls at which they emerged. Mating takes place on the walls and females deposit their eggs in clear masses on the wetter portions of the walls (Schuster, 1997). This species has been found on sandstone cliffline at many sites within the Stanton Ranger District; yet has not been located on the Morehead Ranger District.

The proposed Rowan-Cranston 138kV Electric Transmission Line Project is not expected to have direct, indirect, or cumulative impacts on the cliffline caddisfly. Activities associated with the project will not affect cliffline habitats where the species may be found. Implementing Alternative A or B of the Rowan-Cranston 138kV Electric Transmission Line Project is expected to have "no impact" on the cliffline caddisfly.

Kentucky Lady's Slipper: The Kentucky lady's slipper was incorrectly named the Northern Lady's Slipper in the BAE. The Kentucky lady's slipper was not observed during field examination of the proposed project. The proposed project is not expected to have direct, indirect or cumulative affects on the Kentucky lady's slipper. Implementing Alternative A or B of the Rowan-Cranston 138kV Electric Transmission Line Project would have "no impact" on the Kentucky Lady's Slipper.

Small Spreading Pogonia: Small spreading pogonia can be found in bogs, damp meadows and open pine woods in the southeast. The orchid has been found growing on the Daniel Boone National Forest transmission line right-of-ways managed by mechanical and herbicide methods. A single plant of small spreading pogonia was found on a ridge 0.5 miles northeast of Poppin Rock Tunnel on the Morehead Ranger District in 1989 (Campbell et. al. 1989).

Small spreading pogonia was not observed during field examination of the proposed project. The project area does not appear to provide suitable habitat for the species. The proposed project is not expected to have direct, indirect or cumulative affects on small spreading pogonia. Implementing Alternative A or B of the Rowan-Cranston 138kV Electric Transmission Line Project would have "no impact" on small spreading pogonia.

Juniper Sedge: Juniper sedge is not known to grow on the Morehead Ranger District however, it is found on private land in Bath County, Kentucky outside the district boundary. The species is occurs in southern Ontario, Virginia, Ohio and Kentucky where it grows on calcareous siltstones or shale soils associated with eastern red cedar. It can be found in open oak and oak-cedar forests, dry prairies and grassy areas. The species is easily overlooked and misidentified (Taylor, personal com. 2004). Threats to viability in Ohio include fire suppression, overgrowth by woody vegetation, and soil compaction.

Juniper sedge was not observed during field examination of the proposed project. The project area does not appear to provide suitable habitat for the species. The proposed project is not expected to have direct, indirect or cumulative affects on the juniper sedge. Implementing Alternative A or B of the Rowan-Cranston 138kV Electric Transmission Line Project would have "no impact" on juniper sedge.

Hairy Skullcap: Hairy skullcap is known from 4 counties in northeastern Kentucky and has been reported from Georgia and Tennessee (Natureserve 2004). The species has been found in Bath and Menifee Counties (USDA NRCS 2004). Hairy skullcap grows on moist, wooded slopes (Natureserve 2004). It has also been reported in thickets, bluffs and along roadsides (Natureonline 2004).

Hairy skullcap was not observed during field examination of the proposed project. The proposed project is not expected to have direct, indirect or cumulative affects on the hairy skullcap. Implementing Alternative A or B of the Rowan-Cranston 138kV Electric Transmission Line Project would have "no impact" on hairy skullcap.

Agoyan Cataract Moss: Agoyan cataract moss belongs to a group of plants know as copper mosses that show an ecological association with substrate copper and other metals (EHP 2004). This species is almost completely restricted to areas with extremely high concentrations of substrate metals as it most often occurs on abandoned mine tailings and around sites of extreme pollution in North America (EHP 2004). The species is found world-wide, and in the United States it grows in Pennsylvania, North Carolina, Tennessee, Texas, Arizona and Kentucky (EHP 2004). Botanist David Taylor on the Daniel Boone National Forest believes that that Agoyan cataract moss may occur on the Morehead Ranger District of the Daniel Boone National Forest. Agoyan cataract moss was not observed during field examination of the proposed project.

The proposed project is not expected to have direct, indirect or cumulative affects on Agoyan cataract moss. Implementing Alternative A or B of the Rowan-Cranston 138kV Electric Transmission Line Project would have "no impact" on Agoyan cataract moss.

Cutleaved Meadow Parsnip: Cutleaved meadow parsnip is found in dry woods and thickets on limestone in and around the Appalachian Region (Campbell et. al. 1991). It was found at 12 locations on the Morehead Ranger District, mostly in 1991 within a 20 square mile area on ridges near Clack Mountain to the Licking River in Rowan County (Campbell et. al. 1991). Several populations had thousands of plants.

Cutleaved meadow parsnip was not observed during field examination of the proposed project. The proposed project is not expected to have direct, indirect or cumulative affects on cutleaved meadow parsnip. Implementing Alternative A or B of the Rowan-Cranston 138kV Electric Transmission Line Project would have "no impact" on cutleaved meadow parsnip

Closter's Brook Hypnum: Closter's brook-hypnum is a nonvascular, Appalachian species with possible occurrences in Washington State. The species grows attached to rocks in low flow streams, and damp sandstone rock shelters. In Kentucky, the only records are from the Red River Gorge Geological Area on the Stanton District in Powell and Wolfe Counties. Here the species was found in two streams, one on limestone, and the other on sandstone. Suitable habitat for the species appears to occur on the Morehead Ranger District, however, the species has not been located to date.

The proposed Rowan-Cranston 138kV Electric Transmission Line Project is not expected to have direct, indirect, or cumulative impacts on the Closter's brook-hypnum. Activities associated with the project will not affect habitats where the species may be found. Implementing Alternative A or B of the Rowan-Cranston 138kV Electric Transmission Line Project is expected to have "no impact" on the Closter's brook-hypnum.

Sullivant's Leavy Liverwort: Sullivant's leafy liverwort is a southern Appalachian endemic. It occurs on damp, shaded sandstone and conglomerate cliffs, outcrops, rockshelters, and crevices. Humidity in these places is usually high and constant. The habitat for the species on the Daniel Boone is the same. The species is known from the Red River Gorge in Wolfe County where it is found in damp sandstone rock shelters. Suitable habitat for the species appears to occur on the Morehead Ranger District, however, its presence has not bee recorded to date.

The proposed Rowan-Cranston 138kV Electric Transmission Line Project is not expected to have direct, indirect, or cumulative impacts on Sullivant's leafy liverwort. Activities associated with the project will not affect habitats where the species may be found. Implementing Alternative A or B of the Rowan-Cranston 138kV Electric Transmission Line Project is expected to have "no impact" on the Sullivant's leafy liverwort.

Mitigation Measures

All mitigation measures, if any, that were necessary to protect threatened, endangered, proposed, or sensitive plant and animal species as a result of actions incurred by this proposed project were included in Proposed Action and description of Alternative B prepared for the Rowan-Cranston 138kV Electric Transmission Line Project Environmental Assessment.

Preparer

I prepared this Supplemental Biological Assessment and Evaluation and made the effects determinations:

(s) Thomas R. Biebighauser January 27, 2005
Thomas R. Biebighauser Date
Wildlife Biologist
USDA Forest Service, Daniel Boone National Forest
Morehead Ranger District
2375 KY HWY 801 South
Morehead, KY 40351
Phone: (606)-784-6428
Email: tombiebighauser@fs.fed.us

14.4 Comments Received During the 30 day Notice & Comment Period

April Haight
389 Jones Ridge
Clearfield, KY 40313

February 28, 2003

Dave Manner
ATTN: Tom Biebighauser
2375 KY 801 South
Morehead, KY 40351

RE: Proposed Rowan-Craston 138kV Electric Transmission Line Project

Dear Mr. Biebighauser:

Thank you for this opportunity to comment on the above proposed project. First, I would like to express my concern over the lack of information provided about Alternatives E, H and G. All of which I would prefer over Alternatives A, B, or C. Secondly, the USFS did not mention or consider the impact on recreational opportunities in the effect areas, such as Triplett Creek. Thirdly, the issue of the increased possibility of invasive fauna, from increased access by vehicles, being introduced into the area was not addressed. Next the USFS also failed to address the issue of fragmentation of the National Forest and the negative effectives that have resulted from past fragmentation. 1 2 3 4

As a member of the Rowan County Chapter of the Kentuckians for the Commonwealth, I also strongly support the views and questions raised in the letter to you by Doug Doerfield.

Again thank you for an opportunity to provide input into the process. I hope that you will expand your scope of viewing this project.

Sincerely,
April D. Haight
April Haight

Forest Service Response:

1. More detail has been added to the description of the Alternatives found in Section 7.0 of the EA.
2. A description of how the proposed project may affect Recreation opportunities along Triplett Creek has been added to Section 10.9 of the EA.
3. Activities associated with the project are not expected to increase the presence of invasive plants in the area because of measures being taken to vegetate exposed soils soon after disturbance. Possible spread of invasive plants would also be further controlled by the planting of native species as described in Section 2.0 of the EA.
4. Section 10.4 of the EA contains a detailed description of historic and possible future fragmentation effects.

Dave Manner
Morehead District Ranger
ATTN: Tom Biebighauser
2375 KY 801 South
Morehead, KY 40351

Danny Porter
1225 Big Perry Road
Morehead, KY 40351

COMMENTS ADDRESSING THE CONSTRUCTION OF THE ROWAN-CRANSTON 138KV TRANSMISSION LINE PROJECT

Thank you for inviting my comments concerning the Rowan Cranston 138kV Electric Transmission Line through the Daniel Boone National Forest. Once again, I am dismayed at the perception that National Forest land is "free land" to be distributed amongst development interests. This is not how this public land was intended to be used. Having opposed the outrageous connector road project through this same block of forest, I can only wonder if it is the intent of lead agencies to so mutilate this section of forest that it won't be worth protecting for aesthetic and recreational purposes.

As a resident who lives close to the proposed location of the transmission line, I am also concerned about health issues associated with the maintenance of the line. The runoff from the large amount of herbicides described in the proposal may end up in my backyard in one form or another.

I support alternative H as the recommended route for the transmission lines. This route would be least detrimental to "public" Forest land, and it would utilize the already available US 60 corridor.

This is a very vital section of Forest, made even more vital by its close proximity to Morehead. Its recreational and environmental worth far outweigh its potential as a utility or traffic corridor. Thank you.

Danny Porter

Danny Porter

Forest Service Response:

1 1. Forest Plan Standard DB-LAND-2 provides direction on how special use proposal such as this project are to be evaluated. Sections 8.0 and 10.0 contain detailed information concerning the evaluation that was completed.

2 2. The Forest Plan provides direction on how the area should be managed.

3 3. Possible effects of the project on public safety and health can be found in Section 10.11 of the EA.

4 4. The effects of implementing Alternative H on the environment are described in Section 7.0 of the EA.

5 5. Possible effects of implementing the project on Recreation use in the area are described by Section 10.9 of the EA.

James D Manner
02/04/2004 01:32 PM

To: Tom R Biebighauser/R8/USDAFS@FSNOTES
cc:
Subject: Proposed Rowan Cranston 138 kV Transmission Line public comment.

Tom, here is a comment on the power line.
---- Forwarded by James D Manner/R8/USDAFS on 02/04/2004 01:31 PM ----

"Danny and Linda Moloney" <moloney@scrtc.com>
02/04/2004 11:53 AM

To: <davemanner@fs.fed.us>
cc:
Subject: Proposed Rowan Cranston 138 kV Transmission Line public comment.

Dave Manner
Morehead District Ranger
Attn: Tom Biebighauser
2375 Ky 801 So.
Morehead, Ky 40351

Thank you for inviting my comments concerning the Rowan Cranston 138 kV Electric Transmission Line through our Daniel Boone National Forest. Most folks, including myself, are shocked to discover that these proposals for utility corridors or road projects through National Forest land are even legal, outside c the fact that they are so publicly unpopular. Our National Forests were never intended to be used as such. 1

Everyone deserves to have an adequate and reliable electric supply...Alternative plan H serves that need and saves this vital section of forest from being 'hacked in two' by a massive clear cut... A clear cut mad permanent by extensive mowing, bush-whacking and aerial herbicide dousings. 2

Electricity, we are told, follows the path of least resistance. Alternative H, less detrimental to public forest and utilizing the existing US 60 corridor, is indeed the path of least resistance. Thank you.

Danny Moloney
183 Cloverdale Dr.
Glasgow, Ky 42141

1. Forest Plan Standard DB-LAND-2 provides direction on how special use proposal such as this project are to be evaluated. Sections 8.0 and 10.0 contain detailed information concerning the evaluation that was completed.

2. The effects of implementing Alternative H on the environment are described in Section 7.0 of the EA.

Protecting the Beauty
and Well-being of
Kentucky's Public Forests

ric Trans sion Line Environmental Assessment

Dave Manner
ATTN: Tom Biebighauser
2375 KY 801 South
Morehead, KY 40351

February 26, 2004

Dear Mr. Manner,

Please accept the following Kentucky Heartwood comments regarding the Environmental Assessment (EA) and Biological Assessment/Evaluation (BAE) for the proposed Rowan-Cranston 138kV Transmission Line Project on the Morehead Ranger District of the Daniel Boone National Forest..

Purpose
Cutting costs does not qualify as a legitimate purpose of the project. Cutting costs for EKPC may be a goal, but inserting cost-saving into the purpose of the project arbitrarily limits alternatives from consideration that may cost more, while yielding other public benefits. These benefits may not have dollar amounts we can place on them, but they can still serve worthwhile public purposes such as water filtration, recreation values, and tourism-based economic activity.

1

1. Section 3 of the EA describes a number of factors comprising the purpose and need for the project, one of these "would help allow the transmission line to be built at a reasonable cost and help make efficient use of public funds".

Need
As is often the case, the Forest Service has failed to analyze the need for the project in question. The agency accepted Eastern Kentucky Power Cooperative's (EKPC's) explanation for why the project was needed without any independent verification (i.e. an attempt to corroborate EKPC's story with an independent third party). Authorizing a utility corridor in the Daniel Boone National Forest (DBNF) without analyzing the need in some way violates the current Forest Plan (EA, p.19, c))

2

2. Section 3 of the EA provides details concerning the purpose and need for the project. Appendix 14.1 is an Analysis of Public Need for the Project. Stanley Consultants also prepared an independent report "Final Report: Justification of Cranston-Rowan 138kV Line" for this project.

Cumulative Effects to the Forest Service Tract in Question
This EA and BAE ignore cumulative effects to the second largest contiguous block of forestland in the Morehead District. Without analysis of the impacts of proposed widespread salvage logging in the area and growing political support for a new road through Rodburn Hollow in the same tract of the national forest, there can be no complete assessment of cumulative impacts for this project. Cumulative impacts assessment of all reasonably foreseeable impacts is required by NEPA.

3

3. Section 10 of the EA contains detailed descriptions of possible cumulative effects of implementing the project on the environment. The BAE and Supplemental BAE prepared for the project also describe possible cumulative effects, however, as defined under the Endangered Species Act.

P.O. Box 555, Lexington, Kentucky 40588

Range of Alternatives

The Range of Alternatives is arbitrarily narrowed to one route through the Boone a No Action option. As a result, routes that avoid impacts to public lands are arbitra thrown out because of extra cost.

4. Section 7.0 of the EA contains information on 8 Alternatives for this project and why 3 Alternatives received detailed consideration.

Inconsistency with the Forest Plan

The EA, the BAE, and the preferred alternative are inconsistent with the Daniel Bo current Forest Plan. They have all violated the Forest Plan by:

5. Section 8 of the EA describes how this project responds to Forest Plan direction. A number of reasons for why certain Alternatives were considered in detail can be found in Section 7.0 of the EA.

1)allowing a permitted use of National Forest lands that could be served on private The powerline in question could be constructed on private land, or at least mostly on private land. The EA arbitrarily drops alternatives that would have avoided major pub lands impacts from consideration by dismissing them as too costly. A decision about t worthiness of an alternative for consideration based on cost alone is an arbitrary methc of selection that ignores many important considerations.

2)approving a new utility corridor without analyzing the public need (see above); a

3)degrading rather than protecting or enhancing resource values such as soils, wate wildlife habitats through ROW maintenance practices (EA, p.19).

6. Section 3 of the EA provides details concerning the purpose and need for the project. Appendix 14.1 is an Analysis of Public Need for the Project. Possible effects of implementing each Alternative on the environment are described in Section 10 of the EA.

Erosion, Compaction, Sedimentation, and Water Pollution

This project's soil erosion, sedimentation, and water pollution impacts are largely i and discounted in conclusory sections throughout the EA. Then, the EA's discussi contradicts these conclusions as it confirms them as genuine risks on p.39 and 42. acknowledgement by the report's authors calls for in-depth analysis of this project' erosion, sedimentation, and water pollution impacts, keeping in mind that ORV use would use the ROW itself and its attendant road system as an illegal driving corrid expanding erosion, sedimentation, and compaction impacts from this project throu the project area.

7. Section 10.5 of the EA discloses possible effects of the project on soil and water resources. Such conflicts in the analysis are not seen by the Forest Service.

8. Based on observations of existing transmission line ROW's located on National Forest System land within the Morehead Ranger District problems with illegal ORV use are not expected, as possible access routes will be closed to non-authorized motor vehicle use.

The EA also claims that herbicides used in the project would pose no risk to water resources. But the 30' and 100' herbicide application buffers prescribed by the proj water sources tell a different story(EA, p.7, #21). Later in the EA, contamination o by herbicide application is acknowledged as a threat (p.39). This is especially impo to consider in light of this project area's location on a 100-year flood plain.(EA, p.2 This is doubly important to consider because of increased flooding in the area that expected from removing nine to twelve million board feet of biomass out of the pr area and the area surrounding it in the Morehead Ice Storm Salvage Logging Proje Since this project would involve working with herbicides that persist in the soil for a year, water contamination associated with major rain events is a serious concern.

9 Portions of Section 10.0 in the EA that describe possible effects of herbicide use on the environment have been rewritten to incorporate analysis completed for the Revised Forest Plan.

10. This project is not expected to increase flooding in the area as measures would be taken to control erosion as described in Section 2.0 of the EA. Possible effects of herbicide use on the environment are described in detail by Section 10 of the EA.

The logging and roadbuilding proposed for the project area would have significant impacts on soil and water resources. The tracks and tires on mechanized equipmen to log and build roads expose the soil and lead to significant erosion (EA, p.42), wh leads to sedimentation of streams. Stream sedimentation can make aquatic habitats unsuitable for current inhabitants. Significant soil compaction is also caused by machines used in logging and demolition. These effects should be considered in-d an EIS.

11. Section 10.5 of the EA discloses that there is a possibility that erosion may occur, especially if a thunderstorm occurs before erosion control measures are in place. However, frequent inspections by the Forest Service of contractor actions are aimed at reducing the possibility of this happening.

rther use of these logging and construction roads by illegal Off-Road Vehicle (OF enthusiasts and horseback riders increases these erosion, sedimentation, and compac impacts, as acknowledged on p.46 of the EA. What remains unacknowledged by the is the inevitability of illegal ORV use on the officially closed roads, which will perpetuate these impacts and make them permanent impacts. These additional effec should be considered in-depth in an EIS.

Impacts to Wildlife

This project threatens to inflict significant impacts on the wildlife of the project area Perhaps the most significant impact of the project is habitat fragmentation. The EA claims there are no impacts to interior forest-dependent species on p. 38, but contrac itself by admitting impacts in the same paragraph, and by acknowledging that the nc action alternative will be better for forest interior songbirds on p.39.

Interior forest habitat is already a remarkable rarity in Eastern Kentucky. But as the acknowledges on p.39, as development pressures and impacts increase on adjacent private lands in the future, so will the value and importance of the interior forest hab on the DBNF. This is why we need to go to considerable lengths to protect the interi forests we still have that can be protected on public lands.

The habitat destruction and fragmentation impacts this project threatens to inflict on DBNF are significant. Elimination of 80 linear acres through 4.8 miles of the DBNI directly and permanently eliminates a significant amount of forested habitat for near individuals of all species that currently make that 100' wide strip of forest their hom The forest demolition also transforms conditions on the edge forest that remains afte cutting and makes previously suitable habitat unsuitable for many species (EA, p.33

This EA fails to produce any data or analysis of existing fragmentation impacts and pressures within the project area (p.32). Without this baseline data, cumulative fragmentation effects can not be assessed for this project, which renders this EA inadequate, according to NEPA.

Another impact that this project threatens to inflict on local wildlife would occur wh local animals and invertebrates come in direct contact with the herbicides after spray and other forms of application in the project area. Clearly, the FS is concerned abou humans coming into contact with the applied herbicides proposed for the project (E/ p.6, #5). However, no consideration is given to impacts to wildlife who come in con with the applied herbicides inside of or downstream from the project area anywhere EA or BAE. The direct, indirect, and cumulative impacts of wildlife exposure to triclopyr, imazapyr, and glyphosate need to be assessed, in accordance with NEPA. Species that could be effected by herbicide exposure include:

1)Northern Riffleshell - A PETS species. No herbicide impacts are predicted in the I (p.75), but no data is provided or analyzed regarding existing downstream contamin of the Licking River with these herbicides in the BAE. Without this baseline data, c conditions cannot be assessed and cumulative effects analysis for this species is rend impossible, in violation of NEPA.*

2)Pink Mucket - A PETS species. No herbicide impacts are predicted in the BAE (p.76), but no data is provided or analyzed regarding existing downstream contamination of the

12 12. We disagree that illegal ATV use of the closed roads would pre. . a problem for this project. The temporary roads to be used do not form loops but terminate at the edge of steep slopes, making them unattractive to illegal ATV use. They would also be blocked to motorized vehicle ATV use.

13 13. Section 10.4 of the EA states; Forest patch size and habitat for breeding forest interior songbirds would not change because the ROW would be maintained in an early stage of forest development, namely grasses and shrubs. For Alternative C it states; Forest patch size, and habitat for breeding forest interior songbirds, will not be increased or decreased.

14 14. Species that use interior habitat are identified to include "black and white warblers, cerulean warblers, Acadian flycatchers, black-throated green warblers, and ovenbirds" in Section 10.4 of the EA. The EA describes possible effects of implementing each Alternative on Management Indicator Species, some of which represent habitat conditions for interior species in detail.

15 15. Section 10.4 of the EA contains data and analysis concerning the topic of fragmentation.

16 16. Possible effects of herbicide exposure on wildlife are disclosed in Sections 10.1 and 10.2 of the EA.

17 17. The BAE and Supplemental BAE prepared for the project contain information concerning the possible effects of herbicide exposure on PETS. These findings were considered in the EA.

Licking River with these herbicides in the BAE. Without this baseline data, current conditions cannot be assessed and cumulative effects analysis is rendered impossible, in violation of NEPA.*

3)Fanshell - A PETS species. No herbicide impacts are predicted in the BAE (p.77), but no data is provided or analyzed regarding existing downstream contamination of the Licking River with these herbicides in the BAE. Without this baseline data, current conditions cannot be assessed and cumulative effects analysis is rendered impossible, in violation of NEPA.*

4)Eastern Small-Footed Bat - A FS Listed Sensitive species. The EA admits the ROW may encourage these bats to forage in the project area (p.78), but no consideration is given to impacts to bats who come in contact with recently-sprayed herbicides in the project area while they are foraging.

5)Rafinesque's Big-Eared Bat - A FS Listed Sensitive species. No consideration is given to impacts to bats who may come in contact with recently-sprayed herbicides in the project area while they are foraging.

6)Peregrine Falcon - A FS Listed Sensitive species. The EA admits that falcons may forage in the project area (p.79), but no consideration is given to impacts to falcons who come in contact with recently-sprayed herbicides in the project area while they are foraging, or who ingest bioaccumulated herbicides through their prey.

7)Diana Fritillary - A FS Listed Sensitive species. The EA admits the ROW may encourage these insects to inhabit the project area (p.78), but no consideration is given to impacts to individuals who come in contact with recently-sprayed herbicides in the project area.

8)Sand Darter - A FS Listed Sensitive species. No herbicide impacts are predicted in the BAE (p.84), but no data is provided or analyzed regarding existing downstream contamination of the Licking River with these herbicides in the BAE. Without this baseline data, current conditions cannot be assessed and cumulative effects analysis for this species is rendered impossible, in violation of NEPA.*

9)Tippecanoe Darter - A FS Listed Sensitive species. No herbicide impacts are predicted in the BAE (p.85), but no data is provided or analyzed regarding existing downstream contamination of the Licking River with these herbicides in the BAE. Without this baseline data, current conditions cannot be assessed and cumulative effects analysis for this species is rendered impossible, in violation of NEPA.*

10)Snuffbox - A FS Listed Sensitive species. No herbicide impacts are predicted in the BAE (p.86), but no data is provided or analyzed regarding existing downstream contamination of the Licking River with these herbicides in the BAE. Without this baseline data, current conditions cannot be assessed and cumulative effects analysis for this species is rendered impossible, in violation of NEPA.*

11)Sheepnose - A FS Listed Sensitive species. No herbicide impacts are predicted in the BAE (p.86), but no data is provided or analyzed regarding existing downstream

18

18. The BAE and Supplemental BAE prepared for the project contain information concerning the possible effects of herbicide exposure on PETS.

col tion of the Licking River with these herbicides in the BAE. Without this
base... data, current conditions cannot be assessed and cumulative effects analysis f
this species is rendered impossible, in violation of NEPA.*

12)Salamander Mussel - A FS Listed Sensitive species. No herbicide impacts are predicted in the BAE (p.87), but no data is provided or analyzed regarding existing downstream contamination of the Licking River with these herbicides in the BAE. Without this baseline data, current conditions cannot be assessed and cumulative effe analysis for this species is rendered impossible, in violation of NEPA.*

Noise Pollution/Killing and Harassment of Wildlife

While the EA admits to noise pollution effects from this project, it isolates its analysi this impact to the construction and maintenance phases of the project. With permanen increased illegal ORV traffic in the ROW, wildlife will be continually killed, harrasse and scared away by loud, heavy, fast-moving vehicles. These wildlife impacts need t fully assessed.

Recreation/Visual Impacts

The primary recreational use of the tract of the DBNF in question is hunting. It is a popular local hunting spot (EA, p.46). But visual quality impacts in the EA are only looked at from the perspective of drivers on adjacent roads. Visual Impacts to the hun experience of the primary local recreationists are not considered (EA, p.44). The EA confirms the presence of dayhikers, through-hikers, and horseback riders on the Sheltowee Trace on p.46. The impact to these recreationists' experience also goes unadressed throughout the document.

Air Quality

Air quality impacts of this project are largely ignored in these planning documents. Tl Forest Service has no site-specific baseline data or analysis for air quality in the proje area (EA, p.24). Without this understanding of current conditions in the project area, cumulative effects to air quality cannot be assessed, in violation of NEPA.

In summary, the EA falls short of the analysis requirements of NEPA. It should be rewritten and re-issued to address the analysis gaps listed above, or the Forest Service should go straight to creating an EIS for the project that fully explores the issues listed above.

Sincerely,

Perrin de Jong, *Coordinator*

* Sedimentation Effects on Aquatic Species - The above starred species are also neglected the EA and BAE when it comes to cumulative effects analysis of sedimentation of their aqua habitats. Since no data or analysis regarding current sedimentation pressures and impacts their aquatic habitat is listed in the EA or the BAE, the FS is without a baseline from which t assess cumulative sedimentation impacts on these aquatic species. Without cumulative aquatic habitat sedimentation effects analysis, the environmental analysis in the EA is inadequate to support a project decision under NEPA.

19 19. The BAE and Supplemental BAE prepared for the project contain information concerning the possible effects of herbicide exposure on PETS.

20 20. We disagree with your assumption that ORV traffic will take place as described based on experiences with similar transmission line corridors located on National Forest System lands within the Morehead Ranger District.

21 21. Section 10.9 of the EA describes how the project would affect the appearance of the area. An important thing to remember is how the appearance of the area changed following the February 2003 Ice Storm. Due to the large number of trees that fell in the area roads continue to be the main way that people access the area. Just how the project would affect each individuals view on the beauty of the area would vary. We believe that some will notice the change and not like it, where others won't care one way or the other.

22 22. Section 10.6 of the EA discloses possible effects of the project on air quality in the area.

23 23. The possibility of sedimentation resulting from this project is low in consideration of erosion control measures being taken as outlined in Section 2.0 of the EA. Section 10.2 of the EA, the BAE and Supplemental BAE disclose that PETS Aquatic species are not present of located many miles downstream of the project and would not be affected by the project.

Southern Appalachian Biodiversity Project
PO Box 3141
Asheville, North Carolina 28802
(p) 828.258.2667 / (f) 828.258.0758

February 26, 2004

Dave Manner
ATTN: Tom Biebighauser
2375 KY 801 South
Morehead, Kentucky 40351

Dear Mr. Manner,

Please accept the following comments from the SABP regarding the Environmental Assessment (EA) and Biological Assessment/Evaluation (BAE) for the proposed Rowan-Cranston 138kV Transmission Line Project on the Morehead Ranger District of the Daniel Boone National Forest.

Purpose
Cutting costs does not qualify as a legitimate purpose of the project. Cutting costs for EKPC may be a goal, but inserting cost-saving into the purpose of the project arbitrarily limits alternatives from consideration that may cost more, while yielding other public benefits. These benefits may not have dollar amounts we can place on them, but they can still serve worthwhile public purposes such as water filtration, recreation venues, and tourism-based economic activity.

1

Need
As is often the case, the Forest Service has failed to analyze the need for the project in question. The agency accepted Eastern Kentucky Power Cooperative's (EKPC's) explanation for why the project was needed without any independent verification (i.e. an attempt to corroborate EKPC's story with an independent third party). Authorizing a utility corridor in the Daniel Boone National Forest (DBNF) without analyzing the need in some way violates the current Forest Plan (EA, p.19, c))

2

Cumulative Effects to the Forest Service Tract in Question
This EA and BAE ignore cumulative effects to the second largest contiguous block of forestland in the Morehead District. Without analysis of the impacts of proposed widespread salvage logging in the area and growing political support for a new road through Rodburn Hollow in the same tract of the national forest, there can be no complete assessment of cumulative impacts for this project. Cumulative impacts assessment of all reasonably foreseeable impacts is required by NEPA.

3

Range of Alternatives
The Range of Alternatives is arbitrarily narrowed to one route through the Boone and a No Action option. As a result, routes that avoid impacts to public lands are arbitrarily thrown out because of extra cost, thereby whittling away the plans that best protect the forest; the same forest that we trust the USFS to protect.

4

1. Section 3 of the EA describes a number of factors comprising the purpose and need for the project, one of these "would help allow the transmission line to be built at a reasonable cost and help make efficient use of public funds".

2. Section 3 of the EA provides details concerning the purpose and need for the project. Appendix 14.1 is an Analysis of Public Need for the Project. Stanley Consultants also prepared an independent report "Final Report: Justification of Cranston-Rowan 138kV Line" for this project.

3. Section 10 of the EA contains information on possible cumulative effects of implementing the project along with other possible projects on the environment.

4. Section 7.0 of the EA contains information on 8 Alternatives for this project and why 3 Alternatives received detailed consideration.

Inconsistency with the Forest Plan

Th the BAE, and the preferred alternative are inconsistent with the Daniel 5
ea orest Plan. They have all violated the Forest Plan by:

1) allowing a permitted use of National Forest lands that could be served on pri

The powerline in question could be constructed on private land, or at least mostly c 6
private land. The EA arbitrarily drops alternatives that would have avoided major
lands impacts from consideration by dismissing them as too costly. A decision abc
worthiness of an alternative for consideration based on cost alone is an arbitrary m
of selection that ignores many important considerations.

2) approving a new utility corridor without analyzing the public need (see abov 7

3) degrading rather than protecting or enhancing resource values such as soils, 8
wildlife habitats through ROW maintenance practices (p.19).

Erosion, Compaction, Sedimentation, and Water Pollution

This project's soil erosion, sedimentation, and water pollution impacts are large
and discounted in conclusory sections throughout the EA. Then, the EA's discu 9
contradicts these conclusions as it confirms them as genuine risks on p.39 and 4
acknowledgement by the report's authors calls for in-depth analysis of this proj
erosion, sedimentation, and water pollution impacts, keeping in mind that ORV
would use the ROW itself and its attendant road system as an illegal driving cor 10
expanding sedimentation impacts from this project throughout the project area.

The EA also claims that herbicides used in the project would pose no risk to wa
resources. But the 30' and 100' herbicide application buffers prescribed by the p
water sources tell a different story (p.7, #21). Later in the EA, contamination of 11
herbicide application is acknowledged as a threat (p.39). This is especially impc
consider in light of this project area's location on a 100-year flood plain.(EA, p.
is doubly important to consider because of increased flooding in the area that is
expected from removing nine to twelve million board feet of biomass out of the 12
area and the area surrounding it in the Morehead Ice Storm Salvage Logging Pr

The logging and roadbuilding proposed for the project area would have signific
impacts on soil and water resources. The tracks and tires on mechanized equipm
to log and build roads expose the soil and lead to significant erosion (p.42), whi 13
to sedimentation of streams. Stream sedimentation can make aquatic habitats u
for current inhabitants. Significant soil compaction is also caused by machines
logging and demolition. These effects should be considered in-depth in an EIS.

Further use of these logging and construction roads by illegal Off-Road Vehicle
enthusiasts and horseback riders increases these erosion, sedimentation, and cor 14
impacts, as acknowledged on p.46 of the EA. What remains unacknowledged b
is the inevitability of illegal ORV use on the officially closed roads, which will
perpetuate these impacts and make them permanent impacts. These additional
should be considered in-depth in an EIS.

5. Sect 3.0 of the EA contains information on how the project
ct responds to Forest Plan Direction.

6. Section 7.0 of the EA describes each Alternative and provides rationale why certain ones were considered in detail.

7. Appendix 14.1 of the EA responds to this concern over public need for the project.

8. Forest Plan Standards for soils and wildlife would be followed for this project. These standards were designed to reduce effects to the environment.

9. Forest Plan Standards designed to reduce erosion would be followed by this project, and these standards are as strong if not stronger than Kentucky Best Management Practices.

10. Observations made of existing ROW's on National Forest System land within the Morehead Ranger District find that described erosion problems associated with illegal ATV use are not occurring.

11. Portions of Section 10.0 in the EA that describe possible effects of herbicide use on the environment have been rewritten to incorporate analysis completed for the Revised Forest Plan.

12. This project is not expected to increase flooding in the area as measures would be taken to control erosion as described in Section 2.0 of the EA. Possible effects of herbicide use on the environment are described in detail by Section 10 of the EA

13. Section 10.5 of the EA discloses that there is a possibility that erosion may occur, especially if a thunderstorm occurs before erosion control measures are in place. However, frequent inspections by the Forest Service of contractor actions are aimed at reducing the possibility of this happening.

14. We disagree that illegal ATV use of the closed roads would present a problem for this project. The temporary roads to be used do not form loops but terminate at the edge of steep slopes, making them unattractive to illegal ATV use. They would also be blocked to motorized vehicle ATV use.

Impacts to Wildlife

This project threatens to inflict significant impacts on the wildlife of the project area. Perhaps the most significant impact of the project is habitat fragmentation. The EA claims there are no impacts to interior forest-dependent species on p. 38, but contradict itself by admitting impacts in the same paragraph, and by acknowledging that the no action alternative will be better for forest interior songbirds on p.39. 15

Interior forest habitat is already a remarkable rarity in Eastern Kentucky. But as the E/ acknowledges on p.39, as development pressures and impacts increase on adjacent private lands in the future, so will the value and importance of the interior forest habita on the DBNF. This is why we need to go to considerable lengths to protect the interior forests we still have that can be protected on public lands. 16

The fragmentation impacts this project threatens to inflict on the DBNF are significant. Elimination of 80 linear acres through 4.8 miles of the DBNF directly and permanently eliminates a significant amount of forested habitat for nearly all individuals of all speci that currently make that 100'ft. wide strip of forest their home. The forest demolition a transforms conditions on the edge forest that remains after cutting and makes previousl suitable habitat unsuitable for many species (p.33).

This EA fails to produce any data or analysis of existing fragmentation impacts and pressures within the project area (p.32). Without this baseline data, cumulative fragmentation effects can not be assessed for this project, which renders this EA inadequate, according to NEPA. 17

Another impact that this project threatens to inflict on local wildlife would occur when local animals and invertebrates come in direct contact with the herbicides after sprayin; and other forms of application in the project area. 18

In any ecosystem, the species most sensitive to disturbance are the rarest species. Logi dictates that the most sensitive species in the proposed area of activity will be the speci least likely to survive the proposed action. An accumulation of data by Diamond (198- and Pimm (1991) demonstrated that the plants and animals in a community which are most susceptible to these invasions are those that are deemed "rare and endangered (native) species." 19

Furthermore, countless studies including and document the severe impact of herbicides on forested areas where the biotic communities are decimated (for examples see: Barraclough and Ghimire 1995, Grainger, 1993, Marchak 1995, Hurst 1990). 20

Furthermore, individuals exposed to glyposate herbicides demonstrate a threefold increase in risk of developing hairy-cell leukemia (HCL), a form on non-Hodgkin's lymphoma (Nordstrom *et al.* 1998).

Furthermore, another study notes that although gyphosate does bind to soils. However this process is reversible and gyphosate readily desorbs from soils. Up to 80% of gly[illegible]e has been observed to desorb from clay particles, leading the study's authors t co[illegible], that:

15. Section 10.4 of the EA states; Forest patch size and habitat for breeding forest interior songbirds would not change because the ROW would be maintained in an early stage of forest development, namely grasses and shrubs. For Alternative C it states; Forest patch size, and habitat for breeding forest interior songbirds, will not be increased or decreased.

16. Species that use interior habitat are identified to include "black and white warblers, cerulean warblers, Acadian flycatchers, black-throated green warblers, and ovenbirds" in Section 10.4 of the EA. The EA describes possible effects of implementing each Alternative on Management Indicator Species, some of which represent habitat conditions for interior species in detail.

17. Section 10.4 of the EA contains data and analysis concerning the topic of fragmentation.

18. Possible effects of herbicide exposure on wildlife are disclosed in Sections 10.1 and 10.2 of the EA.

19. Section 10.2 of the EA discloses possible effects of the project on PETS. The BAE and Supplemental BAE also describe possible effects of the project on PETS.

20. The Forest Plan completed the analysis on herbicides that may be used on National Forest System land. The only herbicides that would be used for this project are those approved for use by the Forest Plan, and at application rates also approved by the Forest Plan. Considerable analysis was completed prior to including these herbicides in the Forest Plan.

"[glyphosate] can be extensively mobile in the soil."
(Piccolo *et al.* 1994)

Furthermore, Servizi *et al.* (1987) summarized the acute lethality of Roundup and a surfactant (MON 0818) to sockeye salmon, rainbow trout and coho salmon. The surfactant was "tested separately from [Garlon 4] and found to be much more toxic than the latter." Further testing showed that the combined effect of glyphosate and the surfactant were "more than additive and raises doubt that the LC50's reported for Roundup in reconstituted water are applicable to natural waters."

This demonstrates that the listing and possible effects caused by JUST the active ingredients is insufficient and the Forest Service should list COMPLETELY all chemicals (active and inactive) it proposes to use in the proposed action.

The SABP additionally requests that the Forest Service disclose any dyes that will be added to the herbicide treatments that are used to visually establish treated areas from untreated areas.

However, the Forest Service failed to fully address the danger of **Garlon 4** including:

A.) the active ingredient has been labeled to be "slightly toxic to mallard ducks" and has a 30 to 90 day half-life in the soil, with an average of about 46 days. The half-life of one of the breakdown products, TCP, in 15 soils ranged from 8- 279 days (Extension 1993).

B.) according to Tu *et al.* (2001) [of TCP] "[o]ffsite movement through surface or subsurface runoff is a possibility" because it "is relatively persistent and has only moderate rates of absorption to soils." Additionally, the ester formulation is "highly toxic to fish and aquatic invertebrates."

C.) that TCP is the main metabolite from the breakdown of Tryclopyr and has been reported to be teratogenic at doses that are listed as "relatively nontoxic" to adult mammals (Hanley 1987, Dow 1991).

D.) Servizi *et al.* (1987) showed acute lethality of Garlon 4, Roundup and a surfactant (MON 0818) to sockeye salmon, rainbow trout and coho salmon.

E.) Garlon 4 utilizes diesel fuel and/or kerosene as "vehicles" or surfactants, both of which are known and listed carcinogens & general toxins (USDH&HS: Toxicological Profiles).

(1) Diesel fuel and kerosene are highly toxic to vertebrates, invertebrates, plants, fungi and many microscopic organisms.

(2) Toxic and carcinogenic chemicals found in and generated from the breakdown of fuel oils may build up significantly in plants and animals (CDC 1996).

21. Herbicides would not be applied to wetlands or streams that may be used by the mallard duck.

(3) Kerosene and diesel fuel contain known carcinogens & toxins: enzene, naphthalene, toluene, xylene, poly aromatic hydrocarbons (PAHs) and lead; all of which are much more soluble in water and have much longer lives in the environment than their parent chemical.

(4) Aquatic organisms are known to bioconcentrate hydrocarbons, including diesel fuel, kerosene, benzene, naphthalene, toluene, xylene and PAHs.

(5) Products produced from the breakdown of kerosene and diesel fuel are taken up by benthic organisms; they may be selectively retained (via bioaccumulation); may be retained in both sediment and aquatic organisms and may thus enter the food chain (Farrington et al. 1982).

(6) PAHs, an afore-mentioned class of carcinogens, produced from the breakdown of diesel fuel and kerosene, are "water soluble and therefore the most likely fuel oil components to leach through soil into groundwater." (Strayer et al. 1983)

The Forest Service is prosing to incorporate the herbicide **Garlon4™** (ester formulation ; active ingredient: **tryclopyr** or **[(3,5,6-trichloro-2-pyridinil)oxy] acetic acid**) into it's "management regime." Although the concerns as to the fate of the main metabolite trichloropyridinol (TCP) are addressed below, it should be noted that the "inactive ingredients" (often misleadingly listed as "inert") must be included on the list of contents.

Among the "inactive ingredients" in **Garlon4™** are kerosene, diesel fuel, dodecylbenzenesulfonic acid and ethoxylated sorbitan monooleate. The former two are hazardous materials that would NEVER be tolerated to be disposed of in or anywhere near a park, much less sprayed right onto the biomass, in the middle of a nest of delicate habitat.

Furthermore, "intert" ingredients in glyposate- and imazapyr-based herbicides are not addressed in the EA. These ingredients include ammonium sulfate, benzisothiazolone, 3-iodo-2-propynyl butylcarbanate (IPBC), methyl pyrrolidinone, pelargonic acid, polyethoxylated tallowamine (POEA), potassium hydroxide, sodium sulfite, sorbic acid and isopropylamine (Cox 1998). Each of these substances have their own – and quite severe - impacts on biota and have been documented to cause increased blood pressure, heart palpitations, cardiac depression, intestinal pain, vomiting, fluid buildup in lungs, miscarriage and premature birth, salivary gland lesions, vertigo, and damage to red blood cells, lungs, kidneys and larynx in humans.

Then there are the adjuvant, surfactants and dyes. As pointed out in Pepling *et al.* (1997):

> "There is extremely little information available to assist the DEA or other organizations in their efforts to select dyes to use as markers on vegetation. Although dyes are used extensively... in many agricultural applications, their use is

22. Forest Plan Standard for herbicide type, mixing agents, application rates and methods would be followed for this project.

virtually unregulated and there is almost no guidance regarding the selection of dyes based on their efficacy or potential hazard.

"... the assessment of these risks is severly limited by proprietary nature of dye formulations."

"...when a colorant or other adjuvant... is not listed as hazardous and therefore not identified on the product label or MSDS **it should not be concluded that the dye or adjuvant is not toxic.**"

Similar sentiments are echoed in Levine (1996).

Clearly, the FS is concerned about humans coming into contact with the applied herbicides proposed for the project (p.6, #5). However, no consideration is given to impacts to wildlife that come in contact with the applied herbicides inside of or downstream from the project area anywhere in the EA or BAE. The direct, indirect, and cumulative impacts of wildlife exposure to triclopyr, imazapyr, and glyphosate need to be assessed, in accordance with NEPA. Species that could be affected by herbicide exposure include:

1)Northern Riffleshell - A PETS specie. No herbicide impacts are predicted in the BAE (p.75), but no data is provided or analyzed regarding existing downstream contamination of the Licking River with these herbicides in the BAE. Without this baseline data, current conditions cannot be assessed and cumulative effects analysis for this specie is rendered impossible, in violation of NEPA.*

2)Pink Mucket - A PETS specie. No herbicide impacts are predicted in the BAE (p.76), but no data is provided or analyzed regarding existing downstream contamination of the Licking River with these herbicides in the BAE. Without this baseline data, current conditions cannot be assessed and cumulative effects analysis is rendered impossible, in violation of NEPA.*

3)Fanshell - A PETS specie. No herbicide impacts are predicted in the BAE (p.77), but no data is provided or analyzed regarding existing downstream contamination of the Licking River with these herbicides in the BAE. Without this baseline data, current conditions cannot be assessed and cumulative effects analysis is rendered impossible, in violation of NEPA.*

4)Eastern Small-Footed Bat - A FS Listed Sensitive specie. The EA admits the ROW may encourage these bats to forage in the project area (p.78), but no consideration is given to impacts to bats who come in contact with recently-sprayed herbicides in the project area while they are foraging.

5)Rafinesque's Big-Eared Bat - A FS Listed Sensitive specie. No consideration is given to impacts to bats who may come in contact with recently-sprayed herbicides in the project area while they are foraging.

6)Peregrine Falcon - A FS Listed Sensitive specie. The EA admits that falcons may forage in the project area (p.79), but no consideration is given to impacts to falcons who come in contact with recently-sprayed herbicides in the project area while they are foraging, or who ingest bioaccumulated herbicides through their prey.

23. The BAE and Supplemental BAE prepared for the project contain information concerning the possible effects of herbicide exposure on PETS. These findings were considered in the EA.

7)Diana Fritillary - A FS Listed Sensitive specie. The EA admits the ROW may encourage these insects to inhabit the project area (p.78), but no consideration is given to impacts to individuals who come in contact with recently-sprayed herbicides in the project area.

8)Sand Darter - A FS Listed Sensitive specie. No herbicide impacts are predicted in the BAE (p.84), but no data is provided or analyzed regarding existing downstream contamination of the Licking River with these herbicides in the BAE. Without this baseline data, current conditions cannot be assessed and cumulative effects analysis for this specie is rendered impossible, in violation of NEPA.*

9)Tippecanoe Darter - A FS Listed Sensitive specie. No herbicide impacts are predicted in the BAE (p.85), but no data is provided or analyzed regarding existing downstream contamination of the Licking River with these herbicides in the BAE. Without this baseline data, current conditions cannot be assessed and cumulative effects analysis for this specie is rendered impossible, in violation of NEPA.*

10)Snuffbox - A FS Listed Sensitive specie. No herbicide impacts are predicted in the BAE (p.86), but no data is provided or analyzed regarding existing downstream contamination of the Licking River with these herbicides in the BAE. Without this baseline data, current conditions cannot be assessed and cumulative effects analysis for this specie is rendered impossible, in violation of NEPA.*

11)Sheepnose - A FS Listed Sensitive specie. No herbicide impacts are predicted in the BAE (p.86), but no data is provided or analyzed regarding existing downstream contamination of the Licking River with these herbicides in the BAE. Without this baseline data, current conditions cannot be assessed and cumulative effects analysis for this specie is rendered impossible, in violation of NEPA.*

12)Salamander Mussel - A FS Listed Sensitive specie. No herbicide impacts are predicted in the BAE (p.87), but no data is provided or analyzed regarding existing downstream contamination of the Licking River with these herbicides in the BAE. Without this baseline data, current conditions cannot be assessed and cumulative effects analysis for this specie is rendered impossible, in violation of NEPA.*

Noise Pollution/Killing and Harassment of Wildlife

While the EA admits to noise pollution effects from this project, it isolates its analysis of this impact to the construction and maintenance phases of the project. With permanently increased illegal ORV traffic in the ROW, wildlife will be continually killed, harrassed and scared away by loud, heavy, fast-moving vehicles. These wildlife impacts need to be fully assessed.

Recreation/Visual Impacts

The primary recreational use of the tract of the DBNF in question is hunting. It is a popular local hunting spot (EA, p.46). But visual quality impacts in the EA are only looked at from the perspective of drivers on adjacent roads. Visual impacts to the hunting experience of the primary local recreationists are not considered (EA, p.44). The EA also confirms the presence of dayhikers, through-hikers, and horseback riders on the

24. We disagree with your assumption that ORV traffic will take place as described based on experiences with similar transmission line corridors located on National Forest System lands within the Morehead Ranger District.

25. Section 10.9 of the EA describes how the project would affect the appearance of the area. An important thing to remember is how the appearance of the area changed following the February 2003 Ice Storm. Due to the large number of trees that fell in the area roads continue to be the main way that people access the area. Just how the project would affect each individuals view on the beauty of the area would vary. We believe that some will notice the change and not like it, where others won't car[illegible]e way or the other.

Sheltowee Trace on p.46. The impact to these recreationists' experience also goes unac[illegible]hroughout the document.

Air Quality
Air quality impacts of this project are largely ignored in these planning documents. The Forest Service has no site-specific baseline data or analysis for air quality in the project area (EA, p.24). Without this understanding of current conditions in the project area, cumulative effects to air quality cannot be assessed, in violation of NEPA.

In summary, the EA falls short of the analysis requirements of NEPA. It should be rewritten and re-issued to address the analysis gaps listed above, or the Forest Service should go straight to creating an EIS for the project that fully explores the issues listed above.

Summary
SABP opposes this proposed action on the grounds that habitat will be fragmented, water quality will be impaired, endangered species or their habitats will be negatively impacted, the cumulative effects will be detrimental to water quality and forest integrity.

We suggest that the USFS go back and select Alternative E.

Furthermore, the Forest Service did not take into consideration the indications that the alternative selected will cause damage to surface water bodies–both specifically and cumulatively–that the Forest Service did not collect adequate water quality or wildlife survey data to support their decision making.

Due to the incomplete wildlife impacts, as well as inaccurate cumulative effects and economic analyses, this EA is an inadequate assessment of the proposed project. SABP requests that the Morehead Ranger District complete an accurate, scientifically sound Environmental Impact Statement regarding the project.

We appreciate your consideration of our comments.

Sincerely,

Scot Waring
Staff Ecologist

REFERENCES

Barraclough, S. L. and K. Ghimire 1995. Forests and Livelihoods: The Social Dynamics of Deforestation in Developing Countries. Macmillan, London.

CDC (The United States Centers for Disease Control). 1996. ToxFAQs for Fuel Oils. Agency for Toxic Substances and Disease Registry. Accessed 5/12/03. url: http://www.atsdr.cdc.gov/tfacts75.html

Cox, Caroline, 1995. Herbicide Factsheet: Glyphosate (Roundup). Journal of pesticide reform, Vol.13, No. 3, updated 9/02.

Diamond, J.M. 1984. "Normal" extinctions of isolated populations. In *Extinctions*. N. H. Nitecki, ed. University of

kV Electric Trans[illegible]sion Line Environmental Assessment

26. Section 10.6 of the EA discloses possible effects of the project on air quality in the area.

27. The proposed project does not affect lakes, ponds or wetlands that may be considered as surface water bodies, none known to exist in the area.

Dow Chemical Co. Material Safety Data Sheet Trichloropyridinol. Midland, MI:Dow Chemical Co., 1991.

Hanley TR Jr, Zielko GJ, Lemux LG. 1987. 3,5,6-Trichloro-2-pyridinol: Oral Teratology Study in New Zealand White Rabbits. Midland, MI:Dow Chemical Co.

Extension Toxicology Network. 1993. A Pesticide Information Project of Cooperative Extension Offices of Cornell University, Michigan State University, Oregon State University, and University of California at Davis. http://pmep.cce.cornell.edu/profiles/extoxnet/pyrethrins-xirazm/triclopyr-ext.html. Accessed 5/12/03.

Farrington, J.W., B. W. Tripp & J. M. Teal. 1982. Biogeochemistry of aromatic hydrocarbons in the benthos of microcosms. *Toxicological Environmental Chemistry* 5(3-4): 331-346.

Gminger, A. 1993. Controlling Tropical Deforestation. Earthscan, London.

Hurst, P. 1990. Rainforest Politics: Ecological Destruction in Southeast Asia. St. Martin's, NY, NY, USA.

Levine, T.E. 1996. The regulation of inert ingredients in the United States. *In* Pesticide Formulation and Adjuvant Technology. C.L. Foy and D.N. Pritchard (eds.). CRC Press, Boca Raton, FL, USA. P. 1-11.

Marchak, M. P. 1995. Logging the globe. McGill-Queen's University Press, Montreal & Kingston Jamaica.

Nordstrom, M., L. Magnusson, A. Hagberg, H. Rask-Andersen. 1998. Occupational exposures, animal exposures and smoking as risk factors for hairy-cell leukemia evaluated in a case-control study. *British Journal of Cancer* 77:11 (2048-2052)

Pepling, M., P.H. Howard and P.R. Durkin. 1997. Use and assessment of marker dyes used with herbicides. USDA-APHIS; Order No.:43-3187-7-0408

Piccolo A., Celano G., Arienzo M., Mimbelli A. (1994), Adsorption and desorption of glyphosate in some european soils. Journ. Environ. Sci. Health, B29(6): 1105-1115.

Pimm, S.L. 1991. The balance of nature? Univ. Chicago Press, Chicago.

Servizi, J. A., R. W. Gardner and D.W. Martens. 1987. Acute toxicity of Garlon 4 and Roundup herbicides to salmon, daphnia and trout. *The Bulletin of Environmental Contamination and Toxicology* 39: 15-22.

Strayer, R. F., N. T. Edwards and B. T. Walton. 1983. Potential terrestrial fate and effects of soil biota of a coal liquification product spill. *Environmental Toxicology and Chemistry* 2(2): 217-224.

Tu, M., C. Hurd, & J. M. Randall. 2001. Weed Control Methods Handbook: Tools and Techniques for Use in Natural Areas. http://tncweeds.ucdavis.edu/handbook.html version date: April 2001. Accessed 5/12/03.

M d District Office
D. one National Forest
2375 Ky. 801 South
Morehead, KY.
40351

To Whom It May Concern,

Recently I became aware of considerations towards construction of a state route that would impact the Cranston area of the Daniel Boone National Forest and have tried to stay informed of the goings-on since that time as I've been a resident of or frequent visitor to the Daniel Boone National Forest for the past 40 years.

As a child I visited portions of the Cranston area frequently and know that today it is one of the largest contiguous portions of public forest land in the Morehead district. I hope it remains so or can become larger in the future.

It has come to my attention that assessments have recently been completed with regards to a second project - an Eastern Kentucky Power Company transmission line proposal - that is being considered. I also understand that comments with regards to your assessments of the project are due today.

I first of all have heard of no public outcry from EKPC customers over high rates or from customers in the Cranston area who are without service. In other words I do not believe the Forest Service has identified that a public need has arisen necessitating this destructive project. If infrastructure providers were consistently allowed to use "as the crow fly" designs rather than existing easements and rights of way National Forests would end up looking like a U.S Marine getting his first hair cut at boot camp. Improved profit (by cutting costs), even for a public utility, is not a public need warranting the destruction of public forest land.

Obivously this portion of the forest is under great stress with a proposed highway, a proposed salvage log cut and a proposed power line all now in the works. I doubt the Forest Service has even begun to imagine the cumulative affects through erosion, fragmentation, herbicidal spraying, noise and air pollution and other destructive processes that any one of these projects would have, let alone any combination of the three.

It could even be considered a violation of your own forest planning procedures to allow this project to proceed without so much as verifying whether or not a true public need exists for this project. Consider then that the destruction to wildlife caused by spraying, erosion, fragmentation, construction has yet to be studied thoroughly, yet another diversion from your own planning document.

The Forest Service is required to study the affects of these projects on the forest before considering implementation, but I as a user of the forest know well what these types of projects do. More open swaths of invasive grasses that will act as super-highways for illegal all-terrain vehicle use, water quality degradaton from heavy equipment encroachment, erosion and spraying, damage to unknown number of species from fragmentation and a variety of other sources and an overall degradation of the quality of the forest health.

I believe firmly, as I believe many others do though while not as publicly, that the Forest Service must begin a path of protection to these vital forest areas that have yet to be impacted by fragmentation. This agency could well play a lead role in working with other vital community agencies to recognize the value of just such areas. With an impending discussion over salvage cuts and future transportation needs around Morehead, now may well be the time to set the tone by ending consideration of this transmission line proposal.

1. Some people who own private lands in the area have offered to sell these lands to the Forest Service; however, limited funding has not made this possible.

2. The Forest Service has met with EKPC a number of times to discuss the need for the project, and Sections 3.0 and 14.1 of the EA document why the project is necessary.

3. Much of Rowan County is National Forest System land and it can be difficult to avoid crossing it when attempting to run services into the area. Section 10.0 of the EA discloses cumulative effects of the projects you mention.

4. The Forest Plan outlines steps that need to be taken to approve a new Special Use such as this project. These are described in Section 8.0 of the EA.

5. These possible effects you mention were also identified by a team of Forest Service Specialists who analyzed this project, and are documented in Section 10.0 of the EA.

6. The Forest Service does not go out looking for transmission line projects to implement, but has to respond to requests that maintain public services to a community. The Forest Service has worked with EKPC to design this project in a way that would have the least impact to the environment.

IN ANOTHER MATTER, I was hoping you could also consider this as a request to keep me notifed either electronically or via U.S. Postal Service of future projects. If possible, please forward this request to the correct individual so that I might receive copies of all future scoping notices and project summaries in the Daniel Boone National Forest. The required contact information is listed below.

Thank you for your time in this matter,
Steve Chaplin
1711 S. Fourth St.
Louisville, KY.
40208
502-637-6551
schaplin@bellsouth.net

Your name has been placed on such a list for future projects.

Feb. 23, 2004

Proposed Rowan-Cranston 138kV Electric Transmission Line Project

Thank you for the opportunity to comment on this project. The purpose and need for the project is stated as a need to maintain adequate and reliable electric service and to provide additional transmission line support to prevent low voltage and conductor overload. It would also serve the needs of growing demand and a back-up loop in case of failure of another part of the system. The new transmission line should be built at a reasonable cost to make efficient use of public funds.

EKPC has convinced the Forest Service of the need for this project. I requested from the Forest Service documents on need and cost estimates when submitting my initial comments on the project, but never received them. Please send me a copy of Stanley Consultants Justification of Rowan-Cranston 138kV Line. It should be of interest to the Forest Service that the uncoordinated proliferation of power transmission lines in Kentucky has reached the level that the state legislature is currently considering new regulations (HCR 106) that encourage electric utilities to cooperate to meet reliability needs and to hold local hearings on plans for any new transmission lines. Did the Forest Service seek and receive expert independent advice on the need for this project? Does the needs study address the concept of cooperation of electric utilities in meeting reliability needs, determining the necessity of new transmission lines, sharing of ROWs and structures (as opposed to parallel ROWs)?

The range of alternates for this project is totally inadequate and far from NEPA requirements. In reality alternates A, B and, C are no more than Build and No Build. A and B are identical except for the difference of herbicide usage.

The deletion of alternate H, without detailed consideration, is not acceptable given that using private land was one of only three significant issues raised.

The reasons for not considering Alt H in detail have no merit. It is stated that Alt H is unreasonable because the transmission line would be longer than Alt A. In constructing transmission lines electric utilities routinely encounter a wide variety of obstructions that cause them to go around things like mountains, lakes and towns. A 2.5 mile difference in length between Alt A and Alt H, though certainly more, can not be called unreasonable.

"(Alt H) could only be implemented at a much higher cost." There are no cost estimates in the study I received. Its probably safe to say the cost of alternates in this project were compared by making the mistake of calculating F S lands at "no cost". The National Forests were established and maintained at taxpayer expense over a period of many years. They should not be looked at by various interests as low cost short cuts for power transmission lines, highways or other projects. Our National Forest have intrinsic value that must be calculated at or above the average cost of using private land. Thus, any comparison of costs should use in it's calculation of Alt A (at least) the average cost of 6.6 miles of transmission lines on private land versus the 9.1 miles (Alt H) on private land. When this is done, while the costs will surely be more, they could not be considered unreasonable. KPECs mistaken idea of National Forest lands as a low cost utility corridor is clearly stated in the final reason for dismissing Alt H. "The alternative would have a negative impact on the community as EKPC would have to condemn a large amount of private land for access roads and the ROW." KPEC believes condemning private land will have a negative impact on the community, but condemning National Forest land to the same fate will have no negative impact on the community.

Recognizing the "low cost shortcut" threat to our National Forests the National Forest Management Act and The Daniel Boone Forest Management Plan state, "Allowing permitted uses of National Forest lands only when in the public interest, and cannot be served on private land." It does not say National Forest lands can be used if using private land will add additional costs to a project. This project's goals can clearly be met in Alt H on private land.

1. We apologize if did not receive the documents requested. I understand that your request has since been honored.

2. Yes, the Stanley Consultants study examines the need for the project, including the possibility of working with Kentucky Utilities.

3. A total of 8 Alternatives were considered as described in Section 7.0 of the EA. Rationale are provided for considering certain Alternatives in detail.

4. Cost was one of many factors considered in the examination of Alternatives as described by Section 7.0 of the EA.

5. The EA describes the purpose and need for this project in Sections 2.0 and 14.1.

On page 56 the question is asked, " Does the new transmission line need to cross National Forest System lands?" Answer: "Yes, EKPC and the Forest Service investigated all possible means for maintaining electrical service to the Rowan County area that do not cross National Forest System land. The Environmental Analysis prepared for the project examines a wide range of alternatives in detail that both involve crossing and not crossing the National Forest system." This simply is not true. The no build alternate is only viable if the Forest Service vigorously investigated EKPC's need for the project with independent confirmation. Lacking this, the "no build" alternate is not viable. That means this study really consists of studying the effects of one option; Alt A with and without herbicide use.

It is easy to understand why KPEC would want this route. For their purposes it is the cheapest. It is unacceptable that the F S made so little effort to protect F S lands by not including a full study of Alt H. We strongly recommend that Alt H be included for detailed study as not only an alternative, but as the Forest Service's Preferred Alternative.

Regarding herbicide use, the Kentucky Department of Agriculture has had in place for several years a program of certification for organic forestry. Its time the Forest Service showed leadership in the area of organic forestry, by using these methods within the Daniel Boone National Forest and requiring their use in ROWs. The use of herbicides described in this BA should be reserved for extraordinary emergency situations only.

Rowan County Chapter KFTC
Doug Doerrfeld 784-9226
P O Box 177
Elliottville,Ky 40317

Doug Doerrfeld

6. Forest Plan Standard DB-LAND-2 as described in Section 8.0 of the EA directs the Forest Service to follow a process for evaluating Special Use Proposals to determine if they are in the public interest. This process has been followed and is documented in the EA.

7. The possible effects of using herbicide for this project is on the environment are documented in Section 10.0 of the EA. Herbicide use would be consistent with: 1) Label specifications; 2) applicable Forest Plan Standards; and 3) Project-Specific Requirements. Herbicide use to control woody-stemmed vegetation from within utility corridors is a common practice by utility companies. Herbicides have been tested by numerous manufacturers and approved for use by the Environmental Protection Agency (EPA). The EPA has previously approved all herbicides included in this proposal for rights-of-way maintenance activities. The Forest Service has considered the Human Health and Environmental Risk Assessments completed for each of the herbicides included in this proposal. Three of the risk assessments incorporate an open literature search using PubMed, TOXLINE as well as the U.S. EPA CBI files, focusing on the post-1993 period. One risk assessment incorporates herbicide use on humans, animals, water quality, endangered, threatened, rare and sensitive species was analyzed in the Vegetative Management EIS for the Southern Region (USFS 1989). This analysis includes an evaluation of effects to determine the Hazard Quotient (HQ), or the Margin of Safety (MOS) to human health and to wildlife. A decision will not be made to use an herbicide where the HQ or is greater than 1, or the MOS is < 100 (Forest Plan Standard DB-VEG-8).

EXHIBIT 1B

DECISION NOTICE

and

FINDING OF NO SIGNIFICANT IMPACT

for

CONSTRUCTION OF THE ROWAN-CRANSTON 138kV ELECTRIC TRANSMISSION LINE

Environmental Assessment

United States Department of Agriculture
Forest Service
Southern Region, R-8
DANIEL BOONE NATIONAL FOREST

Morehead Ranger District
Rowan County, Kentucky

Decision

I have decided to issue a Special Use Permit to East Kentucky Power Cooperative, Inc. (EKPC) for the construction and maintenance of a portion of a 138 kV electric transmission line that will cross approximately 4.8 miles of National Forest System land in Rowan County. My decision will allow Alternative A, the Proposed Action, to be implemented as described in the revised Environmental Assessment (EA), see EA page 4, prepared for this project. These actions will include construction and maintenance of 4.8 miles transmission line on a right-of-way 100 feet wide, construction and use of 6.7 miles of access roads, development of 29 wetlands and 7 acres of natural appearing openings.

I have chosen Alternative A for these reasons:

1) The Alternative is in the best interest of the public and represents a reasonable way for EKPC to maintain electric service to the people in the greater Rowan County area. (EA page 78)
2) The Alternative is consistent with Forest Plan Prescription Area Objectives, Standards, and Desired Future Conditions. (EA page 25)
3) The Alternative is consistent with federal, state, and local statutes and regulations. (EA page 73)
4) The Transmission line cannot be reasonably located or built to avoid National Forest System land, regardless of any cost considerations. (EA page 11 and 78)
5) The ROW will be managed in such a way that it will actually improve habitat for a variety of plant and animal species, some of which are uncommon. (EA page 4, 11, 33, and 49)

6) The transmission line will be constructed and managed to reduce the unattractive features often associated with straight line utilities that cross forested lands. (EA page 4 and page 63)

7) EKPC has demonstrated that the transmission line is needed and that it is necessary to use National Forest System land for the project. (EA page 11 and 78.)

Alternatives Considered

The Interdisciplinary Team considered 8 alternatives, including the proposed action and no action. Three Alternatives; A, B and C were considered in detail, and 5 were not. A description and reasons for these alternatives not being considered in detail can be found starting on page 22 of the EA.

Alternative A: This is the proposed action as described on page 4 of the EA.

Alternative B: This is the same as the proposed action except that herbicides would not be used to establish or maintain the ROW. Only mechanical methods such as brush axes, chain saws, hydro-axes, bush hogs, mowers and/or other mechanized trimmers would be used to manage and maintain vegetation in the ROW. See page 20 of the EA for details.

Alternative C: This is the no action alternative; a new electric transmission line would not be built between the Cranston and Rowan electric substations.

Public involvement

The Public was asked to comment about this project in a number of ways. A scoping letter describing the proposal and asking for comments was mailed to 49 individuals, organizations and government agencies on November 13, 2002. A scoping notice describing the proposal and asking for comments also appeared as a Legal Notice in the Morehead News on November 15, 2002. Comments concerning the proposal were requested by December 15, 2002. The Forest Service received letters, phone calls and E-Mails concerning the proposal, these comments are located in the project file. A description of the proposal first appeared in the January 2003 issue of the Daniel Boone National Forest's Schedule of Proposed Actions, a newsletter sent to approximately 500 individuals and groups. On June 15, 2004, EKPC hosted an open house in Morehead, Kentucky for this project. The event was advertised in the Morehead News and on radio stations broadcasting in the Rowan County area. Letters were mailed to 13 individuals who owned lands that may be affected by the project inviting them to attend. The meeting was designed to inform people of the proposed project and to provide them with an opportunity to comment. Forest Service personnel familiar with the project participated. The open house was attended by 12 individuals from the area.

Scoping comments were analyzed to identify significant issues. Two significant issues were identified:

1) Cutting trees to construct access roads and the right-of-way would negatively change habitat for wildlife species and affect how people use the area.
2) The new transmission line should be located on private land as much as possible to avoid changing National Forest System land.

Significant issues were used to develop alternatives to Alternative A, the proposed action, prescribe mitigation standards, and determine the appropriate level of environmental analysis. Page 17 of the EA details the issue identification process.

A Public Notice, stating that an environmental assessment had been prepared for this project and was available for public review and comment, was published in the Lexington Herald-Leader (paper of record) on January 29, 2004. On January 26, 2004, copies of the environmental assessment were also mailed to 17 individuals and organizations that had previously provided input or had requested to receive a copy. The Forest Service received 7 letters and emails in response to this invitation to comment. These responses were read, discussed, and carefully considered to see if changes were needed to this analysis (EA page 131).

Finding of No Significant Impact (FONSI) for Alternative A

Reasons for Finding of No Significant Impact

In consideration of the analysis documented in the EA and for the reasons stated below, the proposed action, Alternative A, will not constitute a major Federal action that will significantly affect the human environment. Therefore, an EIS will not be prepared. My determination is based on the following.

Context

Alternative A will be limited in geographic context (40 CFR 1508.27(a)). Alternative A will affect a limited area, 86 acres of the nearly 700,000 acres of National Forest System land that are part of Daniel Boone National Forest (EA p.27)

Intensity

1. I have determined that evaluation of both beneficial and adverse effects are disclosed in Alternative A (40 CFR 1508.27(b)(1)), and find them to be without significant impact. Sections 10.1-10.7 of the EA disclose the effects of implementing Alternative A on the environment.

2. Alternative A will not significantly affect public health or safety (40 CFR 1508.27(b)(2). Alternative A maintains current levels of electric service to the Rowan County area at large, ensuring that the current safety infrastructure is operational (hospitals, traffic control devices, emergency communication, home health devices, etc). Alternative A also reduces the use of chainsaws during line maintenance by allowing the use of herbicides to control vegetation. The potential effects to human health effects of herbicide use are analyzed in the EA using the health quotient and margin of safety approach.

The proposed use; including application rates, application methods, and personal protective equipment to be used, is within established standards designed to protect human health. The effects of implementing Alternative A on public health and safety are summarized in Section 10.11 of the EA on page 67.

3. Based on inventory, cultural resource survey, and other work, no unique characteristics were identified in the geographical area affected by the project. Therefore, Alternative A will not significantly affect any unique characteristics of the geographic area (40 CFR 1508.27(b)(3)) (EA p. 31). There will be no effect of implementing Alternative A on such features as historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical as they are outside of the area and not affected by its actions (Section 9.0, page 29 of the EA).

4. The methods used to analyze effects (physical, biological, and social) are well accepted by the appropriate scientific community. No methods were used that have not been used in the past nor have no basis in the literature. Therefore, Alternative A does not involve effects to the quality of the human environment that are likely to be highly controversial (40 CFR 1508.27(b)(4)). Section 10.10 of the EA describes the effects of implementing Alternative A on the quality of the human environment.

5. Transmission lines have been constructed and maintained in the past across lands similar to those involved in the proposed action. The proposed transmission line will be maintained in a similar fashion to the Cranston TAP line which was constructed within the last five years. The effects analysis is based upon actual experience with these previous projects. Therefore, Alternative A will not impose highly uncertain or involve unique or unknown risks as this type of action has been approved before on the DBNF and have been without significant effect (40 CFR 1508.27(b)(5)). The EA describes possible risks to humans and animals in Section 10.10 of the EA.

6. Alternative A will not establish a precedent for future actions with significant effects and does not represent a decision in principle about future consideration (40 CFR 1508.27(b)(6)). Implementing the activities described in Alternative A are independent of any other project planned for the area (EA Section 3.0).

7. The EA contains analysis related to all reasonably foreseeable projects within and affecting the project area. Portions of two projects, the extension of KY 645 and the 2003 Ice Storm Recovery are considered in the analysis. Therefore this analysis includes effects related to reasonably foreseeable projects. The combined estimated effects are not significant. Therefore, Alternative A is not related to other actions with individually insignificant but cumulative significant impacts (40 CFR 1508.27(b)(7)).

8. Based upon the findings of the cultural resource report prepared for this project, Alternative A does not adversely affect districts, sites, highways,

structures, or objects listed in or eligible for listing in the National Register of Historic Places or cause loss or destruction of significant, cultural, or historic resources (40 CFR 1508.27(b)(8)) (EA Sections 10.7, 11.0, page 62).

9. On January 28, 2003, the U.S. Fish and Wildlife Service concurred with the USDA Forest Service determination that implementing Alternative A would not effect or is not likely too adversely effect federally listed Endangered and Threatened species. Alternative A will not adversely affect endangered or threatened species or their critical habitat (40 CFR 1508.27(b)(9)). Sections 10.2, 10.3, Appendixes 14.2 and 14.3 of the EA describe the effects of Implementing Alternative A on endangered or threatened species, and habitat that is deemed critical under the Endangered Species Act.

10. Section 11.0, page 73, of the EA describes how Alternative A responds to Federal, State, or local laws imposed for the protection of the environment. Alternative A does not threaten a violation of Federal, State or local law or requirements imposed for the protection of the environment (40 CFR 1508.27(b)(10)).

Determination

On the basis of the information and analysis contained in the environmental assessment and all other information available as summarized above, it is my determination that adoption of Alternative A, the proposed action, does not constitute a major Federal action significantly affecting the quality of the human environment. Therefore, an environmental impact statement (EIS) is not necessary.

Findings required by laws and regulations

Implementing Alternative A will be in compliance with Federal, State or local law and requirements imposed for the protection of the environment. How Alternative A responds to direction contained in applicable laws is described by the following paragraphs in more detail:

Forest and Rangeland Renewable Resources Planning Act of 1974: Section 6(g)(3)(B) of the Act concerns the provision of providing a diversity of plant and animal communities on National Forest System lands based on the suitability and capability of the specific land area. Alternative A will increase the diversity of plant and animal communities in the project area by establishing shrub and grass plant communities, and small wetland communities.

Farmland Protection Policy Act of 1980 and 1995. The Act requires identification of proposed actions that would affect any lands classified as prime and unique farmlands. The Act contains direction to take into consideration the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses. In addition, Federal programs are to be administered in a manner that, to the extent practicable, will be compatible with State, unit of local government, and private programs and policies to protect farmland. Prime farmland is land that has the best combination of physical and chemical characteristics for

producing food, feed, forage, fiber, and oilseed crops. The land must also be available for these uses (cropland, pastureland, forestland, or other land, but not water or urban built-up land).

Alternatives A will construct an electric transmission line over prime farmland as identified by the Natural Resource Conservation Service adjacent to Triplett and the North Fork of Triplett Creeks. One transmission line support structure will be located on private land currently being farmed near the North Fork of Triplett Creek. The new transmission line is expected to have minimal affect on the acreage of farmland in Rowan County and the ability of individuals to manage these lands for agricultural purposes.

Federal Water Pollution Control Act of 1972 as amended: This Act basically established a structure for regulating the discharge of pollutants into the waters of the United States. Section 404 of the Act pertains to the discharge of pollutants into navigable waters, such as streams of wetlands. Implementing Alternative A will not cause a discharge of pollutants into rivers, streams or wetlands. A review of the National Wetlands Inventory Maps and field examination found that no wetlands would be crossed by the transmission line in Alternative A. An on the ground review of proposed transmission line routes outlined by Alternative A found that no natural wetlands are present within or near the proposed ROW.

National Forest Management Act

As discussed in section 8.0 of the EA, the actions of this project are consistent with Forest Plan Standards as a whole and for the following affected Prescription Areas identified by the Forest Plan; Riparian Corridor (1E.), Habitat Diversity Emphasis (1.K), Ruffed Grouse Emphasis (3.H.1), Source Water Protection (5.C.).

Additionally, I have reviewed the specialist report prepared to document effects to the Conservation Species as identified in the Forest Plan. The actions proposed in Alternative A work to enhance habitat for the species identified as possibly occurring in the project area.

Executive Order 12898, 2/11/94 (Environmental Justice): The management practices associated with these actions do not have a disproportionately high and adverse effect on the human health or the environment of minority or low-income populations as described in detail by Section 10, page 66, of the EA.

Endangered Species Act: The effects of implementing Alternative A on all federally Proposed, Endangered, and Threatened species, and their proposed critical habitat occurring on or adjacent to the on the Daniel Boone National Forest were considered by myself as documented in Section 10 of the EA.

The Forest Service prepared a Biological Assessment/Evaluation (BAE) that documented possible effects of implementing Alternative A on 32 federally listed species. On January 28, 2003, the U.S. Fish and Wildlife Service concurred with the USDA Forest Service determinations that implementing Alternative A would not

effect or is not likely too adversely effect federally listed Endangered and Threatened species.

A Supplemental BAE (SBAE) was prepared to provide updated information on the possible effects of implementing the Rowan-Cranston 138kV Electric Transmission Line on Proposed, Endangered, Threatened (PET) species. The SBAE was prepared to provide me with the latest information on PET species within and near the planned treatment locations. Both the BAE and the SBAE disclosed the same determination of effect concerning PET species relative to implementation of Alternative A.

The BAE and SBAE found that implementing Alternative A would have "No Effect" on 31 Endangered or Threatened Species and "Is Not Likely to Adversely Effect" 1 species, the Indiana bat.

National Historic Preservation Act: A Phase 1 Cultural Resource Survey was conducted for Alternative A. The survey did not identify any cultural resource sites. A report with recommendations was prepared and submitted to the Kentucky State Historic Preservation Officer (SHIPO) for review and concurrence. A letter of concurrence was received from the SHIPO on September 22, 2004. Alternatives A is not located near districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places. Implementing Alternative A would not cause loss or destruction of significant, cultural, or historic resources and would have no direct, indirect or cumulative affect on cultural resources.

Administrative review or appeal opportunity

This decision is subject to appeal pursuant to 36 CFR 215.11. A written appeal, including attachments, must be postmarked or received within 45 days after the date this notice is published in the Lexington Herald-Leader Newspaper, Lexington, Kentucky. This newspaper is published daily. Appeals must meet content requirements of 36 CFR 215.14 . Send the Notice of Appeal to:

USDA Forest Service
Southern Region
Attn: Appeals Deciding Officer
1720 Peachtree Road, N.W., Suite 811N
Atlanta, GA 30309

Appeals may be faxed to (404) 347-5401. Hand-delivered appeals must be received at the Forest Service office at the above address in Atlanta, Georgia within normal business hours of 8:00 a.m. to 4:30 p.m. Appeals may also be mailed electronically in a common digital format to: *appeals-southern@fs.fed.us*

Implementation Date

If no appeal is received, implementation of this decision may occur on, but not before, 5 business days from the close of the appeal filing period. If an appeal is received, implementation may occur on, but not before the 15th business days following the date of appeal disposition.

Contact Person

For further information on this decision, contact: Tom Biebighauser, USDA Forest Service, 2375 KY HWY 801 South, Morehead, KY 40351 (606) 784-6428.

BENJAMIN T. WORTHINGTON
Forest Supervisor

2/4/2005
Date

United States Department of Agriculture | Forest Service | Southern Region | 1720 Peachtree Rd, N.W. Atlanta, GA 30309

EXHIBIT 1C

File Code: 1570-1
05-08-02-0018
Date: May 13, 2005

Kentucky Heartwood
Attn: Mr. Perrin deJong
P.O. Box 555
Lexington, KY 40588

CERTIFIED MAIL – R.R.R.

RE: Appeal 05-08-02-0018 of Forest Supervisor Benjamin T. Worthington's February 4, 2005, decision for construction of the Rowan-Cranston 138kV Electric Transmission Line, Morehead Ranger District, Daniel Boone National Forest

Dear Mr. deJong:

According to the authority granted me by 36 CFR 215, this letter contains my appeal decision on your appeal of the decision for the Rowan-Cranston 138kV Electric Transmission Line on the Morehead Ranger District of the Daniel Boone National Forest.

BACKGROUND

On February 4, 2005, Forest Supervisor Worthington signed the Decision Notice/Finding of No Significant Impact (DN/FONSI) for this project; the legal notice of the decision was published on February 13, 2005. It has been verified that you provided 30-day comments for the proposed action thereby meeting 36 CFR 215.13, regulatory requirements for eligibility to file an appeal on this project. Therefore, the timely appeal was accepted on April 11, 2005. You are representing Heartwood, Southern Appalachian Biodiversity Project, Mr. Jim Bensman, and Mr. Doug Doerrfeld in your appeal.

The Forest advised us that you participated in an informal disposition meeting. However, no resolution was reached and we, therefore, continued with our review.

RECOMMENDATION OF APPEAL REVIEWING OFFICER (ARO)

I received the ARO's recommendation that the Forest Supervisor's decision be affirmed. The ARO's recommendation is based on your issues and a review of the project record. A copy of that ARO recommendation is enclosed.

RELIEF REQUESTED

Your appeal requests that "[t]he decision be reversed. . .".

CONCLUSION

My review of your appeal was conducted pursuant to, and in accordance with, 36 CFR 215.18 to ensure the analysis and decision are in compliance with applicable laws, regulations, policy and orders. I have reviewed the appeal record and the ARO's recommendation, which includes a discussion of the issues raised in your appeal. Based on my review, I conclude that the issues raised in the appeal of the decision for the Rowan-Cranston138kV Electric Transmission Line, have been adequately addressed by the Forest Supervisor in the EA and DN. I find that the environmental effects disclosure in the EA is appropriate and adequate for this project and supports the decision. Therefore, I am affirming the Forest Supervisor's February 4, 2005, decision.

This constitutes the final administrative determination of the Department of Agriculture.

Sincerely,

/s/ R. Joel Gardner
for
ROBERT T. JACOBS
Appeal Deciding Officer
Regional Forester

Enclosure

United States Department of Agriculture | Forest Service | Southern Region National Forests in North Carolina | 160A Zillicoa Street P.O. Box 2750 Asheville, NC 28802

File Code: 1570 **Date:** May 13, 2005
Route To:

Subject: Appeal Reviewing Officer Recommendation: Appeal No. 05-08-02-0018– Kentucky Heartwood, Perrin deJong, Rowan-Cranston 138kV Electric Transmission Line, Morehead Ranger District, Daniel Boone National Forest

To: Appeal Deciding Officer

This letter constitutes my recommendation for the subject appeal filed by Kentucky Heartwood, represented by Perrin deJong, against Forest Supervisor Benjamin T. Worthington's February 4, 2005, decision for the Rowan-Cranston 138kV Electric Transmission Line on the Morehead Ranger District of the Daniel Boone National Forest.

My review is conducted pursuant to 36 CFR 215. To ensure the analysis and decision were in compliance with applicable laws, regulations, policies and orders, I have reviewed and considered each of the points raised by the appellant and the decision documentation submitted by the Daniel Boone National Forest. My recommendation is based upon review of the Appeal and Project File, including but not limited to the scoping letter, public comments, Decision Notice/Finding of No Significant Impact (DN/FONSI) and the Environmental Assessment (EA).

ISSUES

The issues raised in the appeal that meet the requirements of 36 CFR 215.14 are:

Issue 1. Whether changes to the Environmental Assessment (EA) were significant, warranting the need for additional public review of the Revised EA. [Reference item II, pp. 2-3]

Issue 2. Whether the DN contains the required NFMA findings. [Reference item III, p. 4]

Issue 3. Whether the analysis adequately demonstrates that the power line cannot be reasonably located on private land. [Reference item IV, pp. 4-5]

Issue 4. Whether the Purpose and Need was improperly established, thereby excluding Alternatives to the Proposed Action. [Reference item V, pp. 5-10]

Issue 5. Whether herbicide use adequately meets Forest Plan Standard DB-VEG-8. [Reference Item VI, p. 10]

Issue 6. Whether the information about and analysis of herbicide impacts was adequate. [Reference pp. 10-11]

Issue 7. Whether the effects of Garlon 4 on Proposed, Endangered, Threatened and Sensitive (PETS) species were adequately addressed. [Reference item VI., pp. 10-15]

Issue 8. Whether Forest Service adequately included current scientific information in their analysis of pesticide effects. [Reference pp. 15-21]

Issue 9. Whether the Forest Plan and EIS were sufficient to tier to for consideration of herbicide impacts. [Reference item VI., pp. 21-22]

DISCUSSION OF ISSUES

Issue 1. Whether changes to the EA were significant, warranting the need for additional public review of the Revised EA.

The appellant contends that "changes represent significant alterations to the EA. . . the F[orest] S[ervice] failed to release the revised EA for public review and comment. . . [t]his failure constitutes a violation of NEPA" (Appeal, p. 3).

The January 28, 2005, Revised EA (pp. 3-4) and the February 4, 2005, Forest Supervisor's letter transmitting the Decision to the public both disclosed the items changed in the EA. The changes included improved maps, results from completed heritage resource survey, additional details concerning Alternatives, updated analysis for Management Indicator Species (MIS), and herbicide application, an updated analysis for Proposed, Endangered, Threatened, and Sensitive Species (PETS), and minor editorial changes. The EA was revised in order to include direction from the recently revised Forest Plan, and to insure compliance with the Kentucky Airport Zoning Commission concerning the crossing of two highways. These revisions did not substantially change the Proposed Action or Alternatives, therefore a new Notice and Comment period was not required.

The public involvement during scoping, documented in the EA on page 16, provided an opportunity to comment on the Proposed Action, thus satisfying the requirements of NEPA. The EA was provided during the Notice and Comment period even though the regulations at 36 CFR 215.6 only required notice and the opportunity to comment on the proposed action. Since the changes in the EA did not substantially alter the proposed action, there was no requirement to provide a new opportunity to comment on the EA.

Finding

I find that the changes in the EA were not significant, therefore, additional public review was not required.

Issue 2. Whether the DN contains the required NFMA findings.

The appellant argues the EA states that "the Forest Supervisor's decision would address 'whether an amendment to the Forest Plan for the Daniel Boone National Forest is needed to implement the selected action'", but "[t]he Decision Notice fails to make this determination" (Appeal, p. 4).

The Revised EA, on page 15, states that the Forest Supervisor will need to make a determination of "[w]hether an amendment to the Forest Plan. . . is needed to implement the selected action." On pages 25-29 of the Revised EA, there is an analysis of how the alternatives compare with Forest Plan direction. On page 26, the Revised EA makes the statement that, "[t]he proposed project has been reviewed in light of the goals and objectives set forth in the Forest Plan and modified where necessary to ensure that it is consistent with that direction."

The DN contains a section on "Findings required by laws and regulations" on pages 5-7, and, on page 6, lists the findings related to the National Forest Management Act. The Deciding Officer makes the finding on page 6 of the DN that, "the actions of this project are consistent with Forest Plan Standards as a whole and for the following affected Prescription Areas identified by the Forest Plan. . .".

Finding

I find that the Forest Supervisor did evaluate whether a Forest Plan amendment was needed and made the required "consistency finding" in the DN, in compliance with NFMA.

Issue 3. Whether the analysis adequately demonstrates that the power line cannot be reasonably located on private land.

The Appellant contends that "[t]he project documents fail to demonstrate that the power line cannot be reasonably accommodated on private land" (Appeal, p. 4), and that "the reasons for not considering Alternative H in detail have no merit" (Appeal, p. 5).

In addition to Forest Plan direction, Forest Service regulations, policy, and procedures direct that use of private lands are explored before accepting an application for use of National Forest System Land. 36 CFR 251.54 **Proposal and application requirements and procedures**, provides direction to the agency, to screen proposals for use of NFS land using a two level screening process. Initial screening includes a consistency review of standards and guidelines in the forest land and resource management plan. Second-level screening includes a determination whether the proposed use is consistent or compatible with the purposes for which the lands are managed and with other uses, and whether the proposed use is in the public interest.

These requirements are further supported in **FSH 2709.11, Section 12.2 – Initial Screening of Proposals** and **Section 12.3 – Second-Level Screening of Proposals**. Specifically, **Section 12.32a – Appropriate Use of National Forest System Lands**, states "The proponent must explain the selection of the location of the proposed use

and, in particular, why use of National Forest System lands is necessary and why lands under other ownership cannot be used."

If a proposal meets all of the initial and second-level screening criteria, the responsible agency official may accept the proposal in the form of a formal application as a proposed action for purposes of NEPA. An environmental analysis is then conducted pursuant to NEPA to determine the effect the proposed use may have on the natural and human environment.

The EA identified as a significant issue locating the power line on private land as much as possible to avoid changing NFS land. Specifically of concern was the unattractive nature of the power line and creation of a utility corridor. **Section 10.8 Visual Resources** of the EA discusses the short and long term visual impact of the proposed project. It is apparent that the landscape on NFS land will have less of a visual impact than the proposed locations that would occupy open and populated private lands.

The Forestwide Standard DB-LAND-2(c) states that special use proposals/applications must "[n]ot be permitted on DBNF land if they can be reasonably accommodated on private land, even if those locations are more expensive for the applicant" (Forest Plan, p. 2-20). This standard does not equate to, as the appellant contends "[t]he Forest Plan explicitly rejects cost from being a factor in rejecting private land options" (Appeal, p. 4). The analysis of public need for the transmission line is documented in Appendix 14.1, pages 78-79 of the EA. The necessity for the transmission line and the necessity to cross National Forest System land are discussed in detail.

The use of private land vs. public land is only a contributing factor in the analysis of the natural and human environment in an environmental analysis.

Finding

I find the analysis did adequately demonstrate that the power line cannot reasonably be located on private land.

Issue 4. Whether the Purpose and Need was improperly established, thereby excluding Alternatives to the Proposed Action.

The appellant contends that "[t]he NEPA analysis for this project is fatally flawed because the purpose and need is defined as the chosen alternative" (Appeal, p. 5). "All of the other alternatives contemplate different power line lengths crossing National Forest land or the use of no herbicides. . . none of the other alternatives match the description for the purpose and need of the project" (Appeal, p. 7). The appellant further contends that alternatives to the proposed action were dismissed from detailed consideration because the Responsible Official determined which alternatives would receive detailed consideration by examining how each alternative would meet the purpose and need for the project. The appellant contends that "[t]he Forest Plan explicitly rejects special use permits being granted on the basis of cost. . . [t]he Rowan-Cranston 138kV Line does not meet the standard established by DB-LAND-2(c) in the Forest Plan; the special use permit should therefore be rejected" (Appeal, p. 8).

The EA does in fact describe the proposed action and connected actions in detail under Section 3.0 Purpose and Need (pp. 11-15). Although obscure, this section does divulge the following need for and purpose of the action(s):

Need

- By 2005, potential low voltages and/or overloads could occur on the existing transmission lines servicing the area (EA, p. 11).
- The projected 2005 winter peak load on this [existing] line exceeds EKPC's guidelines for a single source by more than a factor of three (EA, p. 11).

Purpose

- Maintain adequate and reliable electric service to the Rowan County area at large (EA, p. 11).
- Provide additional electric transmission line support to prevent low voltages and conductor overloads (EA, p. 11).
- Increase the reliability at the Cranston electric substation by providing a second source of electricity (EA, p. 11).
- Prevent trees from growing in contact with conductors and lines (EA, p. 12).
- Allow crews to rapidly access lines to complete repairs (EA, p. 12).
- Provide access for clearing the ROW, installing poles, and the transmission line (EA, p. 14).
- Improve habitat for many wildlife species (EA, p. 15).
- Provide habitat to a variety of insects, animals and plants on ridge top locations (EA, p. 15).

None of the alternatives that were eliminated from detailed analysis were categorized as such for the sole reason of not meeting the purpose and need (EA, pp. 22-24). The Forest Plan standard DB-LAND-2(c) is discussed in Issue 3 above.

Finding

I find the purpose and need for this proposal was properly established and alternatives to the Proposed Action were not excluded.

Issue 5. Whether herbicide use adequately meets Forest Plan Standard DB-VEG-8.

The appellant contends that the "[p]roject approval of herbicides fails to meet Forest Plan Standard DB-VEG-8. . . nowhere does the EA determine the minimum amount that would be effective in the specific project area" (Appeal, p. 10).

Analysis of maximum allowable rates in the EA is done to comply with the CEQ regulation that documents evaluate potential significant effects and *not be* encyclopedic. At the time of project implementation, actual rate applied per acre is expected to vary from acre to acre depending on the actual amount of vegetation needing to be treated at each location. By analyzing the rate considered to be the maximum allowable within the project area and finding no significant impact at that level of application, the decision-

maker has fulfilled NEPA in the most expeditious manner possible. Analysis at the maximum level with a finding of no significant impact includes all lesser application rates and avoids repetitive (and encyclopedic) analyses of all of potential lower rates (and lesser effects). The actual lesser rates to be applied in fulfillment of this standard are a function of project implementation and will depend on the field expertise of the crews actually applying the herbicides and not on encyclopedic analyses of all possible rates to be applied.

Finding

I find that the proposal does not violate Forest Plan standard DB-VEG-8.

Issue 6. Whether the information about and analysis of herbicide impacts was adequate.

The appellant contends that the USFS must analyze indirect effects to private lands based on an unspecified rate of herbicide directly applied there. Since the pesticide use proposals included with this EA state "Applicable to National Forest System Lands Only" the appellant contends that the rates of application are *presumed to be* higher on private land, and thus "the Forest Service failed to analyze the indirect impacts of this project throughout the two miles of private lands. . ." (Appeal, p. 10).

The issue here is somewhat unclear. NEPA requires that we analyze the probable effects that implementing a proposal for action *on federal lands* (and by extension – involving federal project specific dollars [not an issue here]) might have on the federal land and neighboring lands. Thus rate of application to federal lands is the data necessary to an appropriately focused analysis. Chapter 10 presents (pages 40-42 in section 10.5 Soil and Water Resources) clear conclusory information based on analysis presented in the Vegetation Management EIS that neither runoff to creeks nor contamination of groundwater are anticipated from application of the herbicides in the project area at the rates of use proposed. Also stated in this section is the fact that in the area applied and at the proposed rates of use the herbicides evaluated are expected to be short-lived in the environment. And, finally, this section also reflects that there is no expected cumulative effect from the project. Although cumulative effects analysis does consider projects that occur on private lands, it is purely speculative to say that herbicides would be applied at a greater rate on private lands.

The statements – no movement through water, short lived in the environment, and no expected cumulative effects – indicate that no direct or indirect effects are probable offsite from the action on Federal lands. The EA further states that the project on Federal lands will have *no* cumulative effects (on Federal or on private lands).

Given the statements above and the lack of contravening science provided by the appellant, appropriate consideration has been given to the potential for offsite effects (direct, indirect or cumulative) resulting from application of known maximum allowable quantities of herbicide to the federal lands (and secondary to the action to private lands) potentially affected by this project.

Finding

I find that the information and analysis of herbicide impacts was adequate.

Issue 7. Whether the effects of Garlon 4 on PETS species were adequately addressed.

The appellant contends twelve specific PETS species "could be affected by herbicide exposure" (Appeal p. 13). The appellant's contentions will be grouped and discussed as follows:

1) For aquatic species which the appellant numbers 1-3 and 8-12, the appellant contends "[w]ithout . . . baseline data [regarding downstream contamination of the Licking River with these herbicides] the current conditions cannot be assessed and cumulative effects analysis . . . is rendered impossible" (appeal p. 13-15).
2) For three bat and bird species, the appellant contends these species may be impacted "while they are foraging" (Appeal p. 14). For example, for the eastern small-footed bat the appellant contends "[t]he EA admits the ROW may encourage these bats to forage in the project area (p. 78), but no consideration is given to impacts to bats who come in contact with recently sprayed herbicides in the project area while they are foraging" (Appeal, p. 14).
3) For the Diana fritillary, the appellant contends "no consideration is given to impacts to individuals who come in contact with recently sprayed herbicides" (Appeal p. 14).

The Response to Comments correctly notes "[t]he BAE and Supplemental BAE prepared for the project contain information concerning the possible effects of herbicide exposure on PETS" (pp. 6-7). The BAE reviews impacts to these twelve species (pp. 84-85, 96-102, 105-108). Responses to the appellants concerns are groups as listed above.

1) The above cited pages in the BAE state the aquatic species for which the appellant expresses concern are not known to occur within the proposed project area. The BAE discussion includes downstream contamination and consideration of the Licking River (specifically, see pp. 96-97). The BAE concludes there will be "no direct, indirect or cumulative effects" for each of these species as part of the discussion cited above.

2) The above cited pages in the BAE review the status of these species and concludes there will be no impacts to the three bat and bird species. For example, the BE states, "[d]irect effects may occur if a small-footed bat is sprayed with herbicide" (p. 77). The same paragraph continues on to say, "[h]owever, the herbicide should not have a direct effect on the small-footed bat because they are used in an open, non-forested ROW that does not provide roosting or maternity habitat for the small-footed bat. Because the small-footed bat does not roost in the ROW where herbicides would be used there is no chance that the species would be sprayed by herbicide" (p. 77). The BE concludes "no impact" to small-footed bat (p. 77).

The effects of herbicides on roosting bats are disclosed. There are no impacts. The appellant focuses on foraging bats. The foraging ecology of eastern small-footed bats makes it virtually impossible for the bats to come in contact with recently-sprayed herbicides. Herbicide application would occur during daylight hours. Bats are nocturnal and forage in flight. Eastern small-footed bats do not roost to eat their prey, but consume its food in flight. These bats do not roost in open ROW. They roost in rock crevices, talus piles, rock outcrops, bridge expansion joints, etc. Because of the eastern small-footed bat's ecology and the herbicide being applied during the day, there is no opportunity for these bats to come in contact with recently-sprayed herbicide.

3) The BAE reviews the potential impacts to Diana fritillary, states "[t]he project area does not contain habitat that is suitable for the species", and concludes the project would have "no impact" on this species (p. 81)

Finding

I find that effects to PETS species are adequately addressed.

Issue 8. Whether Forest Service adequately included current scientific information in their analysis of pesticide effects.

Appellant introduces a large amount of purported new information in the form of citations to the literature without providing the literature itself and without establishing either significance or (in several cases) even establishing relevance to the proposed project. Materials claimed to be missing from the analysis are found on pages 10 through 22 and are of three types: 1) Rhetorical statements [incapable of scientific analysis]; 2) Editorial information or summaries of information derived from secondary sources, but not original or new science; and 3) Uninterpreted science 'fact' without regard to significance or relevance within the proposed project. No new information beyond that considered in the risk assessment underpinning the *Vegetation Management EIS for the Appalachian Mountains* and the *Specialist Report Regarding Use of Herbicides* (August 2004) was presented which had relevance to the current project.

Errors of fact compound the lack of new science and contribute to our inability to respond to certain 'issues' raised in this appeal.

- Top of p. 11 — 'invasions. . .' are not the subject of this proposal, vegetation management on a right of way is the subject.
- Mid p. 11 paragraph dealing with Servesi et al. (1987) – Content appears to be confused – discusses the potential effect of Roundup and MON 0818 but also appears to indicate that the formulated product Garlon 4 is somehow part of the formulated product Roundup. While the paragraph may simply be poorly worded, as written it appears to propose a clear error of fact.
- P. 12 - Appellant provides an error of fact when discussing Garlon 4. Both the EA and the appended FS 2100-1 (use proposal) discuss the use of triclopyr, but neither stipulate the formulation Garlon 4 as the product proposed for use.

- Further, appellant's assumption (stated on p.12) that diesel oil or kerosene will be utilized as a carrier in field applications of the triclopyr formulation of choice is another error of fact. Again, using the FS 2100-1, we find that indeed the carrier (diluent) proposed for use is HiGrade EC (misspelled in the form as High Grade EC) – which is neither diesel oil nor kerosene.
- As noted in the risk assessments underpinning these analyses, data concerning formulated products is considered in their preparation and thus the claim that inert ingredients are not considered is an error of fact. That separate risk assessments were not made for each of these contaminant chemicals is accurate – but NEPA requires analysis of significant effects and the literature does not support the (unmade and unsupportable) contention that inerts in the formulated product have some effect not seen when evaluating the formulated product.

The Forest Service uses the weight-of-evidence approach when incorporating science into its Risk Assessments. A single new paper with information at variance with the overall published record will not normally outweigh that record, barring only a *demonstration of significance* beyond that apparent in its uniqueness. Appellant must demonstrate why (not simply claim that) a new study is significant and relevant to the analysis performed. The decision-maker had and used the best-science available when formulating the decision. The Appellant has introduced no new science into the record that is both relevant to the project as proposed and has the potential to cause significant effect and thus alter the decision made.

Finding

I find that the Forest Service did adequately include current scientific information in their analysis of pesticide effects.

Issue 9. Whether the Forest Plan and EIS were sufficient to tier to for consideration of herbicide impacts.

In response comment #20 from SABP (30 day comment period letter) the FS indicated that the Forest Plan completed analysis of herbicides that may be used on National Forest System lands. The only herbicides that would be used for this project are those approved for use by the Forest Plan and at application rates also approved by the Forest Plan." (EA, p. 142). The Forest Plan, EIS and Appendices to the EIS, however, contain no analysis of impacts of herbicides."

The revised plan does permit use of designated herbicides (DB-VEG-7). And the 2003 EA has clear tracks to the analyses of effects found in the VMFEIS for the Appalachian Mountains, which, at the time of completion of that EA was the required basis of analyses. In DB-VEG-8 we find the standard under which pesticide use may now be approved for use.

In order to comply with the revised plan, analysis must be done to allow approval of the use of any pesticides in DB-VEG-7. While herbicide use analysis was done in the

VMFEIS and cited in the EA prior to the signing of the new plan, we agree that the analysis was not very current and needed review beyond what is present in the EA.

However, the project file (in the process record) contains a significantly updated analysis of herbicide risk in the form of a report entitled *Specialist Report Regarding Use of Herbicides* (by Paul Finke, dated August 2004.) This document, while short, is supported by a variety of risk assessments and site specific worksheets which reflect the potential for site specific effects from the proposed actions. This documentation clearly fulfills the requirement for site specific analysis in project level NEPA documentation.

Documents in the project file include:

- *FS2100-2 - #1 Initial Cut Stump Treatment (rtf)*
- *FS2100-2 - #2 Followup Directed Foliar Treatment (rtf)*
- *FS2100-2 - #3a Routine Maint. Directed Foliar Treatment (rtf)*
- *FS2100-2 - #3b Routine Maint. Directed Foliar Treatment (rtf)*
- *FS2100-2 - #3c Routine Maint. Directed Foliar Treatment (rtf)*

- *Glyphosate - Worksheet for Human Health & Ecological Risk Assessment (pdf)*-- Nov.2001
- *Imazapyr - Worksheet for Human Health & Ecological Risk Assessment (pdf)* – Nov. 2001
- *Triclopyr Acid - Worksheet for Human Health & Ecological Risk Assessment(pdf)* – Nov. 2001
- *Triclopyr Bee - Worksheet for Human Health & Ecological Risk Assessment (pdf)* – Nov. 2001

- *Glyphosate - Risk Assessment for Human Health & Ecological Risk Assessment (pdf)* – Mar. 2003
- *Imazapyr - Risk Assessment for Human Health & Ecological Risk Assessment (pdf)* – May 1999
- *Triclopyr - Risk Assessment for Human Health & Ecological Risk Assessment (pdf)* – Mar. 2003
- *Fosamine – FEIS Appendix A, Vegetation Management in the Appalachian Mountains – Volume II* ***[RO has copy]***

- *Glyphosate – Site Specific worksheet – EXCEL spreadsheet (xls)* – Nov. 2001 / minor rev Mar. 2004
- *Imazapyr - Site Specific worksheet – EXCEL spreadsheet (xls)* – Nov. 2001 / minor rev Mar. 2004
- *Triclopyr Acid - Site Specific worksheet – EXCEL spreadsheet (xls)* – Nov. 2001 / minor rev Mar. 2004
- *Triclopyr Bee - Site Specific worksheet – EXCEL spreadsheet* (xls) – Nov. 2001 / minor rev Mar. 2004

The first five items in the bullet list define the actual proposed program, the next four describe the process of analysis found in the EXCEL workbooks, the next four documents are the risk assessment documents, and the final four documents present the results of site-specific runs of the computer model (EXCEL workbooks) which generated evaluations of risk (hazard quotients [HQs]) associated with this project. This documentation was available to the public during the comment period. Conclusions drawn from this review (using these, the most current methods available) did not change the conclusions made public based on the 2003 EA. In addition, after the public comment period and prior to the signing of the decision, this information (along with other needed changes) was included in a revised EA (dated January 28, 2005) on which the final decision was based.

Finding

I find that the decision-maker had relevant, current and timely information needed on which to base the decision.

RECOMMENDATION

After reviewing the project record and considering each issue raised by the appellant, I recommend that Forest Supervisor Benjamin Worthington's February 4, 2005, decision for the Rowan-Cranston 138kV Electric Transmission Line on the Morehead Ranger District of the Daniel Boone National Forest be affirmed.

/s/ John F. Ramey
JOHN F. RAMEY
Appeal Reviewing Officer
Forest Supervisor