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Forest Service
Big Piney Ranger District
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File Code: 1950
Date:

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., AR 72801

Dear

The Environmental Assessment (EA) for the 09 Ice Storm Salvage Project is enclosed. This EA used the predecisional administrative review process authorized by the Healthy Forests Restoration Act of 2003. This process differs from the normal NEPA procedure by utilizing scoping/public meeting and then a 30-day objection period instead of the usual 30-day comment and 45-day appeal periods. Since you have expressed interest in this project during the scoping/public meeting period, you have established your objection rights pursuant to CFR36 part 218.6.

CFR36 part 218.7 contains the following instructions for filing an objection:

- Any objections must be filed with the Reviewing Officer (Forest Supervisor, Judith Henry) in writing. All objections shall be open to public inspection during the objection process.
- It is your responsibility as the objector to sufficiently describe those aspects of the proposed hazardous fuel reduction project addressed by your objection, identify specific issues related to the proposed project, and suggest remedies which would resolve your objection.
- Incorporation of documents by reference shall not be allowed.
- At a minimum, an objection must include the following: Objector's name and address, telephone number if available, signature or other verification of authorship upon request (a scanned signature for electronic mail may be filed with the objection), name of the lead objector when multiple names are listed on an objection, the name of the proposed authorized hazardous fuels reduction project, the name and title of the responsible official (Lew Purcell, Jr. District Ranger), and the National Forest and Ranger District on which the project would be implemented.

The 30-day objection period commences the day after the legal notice appears in the Russellville, AR newspaper, *The Courier*. Objections may be mailed to: Judith Henry, Forest Supervisor; 605 West Main; Russellville, AR 72801-3614. Hand-delivered written comments must be received at the Russellville's Forest Supervisor's Office, during normal business hours of 8:00 a.m. to 4:30 p.m., Mon-Fri. Objections may also be mailed electronically to the office, in a common digital format, at: appeals-southern-ozark-stfrancis@fs.fed.us.

Additional information may be obtained by contacting Roger Gunter at the District Ranger's office in Hector, AR (479) 284-3150 x3159.

Sincerely,

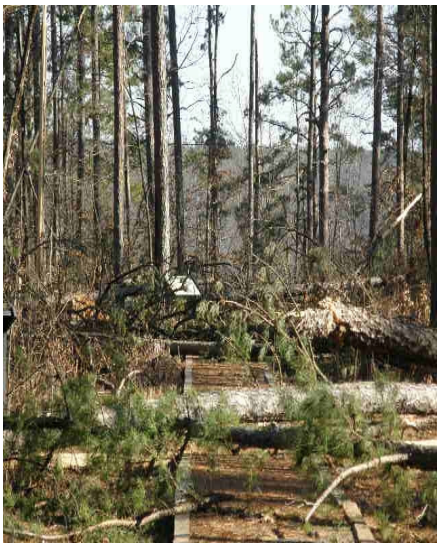
LEW W. PURCELL, JR.
District Ranger

United States
Department of
Agriculture
Forest Service

April 2009

Environmental Assessment

09 Ice Storm Salvage Project



Big Piney Ranger District, Ozark-St. Francis National Forest

Pope, Newton, Johnson, Conway, Searcy, Van Buren & Madison Counties, Arkansas

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Background

On January 26 and 27, 2009, the Big Piney Ranger District suffered severe damage from an ice storm that resulted in widespread uprooted, broken, leaning, and rootsprung damaged trees across the district generally at elevations of 1400 feet and higher.

I. PURPOSE AND NEED FOR ACTION

a. Purpose. The purpose of this initiative is to remove the damaged trees utilizing salvage timber sales in pine and hardwood stands and personal use permits along roads in order to reduce fuel loads in the effected areas.

b. Need. Section 102(a)(4) of the Healthy Forests Restoration Act of 2003 authorizes expedited vegetation management projects on National Forest lands when ice storm damage poses a significant threat to an ecosystem or forest resource.

The recent ice storm caused a significant addition to the fuel loading on the ground. After curing, this additional fuel has the potential to change a manageable wildfire into a catastrophic wildfire that would be difficult to prevent from spreading onto private property threatening residences and other structures. Even if a wildfire can be contained to National Forest lands, the additional fuel would increase smoke in the atmosphere and damage to the remaining trees. Firelines would be more difficult to construct because of all the downed trees and limbs. Additionally, prescribed burning will create greater amounts of downwind smoke than what has typically been produced and would be harder to manage and prevent damage to remaining trees. Access to a large portion of the district is restricted due to blocked roads and trails. Maps of possible heavy and moderately damaged areas at elevations of 1400 and higher along with associated pine and hardwood stands have been produced.

The presence of a significant amount of damaged/stressed trees in the Forest could lead to future insect epidemics such as the southern pine beetle or the red oak borer which would lead to even greater amounts of fuel that would exacerbate the fire problems mentioned above.

II. PROPOSED ACTION AND ALTERNATIVES

Proposed Action. The following actions are proposed in the project area:

- Remove the downed/damaged timber from no more than 4000 acres of pine and 10000 acres of hardwood stands and along all road rights-of-way (ROW) on National Forest lands as rapidly as possible via salvage timber sales and personal use permits.
- Remove some live trees to create log landings and temporary roads that would be incidental to salvage operations.
- In order to expedite the salvage operations, minimal temporary road construction and minor maintenance to haul roads will be the only road work proposed for this project.

Alternative 1. No action.

- None of the proposed actions would be attempted.

III. ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION AND THE ALTERNATIVES

a. Soils

The analysis method used in evaluating effects of the soils consists of identifying the soils characteristics relating to erosion hazards, permeability and soil detrimental disturbance. County surveys were used to gather information to identify soil types, their suitability, and limitations. Soil disturbance includes all of the physical factors that affect soil, including erosion, displacement, puddling, and compaction. A threshold has been established in the RLRMP that no more than 15% of the activity area should be detrimentally impacted to maintain soil productivity. To estimate the amount of disturbance coefficients for each harvest method are multiplied according to the acres harvested by each method then added together and divided by the total acres harvested. The result is multiplied by 100 to produce the percentage of predicted detrimental soil disturbance. The coefficients for the harvest methods are based on monitoring of harvested units from 1993 to 2002.

Table 1: Soil Disturbance

Soil Disturbance in Acres	**Proposed Action**	**Alternative 1 No Action**
Soil Disturbance (ac):		
Pine Harvest	480	0
Hardwood Harvest	600	0
Total acres disturbed	1080	0
Soil Disturbance in Percent:		
Pine Harvest	12.0%	0%
Hardwood Harvest	0.06%	0%
Total in %	12.06%	0%

Cumulative Effects

Cumulative effects from past, present, and future management activities are expected to be minimal, since harvesting activities are expected to utilize mostly existing roads and skid trails. Roads and skid trails that were used in previous harvesting activities would be compacted and disturbed again during the proposed harvesting activities. Recovery of these roads and skid trails would begin again after the harvesting activities are completed. Disking and seeding of skid trails and temp roads speed up the recovery process.

b. Water

Watersheds at the 6th level were identified within the area of the district on which salvage activities are being proposed. Water quality in streams flowing through and from the Ozark National Forest is good due to the forested condition of National Forest lands. This quality is not expected to decrease since there is still vegetation in place even on the most severely ice damaged areas of timber and most large streams are below 1400 foot elevation and have intact forest canopies around and above them to act as filters to catch sediment and slow runoff after precipitation events. Existing and proposed activities on Forest Service and other ownerships within the identified watersheds were used with a model to predict sediment increases and risk level of the activities for each watershed.

Table 2: Sediment Assessment

Sediment Increase and Risk Assessment	Proposed Action	Alternative 1 No Action
Current Sediment (tons)*	1303	1303
Sediment Increase (tons)*	300	0
% Increase*	23%	0%
Risk Assessment :	Low	Low

* Averaged for all sixteen watersheds used for the analyses.

Results of the modeling for past, present, and future activities indicated that the proposed activities will create a LOW risk of direct or cumulative impacts for all affected watersheds. Predicted increases in sediment averaged 23% above what is already occurring for the Proposed Action. Use of Best Management Practices and Management Area Standards in the RLRMP should mitigate increases in sediment and water flow. Since the model does not factor these practices in the actual increases would be expected to be lower than predicted.

c. Fire Management

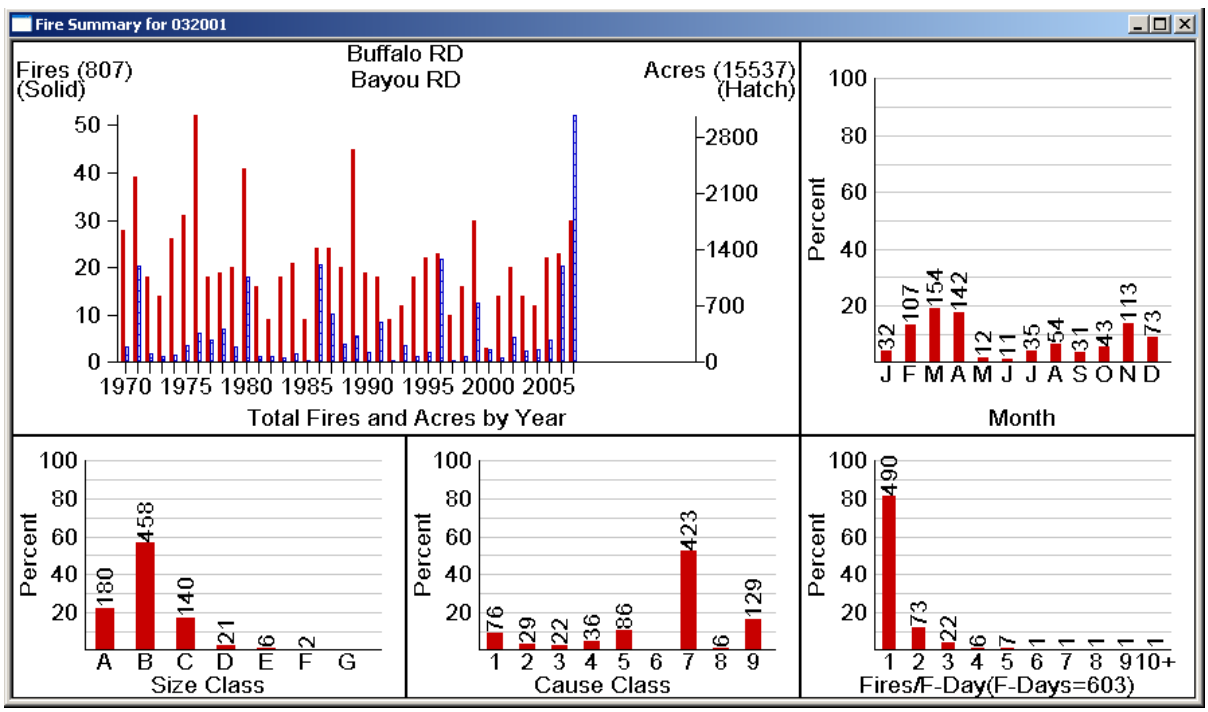

Figure 1. – from Fire Family Plus

Historical perspective.

The Big Piney Ranger District covers approximately 496,000 ac. During the 38 year period between 1970 and 2007 the District experienced 807 statistical fires; fires that required suppression action. This equates to an average of 21 fires per year. The leading cause classes shown above in Figure 1 are 7) Arson, 9) Unknown, 5) debris burning, and 1) lightning. For reporting purposes, the Forest Service considers a large

fire as 100 acres or larger in timber litter and brush. These fires are indicated by Class D, 100 – 299 ac. Class E, 300 - 999 ac. and Class F, 1,000 – 4,999 ac. During this same period, the District experienced 29 fires in these classes. The largest three fires were 1,653 ac., 850 ac., and 661 ac.; these fires all occurred in 2006 and 2007. There were two fires that killed entire timber stands: one in the 1960's on Pilot Rock Mountain from lightning and one in the 1970's in what is now the Richlands Creek Wilderness caused by a portable sawmill.

Fuels

Current Condition

The District has 96 permanent fuel plots across the District, that are measured using the Brown's Planar Intercept Method. This method measures duff, litter, and the accumulation of dead and down woody material. The plot data is entered into the FFI (FEAT/FIREMON Integrated) software for analysis and determination of fuel loading. All 96 plots were measured in the fall of 2008. To determine the increase from the ice storm of 2009, 27 plots in the affected area were re-measured in March of 2009.

The results of the analysis are shown below in Figure 2 and 3. The average tons of fuel per acre increased by 39%, with the largest increases in the 100 hour (1 – 3 in. diameter) and 1,000 hour (3 – 6 in. diameter) lag time fuels.

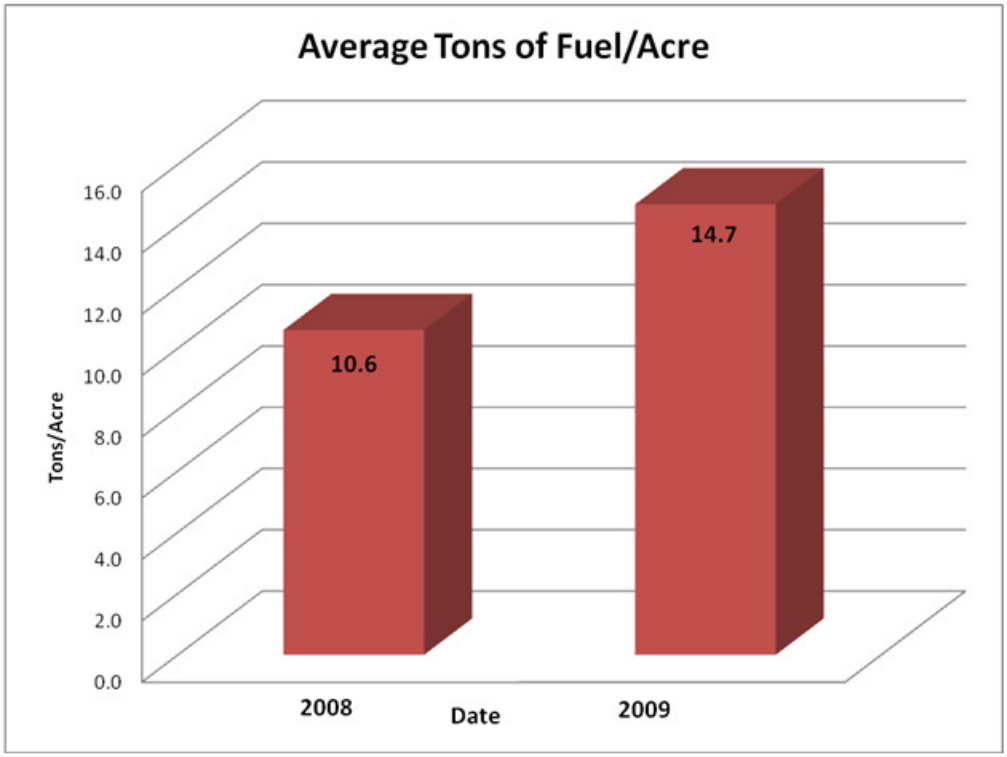

Figure 2.

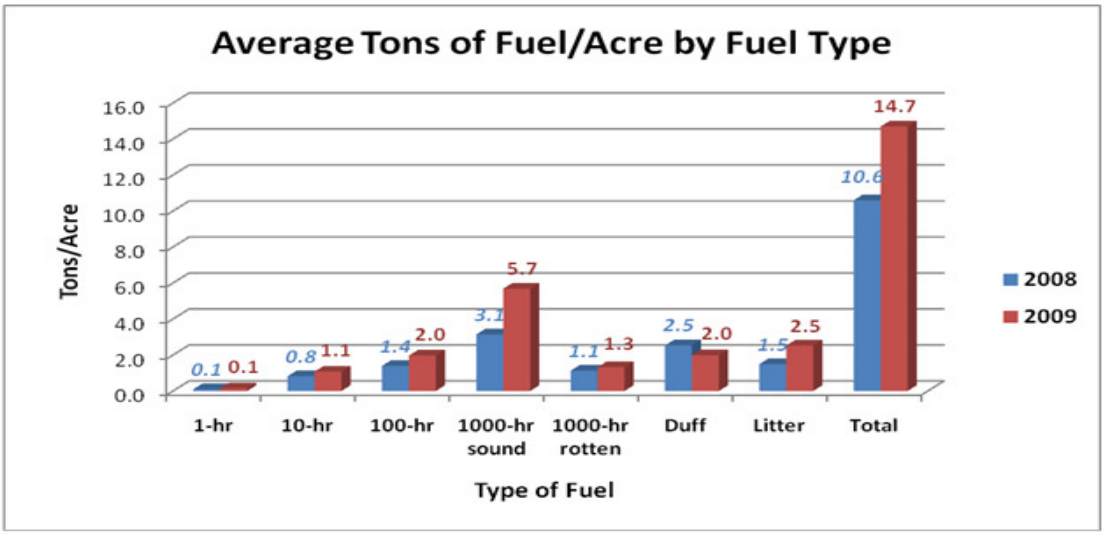

Figure 3.

Fire Suppression

Typically, the fuels on the District are considered to be Fuel Model 9, hardwood litter; however, in the ice storm damage areas, the fuels now have a component of Fuel Model 11, light logging slash, due to the accumulation of limbs and trees down. Fire size and time of containment will increase in these areas. The BEHAVE PLUS Fire Modeling System indicates that fire size and containment time will both nearly double. This assumes that firefighters can easily access a fire; however the ice storm has numerous low use level roads blocked. The lack of access may also increase the size of fires. Overall, the storm damage will increase the exposure time of firefighters, as well as increase the threat to private property.

Effects

Due to the increase in fuel loading, fires that start in an ice storm damaged area with no history of prescribed burning can be expected to produce more emissions. The Simple Approach Smoke Estimation Model (SASEM) indicates that tons of emissions produced per acre could more than double. The availability of the fuel to burn will depend on environmental factors such as temperature, relative humidity, and rainfall, and season, all of which have an effect on fuel moisture.

Proposed Action

The proposed action will reduce the fuel loading within harvested areas as well as provide better access for firefighters by opening roads. The combination of the two would be expected to decrease the size and intensity of wildfires, as well as time to suppress in these areas. The assumptions made are based on a conditions considered to be average for fuel moistures. Weather conditions are highly variable and observed fire behavior and smoke emissions will vary from day to day.

Alternative 1 – no action

Under this alternative, fuel loading in these areas will remain higher and access will remain diminished. Fires can be expected to burn longer with more intensity and grow to a larger average size. Depending on fuel moistures, more tons per acre of smoke emissions may occur. Larger fires will also lead to increased suppression costs.

d. Heritage Resources

1795 acres of identified pine salvage areas have been previously inventoried. This does not include 195 acres within Bearcat Phase 2 project which has been inventoried but the report (in preparation) has not been submitted to the State Historic preservation Office. 424 additional acres of pine stands have been identified that will need to be inventoried. Possible salvage areas in hardwood stands have not been checked at this time. However, as these stands are identified, a determination will be made for the need to conduct surveys in accordance with the Programmatic Memorandum of Agreement as discussed below.

The 1,795 acres were inventoried under the following Heritage Resource Inventory Surveys;

Little Still E.A.	99-10-03-03
Meeks Hollow Project	00-10-02-14
Meeks Hollow Project Part 2	01-10-02-02
Meeks Hollow Post Harvest	03-10-02-10
Boss Hollow Prescribed Burn	04-10-02-02
Highway 123 Pine Thin	05-10-02-15
Bayou Ecosystem Restoration EA	05-10-03-13

Emergency Procedures in case of wildland fire, ice storm damage, tornados, etc. are covered in Section C.3 of the 2005 Heritage Programmatic Memorandum of Agreement. In this case, as with the Ouachita Ice Storm (2 January 2001) and Ozark Red Oak Borer (20 February 2004), a separate Programmatic Agreement has been written by the Forest Heritage Program Manager and has been submitted to the Arkansas State Historic Preservation program 106 compliance section as well as the 14 Native American Tribal signatories to the PMOA for their review. This agreement will stipulate the survey procedures, reporting requirements, performance standards, dispute resolution and monitoring.

e. Recreation/Visuals/Special Uses

1. Recreation

Existing Conditions

Hunting for whitetail deer, squirrel and eastern wild turkey is a popular dispersed recreational activity in the general area. Dispersed camping can be found mostly from hunters, or visitors hiking along the OHT. These sites receive moderate use with the peak use in spring and fall. Other activities include recreational driving interior roads, some of ATV use, wildlife viewing and firewood gathering within the project area.

Currently all of these recreational opportunities have been severely limited by the debris left from the broken tops and down trees covering a major portion of the forest above 1400 feet in elevation restricting hiking to areas already cleared. Numerous trees still have hanging limbs and tops with some trees leaning from uprooting of trees creating a safety hazard to all who enter the forest.

The analysis area for evaluating effect on Recreation can be described in terms of three principle components: the recreational activity, the setting in which it takes place, and the resulting experience. These three components make up the Recreation Opportunity Spectrum (ROS) that was originally completed in 1986. However, during each Environmental Assessment, ROS for the area is reviewed and updated as needed. The setting includes both environmental and social factors. Its physical, natural features and the amount of apparent modification from human activity characterize the environmental setting of an area. The social setting of an area is characterized by the amount of contact among the visitors using it and the

probability of their experiencing isolation from the sights and sounds of non-recreation human activity. The experience is the desired psychological outcome realized by participating in a preferred activity in a preferred environmental and social setting. Different combinations of these components provide a range of recreation opportunities. The ROS is a way to classify this range of opportunities and to identify the capability of the Forest to provide them. There are six classes of ROS in the Forest Plan: Primitive (P), Semi-primitive non-motorized (SPNM), Semi-primitive motorized (SPM), Roaded Natural (RN), Rural (R) and Urban (U). The Forest Plan objective is to maintain a balance of Recreation Opportunity Spectrum on the Ozark- St. Francis National Forest. This project area contains five classes with the following acres:

- Semi-primitive motorized areas (66,942 acres) are characterized by a predominantly natural or natural-appearing environment of moderate to large size. Motorized use is permitted.
- Roaded natural area (120,413 acres) is characterized by predominantly natural appearing environments with moderate evidences of the sights and sounds of man that usually harmonize with the natural environment.
- Semi-Primitive Non-motorized areas (135 acres) are characterized by solitude, limited interaction with others and the vegetation management is usually limited to salvage and management activities of small size.
- Rural areas (562 acres) are characterized by high level interaction with others and recreational development that invites use with the natural environment.
- Urban areas (29 acres) are characterized by high development areas with facilities such as campgrounds, picnic tables and trail heads.

There are special designations within the project area such as trails, Special Interest Areas, or Recreational Areas that would require additional vegetation management mitigations.

Direct/Indirect Effects
Large portions of the analysis area exceed the desired ROS classification due to the Ice Storm event. However management activities in the proposed actions could enhance the impacted areas by speeding up recovery time which would reduce the inconvenience to the forest visitor. Therefore visitors would be expected to encounter resource utilization while traveling Forest Service roads, hunting or while cross country hiking. While in the no action alternative the impacted area would be allowed to recover naturally increasing the time it would take to reach the desired classifications and imposing a greater length of time of restricted access to visitors of the forest. In general, damage from the ice is limiting recreational use, therefore no restriction on vegetation management is planned since harvesting salvageable timber will speed up the recovery time and reduces safety hazards in the areas where timber sales occurs

Cumulative Effects
Based on the proposed action and the no action alternative there are no cumulative effects to the recreational opportunities in the project area expected over the long term.

2. Visual Quality

Existing Condition
The analysis area is located in a rural and mostly forested area. Some pastures occur on private property within the project area. Sight-seeing is limited along the paved and gravel roads because the terrain and the vegetation offer little opportunities of any vista. The creeks are mostly intermittent in nature therefore providing limited recreational opportunities except for hunting and hiking/bushwhacking. The project area Scenery Management is predominately a scenic level of high (99,474 acres). The RLRMP priorities pg. 2.20 is to maintain or enhance the visual character of the Forest by establishing scenic integrity objectives. The intent is to manage landscapes and use the best environmental design practices to harmonize changes in the

landscape to reduce visual effects of management. The Scenic class numbers range from 1 to 8 with 1 representing extremely high public value and 8 as moderate/low public value which usually is found in unseen areas. The management area (3.C Mixed Forest) combined with the scenic class numbers identifies the Scenic Integrity Objectives (SIO) for most of the Ice Storm Project which are High, Moderate and Low: Unfortunately, the ice storm event had a negative impact on the visual quality of the forest that will last for a long time unless debris from the damage trees are removed.

- High –Most of the project area, along ridges and adjacent to the Counties, State and Forest Service road are designated with a high Scenic Integrity objective.
- Moderate – has the second most area impacted by the ice storm which includes the main open Forest Service System interior roads and counties roads traveled mostly by local residence.
- Low – The remainder of the project area is designated with a low Scenic Integrity objective since these areas are seldom visible /unseen. These designations include Middle-ground or Background of all or portions of the project area.
- Very High is also identified on the map; however no proposed salvage treatments will occur in these areas since they fall within the wilderness management area or inside areas recommended for wilderness.

The RLRMP Appendix G shows the objective for each management area by Scenic Classes in Table G-2 "Scenic Integrity Objectives by Management Area". Definitions for each Scenic Integrity Objectives can be found on page G-4. The Scenic Objective map shows where the different integrity objectives are located for any proposed salvage treatments within the ice damage area.

Direct/Indirect Effects
No Action alternative would have the greatest negative effect on the visual since management activities would be limited to leaving all of the storm debris to decay over time.

The Proposed Action would create positive initial impacts by removing the storm debris in areas that are deemed economical to salvage. Also, suggested mitigation measures would enhance and shorten the duration of the visual impacts of the ice storm. Salvage of the damaged timber with associated activities such as temporary roads will shorten visual recovery time. Areas not covered by salvage operation will take much longer to recover. Treatments would affect the density of the vegetation and removal of the debris allowing the potential of increase sight distance providing a greater depth of viewing within the forest.

Cumulative Effects
Based on the proposed treatments in the no action alternative and proposed action there are no known long term negative cumulative effects to the visual resource in the project area. The treatment areas of the Proposed Action are expected to increase viewing opportunities for the forest visitors on a maximum of ten percent of the storm event area enhancing the recreational experience over the long term.

3. Special Use
There are numerous special uses within the project area; however negative impacts are not expected from the proposed action. The No action alternative may have negative impacts by limiting potential salvage treatments that could aid special use permit holders by removing storm debris that is currently hindering access.

Following are the R8 suggested techniques to mitigate for vegetation management.

The visual mitigations or techniques used in areas where salvage operation may occur have been identified by the Scenic Integrity Objectives Map. If a salvage operation is located within a "Low"

SIO then the suggested techniques, listed below B, T, V, W, and AA would be applied as deemed appropriate.

Below are the techniques to achieve the Scenic objectives and enhance the Landscape Character by the different Scenic Integrity Objectives for Salvage treatments as identified in the Mitigation Measures "Scenery Treatment Guide- Southern Regional National Forests" dated April 2008.

High – Suggest the use of the following mitigation practices: B, C, D, E, F, G, H, I, T, V, W, AA
Moderate – Suggest the use of the following mitigation practices: B, D, E, G, I, T, V, W, AA
Low – Suggest the use of the following mitigation practices: B, T, V, W, AA

B. Flowering and other visually attractive trees and under-story shrubs should be favored when leaving vegetation.

C. During temporary or permanent road construction, slash and root wads should be eliminated or removed from view in the immediate foreground to the extent possible. Slash may be aligned parallel to roads at the base of fill slopes to collect silt, but usually only if it provides this function.

D. Slash should be removed, burned, chipped or lopped to within an average of 2 feet of ground when visible within 100 feet on either side of State Highways, or major Counties and Forest Service Roads and all interior roads 4 feet of the ground when visible within 100 feet on either side.

E. Root wads and other unnecessary debris should be removed or placed out of sight within 150 feet of key viewing points.

F. Stems should be cut to within 6 inches of the ground in the immediate foreground.

G. Leave tree marking or unit boundary marking should be applied so as to not be visible within 100 feet of roads.

H. Consider scheduling work outside of major recreation seasons.

I. When possible, log landings, roads and bladed skid trails should be located out of view to avoid bare mineral soil observation from travel routes.

T. The visual impact of roads and constructed fire lines should be blended so that they remain subordinate to the existing landscape character in size, form, line, color, and texture.

V. Openings and stand boundaries should be organically shaped. Straight lines and geometric should be avoided. Edges should be shaped and/or feathered where appropriate to avoid a shadowing effect in the cut unit. Openings should be oriented to contours and existing vegetation patterns to blend with existing landscape characteristics, as appropriate.

W. Cut and fill slopes should be re-vegetated to the extent possible. In seen areas, consider seasonal color of vegetation. Fore instance, using warm season grass mixes that turn seasonally brown or gray instead of green. Cut banks should be sloped to accommodate natural re-vegetation.

AA. Impacts to forest trails should be minimized. Trail-related mitigations can include all or portions of the following: Temporary road and/or skid trail crossings across designated forest trails should be kept to a minimum. Any crossings should be perpendicular to designated forest trails. Using segments of designated forest trails as skid trails/haul roads should be avoided, as much as possible. If trails are used as skid trails/haul roads, specify trail cleanup/rehabilitation should be specified at the end of the contract. Trail width should not be increased. Character trees and trees that define the trail corridor should be retained. Changes to trail alignment and surfacing should be minimized; the trail should not be straightened nor should its surface be changed with an alternative material unless such actions are needed to enhance the trail and protect resources. Warning signs should be placed on all trail access points and along the trail where activities are occurring. When activities are occurring along open trails, slash should be treated within 100' of the corridor, either daily or another agreed on time period (check with recreation specialist). If trails are temporarily closed due to harvesting, trail tread should be cleared of all slash prior to reopening that section for public use. Slash should be treated to an average of 4 feet from the ground within 100' of the corridor prior to finalizing harvesting activities in the affected unit.

f. Vegetation

A disturbance event such as an ice storm poses great risk to the natural resource and its surrounding ecosystem. If the downed/damaged trees are not removed they become more susceptible to insects and disease attacks, thus exposing the landscape to widespread, catastrophic epidemics. Effective management strategies, such as those proposed in this project, will directly and indirectly reduce these risks by removing the susceptible trees.

Current Conditions

Typically, pine stands naturally occur on southerly slopes or mountaintops. Pine stands higher in elevation (above 1400 feet) sustained moderate to severe damage from ice accumulation, depending on local precipiation amounts. Hardwood forest types in the affected areas include mixtures of white, black, and northern red oak and hickory, as well as other species such as pine, cedar, beech, blackgum, sweetgum, black cherry, ash, maple, walnut, and elm. Similar to the pine areas, the hardwood stands above the 1400 foot elevation mark sustained moderate to severe damage.

The species composition in the mid-story consists of oak, hickory, dogwood, sassafras, sweet gum, black gum, elm, pine, red cedar, and red maple. Common shrubs and vines found include spicebush, hawthorns, blueberries, viburnums, greenbriers, blackberry, honeysuckle, and grape. Grasses and other herbaceous vegetation in the understory include bluestem, cheat, foxtail, Johnson grass, nutsedge and panicums, and a variety of other species depending on slope and aspect.

The distribution and abundance of the vegetation on the district has been altered, in some places dramatically, as a result of the January ice storm. The storm has created numerous canopy gaps, which in turn promotes shade intolerant species which benefit from increased sunlight to the forest floor. These species will likely increase in abundance. Shade tolerant species mostly occuring in the understory will tend to decline in damaged areas.

Proposed Action Alternative

Trees that are knocked down or damaged by ice storms increase the risk of wildfire and are often colonized by insects, leading to rapidly escalating insect populations that can attack surrounding trees, if they are

susceptible. Areas of scattered damage can result in insect epidemics in areas with moderate-to high-hazard conditions. Removing these trees through commercial salvage operations or personal use permits will reduce these risks. Salvaging damaged/downed trees affected by the ice storm will reduce the hazardous fuels buildup and reduce the risk of catastrophic wildfire.

No Action Alternative

There would be no direct affects to vegetation diversity by not implementing the proposed action; species distribution and abundance would generally remain static since canopy gaps resulting from the disturbance have already been created. However, by not salvaging the downed/damaged trees, the risk of catastrophic wildfire and insect and disease infestations would greatly increase over the next several years.

g. Wildlife, Fisheries, MIS and Proposed, Endangered, Threatened, and Sensitive Species (PETS)

This analysis will focus upon the Management Indicator Species (MIS) to assess the potential impacts of this project on wildlife by the actions described in Chapter 2. The foundation for MIS can be found in the National Forest Management Act and Planning regulations (36 CFR 219.19). Briefly, MIS were selected because "their population changes are believed to indicate the effects of management activities" and they were used to help meet the Forest's legal requirement to "preserve and enhance the diversity of plants and animals consistent with overall multiple-use objectives." It is important to remember that MIS are a planning and monitoring tool that reflects a way to analyze a change in conditions. The Forest completed a report assessing the population and habitat trends for the 17 MIS chosen for the Forest (USFS 2001) and has since completed annual Monitoring & Evaluation Reports on the Forest evaluating the status of MIS.

A more complete description of the habitat relationships for these species can be found in the process file and are tiered in part to the Nature Serve database: http://www.natureserve.org/ , and a Land Manager's Guide to Birds of the South: http://www.srs.fs.usda.gov/pubs/2702

Management Indicator Species Analysis

The management Indicators will be divided into two groups: Low Disturbance Species (LDS) (Northern Parula, Cerulean Warbler, Ovenbird, Pileated Woodpecker, Scarlet Tanager, and Acadian Flycatcher) and High Disturbances Species (HDS) (Northern Bobwhite, White-tailed Deer, Black Bear, Wild Turkey, Prairie Warbler, Brown-headed Nuthatch, and Red-headed Woodpecker). Low disturbance species are species that occupy habitats that require low intensity and/or frequency of disturbances to maintain their habitats. An example would be a closed canopy forest. Habitats of HDS species require high intensity and/or frequency of disturbance to maintain them. Examples of these habitats are oak woodlands and 0 to 10 year old regeneration stands.

On the Big Piney Ranger District, approximately 185,000 acres of Forest Service land has received moderate to high damage to the associated forested stands (see maps). Most of the damage has occurred above 1400 foot elevation and on ridge tops and north to east aspects. The extent of the damage varies across the area and exactly how high the mortality will be in standing damaged trees is not known at this point. For these reasons, the effects on closed canopy forested habitats and mast production are not clear. Based upon field observations, it appears that a portion of these stands has the potential of retaining above a 70 basal area. In these stands, the open canopy will be a temporary condition and will return to a closed canopy habitat relatively quickly. In addition, acorn production should not be negatively impacted over time. Acorn production in stands that retain greater than 40 to 50 basal area is not expected to have a significant reduction and could increase. As the trees recover, individual trees will sprout new limbs and should develop fuller crowns which would increase mast production per tree.

It is likely that habitats for HDS species will increase due to this event. The overall affect on LDS species is still unclear. These species habitats have at least temporarily declined, but the potential for other events that could further decrease their habitats such as increases in intensity and size of fire in the region and disease and insect infestations. Fuels from broken limbs, and fallen trees have increased significantly, and fire with this fuel loading could increase mortality in the larger canopy trees under the right conditions. This risk will increase over the next few years as these fuels dry.

Direct/Indirect Effects

For most of the 185,000 acres affect by the Ice storm, there would be no difference between the two alternatives except on the 14,000 acres that is proposed for salvage. In Alternative 1, the NO ACTION alternatives, risk of further loss of LDS habitats would remain higher than the proposed action. The proposed action would remove some of the fuels and reduce the density of stressed trees which will reduce the risk to LDS habitats.

The ten miles of temporary roads proposed in the proposed action could affect some of the rare communities but project and forest plan standards will minimize any potential affects on these areas.

Soil compaction can inhibit the growth of vegetation in an area. This would reduce the quality of habitats in the project area for both HDS and LDS. Compaction of soil can occur during skidding and transporting timber off of the project area. Forest Plan standards FW05 and FW82 will minimize the area affected by these activities and compaction of soils in the project area. Also only 10 miles of temporary roads will be constructed in this project which limits this potential effect.

Fisheries

Existing Condition

There are 16 Hucs that fall within the project area. The majority of the damage is within the hucs that fall in the Richland Creek, Cave Creek, Big Creek, Big Piney and the North Fork of the Illinois Bayou drainages. Estimates of 51 to 80% of forested habitats have been affected. Most of the damage is above 14,000 feet in elevation; therefore, ephemeral drains are primarily affected by the woody debris. It is likely that small woody debris will increase in local streams, but increases in large woody debris will be very limited. The large woody debris inputs will occur in areas that trees were damaged along intermittent and perennial streams.

Effects/Fisheries

Proposed Action & Alternative I

The primary concern is the potential increase in sedimentation yield and alteration of hydrologic regimes due to the salvage activities. Associated activities such as skidding and temporary road construction to remove the trees can affect these factors. The BMP's outlined by the Arkansas Forestry Commission and Forest Plan standard are designed to minimize these impacts and will be implemented during this project. Also, the district is only proposing to salvage 14,000 acres and construct 10 miles of temporary roads over an area that falls into 16 level six watersheds. For this reason, the area affected by these activities in any particular watershed would be relatively small. 8 Watersheds within the area where the majority of the damage occurs are likely to have most of the salvage activities. Based upon the sediment model, these activities are low risk for all 16 watersheds. See the Soil and water section for more discussion.

Wildlife/Fisheries Cumulative Effects for the Proposed Action & Alternative I

Private landowners will likely conduct salvage operations as well. The extent of the salvage operations that will be occurring on private lands is not known at this time, but it is expected to be more in the watersheds

identified above that encompass most of the damage. Salvage on private land would also decrease fire intensity and size of burned areas and outbreaks of disease and insect infestations in the residual stands. On the other hand, risk of negative effects to rare communities and increases in soil compaction is expected to be higher on private land because best management practices are not mandatory and adherence to these practices will be reduced. Salvage operations on private land could also impact hydrologic and sedimentation regimes and risks associated with these operations. The soil and water section considered the effects of harvesting on private land and all watersheds had a low risk, so effects would be minimal.

Proposed, Endangered, Threatened and Sensitive Species (PETS)

Existing Conditions
A biological evaluation (BE) has been completed that examines all known occurrences of Endangered, Threatened and Sensitive (PETS) species that occur on the Regional Forester's Sensitive Species list and applicable to the Ozark-St. Francis National Forest. In addition, the 19 federally proposed, endangered and threatened species identified through informal consultation with the USFWS (Forest Plan BA) were also considered. All but 14 of the PETS species were eliminated from further evaluation due to one or more of the following factors:

- The Project Area is not within their known, documented geographic range.
- The species has never been documented within the 12 digit watersheds that encompass the project area or its sphere of influence in field surveys, monitoring activities, reports, or the scientific literature.
- The treatment area does not provide habitat conditions known to be needed or used by the species.

Endangered species known to occur or which may occur within project treatment area or areas of influence include: Gray Bat, Indiana bat, and Ozark Big-eared Bat. Sensitive species known to occur or which may occur within project treatment area or areas of influence include: Bald Eagle, Small-footed Myotis, Ozark Chinquapin, Ozark Spiderwort, *Lirceus bicuspidatus* (an isopod), Longnose darter, Ozark Shiner, Moore's Larkspur, Alabama Snowwreath, French's shooting star, Nearctic paduneillan caddisfly.

The BE made use of internal expertise, earlier discussions with the US Fish and Wildlife Service (Conway, AR Office), conversations and species data from the Department of Arkansas Heritage, field reviews by District personnel and collected inventory data on the District and field surveys conducted within the project.

No critical habitat for any PET species has been identified within the analysis area. For a complete description of potential effects for these species, reference the BE found in the process file for this project.

EFFECTS
Effects Common to the Proposed Action and Alternative 1

Most of the potential effects to these PETS species have already occurred due to the Ice Storm Event. The concerns for all species are as follows:

- Identification and protection of rare communities such as caves, springs, seeps, sink holes
- Salvage that will occur in the primary and secondary zones for Indiana Bat
- Protection of caves that are occupied by Gray and Indiana bats,
- Loss of individuals during skidding and construction of Temporary roads, and
- Alteration of sedimentation and hydrologic regimes.

The following project standards will minimize or eliminate these concerns.

- Surveys for rare communities will occur simultaneously with stand layout.
- All springs, seeps, fens, sinkhole and depression ponds will have a minimum of 100 ft buffer where no timber will be removed or no skid trails will be constructed. If the merchantable section of the tree is outside of the 100 ft buffer, then the top can be cut off and the merchantable section removed.
- No Skid trails or temporary roads will be constructed through any glade or talus habitats.
- Cave surveys will occur on any bluff-line that falls in or within 200 ft of a unit that will be harvested before implementation of salvage operations.
- Any cave or potential cave identified will have a 200 ft buffer where no salvage operations will occur.
- Approximately 13,101 acres of salvage is currently identified in the Secondary zone for Indiana bats. Surveys will occur according to the Indiana Bat Mist Net Guidelines. Indiana bat Mist Net Guidelines require at least 1 site with 2 nets for 2 nights for every 247 acres of forested land. The require sites for this project is 53. I have identified 54 sites for sampling. See maps in the process file. Emphasizing areas adjacent to the primary zone, ponds and secondary roads for sampling
- After completion of the Indiana Bat surveys, US Fish and Wildlife Service will be consulted to identify any further standards that will be required for this project.
- All salvage operations within the Secondary Zone for Indiana Bats will be conducted within two years of the surveys.
- No salvage operations will occur within the primary zone for Indiana Bats.
- Any Regional Forester's Sensitive Species identified during layout will be protected and skid trails and skidding operations will be conducted in such a manner to avoid the site.
- Ozark chinquapin stems of 8 inches DBH or greater will not be cut and where logistically possible, all other Ozark Chinquapin will be protected.

Cumulative Effects

It is likely that some of the Forested Private land will be salvaged in these areas. Where these species occur on private land the risk will be greater, but the cumulative effects from these activities and other associated forest practices are not likely to adversely affect any Threatened or Endangered Species or cause a trend to federal listing or loss of viability for any of the Regional Forester's Sensitive Species. For this reason, Gray and Indiana Bats have a determination of MAY AFFECT NOT LIKELY TO ADVERSELY AFFECT. Ozark Big-eared bat has not been documented in the project or on the district, and the standards should maintain the potential habitat. The Determination for Ozark Big-eared bat is NO EFFECT. All of the Regional Forester's Sensitive Species Identified above have a determination of may impact individuals but are not likely to cause a trend to federal listing or loss of viability. For more information, refer to the BE in the project file.

IV. AGENCIES AND PERSONS CONSULTED

On February 11, 2009, the Forest conducted a meeting with timber purchasers and the Arkansas Forestry Commission in Russellville, AR to determine the interest level in marketing salvage timber sales for the removal of damaged timber from the Forest. The following list contains the attendees:

Larry Nance	Ark. Forestry Comm.	Don McBride	Ark. Forestry Comm.
Michael Gilmore	Gilmore Lumber	Paul Gilmore	Gilmore Lumber
Robert Boen	Boen Lumber	Raymond Branson	Raymond Branson Logging
Jim Schuler	JS Forestry	David Cawein	Green Bay Packaging
Rick Cline	Cline Logging	Jim Cline	Ark. Timberline
Tim Cline	Ark. Timberline	Jim Selvey	Deltic Timber
Bret Brag	Deltic Timber	Roger Ramsey	Ramsey Logging
Jeff Ramsey	Ramsey Logging	David Dotson	Dotson Logging
Luell Smith	Smith Sawmill & Lumber	Linda Smith	Smith Sawmill & Lumber
J.C. Eaton	Eaton Logging	Henry Walker	Walker Wood Works
Robin Hall	Bibler Bros. Lbr. Co.	Tom Post	Bibler Bros. Lbr. Co.
Terry Freeman	Bibler Bros. Lbr. Co.	Sonny Lofland	Rover Shaving & Post
Haskel Barnett	Ozark Timber Treating	Mark Willhite	Willhite Forest Prod.
Shawn Treadwell	Morning Star Sawmill	Jim Crouch	JCA
Jason Hall	Green Bay Packaging	Mark Barksdale	Barksdale Timber
Gary McKinney	Green Bay Packaging	Terry Bryant	Travis Lumber
Roy W. Chisum	Mt. Timber, Inc.	Ronnie Boling	Boling Bros. Lumber

On March 17, 2009 the District conducted a public meeting to discuss this project in Jasper, AR. The following list contains the attendees:

Barry Weaver	Jim Crouch	Kent Bonar	Dennis Larson
Terry Freeman	Tom Post	David Dotson	Luell Smith
Linda Smith			

Although several comments were received at the public meeting, no issues arose that indicated the need for alternatives to the proposed action.