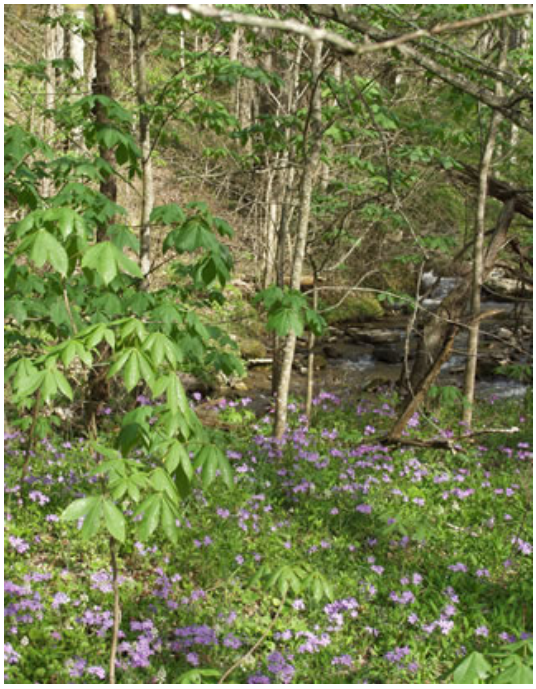
Cherokee National Forest
Wilderness Fire Management Plan
2011

Big Frog Mountain Wilderness

Bald River Gorge Wilderness

Unaka Mountain Wilderness



Little Frog Mountain Wilderness

Reviewed by /s/_____Date_____

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Introduction

1. Purpose

The purpose of this plan is to guide fire management inside the wilderness areas of the Cherokee National Forest (CNF) in accordance with law and policy. Wilderness fire management is defined as the deliberate response to and use of fire through the execution of technically sound plans under specific prescriptions for the purpose of achieving stated wilderness management objectives; this is best achieved when the affects of fire as a naturally occurring landscape disturbance are observed and not the affects of fire management operations.

Use of wildland fire for resource benefit is emphasized in the current national fire policy. This emphasis is tied to a growing recognition of fire as a critical, beneficial process for the proper functioning condition of many vegetation types, as well as, a tool to reduce hazardous fuel conditions, and to manage resources more efficiently by allowing fire suppression resources to concentrate on areas of highest priority for human safety, developments, and natural resources.

2. Relationship to Forest Fire Management Plan

This wilderness fire management plan is incorporated as an appendix to the Cherokee National Forest Fire Management Plan. As such, it will be reviewed and revised (as needed) on an annual basis. This wilderness fire management plan was developed using an interdisciplinary team process to foster collaborative planning. Specialists within the Forest Service are the primary collaborators.

3. Cherokee NF LMP Fire Management Goals

GOAL 22 Achieve a balance between suppression to protect life, property, and resources, and fire use to regulate fuels and maintain healthy ecosystems. Use wildland fire to protect, maintain, and enhance resources, and, as nearly as possible, allow it to function in its natural ecological role.

GOAL 23 Fire dependent ecosystem components are maintained by desired fire regimes. Restore and maintain fire associated and dependent landscapes by moving them from condition class 2 and 3 to condition class 1.

GOAL 24 Reduce hazardous fuels through use of wildland fire and mechanical fuels treatment.

GOAL 25 Emissions from prescribed fire will not hinder the state's progress toward attaining air quality standards and visibility goals.

4. Cherokee NF LMP Prescription Direction:

A. Designated Wilderness

i. Fire Management

RX1A-10: Management-ignited fire is allowed as prescribed in wilderness fire management plans. Reduce hazardous fuels through wildland fire use and use of management-ignited fire.

RX1A-11: Use suppression methods and equipment that cause the least alteration of the wilderness landscape, least disturbance of the land surface, least disturbance to

visitor solitude, least reduction of visibility and least effects on air-quality-related values.

RX1A-12: Helicopters, air tankers, other aircraft, and portable mechanized devices are allowed with approval of the Forest Supervisor when their use will result in less alteration of the landscape, disturbance of land surface and wilderness values.

RX1A-13: Tractor-plow units or bulldozers are allowed, with Regional Forester approval, only on fires with an imminent threat to life or private property that cannot be controlled by other means. Evidence of such use will be obliterated as soon as practicable.

RX1A-14: With the exception of fire lines, only allow rehabilitation of a burned area if necessary to prevent an unnatural loss of wilderness resources or to protect resources outside the wilderness. Do necessary revegetation work with plant species native to the wilderness area.

ii. Recreation

RX1A-22: Use of hand-held power tools, like chainsaws, to reopen trails following catastrophic natural events may be authorized by the Regional Forester.

iii. Facilities, Roads and Access

RX1A-34: Require Forest Supervisor approval for administrative use of motorized vehicles for transport of equipment for emergencies involving inescapable urgency such as (a) fire suppression, (b) health and safety, (c) law enforcement involving serious crimes or fugitive pursuit, (d) removal of deceased persons, and (e) aircraft accident investigation.

iv. Lands and Special Uses

Goal 1.A-3 Prevent or mitigate any adverse impacts from air pollution to the Air Quality Related Values of the Class I area, Cohutta and Joyce Kilmer/Slickrock Wilderness, through a cooperative working relationship with agencies managing air quality.

Objective 1.A-3.01 Conditions of Air Quality Related Values improve over current adversely affected levels.

B. Wilderness Study Areas

i. Fire Management

RX1B-1: The full range of suppression tactics may be used, favoring methods that cause least disturbance of the land surface. Motorized heavy equipment, helicopters, air tankers, other aircraft, and hand-held motorized devices are allowed when their use will result in less alteration of the landscape, disturbance of land surface and future wilderness values.

5. FS Manual Direction

Agency direction for Wilderness Fire Management is found in Forest Service Manual 2300, specifically FSM 2324 and is as follows:

2320 – Wilderness Management
2324.2 - Management of Fire

2324.21 - Objectives.

The objectives of fire management in wilderness are to:

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1. Permit lightning caused fires to play, as nearly as possible, their natural ecological role within wilderness.

2. Reduce, to an acceptable level, the risks and consequences of wildfire within wilderness or escaping from wilderness.

2324.22 - Policy

1. Two types of prescribed fires may be approved for use within wilderness: those ignited by lightning and allowed to burn under prescribed conditions and those ignited by qualified Forest Service officers.

2. No fire may be ignited or allowed to burn without documented, preplanned, specified conditions.

3. Document specific objectives, standards, and guidelines for the control of wildfire and the use of prescribed fire within each wilderness (FSM 5100, 5150, and 5190) in a forest plan or, where the forest planning process has not been completed, in either an interim wilderness management or fire management area plan. Document specific direction for fire program implementation in the forest fire management action plan (FSH 5109.19).

4. Suppress all wildfires within wilderness in accordance with the direction FSM 5130.

5. Fire ignited by lightning may be permitted to burn if prescribed in an approved plan (FSM 2324 and 5150).

6. Forest Service managers may ignite a prescribed fire in wilderness to reduce unnatural buildups of fuels only if necessary to meet at least one of the wilderness fire management objectives set forth in FSM 2324.21 and if all of the following conditions are met:

    a. The use of prescribed fire or other fuel treatment measures outside of wilderness is not sufficient to achieve fire management objectives within wilderness.

    b. An interdisciplinary team of resource specialists has evaluated and recommended the proposed use of prescribed fire.

    c. The interested public has been involved appropriately in the decision.

    d. Lightning-caused fires cannot be allowed to burn because they will pose serious threats to life and/or property within wilderness or to life, property, or natural resources outside of wilderness.

7. Do not use prescribed fire in wilderness to benefit wildlife, maintain vegetative types, improve forage production, or enhance other resource values. Although these additional effects may result from a decision to use prescribed fire, use fire in wilderness only to meet wilderness fire management objectives.

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8. Do not use management ignited fire to achieve wilderness fire management objectives where lightning-caused fires can achieve them.

2324.23 - Fire Management Activities
Conduct all fire management activities within wilderness in a manner compatible with overall wilderness management objectives. Give preference to using methods and equipment that cause the least:

1. Alteration of the wilderness landscape.

2. Disturbance of the land surface.

3. Disturbance to visitor solitude.

4. Reduction of visibility during periods of visitor use.

5. Adverse effect on other air quality related values.

Locate fire camps, helispots, and other temporary facilities or improvements outside of the wilderness boundary whenever feasible. Rehabilitate disturbed areas within wilderness to as natural an appearance as possible.

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2323.4- Management of Soil and Water Resources

2323.4b - Burn Area Rehabilitation

a. Use indigenous or appropriate naturalized species to reestablish vegetation where there is no reasonable expectation of natural healing.

b. Permit emergency burned area rehabilitation only if necessary to prevent an unnatural loss of the wilderness resource or to protect life, property, and other resource values outside of wilderness. Normally use hand tools and equipment to install selected land and channel treatments

2580- Air Resource Management
Agency direction for Air Resource Management is found in Forest Service Manual 2500, specifically FSM 2580 and is as follows:

2580.2 – Objectives:

1. Protect air quality related values within class I areas, as described in 42 U.S.C. 7475(d) (2) (B) and (C) and section 2580.5.
2. Control and minimize air pollutant impact from land management activities.
3. Cooperate with air regulatory authorities to prevent significant adverse effects of air pollutants and atmospheric deposition on forest and rangeland resources.

2580.3 – Policy:

1. Integrate air resource management objectives into all resource planning and management activities.
2. Use cost effective methods of achieving resource management objectives.
   In addition to the above, FSM 2320 contains policy on the management and protection of the air resource in wilderness areas. The following is a summary of policy stated in FSM 2323.62:

   a) Define air quality related values (AQRV) and initiate action to protect those values.

   b) For each AQRV, select sensitive indicators, monitor, and establish the acceptable level of protection needed to prevent adverse impacts. (FSM 2120).

The Wilderness Act of 1977 and regulations developed to implement it do not directly address air quality or air pollution impacts on Wilderness. However, they do provide direction in determining what should be protected in wilderness (the earth and its community of life) and to what degree (preserve its natural conditions).

Air Resource Management Emissions from permitted sources like power plants, pulp mills, minerals processing plants, and other industry can affect air quality related values, like visibility, in Class II areas. These values can be protected, by working within our responsibilities under the Clean Air Act and the Wilderness Act. Class II air sheds are generally pollution free and allow some industrial development.

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II. Wilderness Fire Management Planning Elements

1. Ecology and History of Fire in the Southern Appalachians

Science continues to teach us about fire's role in the historic landscape of the Southern Appalachian Mountains and how it modified the vegetation. Biologists have documented corresponding changes in vegetation, including the decline of many fire-adapted communities, since the removal of fire from the landscape. Fire-adapted communities are dependent on a historic disturbance regime. This is evident from the increase of dense understory vegetation that no longer resembles the over story as a result of fire exclusion. Without fire or other disturbances the forest composition is slowly converting to species such as maple, beech, black gum, and white pine. A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention, but including the influence of aboriginal burning (Agee 1993, Brown 1995). Although some controversy does exist, coarse scale definitions for natural (historical) fire regimes have been developed by Hardy et al. (2001) and Schmidt et al. (2002) and interpreted for fire and fuels management by Hann and Bunnell (2001). The five natural (historical) fire regimes are classified based on average number of years between fires (fire frequency) combined with the severity (amount of replacement) of the fire on the dominant over story vegetation**.**

FIRE REGIMES		
Fire Regime Group	***Fire Return Interval***	***Severity***
I	0-35 years	low severity
II	0-35 years	stand-replacing severity
III	35-100+ years	mixed severity
IV	35-100+ years	stand-replacing severity
V	>200 years	stand-replacing severity

Table 1. Fire Regime Group Descriptions

Fire Adapted Communities with Fire Regime Designation on the Cherokee NF			
Community Type	**Forest Type(s) & CISC Codes**	**Acres**	**Fire Regime**
Dry to Mesic Oak Forest	Post Oak-Black Oak (51), White Oak-Red Oak-Hickory (53), White Oak (54), Northern Red Oak-Hickory (55)	125,189	I
Dry and Dry to Mesic Oak-Pine Forest	Upland Hardwoods-White Pine (42), Southern Red Oak-Yellow Pine (44), Chestnut Oak-Scarlet Oak-Yellow Pine (45), Bottomlands Hardwood-Yellow Pine (46), White Oak-Black Oak-Yellow Pine (47), Northern Red Oak-Hickory-Yellow Pine (48	56,465	I
Dry and Xeric Oak Forest	Chestnut Oak (52), Scarlet Oak (59), Chestnut Oak-Scarlet Oak (60)	69,984	I
Xeric Pine and Pine-Oak Forest	Shortleaf Pine-Oaks (12), Loblolly Pine-Hardwood (13), Pitch Pine-Oak (15), Virginia Pine-Oak (16), Shortleaf Pine(32), Loblolly Pine (31), Virginia Pine (33), Pitch Pine (38) Table Mountain Pine (39), Table Mountain Pine-Hardwood (20)	130,981 9,891	I II

Table 2. Cherokee NF Fire Adapted Community Descriptions

Historically, fire may have been the most common form of natural disturbance on the landscape now managed by the CNF. Fire has played an important role in the development and maintenance of southern yellow pine ecosystems and appears to be a major factor in the development of oak forests. (Ref. Southern Appalachian Assessment (SAA) Terrestrial Report page 94-96)

The role of lightning-caused fires in pre-colonial times on the land that is now the CNF has not been well documented. An analysis of lightning fires on CNF over the last 30 years indicates these ignitions could have led to potentially large-scale landscape burns if suppression actions had not been taken immediately. The CNF had 153 lightning-caused fires in the thirty-year period between 1967 and 1996. Lightning fires, as would be expected, are very sporadic. In several years, no lightning fires occurred, while in other years, many lightning fires occurred. Forty of the 153 total lightning-caused fires occurred in 1988. These had an average fire size of 13.5 acres before being controlled. Lightning fires have reasonably accounted for burning

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approximately 2,065 acres over the past 30 years. The average fire size is much lower than would be expected if no control actions were taken on the fire. Thus, lightning fires, if allowed to run their natural course, could be expected to have burned several times more than 2,065 acres in the past 30 years.

The CNF was established in 1936 and the national direction of the Forest Service was quite clear (Pyne, 1982). "Forest fires have no place in any forest but as a result of ignorance, carelessness, and indifference (Anonymous, 1936)". The practitioners of "controlled burning" battled against an enormous campaign set at the national level to stop all fire. With that new direction of suppressing all fires, the major force of landscape disturbance that had been present since the ice age was suddenly altered. The consequences of that well-intentioned policy would not be obvious for several decades.

# of Human Starts	Acres Burned
37	1834.7
# of Lightning Starts	Acres Burned
1	25

Table 3. Historical Fire Occurrence in Cherokee NF Wilderness Areas 1990-2009

2. Cherokee NF Wilderness Fire Management Unit

The Cherokee National Forest had been divided into three Fire Management Units (FMU's), the Cherokee North FMU (349,699 acres),Cherokee South FMU (303,657 acres)and the Wilderness FMU (66,389 acres) consisting of eleven designated wildernesses; seven in the South Zone and four in the North Zone. The Cherokee NF contains approx. 20,000 acres of recommended wilderness study areas, as legislation passes classifying these lands as wilderness they will be included in the WFMU.

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Cherokee National Forest Designated Wilderness Areas	Approximate Acreage
South Zone Wilderness Areas approx. 40,640 acres	
Cohutta	1,709*
Big Frog Mountain	7,993*
Little Frog Mountain	4,666
Gee Creek	2,493
Bald River Gorge	3,721
Citico Creek	16,226
Joyce Kilmer/Slickrock	3,832*
* CNF Section only	
North Zone Wilderness Areas approx. 25,749 acres	
Samson Mountain	7,992
Unaka Mountain	4,496
Pond Mountain	6,929
Big Laurel Branch	6,332

Table 4. Cherokee National Forest Designated Wilderness Areas.

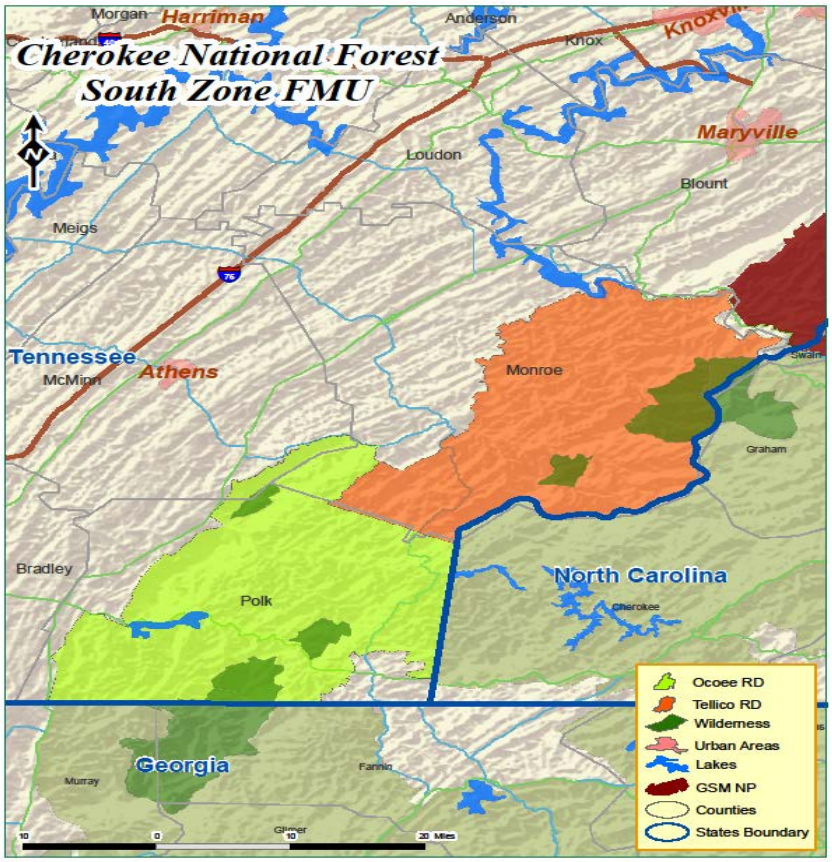

Figure 1. South Zone Wilderness Area Locations.

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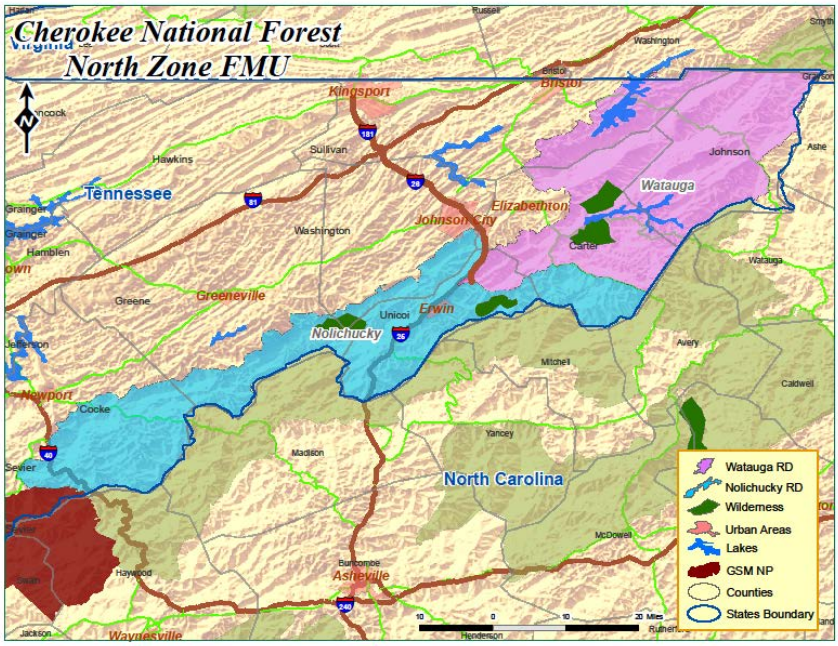

Figure 2. North Zone Wilderness Area Locations.

3. Special Resource Considerations

Recreation- Recreation resources are located throughout and around the Wilderness Fire Management Unit (WFMU). There is a significant potential for forest visitors to be dispersed throughout the wilderness areas. Special consideration should be taken to determine if people are within an area in the event of a fire. Although checking known parking areas and use of aircraft for searches are primary methods of determining visitor locations, when possible, ground searches along both system and user-created trails should be considered. Appendix E, Forest Wide Wilderness Area Recreation Resources, contains all Forest Service managed recreation resources relevant to fire management in the WFMU.

Rare Communities and T&E Species- The Revised Cherokee Land and Resource Management Plan gives direction for the management of rare communities and T&E Species. All fire management planning and operations will adhere to the Forest Plan. Fire managers will consult the district botanist or biologists for site specific guidance.

Archeological- Cultural and historical resources occur throughout the FMU. Most of the sites are sub-surface and usually are categorized as Native American sites, graves, or old home sites. All planned ground disturbance is coordinated with input from archeologists for locating fire control lines to avoid known sites. The forest archeologist is located in the S.O. if site specific consultation is required.

Non-Federal Lands- Maps with FS ownership, wilderness and district boundaries applicable to the Cherokee National Forest can be found in better detail in the following folder:
O:\NFS\Cherokee\Staff\SO\Fire\Wilderness Fire Management Plan\20100120Wilderness_FMP_Maps

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The GIS Specialist should be consulted to determine exact fire location and its proximity to forest and wilderness boundaries.

4. Goals and Objectives

Goal 1: Provide protection to life, property, and natural resources from undesirable effects of wildfire and wildfire suppression.

Objective 1.01: Conduct all fire management activities in a manner compatible with Forest Service Policy, The Wilderness Act of 1964 and Cherokee National Forest Land Management Plan.

Objective 1.02: Use prescribed fire to reduce, to an acceptable level, the risks and consequences of wildfire within wilderness or escaping from wilderness.

Goal 2: Fire is permitted to play, as nearly as possible, its natural ecological role.

Objective 2.01: Allow naturally ignited wildfires to burn in order to benefit the wilderness resource and maintain a natural fire regime.

Objective 2.02: Suppress unauthorized human caused ignitions and avoid prescribed fire of un-natural severity

Goal 3: Increase public understanding about the role of fire, fire management inside and outside wilderness, and fire effects, allowing wilderness users to observe and experience the effects of fire to the fullest extent safely possible.

Objective 3.01: Provide full and timely information to the public about upcoming and ongoing fire management actions and why those decisions were made.

Objective 3.02 Allow wilderness users to observe and experience the effects of fire to the fullest extent safely possible

5. Prescription

A. Preparedness

Line Officers and FMOs need to be familiar with the Wildfire Decision Support System (WFDSS) and ensure that GIS data pertinent to the WFMU is current. Familiarize suppression resources with wilderness fire management policy and minimum impact tactics. District level pre-planning should be conducted for wilderness areas that are in close proximity to or bordering lands administered by other Forests or agencies.

B. Prevention

Each district maintains a detailed account of their annual prevention programs. These programs have been successful in reducing accidental wildfires and are applicable to the wilderness areas. During times of extreme fire danger or high fire activity, special orders and

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closures can be issued by the line officer in order to decrease potential of human caused wildfire in wilderness areas. Signing and contacts will be restricted to portals except where essential for wilderness preservation, visitor safety or resource protection.

C. Detection

The primary method of detection on the Cherokee Nation Forest is through public and Forest Service personnel observation and reporting. This is an effective method of detection in the WFMU due to the correlation between high visitor use and increased fire occurrence. Districts place personnel in high visibility locations and on patrol during times of elevated fire danger to aid in early detection of potential fires. Fixed wing aerial detection flights are on a Call When Needed (CWN) contract and one Type 3 helicopter is on 60 day Exclusive Use contract starting March 1st. The helicopter has a base of operations at the Copperhill Helibase in Copperhill, TN. Both may be utilized when needed based on the daily fire danger and wildfire activity; however flights below 2000 ft AGL are discouraged over wilderness areas. Detection flights will be arranged through the forest coordination center manager.

D. Response

Every reported wildland fire will have a response in which the fire will be evaluated, prioritized and a course of action decision made. This may or may not include on the ground action. Responding resources will gather information through standard size up procedures and relay information to dispatch. The most probable cause of ignition must be determined as such information is critical to completing the Decision Criteria Checklist (Appendix B). Local law enforcement personnel are trained for making a cause determination. The District Ranger and District Fire Management Officer or those officially acting on their behalf will meet within 8 hrs of a reported natural ignition to complete Decision Criteria Checklist (Appendix B), enter the fire into Wildfire Decision Support System (WFDSS), and choose a course of action (COA). The Forest Supervisor and Forest FMO will be notified upon verification of a wilderness fire.

A Wilderness Resource Advisor or Technical Specialist should be assigned as soon as possible to monitor and work with fire management personnel. **Wildfires can be managed for multiple objectives, and portions of the wildfire can be managed concurrently for one or more objectives.** Objectives can be modified as a fire moves across the landscape and /or conditions change. At regional or National Preparedness Level 5, requests to implement use of wildland fire will be submitted to the Washington Office through Region 8 Fire and Aviation Management or other designee.

E. Suppression

Initial action to all unplanned, human caused wildfires in the wilderness will be to suppress the fire at the lowest cost with the fewest negative natural resource consequences. Firefighter and public safety are the first priority in every fire management activity. All suppression actions will be done in accordance with law and policy using suppression methods that are proportionate to fire potential and least detrimental to the wilderness. Minimum Impact Suppression Tactics (MIST) described in Appendix D and the Incident Response Pocket Guide (IRPG) will be used at all times. Confine and contain strategies along with indirect tactics utilizing pre-existing natural and manmade fuel breaks will be the preferred method of attack. Travel to and from fires should be planned considering impacts on wilderness values.

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Regional or Deputy Regional Forester approval is required for heavy equipment use. Forest Supervisor approval is required for emergency use of all other motorized equipment and mechanical transport. Initial approval may be verbal however, within 24 hours or less of verbal approval a written request must be submitted. Request at the Regional level will be completed through the Forest or Deputy Forest Supervisor. Appendix C contains an approval request form used for both cases. Fires naturally ignited and managed outside of the wilderness may be allowed to burn into the wilderness; after which the fire will be managed accordingly.

F. Use of Wildland Fire- Natural Ignition

i. Desired Conditions and Fire Effects

The potential for a natural ignition exists at all times and locations. However, the factors that have historically allowed a natural ignition to occur and spread in the Southern Appalachians are the same conditions that are favorable to elevated fire behavior. High daytime temperatures, low daytime RHs, and isolated thunderstorms are typical characteristics of the summer to early fall weather pattern on the Cherokee NF. These conditions create an environment conducive for lightning fires. Acceptable fuel and weather conditions during a managed wildland fire, as well as fire effects, are described below.

Lightning fires will most often take place on exposed slopes and ridge tops in fuel conditions best represented by Fuel Model 10. In these un-shaded areas, low fuel moistures will result in full consumption of all but the heaviest fuels. The leaf litter and duff will ignite contributing to fire intensity. The fire danger indices of Energy Release Component (ERC) >28, Burning Index (BI) > 35, and Keetch-Byram Drought Index (KBDI) values ≥400 should be expected.

Low live fuel moistures will result in isolated and group torching among evergreen timber and shrubs. Mortality inside and directly bordering un-shaded areas will occur. However, as the fire burns into shaded areas, smoldering and creeping will become the character of the fire. Litter and duff consumption will be limited to the top layers and heavier fuels will not readily burn. Some torching and tree mortality may still occur, but should be isolated in nature. High nighttime humidity recovery and scattered rain showers will also limit fire spread; however high and erratic winds associated with T-Storms or frontal passages can lead to rapid fire growth and should be accounted for during planning.

Extreme fire danger indices of Energy Release Component (ERC) >38, Burning Index (BI) > 45, and severe drought indicated by KBDI values ≥ 600 are indicators of critically low fuel moistures which cause wide spread group torching and spotting conditions. These conditions could be contradictory to desired fire effects or management objectives.

ii. Monitoring and Documentation

Monitoring is necessary to ensure objectives are being accomplished and to continually acquire information relevant to the fire situation. Observed fire behavior and effects, smoke dispersal and volume, daily weather forecasts and observations, live and dead fuel moistures, and fire perimeter growth should be observed and documented. Monitoring frequency and resources needed will be based on fire size, activity and location will be determined under direction from the District Ranger. All associated costs and monitoring information, including

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post burn assessment, will be documented and archived as part of the final documentation package.

iii. Constraints and Contingencies

A documented contingency plan must be in place if a fire is being managed and allowed to burn. Contingency plans are implemented to control the spread of fire from entering into unwanted areas, prevent instigation or continuation of undesirable fire effects, or to prevent it from adversely impacting sensitive resources. Contingency plans may also be implemented when management of the fire is no longer a viable option due to other fire activity or risk assessment results are no longer acceptable.

G. Prescribed Fire

All use of prescribed fire inside the WFMU will be supported by Cherokee Land/Resource Management Plan (LRMP), the Wilderness Act of 1964, and Cherokee Fire Management Plan (FMP). The primary goal of management ignited fire inside the WFMU is to reduce, to an acceptable level, the risks and consequences of wildfire within wilderness or wildfire escaping from wilderness. Prescribed fire projects can only be implemented through an approved Prescribed Fire Plan and the entire prescribed fire project area must be analyzed and comply with the National Environmental Policy Act (NEPA). Wilderness policy and values must be accounted for when planning and conducting prescribed fire operations. In the event that a prescribed burn inside or bordering the WFMU is converted to a wildfire, then suppression guidance set forth previously in this document will be used. Wilderness areas may be used in contingency planning for burn units bordering or in close proximity to the WFMU.

H. Burned Area Rehabilitation

Fire in wilderness is considered to be a part of the ecological processes that create the natural conditions in wilderness areas. Burned area emergency response (BAER) stabilization treatments in wilderness are limited to those consistent with law and agency policy. When wilderness is involved in burned area emergency stabilization assessments, “no treatment” is always the preferred action. FS policy provides for two situations where further investigation may be warranted: 1) unnatural loss of the wilderness resource, or 2) to protect life, property or other resource values outside of wilderness. The cause of the fire is irrelevant. What is important is the location of any critical onsite or downstream values, the risk of unacceptable degradation and the most efficient and effective location for needed preventative or mitigating treatments. BAER assessments will determine the method and tools of least impact that will meet the emergency stabilization objectives, while maintaining natural or naturally appearing conditions. Treatments should be maintenance-free and not interfere with long-term social and biophysical wilderness values. Treatments that involve marking sites, access routes, or the use of temporary structures should have a plan for removal when no longer needed.

The following options (not an all-inclusive list) may be considered on a case-by-case basis:
Hillslope treatment using existing downed logs or rocks
Hazard warning
Trail drainage improvement
Protective fences or barriers
Seeding of sterile nurse species or native species from local source
Weed-free mulch
Treatment of invasive species

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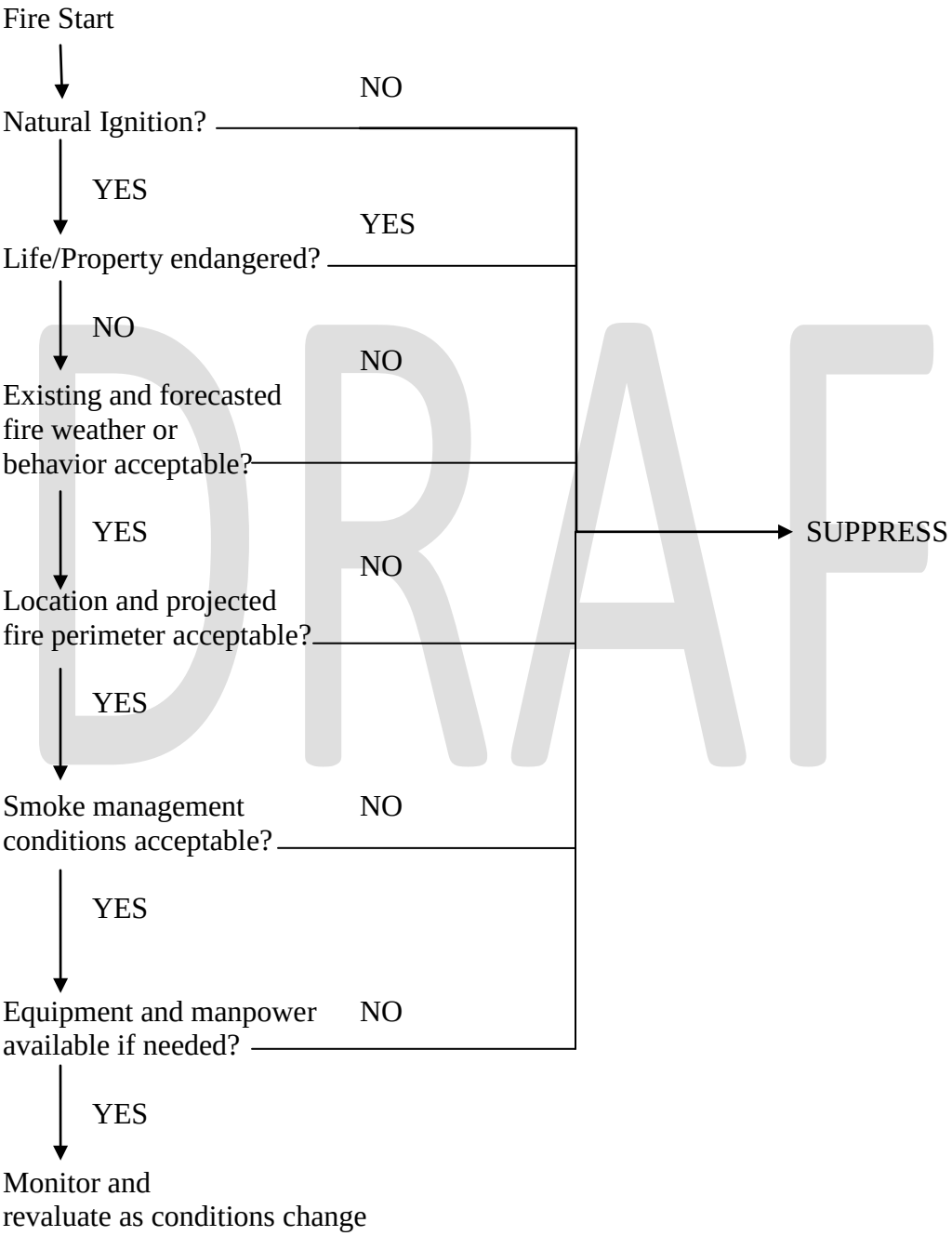
Appendix A

WFMU Decision Flow Chart



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Appendix B

Decision Criteria Checklist

	Yes	No
Is it human caused?		
Is there a threat to life, property, or resources that cannot be mitigated?		
Is current/predicted weather or fire behavior unacceptable?		
Are potential effects on cultural and natural resources outside the range of acceptable effects?		
Are relative risk indicators and/or risk assessment results unacceptable to the appropriate Agency Administrator?		
Is there other proximate fire activity that limits or precludes successful management of this fire?		
Are there other Agency Administrator issues that preclude use of this fire?		
Do expected management needs for this fire exceed available capabilities?		

A yes response to any element on the checklist indicates that the appropriate response should be suppression orientated.

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Approved Response	Signature/Position		Date
Suppression Response			
Use of Wildland Fire Response			

Justification for Response:

Appendix C

Approval for Motorized Equipment or Mechanical Transport in Wilderness in Support of Fire Management Activities

I. FIRE INFORMATION:

Date/Time:		Start Date/Time:	
Fire Name/Number:		Current Size:	
Wilderness Area:		General Location:	
FMP Polygon(s):		Managed Fire	

II. POTENTIAL NEED FOR MOTORIZED EQUIPMENT:
(Check and explain all applicable needs; to be completed by Fire Management Officer):

Check	*TOPIC*	SITUATION (briefly describe)
	SAFETY:	
	- Firefighter Safety	
	- Public Safety	
	RESOURCE IMPACTS:	
	- Wilderness Resources	
	- TES habitat or populations	
	- Cultural Resources	
	OTHER PROPERTY AND VALUES:	
	- Adjacent private land/ structures	
	- FS or other agency infrastructure	
	-Permitted activities	
	LOCAL CONDITIONS:	
	- Extreme fire indices	
	- High potential for spread	
	- Current/projected weather conditions	
	FIRE MANAGEMENT RESOURCES:	
	- Availability is low.	
	- Amount of other proximal fire activity.	
	- Regional Preparedness Level	
	- Remoteness, accessibility, response time	
	OTHER (specify):	
	-Traditional skills not available	
	-Non-motorized equipment not available	

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Appendix C Cont.

III. ALTERNATIVES AND RATIONALE FOR USE OF MOTORIZED EQUIPMENT or MECHANICAL TRANSPORT

(To be completed by Resource Advisor or Wilderness Technical Specialist)

Utilize MIST and wilderness fireline and restoration standards to minimize impacts in all actions.

Proposed Action	**Alternative**	
Motorized Equipment or Mechanical Transport Tactic	**Non-Motorized Equipment or Non-mechanical Transport Tactic**	**Rationale for Authorizing Motorized Equipment or Mechanical Transport** *Note - Be specific and identify why motorized equipment or mechanical transport is the minimum necessary requirement.*
Aerial delivery of fire fighters	Walk, pack, or boat in	
Helispot construction	Use natural openings or existing helispots	
Helicopter landings	Personnel and materials are packed or floated in or out	
Helicopter sling loads	Pack or float materials in or out	
Para-cargo drops	Pack or float materials in or out	
Helicopter water drops	Use backpack pumps, gravity fed hose lays, or dry mop	
Aerial retardant application	Manage fire using natural features and fuel breaks	
Chain saws	Use cross-cut saws Locate line to avoid or minimize need for cutting Avoid or isolate hazard trees Revise mop-up standards	
Water pumps	Use backpack pumps, gravity fed hose lays, dry mop	
Bull dozers or tractors	Manage fire using natural features, fuel breaks, and burnout	
Other:		

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Appendix C Cont.

IV. SPECIFIC REQUEST and AUTHORIZATION:
(To be completed or approved by the Line Officer)

Based on the above needs and rationale, the following motorized equipment is requested. Authorized use for the specified time periods and locations is as follows.

Motorized Equipment	**Equip. Request (Check)**	**Specific Use or Objective** (Check blank or provide specific information)	**Authorized**
Chainsaw		Fell Trees/snags posing a threat to the integrity of the fireline.	
		Fell Trees/snags posing a threat to firefighter safety.	
		Clearing fireline of brush/limbs to control spread.	
		Bucking logs posing threat to integrity of fireline.	
Portable Pump		Support to:___ Initial attack; ___ Extended attack, and/or ___ Mop Up. Approved water source(s): _____ Water sources to avoid: _____	
Helicopter		Landing for Initial attack: _____	
		Landing at approved helispots:_____ _____	
		Transport of ___ personnel, ___supplies/equipment	
		Bucket Drops to support ___ Initial attack, ____Extend attack _____ Other Approved water source(s): _____ Water sources to avoid: _____	
Bulldozers		Protect private property	
Other Equipment			

Authorization Requested by:_____ Title_____
Wilderness Resource Advisor Review by:_____
Authorized by:_____ Date:_____
Line Officer

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Appendix C Cont.

Note – the following table represents national policy as indicated in FSM 2320. Some FS regions have re-delegated authority and should either delete this table or replace it with one that reflects regional direction.

LINE OFFICER APPROVAL: Listed below is the line officers delegation level for the approval of motorized or mechanized equipment: FSM 2326.04b and 2326.04c

Motorized/Mechanical Request	Authorization for Non-Emergency	Authorization for Emergency
• Chainsaws, Pumps	• Regional Forester	• Forest Supervisor
• Helicopters-Fixed Wing • Retardant Delivery • Bucket Work • Crew Shuttle	• Regional Forester	• Forest Supervisor
• Helispot Construction	• Regional Forester	• Forest Supervisor
• Motor Vehicle	• Regional Forester	• Forest Supervisor
• Tractors (Heavy Equipment)	• Regional Forester	• Regional Forester

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Appendix D

MINIMUM IMPACT STRATEGIES AND TECHNIQUES (MIST)

The following Minimum Impact Strategies and Techniques (MIST) are guidelines that are intended to significantly reduce the environmental impacts of incident management.

Following a fire, the effects of the fire may be evident but the impacts of any management actions taken should not be. Supervisors are responsible for ensuring that their subordinates implement these guidelines. **The safety of firefighters and the public is always Priority Number 1.**

Line Operations

- Use natural barriers, wet line or cold trail techniques, rather than constructing line. Consider burnout from natural barriers to minimize line construction.
- When constructed line is necessary, use the minimum width, depth and canopy clearance necessary to check fire spread, based on fire behavior. Locate line to minimize impacts. Consider use of fireline explosives for line construction.
- If conditions allow, remove only leaf litter leaving duff layer intact
- Do not put line construction debris in streams.
- **Avoid building line straight up/down hill. This may alleviate the need for water bars.**

Mop-up

- Cold trail whenever possible, rather than digging up, to detect hot areas.
- Roll or drag fuels into the interior and allow them to burn out, rather than mopping them up.
- Pull hot material away from the bases of trees, rather than felling them.

Saw Use

- Minimize the amount of cutting. Limb standing trees, rather than felling them. Locate line to go around downed logs, or move them, rather than bucking them. Roll logs over, rather than bucking them, when mopping up hotspots.
- Cut stumps low to the ground. Slope/angle saw cuts away from line of sight to minimize visual impacts. Rub dirt or ash on stumps and log ends to camouflage them. Do not crosshatch/etch.
- Flag snags, or post a lookout to watch them, rather than felling them, while personnel are working in the area. When safe, allow burning trees or snags to burn out and fall on their own.
- If trees must be felled inside the line, do not limb or buck them. Allow the fire to consume them.
- Consider use of explosives for snag mitigation.

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Appendix D Cont.

Portable Pumps

- Use containment kits with all pumps to prevent fuel spills and water contamination.
- Exercise caution when using foaming agents to avoid water contamination.
- Naturalize pump sites when removing pumps. Remove structures used for backing up water flow.

Misc.

- Confine travel to existing trails or other hardened travel routes, if available.
- Use individual "cat holes" (6-8" deep, at least 200 feet from water) for disposal of human waste when away from camp.
- Report concentrations of non-incident related human refuse (trash/abandoned equipment caches, etc.) encountered to Resource Advisor for documentation and removal.

Air Operations

- Minimize the number of helispots. Use natural openings to avoid constructing or improving helispots and sling sites. Avoid designating or constructing helispots for logistical support only. Use longline/remote hook for delivery and retrieval of equipment and supplies. Naturalize helispots before abandoning. Consider use of explosives for site naturalization.
- When doing bucket drops, avoid the transfer of non-native fish species, diseases, etc. between dip sites. Avoid the transfer of water from one side of the Continental Divide to the other. Dip from the center of lakes/ponds.
- Limit the use of retardant. Use water drops (preferred) or foam instead. When foam or retardant use is appropriate, avoid dropping near surface water.

Rehabilitation

- Remove all signs of human activity. Rehabilitate all areas disturbed by management activities to as natural an appearance as possible.
- Ensure all equipment, supplies, trash, flagging, etc. are removed from lines, travel routes, camps, helispots, etc.
- Obliterate constructed lines by pulling material back onto them and scattering vegetative debris over them to blend them with surrounding natural landscape. Where needed, install water bars, as appropriate and ensure they are not covered over or blocked:

Line Grade (%)	Maximum Water Bar Spacing (feet)
6-9	400
10-14	200
15-24	100
25+	50

- Replace sections of logs that were cut out of the line.
- Avoid using rehabilitated lines as travel routes.
- Whenever soil has been newly exposed or compacted (camp areas, pump sites, travel routes, etc.), scarify them and naturalize with vegetative debris, rocks, etc.

Spike Camps and Camp Activities

- Camps and other facilities will be located outside of wilderness.

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Appendix E

Forest Wide Wilderness Area Recreation Resources

Wilderness Area
Big Frog Wilderness

Trail	Mileage	Trailhead
#64 Big Frog/BMT	5.5	Low Gap TH 84 30’ 6.171”W 35 2’16.008” N
#65 Licklog Ridge	5.4	TH (No Name) 84 28’ 24.197”W 35 2’40.648 N
#66 Wolf Ridge	2.4	Pace Gap (No Structures) 84 33’ 43.195W 35 2’ 11.881” N
#67 Grassy Gap	4.5	N/A Interior Trail
#68 Big Creek	4.1	TH (No Name) 84 32’ 33.444W 35 2’ 46.786”N
#69Fork Ridge/BMT	1.9	N/A Interior Trail
#70 Rough Creek	2.9	N/A Interior Trail
#73 Yellow Stand Lead	2.3	TH (No Name) 84 32’ 33.444W 35 2’ 46.786”N
#145 Hemp Top	5	TH (No Name) 84 33’ 59.145W 34 59’ 23.615”N
#303 West Fork/BMT	2.2	TH (No Name) 84 29’ 15.449”W 35 3’ 31.775”N

Overlooks
No Overlooks

Adjacent Infrastructure
Tumbling Creek Campground 84 28’23.679”W 35 1’ 1.857”N
Sylco Campground 84 35’ 59.962”W 35 1’ 56.098”N

Wilderness Area
Cohutta

(Attached to Big Frog)

Trail	Mileage	Trailhead
# 145 Hemp Top	5	TH (access, no name) 84 33’59.273”W 34 59’ 23.595”N Pace Gap (No Structure) 84 33’ 43.195’W 35 2’ 11.881”N

Overlooks
N/A

Adjacent Infrastructure

Sylco Campground 84 35’ 59.962”W 35 1’ 56.098”N

Appendix E cont.

Wilderness Area
Little Frog Mountain

Trail	Trail Mileage	Trailhead
#76 Dry Pond Lead/BMT	1.8	Thunder Rock Campground (From Ocoee River) Access along Kimsey Hwy (FDR 68) 84 26'47.866"W 35 6'8.526"N
# 125 Rock Creek	5	TH- 84 27' 21.938"W 35 3'21.773"N

Overlooks
N/A

Adjacent Wilderness Infrastructure
Sassafras Tower
Power Line – West Side
Private Property – East Side
Ocoee Whitewater Center

Note – Thunder Rock is on the south side of Ocoee River

Wilderness Area
Gee Creek

Trail	Tail Mileage	Trailhead
#191 Gee Creek	1.7	Gee Creek TH 84 32' 24.92"W35 14' 48.739"N
#190 Starr Mountain	4.9(2.4 Wilderness)	Gee Creek TH 84 32' 24.92"W 35 14' 48.739"N
#104 Chestnut Mountain	3.8	Iron Gap 84 29' 37.86"W 35 16' 0/231N Lost Coral – Lat/Long under Adjacent Structures
#189 Starr Mountain Extensions	1.7	Hogback Ridge 84 29'19.913"W 35 17' 10.627"N

Overlooks
N/A

Adjacent Infrastructure
Gee Creek Falls is a populate destination along Gee Creek
Lost Corral Horse Camp 84 32' 57.832"W 35 14' 15.139"N
105 Coffee Branches (7.9 miles)
Gee Creek State Park (near) 84 32' 50.667"W 35 14' 5.203"N
Private Property – North East Side

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Appendix E cont.

Wilderness Area
Bald River Gorge

Trails	Trail Mileage	Trailhead
#88 Bald River	4.8	Bald River Falls FDR 126 Near Holly Flats 84 11’8.89”W 35 17’ 17.45”N
#107 Henderson Mountain	2.2	End of Maple Camp Lead (FDR40832) 84 9/2.551”W 35 17’ 56.879”N
#173 Cow Camp	0.6	Cow Camp Bridge (FDR 210) 84 10’6.27’W 35 19’ 20.076”N

Overlooks	Adjacent Infrastructure
Bald River Falls Observation Bridge (FDR210)	Bald River Falls 84 10’ 33.035”W 35 19’ 22.285”N Holly Flatts CG 84 10’ 39.812”W 35 17’ 7.458”N Walnut Grove Picnic Area 84 9’ 42.561”W 35 19’ 37.235”N

Basin Lead Trail – Closed due to fire/storm damage.
Gravelstand Top – Closed due to fire/storm damage.

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Appendix E cont.

Wilderness Area
Citico Creek

Trails	Trail Mileage	Trailhead
#102 Flats Mountain	6.2	Eagle Gap(TN 165) 84 6’ 26.798”W 35 21’ 53.27”N
“		Lower access FDR(35-1) 84 5’ 16.745”W 35 24’ 25.542”N
# 91 Grassy Gap	2.1	Grassy Gap TH 84 5’ 14.756”W 35 21’ 25.729”N
#87 Falls Branch	1.3	Rattlesnake West 84 4’ 3.51”W 35 21’ 1.117”N
#196 Jeffery Hell	2	Rattlesnake West 84 4’ 3.51”W 35 21’ 1.117”N
#95 Fodderstack Horse/BMT	12.5	Beech Gap TH (from TN 165)
		84 2’ 18.636”W 35 20’ 56.157”N
		Farr Gap (other end) 84 1’ 38.705”W 35 27’ 48.28”N
# 105 South Fork Citico	9.5	Warden’s Field (Bottom) 84 4’ 41.565”W 35 24’ 8.714”N
		Trail #95 Accesses from top
# 54A Bob’s Bald Connector	2.1	Access via #95
# Brush Mountain	4.1	Access via #95 from top
		Warden’s Field (Bottom) 84 4’ 41.565”W 35 24’ 8.71N
#98 North Fork Citico	5.2	No TH Access via #95 from top
		No TH Access via #105 from bottom
# 149 Cold Springs Gap	1.1	Interior Trails between #97 and #98
# 99 Pine Ridge	3.6	Warden’s Field 84 4’ 41.565”W 35 24’8.714”N
		No TH from top – Access via #95 from top
# 100 Rocky Flats	4.9	Warden’s Field 84 4’ 41.565”W 35 24’8.714”N
		FDR 2659 84 3’ 37.059”W 35 25’ 51.905”N
#96 Mill Branch	2.3	84 3’ 30.912”W 35 25’ 52.472”N
		No TH from top – Access via #95 from top
# 85 Crowder Branch	2.4	FDR 2659 – 84 3’ 2.472”W 35 26’ 22.487”N
		No TH fro top – Access via #95 from top

Overlooks	Adjacent Infrastructure/ Other Considerations
Eagle Gap TH – 84 6’ 26.798”W 35 21’ 53.27”N	Warden’s Field Camping and TH 84 4’ 41.565”W35 24’ 8.714”N
Hemlock Knob 84 6’ 13.428”W 35 21’31.452”N	Cherohala Skyway is southern boundary
Grassy Gap TH - 84 5’ 14.756”W 35 21’25.729”N	Boundary with Nantahala N.F. and Joyce Kilmer/Slickrock

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Appendix E cont.

Wilderness Area
Citico Creek Cont'

Overlooks

Brushy Ridge Adjacent 84 5' 14.756"W 35 21' 25.729"N
Rattlesnake West 84 4' 3.51"W 35 21' 1.117"N

Rattlesnake East 84 3' 37.094"W 35 20' 49.207"N

Beech Gap TH 84 2' 18.636"W 35 20' 56.157"N

Adjacent Infrastructure

Wilderness Area
Falls Branch Falls is a popular hiking trail on Falls Branch Trail
Any Other Destinations Bob's Bald, Hangover Rock (NC)

Notes: BMT = Benton Mackaye Trail
54A – Might be an Nantahala N.F. Trail

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Wilderness Area
Joyce Kilmer/Slickrock

Trails	**Trail Mileage**	**Trailhead**
#95 Fodderstack Horse Trail/BMT	5.0	Farr Gap – 84 1' 38.705"W 35 27' 48.28"N
#106 Stiffknee	3.2	Farr Gap – 84 1' 38.705"W 35 27' 48.28"N
#133 Big Stack Gap Branch	1.7	N/A Interior trails between #85 and NC border

Overlooks
N/A

Adjacent Infrastructure/Other Considerations
Boundary with Nantahala N.F.

Notes – BMT = Benton Mackaye Trail #2
Note – Most of this wilderness is in North Carolina

Appendix E cont.

Wilderness Area
Sampson Mountain

Trails	Trail Mileage	Trailhead
#23 Squibb Creek		Horse Creek TH 82 39'19.103" W 36 6'.4
#4 Middle Spring		Access from Squibb Creek Trail
#15 Turkey Pen Cove		Access from Squibb Creek Trail

Adjacent Infrastructure
Squibb Creek Falls is a popular destination on the Squibb Creek rail
Horse Creek Campground -

NOTE - Cabin In holding along Squibb Creek Trail
Private Property/houses along two roads to North (Cassi Rd -CH5404 & unnamed road- Painter Springs?)
Rocky Fork Tract to South

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Wilderness Area
Unaka Mountain

Trails	Trail Mileage	Trailhead
#148 Rock Creek	2	Rock Creek Rec Area
#26 Rattlesnake Ridge	2.8	From top – Unaka Mtn. Overlook 82 18' 36.925"W 36 8' 2.815"N
#30 Limestone Cove	3.2	Limestone Cove TH (from bottom) Access from #110 from top
#110 Stamping Ground Ridge	4.2	Unnamed TH (from FDR 230) 82 17' 33.364"W 36 8' 40.283"N

Appendix E cont.

Wilderness Area
Unaka Mountain cont.

Overlooks	Adjacent Infrastructure
Unaka Mountain Overlook – 82 18’36.925”W 36 8’2.815”N	Rock Creek falls is a popular destination on Rock Creek Trail
Beauty Spot Overlook/TH – 82 19’59.247”W 26 7’2.926”N	Rock Creek Rec Area – 82 20’52.597”W 36 8’14.584”N Limestone Cove Rec Area/TH – 82 17’45.151”W 36 10’ 31.533”N Unaka Mountain Overlook – 82 18’36.925”W 36 8’2.815”N Beauty Spot Overlook/TH – 82 19’59.247”W 36 7’2.926

Wilderness Area
Pond Mountain

Trails	Trail Mileage	Trailhead
#1 Appalachian National Scenic Trail	6.5	Dennis Cove TH – 82 7’23.914”W 36 15’51.2”N Shook Branch – 82 7’ 41.853”W36 18’ 7.941”N
#501 Hampton Blueline Trail	0.9	Laurel Fork TH (Hwy 321/TN67) 82 9’ 8.877”W 36 17’ 7.962”N
#40 Pond Mountain	4.5 (hunter access)	Access from Hwy 321/TN 67 82 4’ 34.271”W 36 18’ 56.625”N

Overlooks	AT Shelter
N/A	Laurel Fork Shelter – 82 8’ 12.682”W 36 16’ 42.418”N

Adjacent Infrastructure/Other Areas of Consideration

Laurel Falls (popular destination along AT from Dennis Cove) 82 8’ 11.978”W 36 16’ 21.243”N
Shook Branch – 82 7’ 41.853”W 36 18’ 7.941”N
Rat Branch – 82 7’ 19.743”W 36 18’ 13.66”N
Pond Mountain Shooting Range – 82 6’ 24.853”W 36 18’ 31.502”N
Carden’s Bluff – 82 6’ 59.668”W 36 18’ 42.265”N
Watauga Point – 82 5’ 9.76”W 36 19’ 12.469”N

Notes: Private Property is southern boundary, along with several smaller sections.

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Appendix E cont.

Wilderness Area
Big Laurel Branch Wilderness

Trails	Trail Mileage	Trailhead
#1 Appalachian National Scenic Trail	5	Access County Hwy 2688 – 82 6’44.315”W Plus 3.5 miles in WSA 36 19’ 46.013”N

AT Shelters
Vandeventer Shelter – 82 3’ 31.376”W 36 21’ 59.626”N
Iron Mountain Shelter – 82 59’ 28.228”W 36 26’ 7.816”N

Adjacent Infrastructure
Little Wilbur (TVA facility)
Private property surrounds much of it, WSA to the Northeast, Watauga Lake to the South.

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