



National Park Service
U.S. Department of the Interior
Big Thicket National Preserve
Texas

Finding of No Significant Impact Fire Management Plan Environmental Assessment

BACKGROUND

In December 2012, the National Park Service (NPS) submitted to the public a Fire Management Plan Environmental Assessment (EA) for Big Thicket National Preserve (BTNP). The plan describes fire management methods including the addition of targeted herbicide application. The EA was prepared in compliance with the National Environmental Policy Act (NEPA) of 1969, regulations of the Council on Environmental Quality (CEQ) (40 CFR §1508.9), and NPS Director's Order (DO)-12 (Conservation Planning, Environmental Impact Analysis, and Decision-Making). The EA provides the decision-making framework that identifies significant issues and concerns facing Preserve management, presents an analysis of reasonable management alternatives and their effects, and discusses the methods intended for fire management at BTNP.

This document records 1) a Finding of No Significant Impact (FONSI), and 2) a non-impairment determination.

SELECTED ACTION

Alternative 2, Utilize Herbicide as Additional Treatment Tool, is the preferred alternative and NPS's selected action because it best meets the purpose and need for the project as well as the project objectives to 1) to continue BTNP fuel manipulation and ecological restoration activities including prescribed burning, mechanical, planting, seeding, and consider biomass removal on a case-by-case basis as an aid to ecological restoration and hazardous fuel reduction; 2) to consider adding targeted herbicide use to the above list of fuel manipulation activities as an aid to ecological restoration, maintenance, and hazard fuel reduction; 3) to respond safely and efficiently to wildfires; 4) to provide effective rehabilitation of wildfire areas (Burned Area Rehabilitation and Burned Area Restoration); 5) to continue interagency cooperation and coordination, and public outreach about BTNP fire management and restoration activities; 6) to update policy and terminology language and discussions in the FMP document; and 7) to continue active monitoring of fire program field actions, support sound resource management science, and utilize adaptive management to improve the program.

The selected alternative evaluates the use of herbicide spraying as an additional integrated pest and fire management tool in addition to the current fire management strategies used at BTNP. This includes the flexibility to consider and use improved techniques, technology, and newly approved herbicides in the future if more environmentally acceptable alternatives are developed. The use of herbicides will be considered in instances where Chinese tallow (*Triadica sebifera*) and other non-native, invasive species create dense understories of vegetation. This tool will also be considered in areas where native, early successional, shrub and tree species such as titi (*Cyrilla racemiflora*), and yaupon (*Ilex vomitoria*), have built up dense populations due to historic timber harvesting and fire suppression practices. Herbicide treatment methods will include basal, hack and frill, cut stump, foliar applications, and hand-pulling. Hack and frill and cut stump methods will be used on all trees greater than eight inches in diameter. Foliar spraying will be used on trees less than five feet in height. All treatments will be done with NPS approved herbicides and as specified on the label and precautions would be taken to avoid areas of standing waters. The use of targeted herbicide application, such as hand application of herbicide to specific basal or foliar plant areas, will minimize chances for overspray.

Use of targeted herbicide applications in combination with prescribed burn, manual, and/or mechanical fuel treatments will reduce the timeframe needed to reestablish native herbaceous understory, will reduce the dense fuels created by invasive and early successional mid-story brush species, and, will allow fire dependent climax species including longleaf pine, to return into the treated landscape units. This will help to return vegetation communities to the range of natural variation where prescribed burning could be utilized as the primary natural change and maintenance agent. Being able to more successfully reduce mid-story brush will remove a significant fuel hazard in prescribed burns, making prescribed burning safer for employees and nearby residents.

MITIGATION MEASURES

In order to reduce impacts on the human environment, NPS has proposed mitigation measures listed in Appendix 1 as part of the application for the proposed alternative.

ALTERNATIVES CONSIDERED

Two alternatives were evaluated in the EA: Alternative 1, No Action, and Alternative 2 (Utilize Herbicide as an Additional Treatment Tool). The no action alternative was required under NEPA and established a baseline for comparing the present management direction and environmental consequences of the action alternative. Under the no action alternative, the approved fire and fuels management program at BTNP would continue operating under the 2004 Fire Management Plan, but herbicide use would not be utilized in ecological restoration, maintenance or hazard fuel reduction activities unless separate, project specific NEPA processes occurred. Alternative 2, the preferred alternative, evaluates the use of targeted herbicide treatments in addition to current management strategies.

Three additional alternatives were considered during the planning process; however these alternatives were eliminated from detailed analysis. Eliminated alternatives included: 1)

Discontinuing mechanical treatment and prescribed burning activities; 2) Delaying fire management activities until extensive new fire history research is completed; and 3) Emphasizing or increasing the role of natural fire in BTNP ecosystem restoration and maintenance. Rationale for exclusion is described individually for each management method in the EA.

ENVIRONMENTALLY PREFERABLE ALTERNATIVE

According to the CEQ regulations implementing NEPA (43 CFR 46.30), the environmentally preferable alternative is the alternative "that causes the least damage to the biological and physical environment and best protects, preserves, and enhances historical, cultural, and natural resources. The environmentally preferable alternative is identified upon consideration and weighing by the Responsible Official of long-term environmental impacts against short-term impacts in evaluating what is the best protection of these resources. In some situations, such as when different alternatives impact different resources to different degrees, there may be more than one environmentally preferable alternative."

Alternative 2, Utilizing Herbicide as an Additional Treatment Tool, is the environmentally preferred alternative for several reasons: 1) it will reduce the timeframe needed for successful ecological restoration; 2) it will increase the resilience of fire dependent ecosystems to future natural disturbances such as wildfire, drought, insect outbreaks, wind events, and climate change; 3) it will restore fire-adapted ecosystems and associated wildlife; and 4) it will reduce a significant fuel hazard in mid-story brush density, making prescribed burning safer for employees and nearby residents and wildfire control more successful. For these reasons, Alternative 2 causes the least damage to the biological and physical environment and best protects, preserves, and enhances historical, cultural, and natural resources, thereby making it the environmentally preferable alternative.

By contrast, Alternative 1 (No Action) is not the environmentally preferable alternative because the lack of using herbicide would result in restoring fewer acres of native vegetation. This would result in fuels build-up primarily produced by exotic species, and wildfires would likely be more severe and would be more difficult to control. Visitors, adjacent communities, NPS infrastructure, natural resources, cultural resources, and oil and gas facilities both within and adjacent to NPS lands, would be vulnerable to artificially severe effects of wildfire.

WHY THE SELECTED ALTERNATIVE WOULD NOT HAVE A SIGNIFICANT EFFECT ON THE ENVIRONMENT

As defined in 40 CFR §1508.27, significance is determined by examining the following criteria:

Impacts that may be both beneficial and adverse. A significant effect may exist even if the federal agency believes that on balance that the effect will be beneficial.

Implementation of the preferred alternative will result in adverse impacts ranging from short-term to long-term and negligible to moderate. Resource topics whose projected impacts exceeded minor levels were retained for further analysis within the EA and are reviewed below. The impacts on floodplains, cultural landscapes, ethnographic resources, paleontological resources, museum collections, soundscapes, lightscapes, prime and unique farmlands, Indian trust resources, environmental justice, wilderness, and park operations did not exceed minor levels and were therefore dismissed from further analysis.

Impacts to air quality will be no more than moderate, direct, short-term, and localized, and will be associated with increased particulate matter and smoke as a result of prescribed burns and emissions from mechanical equipment. However, the management strategies will also result in a lower fuel loads in BTNP, decreasing the intensity of future fires and lowering the probability of wildfires.

Impacts to geology and soil resources, will be direct, minor, short-term, and localized from substrate disturbance (e.g., changes to soil chemistry, direct soil compaction, and erosion) associated with prescribed burns, mechanical, and chemical treatments. These impacts will be no worse than minor because the low frequency of mechanical and chemical treatments and the longer term beneficial impacts of increased soil nutrients released from prescribed burns, and increased soil stability and decreased fire intensity as herbaceous vegetation is restored.

Impacts to vegetation would be no more than moderate, short-term, localized disturbance (e.g., top-killed vegetation from fire or mechanical treatments or direct mortality from herbicide) associated with fuel management treatments. The effects to the native vegetation structure, composition, and function of the historically fire-maintained forests would be direct, minor to moderate, beneficial, long-term and localized. Impacts due to minimizing the potential for future severe wildfires and increasing the potential for lower intensity ground fires over time as the amount of area restored increases and fuel hazard reduction increases (i.e., invasive mid-story brush) would be indirect, beneficial, minor to moderate, localized, and long-term.

Impacts to wildlife would be no more than moderate, short-term, localized direct disturbance associated with fire operations and changes in habitat. Long-term, localized direct beneficial effects will occur as longleaf pine ecosystems are restored where they historically occurred thereby providing high quality habitat to wildlife populations.

Impacts to special status species would be no more than moderate, long-term, beneficial and localized. As critical habitat is restored, it is anticipated that the special status species associated with the longleaf pine ecosystem will increase in population.

Most herbicide applications would be conducted using backpack sprayers and 'spot' spraying which minimize the risk to non-target, special-status plant species. Detailed surveys by trained botanists would occur to identify and protect any individual or pockets of special status plant species should broadcast herbicide treatments be prescribed as an IPM tool.

Water resources impacts will consist of minor, short-term, and localized disturbance associated with prescribed burns, mechanical, and chemical treatments. These impacts will be no worse than minor, because mitigation measures create mechanical and chemical treatment buffers near waterways and prescribed burns typically will not carry in the vegetation communities near the waterways, thereby reducing potential impacts from erosion of soil and ash into the waters of BTNP.

Impacts to riparian/wetlands would be no more than moderate, short-term, and localized. Direct disturbance would result from fuel management treatments including fire, chemical and mechanical operations. These activities would result in alteration of riparian and wetland structure or function through direct and indirect impacts, such as increased soil erosion, turbidity, and sedimentation, reduced water quality, and potential pulses of water. Most of the riparian areas and many of the wetlands are excluded from chemical and mechanical treatments, however fires are allowed to burn, typically following natural conditions of available burnable fuels.

Cultural resources, including archeological and historic, impacts would be no more than moderate, direct, long-term and site specific. Known resources will be protected and buffered from treatments, while unknown resources could be preserved by not disturbing the soil. As fuel loads decrease and the intensity of fires decrease by maintaining more grassy fuels, archeological resources will be less impacted by prescribed burns and protected from future wildfires. Post-fire pedestrian surveys will effectively determine the types and locations of resources.

Impacts on adjacent landowners and uses would be no more than moderate, direct, and long-term as the potential for more severe wildfires is minimized with reducing densities of mid-story brush.

Visitor use and experience impacts will be no more than moderate, short-term, localized disturbance associated with closures from fire danger and associated fire suppression tactics, and during and immediately following herbicide treatments. Minor positive impacts are expected for most visitors due to the reduced potential for future severe wildfires removing all vegetation from the scenic landscapes and the perpetuation of native vegetation communities and associated wildlife viewing opportunities.

Implementation of the fire management plan within BTNP will involve a number of actions that could potentially affect public health or safety. Concerns have been addressed under "Visitor Use, Health and Safety, and Experience" (Section 3.6.2 in the EA) and as discussed above. Specific mitigation measures are discussed in Section 2.2 of the EA and are listed in Appendix 1 of this document. Such mitigation measures include careful planning, public notifications, and safety briefings, posting signs on smoke hazards, checking pipelines before burns and keeping emergency contact information available. Herbicide treatments would always follow manufacture's label guidelines, and as an additional precaution, treatment areas will be closed to the public for no less than 24 hours to mitigate exposure to any chemically sensitive visitors. Through proposed mitigation measures, potential

adverse impacts to public health or safety have been minimized to no more than moderate, direct, and long-term.

The degree to which the proposed action affects public health or safety.

The preferred alternative will have an overall beneficial effect on public health and safety, by reducing unnaturally high fuel loads, and maintaining a resilient, fire adapted ecosystem. Use of herbicides will effectively and efficiently reduce fuels created by exotic, mid-story brush.

Unique characteristics of the geographic area such as proximity to historic or cultural resources, parks lands, prime farmlands, wetlands, wild and scenic rivers, ecologically critical areas.

Historic or Cultural Resources: Cultural resources have been discussed previously and later in this document.

Prime and Unique Farmland Soils: Soils inside BTNP and on other NPS-administered lands are not considered prime and unique farmland soils because they are public lands unavailable for food or fiber production. Further, NPS does not assess effects under the Farmland Protection Policy Act (Public Law 97-98) to the proposed project activities outside of NPS administered lands because NPS has no regulatory authority on those lands.

Wetlands: Potential effectors of the proposed action on wetlands have been discussed previously in this document. Adverse impacts would be avoided or minimized through the mitigation measures described in Appendix 1.

Wild and Scenic Rivers: There are no designated wild and scenic rivers within or adjacent to BTNP that could be affected by the preferred alternative.

Ecologically Critical Areas: Proposed fire management activities would occur throughout BTNP, and comprehensive mitigation measures would be incorporated to avoid or minimize adverse impacts, both direct and indirect, to ecologically critical areas, as previously discussed. Furthermore, ecologically critical areas would benefit from fire management activities and the restoration of the longleaf pine plant communities which are fire-dependent ecosystems. Management activities would be planned to avoid and protect ecologically critical areas within BTNP through implementation of mitigation measures discussed in Appendix 1.

The degree to which the effects on the quality of the human environment are likely to be highly controversial.

Under NEPA "controversial" refers to circumstances where a substantial dispute exists as to the environmental consequences of the proposed action and does not refer to the existence of opposition to a proposed action, the effect of which is relatively undisputed (43 CFR 46.30). With mitigation measures in place and public notification occurring in

areas receiving prescribed burn or chemical treatments, no effects on the quality of the human environment are anticipated to be highly controversial under the preferred alternative, and the public generally agrees that restoration and maintenance of fire dependent ecosystems is necessary to protect the long-term integrity of BTNP and its resources.

The degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risks.

There were no highly uncertain effects, or unique or unknown risks identified with this proposal. Proposed activities under the preferred alternative include management measures for which substantial research, information, and management experience exists and that have been incorporated into the evaluation completed in the EA.

The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.

NPS is in the process of finalizing guidance on future Preserve management activities and assessing potential impacts of such activities under the *BTNP General Management Plan/Environmental Impact Statement*. The activities covered by this EA are consistent with the actions described in that plan, and therefore do not set precedent or represent a decision in principle about a future consideration.

Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

In the EA, NPS disclosed to the public the potential impacts that could occur inside BTNP. NPS also analyzed the cumulative impacts of past, present, and reasonably foreseeable actions within and outside Preserve boundaries. No significant cumulative impacts were identified in the EA.

The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

Archaeological and Historic resources were analyzed in this EA; Cultural Landscapes, Ethnographic Resources, and Museum Collections impact topics were dismissed. Potential adverse impacts to archaeological and historic resources include direct damage from fire and smoke, direct damage from management responses to wildfire (fire lines, retardant drops, staging areas, spike camps, temporary water sources and fire camps), and indirect damage such as flooding, erosion, and exposure to vandalism. Appropriate mitigation

measures will be applied during planned actions; mitigation measures will be applied during wildfire responses if possible, and may or may not be successful. Mitigation measures can be found in the EA, and in Appendix A of this document.

The NPS found that over all, the preferred alternative will have “no adverse effect on historic properties” under Section 106 of the National Historic Preservation Act, and specific projects will be planned and implemented to comply with this determination. The Texas Historic Commission concurred with this determination in a letter dated October 6, 2014.

The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

Potential effects of the proposed action on endangered or threatened species and their designated critical habitat were evaluated in the EA and have been previously discussed herein. Mitigation measures described in the EA and Appendix 1 of this document would avoid, minimize, and mitigate adverse effects to these resources.

In their June 25, 2013 letter of concurrence, The Coastal Ecological Services Field Office (US FWS) has agreed that the preferred alternative will have “no effect” to the red-cockaded woodpecker, Louisiana black bear, Louisiana pine snake, and Navasota Ladies’ Tresses, and that the preferred alternative “may affect, not likely to adversely affect” to the federally listed Texas trailing phlox, pursuant to Section 7 of the Endangered Species Act (ESA).

Whether the action threatens a violation of federal, state, or local law or requirements imposed for the protection of the environment.

The preferred alternative is in compliance with all applicable state and federal environmental protection laws and regulations.

PUBLIC INVOLVEMENT AND NATIVE AMERICAN CONSULTATION

External scoping was conducted by distributing scoping letters on January 10, 2012 with a 30 day comment period to gather public input and aid in the planning process. After developing the plan, the EA was made available for public review and comment during a 30-day period ending January 6, 2013. A direct mailing notifying interested and affected parties was distributed to BTNP’s mailing list, and the document was posted to the NPS Planning, Environment, and Public Comment website. Notification was made to numerous federal, state, and local agencies and individuals, the Alabama-Coushatta Tribe of Texas, nongovernmental organizations and other entities, as listed in section 4.2 of the EA.

Four responses were received regarding the EA: one from the Sierra Club Lone Star Chapter, one from the Nature Conservancy, one from the Texas Conservation Alliance and one additional response from an unaffiliated individual. No comments were received from


Native American tribes. NPS determined that all of the commenters presented numerous substantive comments. Responses to the substantive comments are attached, and changes made to the text of the EA are indicated on the Errata Sheet. The FONSI and Errata Sheets will be sent to those who provided comments on the EA, and those who requested a copy.

CONCLUSION

As described above, the preferred alternative does not constitute an action meeting the criteria that normally require preparation of an environmental impact statement (EIS). The preferred alternative would not have a significant effect on the human environment. Environmental impacts that would occur are generally short-term and negligible to moderate, with long-term positive effects. There are no unmitigated adverse effects on public health or safety, or to any unique characteristics of the geographic area. No highly controversial impacts, unique or unknown risks, significant cumulative effects, or elements of precedence were identified. Implementation of the action would not violate any federal, state, or local environmental protection law.

Based on the foregoing, it has been determined that an EIS is not required for this project and thus will not be prepared.

Approved:



Sue E. Masica
Regional Director, Intermountain Region, National Park Service



Date

APPENDIX 1: Mitigation Measures under the Preferred Alternative

The following specific mitigation measures will help minimize potential effects of Preserve fire management activities on resources, staff, and the public. They will be incorporated into the new FMP and fire management work at BTNP as appropriate. Once a mitigation measure has been mentioned, it will apply to all subsequent resource topics where relevant.

Air Quality

- Fire staff will perform other agency and public notification procedures for all BTNP prescribed burns, focusing on residents that might be impacted by smoke from Preserve prescribed burns.
- BTNP will follow state burning regulations issued by the Texas Commission of Environmental Quality (TCEQ).
- Prescribed burns would be postponed when Texas or County air regulatory agencies declare air pollution episodes where smoke from fires would worsen bad air quality.
- Coordination with the Superintendent will occur in advance to fully consider the effects of prescribed fire smoke during holidays or periods of heavy public visitation and hunting activities.
- Smoke transport winds will be assessed by prescribed fire managers to determine smoke impacts to sensitive receptors and population areas.
- Timing and methods of ignition will be constantly assessed on prescribed burns to minimize smoke impacts.
- Coordination with adjacent agencies and landowners will occur regarding the total number of prescribed fires simultaneously occurring in the area, to limit cumulative smoke impacts.
- Smoke monitoring will occur throughout and immediately after Preserve prescribed fires; data will be saved as part of the burn documentation records.
- On significant wildfires, Preserve incident commanders will work with public information officers to regularly update local residents on expected smoke impacts.
- Herbicide would only be utilized after undergoing the NPS national and regional approval process, and would follow all label instructions.
- Prescribed fire would not occur sooner than 2 weeks after herbicide has been utilized in an area; in most cases fire would not be utilized until the full effects of the herbicide treatment become visible, which might typically be 1-2 months. Longer delays may be planned to allow target vegetation time to dry out and burn better during prescribed burning. This delay time would also allow the herbicide to be absorbed into the target plant tissue and naturally decompose before burning the vegetation it has been applied to. Generally, the class of herbicides that BTNP utilizes attacks plant hormones and are not harmful to non-plants.

Geology and Soil Resources

- The need for water diversion devices, placement of dead brush and organic debris on firelines would be assessed as projects are completed.

- Constructed firelines would be built to the minimum width needed for safe control operations.
- Firefighters will utilize Minimum Impact Suppression Tactics (MIST) to minimize impacts of fire response operations whenever possible.
- Vegetation will be removed, cut or manipulated along firelines to the minimum necessary for fire control or to protect human, natural or cultural values.
- Natural, manmade features or vegetation change barriers will be utilized whenever possible to minimize the need for fireline construction. Indirect/confine type strategies will be the preferred strategy for most wildfires.
- Utilize water, pumps, and hose lines when available for wetlines or to back-up smaller firelines to minimize the amount of fireline construction.
- Rehabilitate constructed firelines after fires are out to prevent erosion and visual effects.
- Stream or water crossings should be avoided when possible by firelines or equipment. When necessary they should be carefully constructed to minimize disturbance and erosion to the watercourse. Crossings should promptly be restored and rehabilitated in consultation with resource specialists.
- Equipment operators will be trained to minimize soil and vegetation disturbance, compaction, and displacement.
- Dozer and/or dozer plow use will be avoided when possible. Their use may be considered when necessary to protect people, structures, or critical resources. When possible, their use would be approved by the Superintendent and coordinated with a Resource Advisor, but consultation may not be possible in emergency situations.
- Equipment use will avoid operation on erosive soils or saturated soil conditions.
- When possible, mowing or mastication may be utilized for firelines. When scraping is needed, it will be to the minimum depth necessary for safe fire control operations.
- Utilize less sensitive travel routes for firefighters, vehicles, and equipment whenever possible.
- Identify slash disposal areas that have no cultural resources or sensitive natural resources.
- Large mechanical equipment with major or excessive fluid leaks will not be utilized. Refueling or filling or mixing of gas and other fluids will be avoided in the field when possible; when necessary appropriate precautions will be taken to prevent spills.
- Reasonable procedures will be developed to prevent spills of foam and fire retardant chemicals. These actions will be taken away from streams and watercourses
- Mop-up on fires will be done utilizing methods to minimize soil disturbance.
- Existing roads will be utilized by vehicles and equipment as much as possible.
- After major wildfires, Burned Area Emergency Rehabilitation (BAER) will be considered in consultation with regional office and resource specialists.
- Utilize UTV's, balloon tired vehicles, or soft tracked vehicles when possible to minimize long-lasting soil damage when off road travel is required.

- Fireline explosives are not usually used at BTNP; utilize only upon written permission of Superintendent.
- Herbicide and application devices would be worked on, filled and mixed only utilizing approved leak prevention and catchment systems. These sites should be away from streams or standing water.
- No visible leakage of chemicals will be allowed from equipment used for transporting, storing, mixing, or applying chemicals.
- Staff utilizing herbicide will be trained in approved procedures related to proper handling, storage, transportation, mixing, spill prevention, and application procedures.

Water and Riparian/Wetland Resources

- Water diversion devices would be utilized on firelines with the potential for erosion to minimize runoff and erosion issues.
- Equipment operators will be trained to minimize soil and vegetation disturbance, compaction, and displacement.
- The preferred rehabilitation of firelines will utilize replacement of slash or organic debris as the preferred method, but check dams, or other diversion devices may be constructed if necessary in steep slope areas to prevent runoff and sedimentation.
- Chemical retardant, foam, and gasoline refueling will not be utilized within 200 feet of standing water or streams.
- Helicopter bucket dipping will only be allowed from water sources approved by the Incident Commander. The approval would be site specific, based on interagency helicopter safety standards, and the best available knowledge of Preserve resources in an emergency. If possible, approval would be in consultation with a Resource Advisor or appropriate Park Managers, as available.
- Herbicide would not be used within 3 hours of predicted precipitation or in areas of standing or flowing water.

Vegetation

- Systematic monitoring would be implemented to measure the effects of herbicide use on target vegetation and adjacent areas.
- An herbicide application map and treatment plan will be developed for each treatment area.
- Avoid extensive falling and bucking of trees.
- All disturbed areas from fireline construction would be rehabilitated, which would include planting and/or reseeding with native plant species based upon recommendations of resource managers.

Wildlife, including Special Status Species

- Herbicide would only be used after visitors were out of the area and appropriate informational signing was placed at all human entryways to the spraying area to ensure hunters have the opportunity to be informed.
- Before initiating non-emergency field fire management activities, NPS biologists or resource specialists will be consulted to determine presence or effects on sensitive

species. If present, mitigation actions will be developed to minimize impacts on species of concern.

- Low level aviation use may be curtailed by the fire staff in consultation with resource management if certain sensitive wildlife species could be impacted.
- Chemical retardant, foam, and gasoline refueling will not be utilized within 200 feet of standing water or streams to protect fisheries and aquatic animal life.
- Helicopter use will be minimized, and flight levels kept high, in bird focus areas, when necessary, to prevent collisions with aircraft. These focus areas include raptor nesting areas and waterfowl concentration areas. Determining these focus areas will be the responsibility of Resource Advisors working with the Incident Commander or Prescribed Fire Burn Boss. Determination depends on best available knowledge of season, species, and aviation habits and behaviors.
- Helicopter bucket dipping will only be allowed from water sources approved by the Incident Commander. The approval would be site specific, based on interagency helicopter safety standards, and the best available knowledge of Preserve resources in an emergency. If possible, approval would be in consultation with a Resource Advisors or appropriate Park Managers, as available.

Invasive Plants

- Whenever possible, incoming vehicles, engines, and equipment from outside the immediate area will be cleaned (including the undercarriage) upon arrival to remove invasive weed seeds.
- Resource managers will work with fire staff to prevent cross-contamination from aircraft water drops that may utilize natural water sources with species foreign to BTNP.
- Herbicide would be used to eliminate exotic invasive plants according to established safety and application procedures.

Cultural Resources

- Compliance with section 106 of the National Historic Preservation Act will occur before prescribed burn or fuel treatment projects.
- Educate fire personnel about the significance of cultural sites, how to identify those sites, and appropriate actions and notifications to be made if sites are encountered.
- Identify cultural sites in advance of wildfire, prescribed fire, or fuels treatment activities in order to plan and devise avoidance strategies when possible.
- Avoid building firelines and ground disturbance in cultural site areas.
- Utilize defensive and protection tactics, collaborating with cultural specialists, to prevent damage to historic, cultural, archeological, ethnographic, or landscape sites.
- Continue to collaborate and coordinate with Preserve affiliated tribes to prevent damage to ethnographic resources, even if unrecorded, before planned projects.
- Flush cut stumps in cultural sites rather than remove. Avoid ground disturbance as much as possible in and around cultural sites.
- During wildfires, fire managers will regularly update BTNP resource specialist with cultural responsibilities on initial and extended attack response strategies, ground disturbance, and extent of fire area to facilitate focus on cultural resources.

- Preserve cultural and historic site base maps will be immediately available to incident commanders to allow them to avoid impacts to cultural sites.
- Spot monitoring or accompaniment of heavy equipment use during wildfires will occur by Resource Advisors (READ's) to ensure avoidance of damage to archeological or cultural sites.
- Special flagging will be utilized to identify archeological and historic sites; flagging must be monitored as fire threat passes and may need early removal to prevent undue attention to cultural sites.
- Avoid low level aircraft flights over the Alabama-Coushatta Indian Reservation.

Adjacent Landowners

- Fire staff will perform other agency and public notification procedures for all Preserve prescribed burns.
- Emphasize the safety of fire staff and the public as the highest priority in all fire management activities.
- Preserve neighbors, visitors, and local residents will be notified of all fire management activities that have the potential to impact them.
- Preserve will monitor fuel, weather, and fire condition parameters and may limit public access and activities in BTNP when extreme conditions develop, as described in Preparedness Level planning.
- Initial attack staff will determine the proximity of fire to visitors, adjacent landowners, and communities. They will coordinate with local agencies to inform them of the potential hazard and evacuate as necessary.
- As burned areas are opened to visitors, signs will be posted informing the public of potential hazards in the burned areas.
- Herbicide would only be used after visitors were out of the area and appropriate informational signing was placed at all human entryways to the spraying area.

Visitor Use and Experience

- The fire management staff will work with protection staff and local agencies on posting smoke hazard signs if smoke will impact roadways.

Human Health and Safety

- Safety briefings outlining known hazards and mitigations will occur before engaging in fire management activities.
- Prescribed fire burn boss will work with local residents in close proximity to burns to ensure their safety.
- The fire management staff will work with protection staff and local agencies on posting smoke hazard signs if smoke will impact roadways.
- Oil and Gas operators would check (i.e., sniff) pipelines within a prescribed burn unit prior to burning.
- In case of an oil and gas infrastructure emergency, all emergency contact information for oil and gas operators within and around BTNP will be available.

APPENDIX 2: Non-Impairment Finding

National Park Service's *Management Policies, 2006* requires analysis of potential effects to determine whether or not actions would impair park resources. The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. NPS managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adversely impacting park resources and values.

However, the laws do give NPS the management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given NPS the management discretion to allow certain impacts within park, that discretion is limited by the statutory requirement that NPS must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgement of the responsible National Park Service manager, would harm the integrity of park resources or values including the opportunities that otherwise would be present for the enjoyment of those resources or values. An impact to any park resource or value may, but does not necessarily, constitute an impairment. An impact would be more likely to constitute an impairment to the extent that it affects a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park; or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

An impact would be less likely to constitute an impairment if it is an unavoidable result of an action necessary to pursue or restore the integrity of park resources or values and it cannot be further mitigated.

The park resources and values that are subject to the no-impairment standard include:

- the park's scenery, natural and historic objects, and wildlife, and the processes and conditions that sustain them, including, to the extent present in the park: the ecological, biological, and physical processes that created the park and continue to act upon it; scenic features; natural visibility, both in daytime and at night; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resources; archeological resources; cultural landscapes; ethnographic resources; historic and prehistoric sites, structures, and objects; museum collections; and native plants and animals;
- appropriate opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing them;

- the park's role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system; and
- any additional attributes encompassed by the specific values and purposes for which the park was established.

Impairment may result from National Park Service activities in managing the park, visitor activities, or activities undertaken by concessioners, contractors, and others operating in the park. The NPS's threshold for considering whether there could be an impairment is based on whether an action would have significant effects.

Impairment findings are not necessary for visitor use and experience, socioeconomic, public health and safety, environmental justice, land use, and park operations, because impairment findings relates back to park resources and values, and these impact areas are not generally considered park resources or values according to the Organic Act, and cannot be impaired in the same way that an action can impair park resources and values. After dismissing the above topics, topics remaining to be evaluated for impairment include air quality, geologic and soil resources, vegetation, wildlife, special status species, water resources, riparian and wetlands, archaeological resources, and historic resources.

After dismissing the above topics, topics remaining to be evaluated for impairment include These topics are important aspects of the fundamental resources and values for Big Thicket National Preserve which are identified in BTNP's *General Management Plan* (1980), and which are considered necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park; are key to the natural or cultural integrity of the park; and/or are identified as a goal in the park's General Management Plan or other relevant NPS planning document.

Air Quality—The Project Area is classified as a Class II area under the Prevention of Significant Deterioration (PSD) provisions of the Clean Air Act of 1963 and amendments. As such, the area's air quality is protected by allowing only limited increases (i.e., allowable increments) over baseline concentrations of pollution for SO₂, nitrogen oxides (NO_x), and PM. The PSD permitting process is administered by the Texas Commission on Environmental Quality (TCEQ) and applies to defined categories of new or modified sources of air pollution with emissions greater than 100 tons per year and all other sources greater than 250 tons per year.

The preferred alternative would have short-term, localized, direct adverse impacts that would have a negligible to main effect on the air quality of BTNP. Because major adverse impacts are not anticipated to occur under the preferred alternative, the proposed action will not result in impairment to air quality.

Geology and Soil Resources— BTNP consists of four geologic formations and from youngest to oldest includes Beaumont, Montgomery, Bentley, and Willis Formations. The age of these surface deposits ranges from 250 million years old to 125, 000 years old

Pleistocene fine-grained deposits. There are 46 soil-mapping units within BTNP. The soils reflect the different geologic and drainage conditions across BTNP. Soils formed in floodplains range from loamy to clayey, and occur on old oxbows to moderately well drained natural levees adjacent to stream channels. Upland soils are generally loamy to sandy in texture and are found on a wide variety of landscapes. Immediately above the floodplains are sandy point bar deposits and low, mounded terraces. The northern areas of BTNP are undulating and well drained compared to the low, flat, poorly drained areas of the southern portion.

The preferred alternative would have minor, short-term, and localized adverse impacts and moderate positive impacts, resulting in a net positive effect on geologic resources. Because major adverse impacts are not anticipated to occur under the preferred alternative, the proposed action will not result in impairment to geologic resources.

Vegetation– BTNP is often referred to as a “biological crossroads”, one of the richest plant growing environments in the continental United States with approximately 1,400 species of trees, shrubs, forbs, and grasses. Diverse vegetation thrives in the long, warm growing season with abundant moisture. BTNP is an ecotone between the moist eastern hardwood forest and the prairies to the west.

There are 3 upland vegetation types (Sandhill Pine Forest, Wetland Pine Savanna, and Upland Pine Forest,) which are all strongly influenced by fire and edaphic (soil) conditions. Historically the dominant pine species in the Upland Pine Forest was longleaf pine. In many of these communities, longleaf pine is no longer dominant, however, due to factors such as aggressive fire suppression and logging, and subsequent replanting with faster growing species such as slash pine and loblolly pine. Dominant tree species in the Sandhill pine forest include post oak (*Quercus stellata*), bluejack oak (*Quercus incana*) and 3 types of native pines including longleaf pine, shortleaf pine (*Pinus echinata*), and loblolly pine (*Pinus taeda*). The past impacts of logging and subsequent fire suppression in these areas may explain why longleaf pine is not the dominant pine species in these communities. Wetland Pine Savannas are among the rarest plant communities in the Southeast and in BTNP. Over the past two centuries, these communities have been significantly degraded due to human settlement and fire suppression; less than 3 percent of the communities remain. Upper Slope Pine Oak Forest, Middle Slope Oak-Pine Forest, and Lower Slope Hardwood Pine Forest, transition from dry to mesic soil conditions, which generally results in a shift from upland forest communities to slope communities. This increase in soil moisture is reflected in the shift from longleaf pine to loblolly pine and shortleaf pine. The species composition of oaks also shifts, with Southern red oak dominating on the upper slopes and white oak (*Quercus alba*) dominating on the wetter, lower slopes. Other significant hardwood species include Southern magnolia (*Magnolia grandiflora*) and American Beech (*Fagus grandiflora*).

Four vegetation types, Floodplain Hardwood Pine Forest, Floodplain Hardwood Forest, Wetland Baygall Shrub Thicket, and Swamp Cypress Tupelo Forest, generally occur along the river and creek floodplains throughout BTNP. The Floodplain Hardwood Pine Forest type generally grows along smaller floodplains, where the transition from terrestrial to

aquatic environments occurs over a relatively short distance. Dominant pine and hardwood species in this vegetation type are loblolly pine and American beech. Moving from lower order to higher order streams, the floodplains increase in size and transition to Floodplain Hardwood Forest communities. Dominant tree species in this type include sweetgum (*Liquidambar styraciflua*) and water oak (*Quercus nigra*). Swamp Cypress-Tupelo Forest is found in secondary river and creek channels and along the fringe of oxbow lakes and sloughs throughout the floodplain forests of BTNP. As the name implies, the dominant tree species are baldcypress (*Taxodium distichum*) and tupelo (*Nyssa aquatica*).

The Texas Natural Heritage Program maintains a list of rare plant communities in the state. Eight rare plant communities are known to occur within BTNP (TPWD 2012). These include the following: Texas Upper West Gulf Coastal Plain Southern Magnolia Forest; West Gulf Coastal Plain Beech - Magnolia Forest; West Gulf Coastal Plain Catahoula Sandstone Glade; West Gulf Coastal Plain Beech-Magnolia Forest; West Gulf Coastal Plain Forested Seep (Southern Type); West Gulf Coastal Plain High Terrace Wooded Flatwoods Pond; West Gulf Coastal Plain Shallow Flatwoods Pond; Western Upland Longleaf Pine Forest (Stream Terrace Sandy Woodland Type); and Western Wet Longleaf Pine Savanna (Prairie Terraces Acidic Silt Loam Type).

There are 39 non-native species known to occur in BTNP with 14 ranked as high impact and 9 ranked as high/medium impact (Gulfcoast Network 2010). NatureServe in cooperation with NPS and the Nature Conservancy evaluated and assigned an invasive species impact rank based on the non-native species impact to native species and natural biodiversity. Terrestrial invasive plant species found in BTNP include, but are not limited to Chinese tallow (*Triadica sebifera*), Chinese privet (*Ligustrum sinense*), slash pine, deep-rooted sedge (*Cyperus entrerianus*), and mimosa (*Albizia julibrissin*). Other invasive plant species in BTNP include, but are not limited to the Japanese climbing fern (*Lygodium japonicum*), Japanese honeysuckle (*Lonicera japonica*), Chinese wisteria (*Wisteria sinensis*), Chinaberry (*Melia azedarach*), and Coral ardisia (*Ardisia crenata*).

The preferred alternative would result in minor, short-term, and localized adverse impacts with moderate beneficial impacts and a net long-term positive effect as fire-dependent ecosystems and plant communities are restored to the landscape. Because major adverse impacts are not anticipated to occur under the preferred alternative, the proposed action will not result in impairment to vegetation resources.

Wildlife— The abundant and diverse vegetation in BTNP supports aquatic and terrestrial habitat for a variety of fish and wildlife species. BTNP provides habitat for plant and animal species of the southeast swamps, pineywood forest, post-oak belt, great plains, southwest deserts, and the coastal prairie. BTNP consists of nine land units connected by six narrow water corridor units. The water corridor units, varying in width from 1,000 to 1,500 feet, were established in part to offset the effects of fragmentation by providing ecological connectivity between otherwise isolated units. There are approximately 60 species of mammals, 176 bird species, 85 species of reptiles and amphibians, 92 fish species, and 1,800 invertebrate species.

The preferred alternative would result in minor, short-term, highly localized adverse impacts to wildlife resources but result in moderate, long-term beneficial impacts with a net positive effect. Because major adverse impacts are not anticipated to occur under the preferred alternative, the proposed action will not result in impairment to wildlife resources.

Special Status Species—The federally listed or candidate species with potential ranges within BTNP are the red-cockaded woodpecker, Louisiana black bear, Louisiana pine snake, Navasota Ladies' Tresses, and the Texas trailing phlox. The State of Texas has listed and protects an additional 8 bird species, 3 fish species, 2 additional mammals, 4 reptile species, 1 amphibian, 6 mollusk species, and no additional plant species that do or could occur in the 7 counties encompassing BTNP. Additional details on each of these species were included in the Big Thicket National Preserve Fire Management Plan/EA. Special considerations for birds protected by the Migratory Bird Treaty Act will also be covered in this FONSI as outlined in the Errata.

The preferred alternative would result in no more than moderate, long-term, localized beneficial effects as critical habitat is restored. Because major adverse impacts are not anticipated to occur under the preferred alternative, the proposed action will not result in impairment to special status species.

Water Resources—Water is one of the most pervasive resources in BTNP with four of the 15 management units being river or stream corridor units and most units are adjacent to or include third-order perennial streams. In addition to the major streams or river reaches, BTNP contains a variety of minor hydrologic features—floodplains, sloughs, oxbows, baygalls, acid bogs, and low-order tributary streams. First order streams are the smallest streams or tributaries that do not have water flowing into them. Second order streams have one or more first order tributaries flowing into them. The Neches is a third order stream, as it receives water from second order tributaries. The origin and occurrence of all water resources is affected by surface and subsurface geology.

Major Drainages

All units of BTNP are located within the watershed or basin of the Neches River, except for the Menard Creek Corridor Unit, which is in the Trinity River basin. Both of these drainage basins trend from northwest to southeast and have gentle slopes with channels that meander from their headwaters to the Gulf of Mexico. The Neches and Angelina Rivers constitute the two major rivers within the Neches River basin. The mainstem Neches River headwaters are located in northeast Texas, in Van Zandt, Smith, and Henderson Counties. The Angelina River originates in Smith and Rusk Counties.

The Neches River basin is roughly 200 miles long by 50 miles wide, and drains an area of approximately 10,000 square miles. Major tributaries to the Neches within BTNP are Big Sandy Creek/Village Creek, Turkey Creek, Pine Island and Little Pine Island Bayous, Hickory Creek, and Beech Creek. The Trinity River basin drains approximately 18,000 square miles, encompassing parts of 34 counties before entering the Gulf of Mexico through Trinity Bay and Galveston Bay (TNRCC 1996). Menard Creek is the only major tributary to Trinity River

within BTNP. The drainages generally follow dendritic patterns, which are indicative of horizontal or near horizontal bedrock and gentle sloping topography.

Minor Hydraulic Features

The surface water network in all management units consists of unnamed creeks, sloughs, acid bogs, and baygalls that greatly affect the hydrology and hydrochemistry of the surface and near-surface groundwater developments. Baygalls occur in depressions formed by abandoned channels on terraces. In BTNP, baygalls frequently occur in relatively lower depressional areas, where water stands for much of the year (e.g., Lance Rosier Unit). Additionally, baygalls may form at the contact of two geologic formations with differing hydraulic properties. Baygalls accumulate a large amount of organic debris, which results in water that is high in organic acids, low in dissolved oxygen and exhibit low pH values.

Similarly, sloughs channel and capture water. Sloughs occur within active floodplains, thus are subject to a greater degree of hydrologic exchange with mainstem drainages. In addition to the periodic input of floodwaters, sloughs may receive sediments during floods. Water quality in sloughs can vary from that observed in the mainstem watercourse to that of baygalls depending on the elapsed time between flood events.

Acid bogs generally form at locations where terrace-level tributary streams enter a main drainage. The loss in gradient from terrace to active floodplain results in sediment deposition, long-term aggradation, and shifting channels. Acid bogs are subject to the same water quality controls as baygalls and consequently exhibit low pH waters with organic acid turbidity and low dissolved oxygen. Additionally, acid bogs may be subject to flooding due to their location in floodplains. Acid bogs are similar to baygalls in plant species composition. The Texas Commission on Environment Quality (TCEQ) and US Environmental Protection Agency (EPA) has identified approximately 141.7 miles of streams as a 303(d) listed reaches (Turkey Creek, Big Sandy Creek, Beech Creek, Little Pine Island Bayou, Village Creek, Cypress Creek, and Booger Branch). The reasons for 303(d) listing is bacteria, low pH, and oxygen depletion. These segments were categorized as 5c, which means additional data information will be gathered before a Total Maximum Daily Load (TMDL) is scheduled. For waters identified as a 303(d) reach, a water quality improvement plan must be developed. The water quality improvement plan known as TMDL establishes allowable pollutant loads set at levels to achieve water quality standards and is the responsibility of the TCEQ and Texas State Soil and Water Conservation Board. The EPA must then approve these plans.

NPS has also divided the major water resources of BTNP into three classes based on a combination of ambient water quality and monitoring status. Category 1 waters are those streams whose water quality presently ranges from very good to excellent. Streams in BTNP included in Category 1 are: Big Sandy Creek, Beech Creek, Turkey Creek, and Black Creek (within the Jack Gore Baygall Unit). Category 2 waters are those already exhibiting water quality degradation for one or more parameters, often due to non-point source pollution and/or legally permitted point-source discharges. Streams in BTNP included in Category 2 are Little Pine Island Bayou and Menard Creek. Category 3 waters are those major stream segments within BTNP, which are included in the Texas Surface Water Quality Standards (2010) and are routinely monitored by the USGS. Category 3 stream segments that flow

through BTNP are the Neches River, from Town Bluff Dam to the tidal zone (Beaumont Unit area) and Pine Island Bayou.

The preferred alternative would have minor, short-term, and localized adverse effects and direct minor, long-term positive impacts. Because major adverse impacts are not anticipated to occur under the preferred alternative, the proposed action will not result in impairment to water quality and quantity.

Riparian/Wetlands– Approximately 40% of BTNP is comprised of wetlands and are classified into three categories based on the Cowardin Classification System: palustrine (31,610 ac.), riverine (3,125 ac), and lacustrine (60 ac.) wetlands. Prescribed fire is not a tool used to manage the associated plant communities. The use of herbicides however is considered necessary to control Chinese tallow and other exotics that continue to invade these native habitats. No overspraying or treatments of invasive aquatic plants growing in open water will occur under this EA.

The preferred alternative would have minor, short-term, and localized adverse impacts on floodplains and wetlands, with minor, long-term beneficial impacts. Because major adverse impacts are not anticipated to occur under the preferred alternative, the proposed action will not result in impairment to floodplain and wetland resources.

Cultural and Historic Resources– In addition to the natural diversity BTNP protects a rich, unique cultural record of prehistoric and historic sites. To date, not all of BTNP has been surveyed for cultural resources. Prehistoric sites in east Texas are divided into three temporal periods: Paleoindian sites from 8,000-6,000 BC; Archaic sites from 6,000 BC to AD 100; and Late Prehistoric sites from AD 100-1500. They include shell middens, temple mounds, burial mounds, and surface artifacts (i.e., metal, ceramic, stone). Historic sites are associated with the 19th century homesteading and ranching, late 19th century timber industry activities, and the boom period of oil and gas development during the early 20th century. They include remains of former homesteads; logging camps and mills; hunting camps; river craft; roads, trails, and traces; ferry crossings; steamboat landings; abandoned communities; and early oil and gas production sites.

The preferred alternative would have minor adverse impacts and direct minor to moderate long-term positive impacts on archaeological and historic resources. Because major adverse impacts are not anticipated to occur under the preferred alternative, the proposed action will not result in impairment to cultural resources.

In conclusion, as guided by this analysis, good science and scholarship, advice from subject matter experts and others who have relevant knowledge and experience, and the results of public involvement activities, it is the Superintendent's professional judgment that there would be no impairment of park resources and values from implementation of the preferred alternative.

ERRATA SHEET
FIRE MANAGEMENT PLAN ENVIRONMENTAL ASSESSMENT
BIG THICKET NATIONAL PRESERVE

Changes are indicated by **bold** text.

Page 13, 7)Riparian/Wetlands, change the following sentence:

"Therefore, the topic of riparian/wetlands was retained **from** further analysis."
to

"Therefore, the topic of riparian/wetlands was retained **for** further analysis."

Page 32, Wildlife, including Special Status Species, change the following sentence:

"Determination depends on best available knowledge of season, species, and **aviation** habits and behaviors."

to

"Determination depends on best available knowledge of season, species, and **avian** habits and behaviors."

Page 32, Invasive Plants and Page 57, Impacts of Alternative 1: No Action Alternative, change the following sentence:

"Whenever possible, incoming vehicles, engines, and equipment from outside the immediate area will be cleaned (including the undercarriage) upon arrival to remove invasive weed seeds."

to

~~"Whenever possible, i~~Incoming vehicles, engines, and equipment from outside the immediate area will be cleaned (including the undercarriage) upon arrival to remove invasive weed seeds."

Page 33, 2.4 Mitigation Measures during the Proposed Action, Human Health and Safety

Add the mitigation measure, "**Herbicide treatments' will follow all manufacture's label guidelines and treatment areas will be closed for no less than 24 hours to mitigate exposure to any visitors that are chemically sensitive.**"

Page 47, Impacts to Alternative 2: Preferred Alternative:

The title should be changed from: "Impacts **to** Alternative 2: Preferred Alternative"
to

"Impacts **of** Alternative 2: Preferred Alternative"

Page 66, 3.3.5 Special Status Species

A sentence is added at the end of the first paragraph noting that **“Protection of bird species protected under the Migratory Bird Treaty Act of 1918 will also be considered during any and all proposed fuel treatment actions. Monitoring and mitigative measures will be included in planning documents for actions occurring during a period that could impact a MBTA protected species.”**

SUBSTANTIVE COMMENTS

(From the Lone Star Chapter of the Sierra Club, the Nature Conservancy, Texas Conservation Alliance, and Dave McHugh)

Number	Substantive Comment	NPS Responses
1	Page 7, 1.2.2 Need, first sentence, change “their FMP” to “its FMP”.	Non -substantive
2	Page 13, 7) Riparian/Wetlands, the DFMPEA states “Therefore, the topic of riparian/wetlands was retained from further analysis.” The Sierra Club assumes that the NPS meant “retained for further analysis.”	Yes, we did mean for further analysis. Make changes in errata sheet.
3	Page 13, 8) Invasive Species, the DFMPEA should discuss Executive Order 13112, Invasive Species, what this document requires NPS to do, and how this document has been used to shape this proposal. The public must have this information so that it can review, comment on, and understand the proposal.	The discussion of the invasive species Executive Order is outside the scope of this EA. BTNP’s Resource Management Division coordinates treatments of exotic plant species with the NPS Gulf Coast Exotic Plant Management Team.
4	Page 16, 1) Floodplains, the DFMPEA states that “Historically, fire was a natural process that occurred every 3-10 years”. The NPS should state clearly what vegetative ecosystems this statement applies to. All vegetative ecosystems in BTNP should be listed and the estimated historical fire frequency listed for each of them. For instance, the DFMPEA should state what size is the area that the NPS uses when having a fire burn frequency of every 3-10 years. The DFMPEA should state whether this 3-10 year fire frequency applies only to uplands or does it include slopes and stream-side areas and what fire frequencies these different topographically placed ecosystems have. The public must have this information so that it can review, comment on, and understand the proposal. The DFMPEA states that “Limited prescribed fire and targeted herbicide treatments would not affect floodplain values; the topic of floodplains was dismissed from further analysis.” Since prescribed burns can and do burn into floodplains and kill or wound vegetation and therefore changes composition the Sierra Club disagrees with the NPS’s dismissal of floodplains as an impact topic. The public must have this information so that it can review, comment on, and understand the proposal.	Ignition of Rx fires and active fuels treatment areas are restricted to the upslope/upland ecosystems. We allow fire to naturally move downslope and into the floodplains. Typically we do not see fire activity in the floodplains during prescribed burn conditions except during drought conditions, where we would not be actively lighting fires. The fire return interval of 3-10 years includes an average from upland pine and mixed pine-oak vegetation types. Historically, fire was a natural occurrence in floodplain ecosystems, and we do not desire to impact floodplains with firelines during prescribed burns, which is why it was dismissed from further analysis. We disagree with the Sierra Club’s desire to retain floodplains as an impact topic, as fire is a natural disturbance in this ecosystem and we are not implementing any plans to alter floodplains with fire lines, ignition operations, mechanical, or chemical treatments. We considered the impacts of fire in the floodplains and did not feel it exceeded beyond minor impacts.
5	Page 17, 6) Soundscape Management, logging which NPS allows in some instances also negatively	NPS is not proposing any logging operations in this EA.

	impacts the soundscape. The public must have this information so that it can review, comment on, and understand the proposal.	
6	<p>Page 19, 2.1 Alternative 1: No Action Alternative – Continue Current Fire Management Activities and pages 46, 57, 63, 71, 72, 73, 83, 88, 92, 96, 100, and 104, the NPS biases its entire National Environmental Policy Act (NEPA) analysis in the DFMPEA by insisting that Alternative 1 (or a similar statement) results in “The inability to utilize herbicides to limit brush competition would greatly reduce the number of acres of altered timber company lands successfully restored to longleaf pine and hider restoration and maintenance of other unique vegetation areas that are being taken over by brush ... Preventing targeted herbicide application in combination with mechanical, manual, and/or prescribed burn treatments would make establishment of understory native grasses and wildflowers within fire-adapted ecosystems more difficult and require more time to accomplish, (decades, and continue the retention and increased density of invasive mid-story brush due to re-sprouting after treatments ... It would also allow the retention and buildup of hazardous fuels in critical areas immediately adjacent to communities or infrastructure, which may allow wild-land fires to burn with more severity, and be more difficult to control. These wildfires would threaten visitors, adjacent communities ...”.</p> <p>This statement is misleading and inaccurate. In fact, the Sierra Club believes that this statement is a “red herring” and acts as a distraction from what is accurate. Page 2 of the DFMPEA states “In some areas of dense mid-story vegetation, brush was controlled by targeted herbicide application in conjunction with mechanical treatments, allowing native species to establish ...”.</p> <p>Page 19 of the DFMPEA states “... but herbicide use would not be utilized in ecological restoration, maintenance or hazard fuel reduction activities unless separate project specific NEPA processes occurred.” NPS in these two statements admits first that it can and has used herbicides in Alternative 1. However, then NPS makes the inaccurate and false statement that there would be “The inability to utilize herbicides”. The Sierra Club objects strongly to this biased portrayal of Alternative 1.</p> <p>NPS states that using Alternative 1 will take additional</p>	<p>NPS is not biased in the statements regarding alternative 1. It is clearly stated that alternative 1 excludes the use of herbicide, without a separate project NEPA document. This EA considers the use of herbicide for the fire management program to achieve fuel management and restoration goals on a programmatic level. In order to achieve objectives in reducing midstory brush and reestablishing a grassy herbaceous understory, herbicide use is necessary to ensure mortality of stems, as fire and mechanical treatments are limited to only top-killing brush which quickly resprouts following treatments. The comment regarding decades of delay in management is founded on NPS projects at Big Thicket. The Hickory Creek Savanna unit was prescribed burned from 1982-2002, however 12 foot high yaupon still remained along the boundary between Big Thicket and the community of Wildwood. The mechanical and herbicide treatments conducted within that unit aided restoration by reducing these fuels along the wildland urban interface. After the fuels were treated mechanically and chemically, and followed up with a prescribed burn, grasses responded in the understory. To achieve these results with fire alone could have taken decades to accomplish, as often times prescribed fire conditions are not intense enough to cause direct mortality to midstory brush. Our statements regarding restoration are founded on current literature and management practices, in addition to decades of experience of prescribed burning at BTNP.</p> <p>We disagree on a bias on alternative 1, and we are clear and accurate in stating that this alternative would result in the inability for the Big Thicket Fire Management Program to use herbicides, as compared to alternative 2 which allows the use of targeted herbicide application. The current EA has created a no action alternative based on current policy and guidelines, not based on past actions.</p>

<p>"decades" to restore the longleaf pine ecosystem but then provides no documentation for this statement. If NPS works efficiently then the delay in preparing NEPA documents can be minimized as this DFMPEA shows. In fact, as has been done in the Hickory Creek Savannah Unit, all of one unit or multiple units can be combined into one NEPA document. The only ecosystem that NPS mentions repeatedly in this DFMPEA for restoration is the longleaf pine ecosystem. A single NEPA document could be prepared for all areas throughout the BTNP where NPS wants to restore longleaf pine. Or a single NEPA document which addresses all upland areas that need fire could be prepared. These NEPA actions do not need to take, or delay actions, for "decades". NPS must not bias the alternatives so that it can favor one over another. NEPA, under the President's Council on Environmental Quality's (CEQ) regulations, states clearly in Section 1502.14 that "This section is the heart of the environmental impact statement ... it should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public ... Devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits."</p> <p>NPS has provided misleading statements about Alternative 1 so that no fair comparison of alternatives is possible. If delays for NEPA document preparation/process occur then the NPS can quantify these delays. But NPS must also fairly show the benefits of NEPA document preparation/process via the education and information that the public gets about the proposal and the provision of an opportunity for public input, review, and comment. NPS casts Alternative 1 in the most negative light possible. NPS appears to blame an important public process for NPS's slowness to burn more acres in BTNP.</p> <p>This is particularly puzzling and does not make sense because on page 24 of the DFMPEA NPS admits that "The preserve fire staff estimates that they could accomplish 200-400 acres of longleaf restoration treatment per year utilizing targeted herbicide for the initial restoration treatment, although shrinking funding and staffing constraints may further limit that estimate ... The maximum expected Preserve acreage that could be spot treated with herbicide is estimated at 500 acres per year. This is most likely an overestimate for most years, but will serve the purposes of this analysis." So in other words, 500 acres out of the 64,924 acres of uplands/slopes/Longleaf Pine ecosystems that NPS wants to burn and/or herbicide at some point, or 0.77% of the 64,924 acres, makes Alternative 2 superior than Alternative 1. These figures don't add up</p>	<p>We disagree that the statements about the alternatives are misleading and inaccurate. The EA refers to delays in meeting restoration objectives not delays in NEPA process.</p> <p>NPS did not cite an acreage of 64,924 acres of upland/slopes/Longleaf Pine</p>
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	<p>or make sense. How could the treatment by herbicides of less than 1% of the acreage that needs to be burned make Alternative 2 so much better than Alternative 1? The NPS does not provide the public with the information that documents this assertion. NPS has not met its burden of proof that Alternative 2 is superior than Alternative 1.</p> <p>If NPS cannot accurately quantify these delays, if in fact there are delays, then it is required, if the information does not exist to make projections and calculations of delays and environmental impacts and the information cannot reasonably be obtained, by CEQ, under Section 1502.22, to either develop the analysis that provides this information or state what specific information is missing and why it cannot be generated. The public must have this information so that it can review, comment on, and understand this proposal.</p>	<p>ecosystems, as this acreage is inaccurate. The ecological benefits of herbicide use for restoration are discussed throughout the document. The assessment of vegetation types, acreage, and treatment regimes will be addressed in the fire management plan. This EA is to support the use of management tools and not to delineate a framework for restoration treatments.</p>
7	<p>Page 19, 2.1 Alternative 1: No Action Alternative – Continue Current Fire Management Activities and pages 20, 21, 23, 24, 26, 27, 28, 34, 35, 37, 38, 39, 57, 61, 63, 65, 71, 72, 75, 79, 80, 84, 85, 89, 92, 93, 97, 101, 102, 104, and 105, the words or phrases “ecological restoration”, “successful ecological restoration efforts”, “more effective ecological restoration program”, “would not be reasonably successful in achieving project restoration objectives”, “Increased successful ecological restoration efforts”, “effective ecological restoration”, “larger scale ecological restoration”, “restoration treatments”, “restoration and maintenance of the longleaf pine vegetation alliance”, “longleaf restoration treatment”, “restoration area”, “return vegetation communities to the range of natural variation”, “restoration prescriptions”, “ecosystem restoration”, “restoration thinning”, “restoration tool”, “restore fire-adapted ecosystems”, “ecological restoration activities”, “ecological restoration efforts”, “restoration activities”, “restoring fire-adapted vegetative habitats”, “More successful ecological restoration”, “restoring longleaf pine ecosystems”, “historically fire-maintained vegetation associations”, “accelerate ecological restoration goals”, “successfully restored to longleaf pine”, “could reduce the success of ecological restoration efforts”, “sufficient ecological restoration”, “successful restoration”, “would increase the success rate of ecological restoration”, “successful restoration”, “restored successfully”, “increased ecological restoration success rate”, “restoring the native vegetation structure, composition, and function of historically fire-maintained vegetation associations”, “increased success rate of ecological restoration”, “restore fire-adapted ecosystems”, and “successful restoration opportunities” are used.</p> <p>There is no glossary which defines what these words or phrases or any other words or phrases mean and how</p>	<p>We disagree. NPS used common standard dictionary terms, not jargon, and these words do not require definition.</p> <p>This EA is to support the treatments used by the fire management program, a</p>

	<p>they relate to the DFMPEA. The DFMPEA should state what the goals of ecological restoration are, how efforts, opportunities, objectives, prescriptions, treatments, areas, and activities differ, what the ecological restoration program is, how ecological restoration will be more effective and successful, how fire plays a role in larger scale ecological restoration, what is the range of natural variability for each ecosystem that will be burned, how longleaf pine restoration will be deemed successful, what are acceptable success rates for restoration, how fire-adapted habitats, ecosystems, and vegetation alliances differ or are the same, etc. It is not clear how ecological restoration fits into the DFMPEA. The DFMPEA should state why it is not part of an ecological restoration plan. The public must have this information so that it can review, comment on, and understand the proposal.</p>	<p>restoration plan is outside the scope of this EA.</p> <p>Again, this is a Fire Management Plan EA, not an ecological restoration EA. Ecological restoration is beyond the scope of the current project.</p>
8	<p>) Page 19, 2.1 Alternative 1: No Action Alternative – Continue Current Fire Management Activities and pages 35, 37, 39, 40, 51, 57, 63, 64, 71, 72, 73, 74, 79, 80, 84, 85, 88, 89, 92, 93, 96, 100, 101, 104, and 105, state or say in similar words, “It would also allow the retention and buildup of hazardous fuels in critical areas immediately adjacent to communities or infrastructure which may allow wild-land fires to burn with more severity, and be more difficult the control. These wildfires could threaten visitors, adjacent communities” with regard to Alternative 1 and important natural resources in BTNP.” The NPS fails to provide information about the magnitude of this increased risk, how often this risk would occur, what is the risk now, what is the potential for increased high intensity wildfires, what is the potential for more intense wildfires, and what is a “significant fuel hazard”. In addition, there is no acknowledgement that this risk also exists for Alternative 2, particularly during dry years. In 2011, it was evident that fire was potentially possible in almost all parts of BTNP no matter what or where management had occurred (including prescribed burning). If NPS cannot accurately quantify the risk then it must, if the information does not exist to make projections and calculations of risk and the information cannot reasonably be obtained, as required by CEQ, under Section 1502.22, either develop the analysis that provides this information or state what specific information is missing and why it cannot be generated. The public must have this information so that it can review, comment on, and understand this proposal.</p>	<p>The fuels management program prescribed fuels treatments in areas of high fire frequency, heavy fuel loading, and values at risk. It is impractical and impossible to treat all hazard fuels within BTNP. Fuels treatments are prioritized to treat the areas with the highest potential to threaten values at risk. Professional judgment, fire occurrence data, and computer models for fire behavior are used in determining priorities for treatment.</p>
9	<p>Page 20, 2.1 Alternative 1: No Action Alternative – Continue Current Fire Management Activities, NPS mentions “biomass removal”. The Sierra Club is concerned that NPS will remove wood and sell it to a biomass plant. The Sierra Club does not favor removal</p>	<p>Biomass removal should remain an option as leaving an exceedingly high fuel load of woody biomass on the ground and then following up with a burn could result in complete mortality of remaining overstory</p>

	of important nutrient, organic matter, and wildlife habitat for such purposes. Prescribed burning or allowing the wood to decay naturally is a better option. The public must have this information so that it can review, comment on, and understand this proposal.	trees, soil sterilization, and overall loss of habitat. This option will be considered only to benefit ecosystem health and not as a means to generate revenue.
10	Page 20, 2.2 Alternative 1: NPS Preferred Alternative – Utilize Herbicide as Additional Treatment Tool , this heading is misleading, as mentioned above, because Alternative 1 already allows NPS to use herbicides as an additional treatment tool. NPS should correct this misleading heading. The public must have this information so that it can review, comment on, and understand this proposal.	We disagree, alternative 1 does not allow the use of herbicides for the fire management program, as clearly stated throughout the document. The current no-action alternative 1 is based on current policy and guidelines, not on past actions.
11	Page 20, 2.2 Alternative 1: NPS Preferred Alternative – Utilize Herbicide as Additional Treatment Tool , the DFMPEA states “some hazardous fuel reduction activities”. The DFMPEA should state how many acres or a percent of total acres will be burned for “hazard fuel reduction” and where this will occur (maps of units). The public must have this information so that it can review, comment on, and understand this proposal.	This EA is to provide the treatment tools for the fire management program and not to outline projects with acreages and maps.
12	Page 20, Page 20, 2.2 Alternative 1: NPS Preferred Alternative – Utilize Herbicide as Additional Treatment Tool and pages 27 and 28, Alternative 5 , the Sierra Club is concerned that NPS does not believe that lightning or human started fires should be allowed to burn for ecological purposes. It appears that NPS wants to put all of these fires out. That should not be. NPS should develop prescriptions in this DMPEA that allow these fires to burn and implement these prescriptions whenever possible. The DFMPEA should define and discuss what an “uncontrollable, stand-replacing fire” is, what species and communities may be lost, what an “unlimited natural fire” is, and what “restoration thinning” is. The Sierra Club supports the use of lightning and human set fires, under certain prescriptions, to accomplish ecological purposes that are related to burning. The NPS should use its “flexibility” to use natural and human set fire rather than hamstringing itself and limit the use of lightning or human set wildfires for ecological purposes. The public must have this information so that it can review, comment on, and understand this proposal.	Big Thicket National Preserve considers allowing natural fires for resource benefit, however our administrative boundary does not allow for landscape scale natural fire management. When natural and man-made barriers are available, NPS will utilize those fire breaks rather than direct suppression tactics. NPS used common standard dictionary terms, not jargon, and these words do not require definition.
13	Page 20, Page 20, 2.2 Alternative 1: NPS Preferred Alternative – Utilize Herbicide as Additional Treatment Tool , the DFMPEA should provide information and a map about where the uplands and slopes in each unit are located that will be affected by this plan. The public must have this information so that it can review, comment on, and understand this proposal.	This EA is to provide the treatment tools for the fire management program and not to outline projects with acreages and maps.

14	<p>Page 20, 2.2.1 Scope and Details related to Herbicide Treatment Techniques, the Sierra Club is concerned about the use of foliar spray because of the drip potential of the herbicides on the ground and on non-target vegetation. The Sierra Club prefers to use of herbicide on the cut surface and hand pulling for those plants where this cannot be done so that any herbicide drip or overspray is minimized. The public must have this information so that it can review, comment on, and understand this proposal</p>	<p>Basal bark application on cut stems of vegetation will be the preferred method of herbicide application, however foliar applications methods should be available in dense stands of vegetation. Foliar application methods are commonly used by the NPS to treat exotic and invasive species and applicators are required to follow all label directions, NPS regulations, and guidelines. Big Thicket would only foliar spray with hand application methods, therefore overspray potential will be minimal.</p>
15	<p>Page 21, 2.2.1 Scope and Details related to Herbicide Treatment Techniques, the DFMPEA states "decreasing opportunities for stand replacing crown fire". Stand replacing crown fires are not bad for a forest and are a part of the continuum from high frequency, creeping ground fires to stand replacing crown fires. Although stand replacing fires probably did not occur very often they are not un-natural or uncharacteristic of fire that existed in the BTNP pre-settler days. Such fires would probably have occurred during significant droughts and be analogous to periodic but long frequency windstorms and similar large scale ecological disturbances. The public must have this information so that it can review, comment on, and understand this proposal.</p>	<p>NPS understands the dynamics of stand replacement crown fires, and their occurrence in the past, however current fuel conditions are very different from pre-settlement conditions as the midstory vegetation has encroached in the absence of frequent low intensity fire. Furthermore, the fragmented boundary of BTNP does not allow for the safe management of crown fires.</p>
16	<p>Page 21, 2.2.1 Scope and Details Related to Herbicide Treatment Techniques, pages 65 and 66, Impacts to Alternative 2: Preferred Alternative, and page 75, Impacts to Alternative 2: Preferred Alternative, the DFMPEA states "Approved herbicides must have undergone EPA environmental and toxicological testing ... thus have low levels of direct toxicity to animals and when used in accordance with the label specifications pose little risk to wildlife. Herbicides commonly used for vegetation management also degrade quickly upon entering the environment and thus are neither persistent nor bioaccumulate ... thus have low levels of direct toxicity to animals and pose little risk to wildlife". Many problems with pesticides have occurred since EPA took over responsibility in the 1970's and have shown that pesticides are not safe even if approved by EPA. The DFMPEA should state quantitatively what the terms "degrade quickly", "neither persistent nor bioaccumulate", "low levels of direct toxicity", and "pose little risk to wildlife" mean. The public must have this information so that it can review, comment on, and understand this proposal. The Sierra Club submits the following documents that demonstrate that EPA approved does not mean safe. NPS should discuss this reality and not give the public</p>	<p>NPS will only use products approved by the regional Integrated Pest Management Coordinator. This document does not cite a specific herbicide, in order to be able to use the most environmentally preferred product available and appropriate chemical for treated species and habitat, therefore we cannot quantify specific measurements.</p>

	<p>the impression that EPA registration means that herbicides are okay. There is a reason that people are advised to stay out of areas where herbicides have been sprayed. The public must have this information so that it can review, comment on, and understand this proposal.</p> <ol style="list-style-type: none"> 1. Are Inert Ingredients in pesticides Really Benign? 2. Does Government Registration Mean Pesticides Are Safe? 3. But that pesticide is registered by the EPA! 4. Why No One Can Say Pesticides Are Safe 5. No Guarantee of Safety 6. Is EPA Registration a Guarantee of Pesticide Safety? 7. Are Pesticides Hazardous to Our Health? 8. Worst Kept Secrets: Toxic Inert Ingredients in Pesticides 	
17	<p>Page 22, 2.2.1 Scope and Details related to Herbicide Treatment Techniques, NPS states that there is a fire effects monitoring program. The DFMPEA should tell the reader what the fire effects monitoring program has found. The public must have this information so that it can review, comment on, and understand this proposal.</p>	Findings of the fire effects monitoring program are outside the scope of this EA.
18	<p>Page 22, 2.2.1 Scope and Details related to Herbicide Treatment Techniques, NPS states that herbicides are the most effective method of removing or reducing exotics plants. The Sierra Club believes that this statement is too simplistic. In dry, upland areas, burning is more effective at killing, wounding, or setting exotic plants back. In more mesic or hydric areas this does not appear to be the case. The public must have this information so that it can review, comment on, and understand this proposal.</p>	We disagree. Land managers and researchers throughout the southeast US cite the benefit and effectiveness of herbicide to ensure restoration success in conjunction with fire management.
19	<p>Page 22, 2.2.1 Scope and Details related to Herbicide Treatment Techniques, NPS should define what "holding resources" are. The public must have this information so that it can review, comment on, and understand this proposal.</p>	Holding resources include the staff and equipment necessary for planned or unplanned ignition in efforts to keep a fire within containment lines.
20	<p>Page 22, 2.2.1 Scope and Details related to Herbicide Treatment Techniques, NPS states "Areas with tall and dense mid-story brush are often very resistant to prescribed fires during mild weather and fuel conditions." The DFMPEA should discuss the need for growing season burns including summer burns. Such burns, which occurred naturally, will kill many hardwood trees when fires during times of milder temperatures will not. NPS must use fires during the season and time of the season when fires used to occur to mimic the natural fire regime and its effects. The public must have this information so that it can review, comment on, and understand this proposal.</p>	Prescribed burning at Big Thicket National Preserve is not limited to any particular season. The areas we referred to are resistant to fire during mild weather conditions.
21	<p>Page 26, Alternative 4, the DFMPEA states "In addition, the conditions on the ground are changing as vegetation matures, new disturbances such as drought and hurricanes occur, and other natural processes</p>	We dismissed this alternative, as the inclusion of climate change would not make a difference in the decision.

	continue." The NPS should add climate change to this list which is or may be driving many of these changes. The public must have this information so that it can review, comment on, and understand this proposal.	
22	Page 27, Alternative 4 , the DFMPEA states "This would accelerate the potential to lose sensitive and T&E species". The DFMPEA should state which sensitive and T&E species may be lost due to the implementation of Alternative 4. The public must have this information so that it can review, comment on, and understand this proposal	Those species most dependent on fire maintained ecosystems would be affected under Alternative 4. Habitat for species such as the red-cockaded woodpecker, and Texas trailing phlox would be negatively affected.
23	Page 27, Alternative 4 , DFMPEA states "Delay would lead to more build-up of hazard fuels that could result in a more flammable environment, which would lead to dangerous, uncontrollable wildfires that could threaten the safety of visitors, employees and nearby residents." The DFMPEA should provide documentation that these conditions and their aftermath, uncontrollable wildfires, have occurred using the present, Alternative 1, system of fire management because NPS says the same thing about Alternative 1 that it says here about Alternative 4. If this ever was going to happen, 2011 would have been the time it did. However, NPS provides no data or analysis to support its supposition. The DFMPEA should provide the risk of such events happening, how often such events have happened in the past or will happen, and a definition and discussion of what "uncontrollable wildfires" are. The public must have this information so that it can review, comment on, and understand this proposal.	We disagree. The effects of not managing forests with fire has been well documented in the southern US and throughout the country. Henderson (2006) examined the fire history of our past longleaf pine forests and his research was used to support our statements, in addition to other published literature. We used common dictionary terms and do not need to define. A detailed analysis of fire history, frequency, and associated risk is outside the scope of this EA.
24	Page 29, Air Quality and page 46, 3.3.1.4 analysis of Alternatives and Impacts on Air Quality, Impacts of Alternative 1: No Action Alternative , if NPS is going to use this DFMPEA for all of BTNP then it should show for each unit on a map where these sensitive receptors and areas are, describe why they are sensitive, and state the size of the areas that will be managed for their protection. The public must have this information so that it can review, comment on, and understand this proposal.	The identification of sensitive receptors is addressed in the planning of a prescribed burn and these receptors are described by the outdoor burning regulations of TCEQ.
25	Page 30, Soils , the DFMPEA should define and explain what "mastication" is, where it will be used, and under what limits it will be used so that its negative impacts are limited. The public must have this information so that it can review, comment on, and understand this proposal.	NPS used common standard dictionary terms, not jargon, and these words do not require definition.
26	Page 30, Soils , the DFMPEA should define and explain what "Reasonable procedures" are, where they will be used, and under what limits they are used so that negative impacts are limited. The public must have this information so that it can review, comment on, and understand this proposal.	NPS used common standard dictionary terms, not jargon, and these words do not require definition.
27	Page 30, Soils , the DFMPEA should limit the use of UTV's and similar vehicles, state where they will be	The use of UTV's is limited, however they are permitted for administrative use with

	used, and state under what limits they will be used so that negative impacts are limited. The public must have this information so that it can review, comment on, and understand this proposal	BTNP.
28	Page 31, Water, Wetlands, and Riparian Resources, the Sierra Club opposes herbicide use within 3 hours of predicted rain. This is not enough time to reduce the danger of herbicides washing off if rainfall occurs and to allow breakdown of herbicide residues. The public must have this information so that it can review, comment on, and understand this proposal.	Herbicide application will be conducted under the guidance of a licensed pesticide applicator. The herbicide will not be sprayed on wet vegetation or when rain is forecasted for the area and all label directions will be followed.
29	Page 31, Vegetation, the DFMPEA should define and explain what "Systematic monitoring" is for herbicide effects measurement, where it will be implemented, the type of monitoring instrument that will be used, what standards will be used, and how long it will last. The public must have this information so that it can review, comment on, and understand this proposal.	Monitoring herbicide treatments is necessary to determine success of treatment. Monitoring will determine percent mortality after treatment. It is outside the scope of this EA to define the system of monitoring for herbicide treatments.
30	Page 32, Wildlife, including Special Status Species, NPS should change the phrase "aviation habits and behaviors" to "avian habits and behaviors". The public must have this information so that it can review, comment on, and understand this proposal.	Errata: Change aviation to avian
31) Page 32, Invasive Plants and page 57, Impacts of Alternative 1: No Action Alternative, NPS should change the phrase "Whenever possible, incoming vehicles, etc. will be cleaned upon arrival ... Potential spread of noxious weed could occur from equipment used by fire crews both on prescribed fire and wildfire work". Except for absolute emergencies all incoming vehicles should be cleaned to reduce invasive species introductions and spread. Otherwise the ecological restoration that the DFMPEA is supposed to achieve will in fact be degraded by the DFMPEA. In addition, page 60, Alternative 2, should have the same potential spread of noxious weeds impacts from equipment used by fire crews and this should be added as a negative environmental impact as part of the discussion about Alternative 2. The public must have this information so that it can review, comment on, and understand this proposal.	Page 31 of the EA in the Invasive Plants sections states "Incoming vehicles, engines and equipment from outside the immediate area with be cleaned (including the undercarriage) upon arrival to remove invasive weed seeds." Currently all equipment is cleaned before entering a project area, and only in emergencies would cleaning not occur. Errata: Remove "Whenever possible"
32	Page 32, Cultural Resources, the DFMPEA states "Spot monitoring ... will occur by Resource Advisors ... to ensure avoidance of damage to archeological or cultural sites." This same monitoring should be used to avoid damage to ecological and biological sites. The public must have this information so that it can review, comment on, and understand this proposal.	Resource advisors and fire effects monitors help managers avoid damage to cultural and natural resources.
33	Page 34, 2.5 Environmentally Preferable Alternative, the DFMPEA should define and discuss what "restore fire-adapted ecosystems and associated wildlife" means. In addition, what is the "increased risk" for "future high, severity wildfires" if Alternative 1	NPS relies on past fire history data of weather and fire occurrence, and tracks current patterns to assess risk. The future risk of wildfire is uncertain, as it changes with weather patterns and ignition

	is chosen. How many "severe fires" are expected in BTNP, how many "severe fires" have occurred in the past in BTNP, what is the risk today, what will be the risk in the future, how is risk measured, and how is risk monitored? The public must have this information so that it can review, comment on, and understand this proposal.	sources. However, NPS has the ability to manage fuels. Assuring midstory vegetation is killed from herbicide treatments will create successful fuel breaks and forest structures that are better able to withstand disturbances not only from fire but from wind events and pest outbreaks.
34	Page 36, Table 2. Methods Each Alternative Uses to Ensure Each Objective Is Met, Objectives, Does the alternative meet project objectives, No Action Alternative, the DFMPEA states "No". If this is the case then the DFMPEA must state why the NPS, since 2004 (8 years), has used a FMP that does not meet project objectives. This means that NPS has accepted risks to the public and natural resources that are now deemed unacceptable. The public must have this information so that it can review, comment on, and understand this proposal.	The assessment of alternative 1 not meeting project objectives is an overall assessment and refers to the previous objectives listed in the table and the draft fire management plan EA. This assessment did not refer to the 2004 Fire Management Plan.
35	Page 42, 3.2 Cumulative Impacts, the DFMPEA states that the "geographic scope for this analysis includes elements within the BITH boundaries." The geographic scope should include regional impacts that are outside the boundaries of BTNP because these cumulative actions outside BTNP may influence what happens inside BTNP. The public must have this information so that it can review, comment on, and understand this proposal.	The previous sentence states "it was necessary to identify other ongoing or reasonably foreseeable future projects at BITH and, if applicable, in the surrounding region."
36	Page 43, General Management Plan, the DFMPEA states "The following past, present, and current actions were also considered in the analysis of cumulative impacts ... Logging within the Preserve boundary". Logging near or alongside, but outside of, the Preserve boundary should also be a cumulative action because this logging can affect the density of vegetation that can burn and when cut alongside the BTNP can result in more drying out vegetation in BTNP due to more light thus making it more liable to burn if a fire starts. In addition, the cumulative effects analysis should include roads constructed and operated, maintained, repaired, and replaced outside and inside BTNP, Section 404 permits issued by the Army Corps of Engineers, and air, water, and waste permits issued by the Texas Commission on Environmental Quality (TCEQ). The public must have this information so that it can review, comment on, and understand this proposal.	The NPS considered past, present, and planned or proposed projects that might contribute to effects anticipated from the Fire Management Plan. Unplanned or unforeseen actions could not be included in the cumulative effects scenario in the FMP EA.

37	<p>Page 44, 3.3.1.1 Affected Environment, the EPA has recently approved a new particulate matter 2.5, National Ambient Air Quality Standard (NAAQS) of 12 micrograms/cubic meter. The DFMPEA should discuss this new standard and how the DFMPEA will meet it. The public must have this information so that it can review, comment on, and understand this proposal.</p>	<p>The EPA has recently approved a new particulate matter 2.5, annual health National Ambient Air Quality Standard (NAAQS) of 12 micrograms/cubic meter from the existing annual standard of 15 micrograms/cubic meters set in 1997. However, the EPA retained the secondary standard for particulate matter 2.5—15 micrograms/cubic meters and a 24-hour standard of 35 micrograms/cubic meters ($\mu\text{g}/\text{m}$)— to address effects for visibility impairment, ecological affects, damage to materials, and climate impacts. Furthermore, the EPA determined the secondary 24-hour standard of 35$\mu\text{g}/\text{m}$ will provide visibility protection that is equal to, or greater than, 30 $\mu\text{g}/\text{m}$ (the target level of protection of the EPA) upon further analysis of air quality monitoring data (EPA 2012; http://www.epa.gov/pm/2012/decfservice.pdf).</p> <p>Prescribed burns should not be impacted by the new annual standard and BTNP would still be in compliance with the retained secondary 24-hour standard.</p>
38	<p>Page 44, 3.3.1.1 Affected Environment, the DFMPEA states "Ambient monitoring ... has not been routinely monitored for the Project Area, but is assumed to be in compliance with the NAAQS." The NPS must provide documentation about this assertion. According to CEQ Section 1502.22 if information is not available then either the information should be generated or the NPS has to clearly state why this is not possible. The public must have this information so that it can review, comment on, and understand this proposal.</p>	<p>Ambient monitoring for SO_2, NO_x, O_3, and PM has not been routinely monitored for BTNP, but modeling efforts and estimates generated by NPS and based on regional air quality sites that indicate BTNP is in compliance with the NAAQS (NPS 2009).</p>
39	<p>Page 45, 3.3.1.2 Methodology and Intensity Threshold and pages 49, 50, 56, 62, 63, 70, 78, 83, 87, 91, 94, 95, 99, 103, and 104, the DFMPEA fails to implement the court ruling in favor of the Sierra Club and against the NPS about assessment of impacts and the methodology used, from impairment and NEPA perspectives, which was deemed inadequate, arbitrary, and capricious. United States District Judge John D. Bates stated, in part, in <i>Sierra Club v. Mainella</i> the following:</p> <p>"Because NPS's impairment analysis served as its NEPA analysis, the flaws in the impairment analysis also apply to the environmental assessment. Those shortcomings</p>	<p>In the opinion on summary judgment in <i>Sierra Club v. Mainella</i>, the Court held that the NPS failed to adequately explain its conclusions. The Court did not direct the NPS to remove conclusions from its analysis. Instead, the Court directed the NPS to prepare a new environmental assessment that provides explanations to support its conclusions. The NPS provided explanations for its conclusions in the EA. For example, before drawing any conclusions in the <i>Affected Environment</i> and <i>Environmental Consequences</i> section of the EA, the NPS</p>

are, first, NPS's lack of explanation as to how it reached its conclusions, typically simply describing the impacts followed by a conclusion that the impact was not an impairment or, in the case of NEPA, that it was not "significant"; and second, the use of the descriptors "negligible", "minor", "moderate", and "major" that are largely undefined or are defined in a manner that includes few objective bounds ... nowhere explained the basis for its conclusion that potentially "moderate" impacts could not be significant under NEPA ... There is no basis in the administrative record for accepting NPS's conclusion that even a "minor" impact is not significant under NEPA, because there are no determinate criteria offered for distinguishing a "minor" impact from a "moderate" or "major" impact other than NPS's conclusory say-so ... the scoping regulations still require the agency to explain why they [dismissed issues] will not have a significant effect on the human environment ... Thus, the EA must provide a realistic evaluation of the total impacts and cannot isolate a proposed project, viewing it in a vacuum ... In short, NPS's three findings of no significant impact are, the court concludes, arbitrary and capricious for many of the same reasons as are the impairment determinations. In each decision, NPS has failed to take a "hard look" at impacts on the Preserve from adjacent surface activities, as evidenced by the lack of explanations supporting its conclusions and, in particular, its methodology of describing impacts using conclusory labels and then setting forth a bare conclusion without explanation as to the significance of an impact. NPS also failed to provide an adequate cumulative impacts analysis that included the other oil and gas operations in the Gore Baygall Unit ... However, NPS's ultimate conclusions that the drilling activities would not result in impairment of park resources and values under the Organic Act, or a significant impact on the human environment under NEPA, are not supported by reasoned explanations, and hence are arbitrary and capricious and an abuse of discretion."

NPS must quantify in the DFMPEA the impacts that potentially will occur and its methodology must remove the "conclusory statements" that Judge Bates ruled against. Judge Bates states in his decision that the **descriptors "negligible", "minor", "moderate", and "major" are largely undefined or are defined in a manner that includes few objective bounds.** These descriptors must be defined with objective bounds. In addition, the NPS must explain the basis for its conclusion that potentially "moderate" impacts are not significant under NEPA or impairment standards. NPS uses conclusory language that is embedded in the definitions for negligible, minor, moderate, and major and in other places in the DFMPEA. These conclusory words or phrases are undefined. **Some** of the

detailed the sources of possible impacts for each phase of operations, discussed the likely effects of each impact on the resources and values of BTNP, and provided reasoning upon which to base its conclusions regarding the context, duration, timing, and intensity of the impacts.

In the EA, the NPS took a "hard look" by considering the direct, indirect, and cumulative impacts of the proposed action on the environment, along with connected, cumulative and similar actions. Impacts were described in terms of context, duration, and timing using four impact intensity threshold definitions (negligible, minor, moderate, major), which are defined for each impact topic in the *Affected Environment* and *Environmental Consequences* chapter. If the intensity of an impact could be described quantitatively, the numerical data was presented; otherwise the impacts were described qualitatively.

The impact definitions used in the EA are appropriate to Big Thicket National Preserve.

<p>conclusory words or phrases that NPS uses in the DFMPEA that are unacceptable include:</p> <ol style="list-style-type: none"> 1. level of detection, page 45 2. small, short-term, localized changes, page 45 3. would be temporary and limited, page 45 4. measurable, localized changes, page 45 5. sensitive resources, page 45 6. would have consequences, page 45 7. would likely be successful, page 45 8. regional changes, pages 41 and 45 9. would have substantial consequences, page 45 10. Extensive mitigation measures, pages 45, 49, 56, 62, 70, 78, 83, and 95 11. success could not be guaranteed, pages 45 and 49 12. would not cause discernible alteration, page 49 13. would be so slight, pages 49 and 94 14. would cause localized or limited alteration, page 49 15. would be simple and successful, pages 49, 56, 62, 70, 78, 83, and 94 16. could be extensive but would likely be successful, page 49 17. would cause substantial alteration, pages 49, 56, and 95 18. would have a lasting effect, page 49 19. some individual native plants would be affected, page 56 20. would be on a small scale, page 56 21. relatively limited portion, page 56 22. Reclamation is readily achievable, page 56 23. sizeable segment, page 56 24. relatively wide area, page 56 25. could be extensive, page 56 26. would likely be successful, page 56 27. Reclamation is achievable, page 56 28. likely requires additional resources to accomplish goals, page 56 29. success would not be guaranteed, page 56 30. Reclamation may not be attainable even with substantial efforts, page 56 31. some individuals could be affected, page 62 32. would be well within natural fluctuations, page 62 33. Some wildlife species would be affected, page 62 34. a limited part, page 62 35. a sizeable part ... would be affected, page 62 36. relatively large area, page 62 37. very localized area, page 70 38. A few individuals, page 70 39. A number of individuals, page 70 40. limited portion, page 70 41. would be extensive and successful, page 70 42. A measurable portion, page 70 43. large portion, page 70 44. relatively large area, page 70 45. would be readily detectable, page 70 	
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46. would be considered slight, **page 78**
 47. would be small, localized, and of little consequence, **page 78**
 48. would noticeably change, **page 78**
 49. severely adverse or major beneficial impact, **page 78**
 50. regional consequences, **page 78**
 51. change would be so slight, **page 83**
 52. change would be small and of little consequence, **page 83**
 53. would be expected to be localized, **page 83**
 54. would be readily detectable, **page 83**
 55. would be extensive and likely successful, **page 83**
 56. would have substantial consequences, **page 83**
 57. barely measurable, **pages 87 and 91**
 58. confined to a small area, **page 87**
 59. would not result in the loss of integrity, **page 87**
 60. Disturbance ... is substantial, **pages 87 and 91**
 61. Disturbance ... is confined to a small area, with little, if any loss, **page 91**
 62. Disturbance ... would not result in the loss of integrity, **page 91**

 63. would cause limited localized change, **page 94**
 64. would be consequential, **page 95**
 65. would be relatively local, **page 95**
 66. would likely succeed, **page 95**
 67. would be slight and likely short-term, **page 99**
 68. effects would be slight, **page 99**
 69. would be readily apparent and likely long-term, **page 99**
 70. would likely be able to express an opinion, **page 99**
 71. would be readily apparent and have substantial long-term consequences, **page 99**
 72. would likely express a strong opinion, **page 99**
 73. would not have a noticeable effect, **page 102**
 74. would not have an appreciable effects, **page 103**
 75. few or minor injuries, **page 103**
 76. would have readily detectable impacts, **page 103**
 77. would result in substantial, noticeable effects ... on a local scale, **page 103**
 78. with possible serious injuries, **page 103**
 79. would have readily detectable impacts, **page 103**
 80. would result in substantial, noticeable effects ... on a regional scale, **page 103**
 81. with the possibility of extremely serious injuries, **page 103**
 82. slightly lower emissions, **page 47**
 83. regional effect, **page 47**
 All of these conclusory and undefined words and phrases leave the public in a quandary about what the environmental impacts are, what their intensity is, and how different alternatives can be compared and differentiated. The public and decision-makers need this

	information clearly stated and transparently presented so that it can be reviewed, commented on, and understood in relation to the environmental impacts of the proposal. The NPS has not implemented Judge Bates' ruling in a convincing and complete manner. The Sierra Club objects to NPS failure fully implement Judge Bates' decision. NPS must not fail to take the "hard look" that Judge Bates told it to do. The public must have this information so that it can review, comment on, and understand the proposal.	
40	Page 47 and 48, Cumulative Impacts , this section fails, but must include, roads and residential development as the cumulative actions that must be analyzed for cumulative impacts. The public must have this information so that it can review, comment on, and understand the proposal.	The NPS considered past, present, and planned or proposed projects that might contribute to effects anticipated from the Fire Management Plan. Unplanned or unforeseen actions could not be included in the cumulative effects scenario in the FMP EA.
41	Page 47, Impacts to Alternative 2: Preferred Alternative , this should read "Impacts of Alternative 2". Since more herbicides will be used the hydrocarbons produced via evaporation must be estimated. The carrier that is used to disperse a herbicide is often a hydrocarbon like diesel oil or mineral oil. One mitigation measure is to eliminate hydrocarbon carriers and require that water be used as the carrier. Only one document is referenced (McMahon and Bush), which is 21 years old, to show that burning herbicides does not create an air pollution problem. A lot has been learned in the past 21 years and the most up-to-date science should be used to document environmental impacts. The public must have this information so that it can review, comment on, and understand the proposal.	Change title in Errata sheet. Over time, the use of herbicide will help reduce the amount of midstory fuels, which will also reduce the amount of smoke during prescribed burn operations. Areas treated with herbicide will not be burned immediately after treatment as time will be needed to allow for the herbicide to effect the vegetation and managers will need time to determine the mortality of the treatment.
42	Pages 53 through 61, 3.3.3 Vegetation, 3.3.3.1 Affected Environment , the DFMP EA fails to provide the location (maps of units) and number of acres for each vegetation community, upland, slope, or bottomland, that may be impacted by this proposal. The only exception is on page 54 where it is revealed that there are 230 acres of Sandhill Pine Forest. The public must have this information so that it can review, comment on, and understand the proposal.	This EA is to provide the treatment tools for the fire management program and not to outline projects with acreages and maps.
43	Pages 58 and 59, Climate Change , the same climate change discussion should be provided under Alternative 2 because both alternatives will be affected by climate change. The DFMP EA fails to address how the proposal will mitigate for its climate change impacts. There are no mitigation measures discussed or proposed to reduce climate change air pollution or protect biological communities. What is needed is climate change ecological resilience and resistance plan (CCERRP) as part of mitigation required for environmental impacts. This CCERRP would assess the biological and ecological elements in the BTNP where this proposal has environmental effects	CCERRP development is outside the scope of the current project. The proposed FMP will indirectly address climate change via best practices on the project level, and implementing Minimum Impact Suppression Tactics standards. Restoring conditions to the longleaf pine forests will help the ecosystem to become more resilient to future changes in climate and the environment including drought, wildfire, pest outbreaks, and wind disturbance.

	<p>and the effects that climate change has had and will have on these biological and ecological elements. The CCERRP would also assist plants, animals, and ecosystems adapt to climate change and would require monitoring of changes and mitigation measure effectiveness. The CCERRP would be based on:</p> <ol style="list-style-type: none"> 1. Protection of existing functioning ecosystems in the area where this proposal has environmental effects. 2. Reduction of stressors on the ecosystems in the area where this proposal has environmental effects. 3. Restoration of natural functioning ecological processes in the area where this proposal has environmental effects. 4. Use of natural recovery in the area where this proposal has environmental effects, in most instances. 5. Acquisition of buffers and corridors to expand and ensure connectivity of ecosystems in the area where this proposal has environmental effects. 6. Intervention to manipulate (manage) ecosystems in the area where this proposal has environmental effects only as a last resort. 7. Reduction in climate change emissions either by use of emissions trading or lower/no emissions technologies. <p>The public must have this information so that it can review, comment on, and understand all the environmental impacts of the proposal.</p>	
44	<p>Pages 66 through 76, 3.3.5 Special Status Species, the DFMPEA states that "NPS policies dictate that federal candidate species, proposed species, and state species of concern are to be managed to the greatest extent possible (please define) as federal-listed endangered and threatened species." However, the DFMPEA fails to do this. The only species that are analyzed (3.3.5.2 Methodology and Intensity Threshold) for environmental impacts from the DFMPEA are the federal species Red-cockaded Woodpecker, Louisiana Black Bear, Louisiana Pine Snake, Navasota Ladies' Tresses, and Texas Trailing Phlox.</p> <p>The DFMPEA fails to analyze its impacts (pages 67 and 68), but must do so according to NPS policies, on state listed Bachman's Sparrow, Bald Eagle, Brown Pelican, American Peregrine Falcon, Reddish Egret, Swallow-tailed Kite, White-faced Ibis, Wood Stork, Blue Sucker, Creek Chubsucker, Paddlefish, Black Bear, Rafinesque's Big-Eared Bat, Alligator Snapping Turtle, Northern Scarlet Snake, Texas Horned Lizard, Timber Rattlesnake, Houston Toad, Louisiana Pigtoe, Sandbank Pocketbook, Southern Hickorynut, Texas Heelsplitter, Texas Pigtoe, and Triangle Pigtoe. This is a significant oversight and must be addressed. The public must have this information so that it can review, comment on, and understand this proposal.</p>	In section 3.4.5 Special Status Species, table 5, lists all the state listed species.

45	Pages 72, Louisiana Pine Snake and page 73 Navasota Ladies' Tresses , the DFMPEA should define what a "substantial portion of canopy trees and herbaceous cover" are. The public must have this information so that it can review, comment on, and understand this proposal.	We have no historical occurrence for Louisiana Pine Snake at BTNP, and currently no habitat suitable for the species. Navasota Ladies' Tresses is only documented in Jasper county and we would not be implementing any fuels management projects in Jasper county.
46	Pages 80, 81, 101, 102, 105, and 106, Cumulative Impacts , these descriptions of cumulative actions are incomplete and deficient. Pages 75 and 76 , has a more inclusive list of cumulative actions which can cause cumulative impacts and includes, for instance, "development (residential, urban Preserve buildings)" and "road construction". This list should also include "road operation, maintenance, repair, and replacement" and herbicide run-off impacts. NPS should change the list of cumulative actions to include all that may affect water resources. The public must have this information so that it can review, comment on, and understand this proposal.	The NPS considered past, present, and planned or proposed projects that might contribute to effects anticipated from the Fire Management Plan. Unplanned or unforeseen actions could not be included in the cumulative effects scenario in the FMP EA.
47	Pages 41, 45, 50, 56, 63, 70, 78, 83, 87, 91, 95, 99, and 104, Duration , no reasoning is provided for why the definition is set for short-term/long-term where it is for these natural resource issues. The public must have this information so that it can review, comment on, and understand this proposal.	The meaning of short-term and long-term effects refers to each impact topic. The time periods attributed to short- and long-term can be an artificial boundary for the purposes of analysis.
48	Page 84, Impacts of Alternative 1: No Action Alternative , the DFMPEA states "Direct impacts to riparian/wetlands from mechanical and manual fuel reduction treatments due to trampling of riparian/wetland banks or similar disturbances by felled trees". This description is very inaccurate. For mechanical fuel reduction treatments trees are cut and then dragged out by huge tractor powered skidders or feller-bunchers. The compaction and rutting of soils is extensive. A more accurate portrayal of the environmental impacts of logging in riparian/wetlands is needed here. Certainly, the Sierra Club would never state that these impacts are "localized, short-term, adverse, and negligible" when they can be "extensive, long-term, and significant". NPS should never support logging using heavy equipment in riparian/wetland areas. The public must have this information so that it can review, comment on, and understand this proposal.	NPS is not proposing any logging operations in this EA, and no planned fuel reduction projects will occur in riparian zones.
49	Page 94, 3.5.1 Adjacent Landowners and Uses, 3.5.1.1 Affected Environment , the DFMPEA states "Approximately 95% of the land uses immediately adjacent to the Preserve are commercial and private forestry." The data used is 15 years old and probably predates the 1997 study date by several years. There has been a tremendous change in the type of forestry that is practiced outside BTNP and the type of entity that practices the forestry. Much of the forest that used to be owned by Temple-Inland, Champion, Louisiana Pacific, and International Paper is now owned	Creating demographic statistics is outside the scope of the current project. The NPS utilized the most current data available.

	by TIMOs (Timber Investment Management Organizations) who are cutting at an increased rate using a rotation age for Loblolly Pine of 25 years. In addition, the intensity of forestry via the use of fertilizers and pesticides has increased. It is feared that these TIMOs will soon operate as REITs (Real Estate Investment Trusts) and cut up and sell-off all the forest land as properties for residential, commercial, and industrial development. These are all cumulative actions/impacts that the DFMPEA fails to discuss or provide information on quantitatively or qualitatively. The public must have this information so that it can review, comment on, and understand this proposal.	
50	Page 102, Impacts to Alternative 2: Preferred Alternative and page 103, 3.6.2.1 Affected Environmental, the DFMPEA talks about "temporary visitor use restrictions" and "Areas treated with targeted herbicide applications would be temporarily closed to the visiting public". If herbicides are as safe as the DFMPEA has states then why the closure? The public must have this information so that it can review, comment on, and understand this proposal.	Your average park visitor is not wearing Personal Protective Equipment as specified by the product label to ensure safety.
51	50) The Sierra Club is disappointed that NPS has chosen not to think outside of the box in this DFMPEA. By this the Sierra Club means that the NPS should do all that needs to be done so that when a lightning fire or human caused fire starts in BTNP that if conditions are met (prescriptions) that that fire is allowed to burn. The Sierra Club understands that BTNP shares boundaries with many private owners. However, this should not be used as an excuse to not take advantage of fire that occurs that BTNP does not set if safety can be assured. Other agencies do this throughout our nation and work with private landowners to burn lands together. There is no reason why BTNP cannot do this too. Where there is a will there is a way. The public must have this information so that it can review, comment on, and understand the proposal.	Comment noted.
52	51) The DFMPEA fails to integrate itself with fire suppression activities. A descriptive narrative of this information should be in the DFMPEA so the public understands the impacts that fire suppression activities have on BTNP. Fire suppression is used when an out-of-control prescribed fire or a natural fire or human caused wild-fire must be put out. Often fire suppression activities cause more environmental damage than the fire. The public must have this information so that it can review, comment on, and understand the proposal.	Fire suppression mitigation measures, including MIST, will be incorporated whenever possible. MIST tactics are guidelines that assist fire personnel in the choice of procedures, tools, and equipment used in fire suppression and post-fire rehabilitation. These techniques reduce soil disturbance, impact to water quality, noise disturbance, intrusions in the wilderness, and cutting or trampling of vegetation.
53	The DFMPEA fails to discuss different areas or units of BTNP and the fire needs of these areas or units. The Sierra Club is particularly concerned about burning appropriately in two areas in the Lance Rosier Unit. The Sierra Club is concerned about these two areas because its has seen a deterioration of fire dependent	Comment noted.

	<p>ecosystems, namely Longleaf Pine Wetland Savannahs and Pitcher Plant Bogs, due to inadequate fire frequency.</p> <p>These two areas include the site near the hunter parking area, on south side of Little Rock Road (Churchhouse Road), where many adult and young non-native invasive Slash Pine trees are located. The Sierra Club would like to see a persistent, concerted, effort by NPS to kill these trees. In addition, routine fire is needed in at this site so that Longleaf Pine Wetland Savannah can be successful restored. Shrubs and other woody vegetation may also need to be removed. The second area is next to the Old Fire Tower Road, about one mile north from its intersection with Little Rock Road, where there is a large pitcher plant bog. This area needs to be burned due to the growth of shrubs and other woody vegetation which is shading out bog plants. In some cases shrubs and other woody vegetation may need to be removed from this area by manual methods.</p>	
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