

## **XIV. APPENDICES**

## APPENDIX A

### A. REFERENCES CITED

#### Publications:

- Agee, James K. 1994. Fire and weather disturbances in terrestrial ecosystems of the eastern Cascades. Gen. Tech. Rep. PNW-320. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 52 p.
- Anderson, H.E. 1982. Aids to Determining Fuel Models for Estimating Fire Behavior. General Technical Report INT-122. Ogden, UT: Forest Service, Intermountain Forest and Range Experiment Station
- Brown, James K., ed. 2000. Wildland fire in ecosystems: effects of fire on flora. Gen. Tech. Rep. RMRS-GTR-42-vol. 2. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.
- Brown, P. M., M. G. Ryan, and T.G. Andrews. Historical surface fire frequency in ponderosa pine stands in Research Natural Areas, central Rocky Mountains and Black Hills, USA. *Natural Areas Journal* 20 (2):133-139, 2000
- Brown, P.M. and Sieg, C.H., "Fire History in Interior Ponderosa Pine Communities of the Black Hills, South Dakota, USA", *International Journal of Wildland Fire*, 6(3):97-105, 1996
- Brown, P.M. and Sieg, C.H., "Historical variability in fire at the ponderosa pine-Northern Great Plains prairie ecotone, Southeastern Black Hills, South Dakota", *Ecoscience*, 6(4), 539-547 (1999)
- Clements, F. E. 1934. The relict method in dynamic ecology. *Ecology*.22:39-68.
- Conant, R. 1975. A Field Guide to reptiles and amphibians of eastern and central North America. The Peterson Field Guide Series, 12. Houghton Mifflin, Boston 429p.
- Deeming, J.E.; Burgan, R.L.; Cohen, J.D. 1977. The National Fire Danger Rating System - 1978. General Technical Report INT-39. Ogden, UT: Forest Service, Intermountain Forest and Range Experiment Station
- Ford-Robertson, F. C. 1971. Terminology of forest science technology practice and products. Washington, DC: Society of American Foresters. 370 p.
- Hoffman, G.R., and P. L. Hansen. 1986. Vegetation baseline study of Mount Rushmore National Memorial.
- Johnson, E. A.; Van Wagner, C. E. 1985. The theory and use of two fire history models. *Canadian Journal of Forest Research* 15: 214-220.
- Jones, J K., Jr., D. M. Armstrong, R. S. Hoffman, and C. Jones. 1983. Mammals of the northern Great Plains. University of Nebraska Press, Lincoln. 379 pp.
- McPherson, G.; Wade, E.; Phillips, C. B. 1990. Glossary of wildland fire management terms. Bethesda, MD: Society of American Foresters.
- Mount Rushmore National Memorial Fire Management Plan, 1990

- Mutch, Robert W. 1992. Sustaining forest health to benefit people, property, and natural resources. In: American forestry -- an evolving tradition, proceedings of the 1992 Society of American Foresters National Convention; 1992 October 25-27; Richmond, VA. Bethesda, MD: Society of American Foresters: 126-131.
- National Park Service Fire Monitoring Handbook (2001)
- National Park Service, Midwest Region Fauna spreadsheet.
- National Park Service; USDA Forest Service; Bureau of Indian Affairs; U.S. Fish and Wildlife Service; Bureau of Land Management. 1998. Wildland prescribed fire management policy: Implementation procedures reference guide. Boise, ID: U.S. Department of the Interior, National Park Service, National Interagency Fire Center. 78 p.
- National Wildfire Coordinating Group (NWCG). 1995. Glossary of wildland fire terminology. Boise, ID: National Interagency Fire Center, National Fire and Aviation Support Group.
- NWCG. 2000. Wildland and Prescribed Fire Qualifications System Guide, 310-1.
- Petrides, George A. 1972 A Field Guide to Trees and Shrubs. The Peterson Field Guide Series, 11. Houghton Mifflin, Boston, MA 428 pp.
- Powell, A. N. 2000. Grassland bird inventory of seven prairie parks: Final report to the Great Plains Prairie Cluster Long- Term Ecological Monitoring Program, National Park Service, Wilson's Creek National Battlefield, Republic, MO. 47pp.
- Progulske, D.R., "Yellow Ore, Yellow Hair, Yellow Pine: A Photographic Study of a Century of Forest Ecology" Bulletin 616 Agricultural Experiment Station, SDSU, Brookings, SD 57007.
- Reed, C. 2000. Lists of Vascular Plant Species expected to occur at Wind Cave NP, Jewel Cave NP, Mount Rushmore NM, Badlands NP, Theodore Roosevelt NP, Knife River Indian Villages NHS, and Fort Union Trading Post NHS. Report for the National Park Service. April, 2001
- Rothermel, R.C. 1983. How to Predict the Behavior of Forest and Range Fires. General Technical Report INT-143. Ogden, UT: Forest. Service, Intermountain Forest and Range Experiment Station
- Rowe, J. S. 1983. Concepts of fire effects on plant individuals and species. In: Wein, Ross W.; MacLean, David A., editors. The role of fire in northern circumpolar ecosystems. New York: John Wiley and Sons: 135-154.
- Smith, Jane Kapler, ed. 2000. Wildland fire in ecosystems: effects of fire on fauna. Gen. Tech. Rep. RMRS-GTR-42-vol. 1. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.
- South Dakota Natural Heritage Program. 2000 Database. Pierre SD.
- South Dakota Ornithological Union. 1991. The Birds of South Dakota, 2nd Edition. South Dakota Ornithologist's Union. Aberdeen, SD. 411pp.
- Southern Forest Fire Laboratory Staff. 1976. Southern Forestry Smoke Management Guidebook, USDA Forest Service , General Technical Report SE-10, Asheville, NC,

Southeast Forest Experiment Station

Weaver, H. 1967. Fire and its relationship to ponderosa pine. Proc. Tall Timbers Fire Ecol. Conf. 7:127- 149.

Weaver, H., 1974, "Effects of Fire on Temperate Forests: Western States" in "Fire and Ecosystems", Edited by T.T. Kozlowski and C.E. Ahlgren, Academic Press, Inc., New York, NY, 542pp.

Wright, Henry A. 1978. The effect of fire on vegetation in ponderosa pine forests: A state-of-the-art review. Lubbock, TX: Texas Tech University, Department of Range and Wildlife Management. 21 p. In cooperation with: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station.

**Internet Reference Sites:**

2001 Federal Fire Policy Review ([http://www.nifc.gov/fire\\_policy/index.htm](http://www.nifc.gov/fire_policy/index.htm))

Clean Air Act (PL 88-206, as amended), ([http://www.epa.gov/oar/oaq\\_caa.html](http://www.epa.gov/oar/oaq_caa.html))

Common names of plants found at (<http://plantsdatabase.com/>)

Cultural Resource Management references  
(<http://archnet.asu.edu/archnet/topical/crm/crmusdoc.html>)

Endangered Species Act of 1973 (<http://endangered.fws.gov/esa.html>)

Fire Effects Information System for common names of plants found at  
(<http://www.fs.fed.us/database/feis/>)

National Fire Plan (<http://www.fireplan.gov/>)

National Historic Preservation Act (<http://www4.law.cornell.edu/uscode/16/470.html>)

National Park Service DO-18, Wildland Fire Management  
(<http://www.nps.gov/fire/fire/policy/do18/do18.htm>)

National Park Service RM-18, Wildland Fire Management  
(<http://www.nps.gov/fire/fire/policy/rm18/index.htm>)

South Dakota Air Quality information on Open Burning  
(<http://www.state.sd.us/denr/DES/AirQuality/openburn.htm>)

University of Wisconsin Herbarium for common names of plants at  
(<http://wiscinfo.doit.wisc.edu/herbarium/>)

U.S. Department of Agriculture Plants Database for plant information and common names at  
(<http://plants.usda.gov/> <http://plants.usda.gov/>)

U.S. Geological Survey, Northern Prairie Research Center herbarium listing for common names of plants at (<http://www.pwrc.usgs.gov/history/herbarium/category.htm>)

## APPENDIX B

### B. DEFINITIONS

A consistent list of terms and their definitions has been developed and approved by the NWCG. This list of defined terms includes terms obsolete under the new policy. Additional terms used in this reference guide but not defined by NWCG are from the Fire Effects Information System and other sources. The sources may be found in the References Cited (Appendix A).

**Appropriate Management Response** – Specific actions taken in response to a wildland fire to implement protection and fire use objectives. This term is a new term that does not replace any previously used term.

**Backfire** – A fire set along the inner edge of a fireline to consume the fuel in the path of a fire or to change the fire's convection column.

**BI** – Burning Index. A number related to the contribution that fire behavior makes to the amount of effort needed to contain a fire in a particular fuel type within a rating area. An Index for describing Fire Danger.

**Climax** – A biotic community that is in equilibrium with existing environmental conditions and represents the terminal stage of an ecological succession (Smith 2000).

**Cover** – The proportion of ground covered by the aerial parts of individuals of a species, usually expressed as a percentage (Grieg-Smith 1983). Total cover for all species on a site can exceed 100%. However, TOP-COVER, the proportion of ground for which a species provides the uppermost cover, cannot exceed 100% (Grieg-Smith 1983). Mueller-Dombois and Ellenberg (1974) consider basal area a special kind of "cover," but FEIS does not usually use COVER in this way.

**Crown Fire** – Fire that burns in the crowns of trees and shrubs. Usually ignited by a surface fire. Crown fires are common in coniferous forests and chaparral-type shrublands (Brown 2000).

**Direct Effects of Fire** – Described in FEIS plant species summaries under FIRE EFFECTS; IMMEDIATE FIRE EFFECT ON PLANT and DISCUSSION AND QUALIFICATION OF PLANT RESPONSE.

**Duff** – Partially decomposed organic matter lying beneath the litter layer and above the mineral soil. Includes the fermentation and humus layers of the forest floor (O2 soil horizon) (Brown 2000).

**Ecosystem** – An interacting system of interdependent organisms.

**Expected Weather Conditions** – Those weather conditions indicated as common, likely, or highly probable based on current and expected trends and their comparison to historical weather records. They are the most probable weather conditions for this location and time. These conditions are used in making fire behavior forecasts for different scenarios (one necessary scenario involves fire behavior prediction under "expected weather conditions).

**Experienced Severe Weather Conditions** – Those weather conditions that occur infrequently, but have been experienced on the fire site area during the period of weather

records. For example, rare event weather conditions that significantly influence fires may have occurred only once, but their record can be used to establish a baseline for a worst-case scenario. These are the most severe conditions that can be expected. These conditions are used in making fire behavior forecasts for different scenarios (one necessary scenario involves fire behavior prediction under "experienced severe weather conditions).

**Fire Cycle** – Length of time for an area equal to the entire area of interest to burn; size of the area of interest must be clearly specified (McPherson and others 1990).

**Fire Duration** – The length of time that combustion occurs at a given point. Fire duration relates closely to downward heating and fire effects below the fuel surface as well as heating of tree boles above the surface.

**Fire Exclusion** – The policy of suppressing all wildland fires in an area (Smith 2000).

**Fire Frequency = Fire Occurrence** – Number of fires per unit time in a specified area (McPherson and others 1990).

**Fire Intensity** – A general term relating to the heat energy released in a fire. FEIS usually uses more specific terms to describe rate of heat release. See FIRELINE INTENSITY below.

**Fire Interval** – Time (in years) between two successive fires in a designated area (i.e., the interval between two successive fire occurrences); the size of the area must be clearly specified (McPherson and others 1990).

**Fire Management Plan (FMP)** – A strategic plan that defines a program to manage wildland and prescribed fires and documents the Fire Management Program in the approved land use plan. The plan is supplemented by operational plans such as preparedness plans, preplanned dispatch plans, prescribed fire plans and prevention plans.

**Fire Management Unit (FMU)** – Any land management area definable by objectives, topographic features, access, values-to-be-protected, political boundaries, fuel types, or major fire regimes, etc., that sets it apart from management characteristics of an adjacent unit. FMU's are delineated in Fire Management Plans (FMP). These units may have dominant management objectives and pre-selected strategies assigned to accomplish these objectives.

**Fire Regime** – Describes the patterns of fire occurrence, size, and severity - and sometimes, vegetation and fire effects as well - in a given area or ecosystem (Agee 1994, Mutch 1992, Johnson and Van Wagner 1985). A fire regime is a generalization based on fire histories at individual sites. Fire regimes can often be described as cycles because some parts of the histories usually get repeated, and the repetitions can be counted and measured. The fire regime on a particular kind of site or in a particular ecosystem is not cyclic in a deterministic sense; it is, rather, a story about climate, human use, other disturbance, and species dispersion as they have all changed and interacted to affect an ecosystem, both suddenly and subtly, over millennia. The concept of fire regime as story lets us think about the future in that type or ecosystem as a question, perhaps a choice, rather than a destiny. According to Agee (1994), "A fire regime is a generalized way of integrating various fire characteristics. The organization may be according to the characteristics of the disturbance..., dominant or potential (climax) vegetation on the site..., or fire severity, the magnitude of effects on dominant vegetation...." According to Mutch (1992), "A natural fire regime is the total pattern of fires over time that is

characteristic of a natural region or ecosystem. The classification of fire regimes includes variations in ignition, fire intensity and behavior, typical fire size, fire return intervals, and ecological effects." According to Johnson and Van Wagner (1985), "... fire regime is a multivariate system characterized by (i) the fire history measured in fire frequency or fire return period, (ii) fire intensity measured in kW/m, and (iii) depth of burn (duff removed) measured in kg/m, or percent..."

**Fire-Resistant Species** – Species with morphological characteristics that give it a lower probability of being injured or killed by fire than a FIRE-SENSITIVE species, which has a "relatively high" probability of being injured or killed by fire (McPherson and others 1990). Implies that the organism does not get injured by things that would seem able to injure it (Johnson and Van Wagner 1985). (Rowe (1983) uses a more restrictive definition of resistance - relating it only to plants with aboveground parts that survive fire.)

**Fire Severity** – Degree to which a site has been altered or disrupted by fire; also used to describe the product of fire intensity and residence time (McPherson and others 1990, Agee 1994, Rowe 1983).

**Fire Suppression Specialist** – Staff specialist with primary duties of managing the preparedness and suppression programs.

**Fire Use** – The combination of wildland fire use and prescribed fire application to meet resource objectives

**Fireline Intensity** – The rate of heat release per unit time per unit length of fire front. Numerically, the product of the heat of combustion, quantity of fuel consumed per unit area in the fire front, and the rate of spread of a fire, expressed in kW/m (McPherson and others 1990).

**Flame Length** – The length of flames in a fire front measured along the slant of the flame, from the midpoint of its base to its tip. Flame length is mathematically related to fireline intensity and tree crown scorch height (Brown 2000).

**FMO** – Fire Management Officer.

**FMP** – Fire Management Plan.

**Fuel** – Fuel is comprised of living and dead vegetation that can be ignited. It is often classified as dead or alive and as natural fuels or activity fuels (resulting from human actions, usually from logging operations). Fuel components refer to such items as downed dead woody material by various size classes, litter, duff, herbaceous vegetation, live foliage etc. (Brown 2000).

**Fuel Continuity** – A qualitative description of the distribution of fuel both horizontally and vertically. Continuous fuels readily support fire spread. The larger the fuel discontinuity, the greater the fire intensity required for fire spread (Brown 2000).

**Fuel Loading** – The weight per unit area of fuel, often expressed in tons per acre or tonnes per hectare. Dead woody fuel loadings are commonly described for small material in diameter classes of 0 to 1/4-, 1/4 to 1-, and 1 to 3-inches and for large material in one class greater than 3 inches (Brown 2000).

**Fuel Moisture** – percent or fraction of oven dry weight of fuel. It is the most important fuel property controlling flammability. In living plants it is physiologically bound. Its daily fluctuations vary considerably by species but are usually above 80 to 100%. As plants

mature, moisture content decreases. When herbaceous plants cure, their moisture content responds as dead fuel moisture content, which fluctuates according to changes in temperature, humidity, and precipitation (Brown 2000).

**FWS** – U.S. Fish and Wildlife Service, Department of the Interior.

**GIS** – Geographic Information System

**GMP** – General Management Plan. A park document that describes broad management goals and objectives for NPS units.

**GPS** – Geographic Positioning System

**Ground Fire** – Fire that burns in the organic material below the litter layer, mostly by smoldering combustion. Fires in duff, peat, dead moss and lichens, and punky wood are typically ground fires (Brown 2000).

**Hazard Fuel** – A fuel complex that, by nature, presents a hazard to socio-politico-economic interests when ignited. The hazard fuel condition can be mitigated through hazard fuel reduction.

**Hazardous fuels** – Those vegetative fuels which, when ignited, threaten: public safety, structures and facilities, cultural resources, natural resources, and/or natural processes. Also: fuels that permit the spread of wildland fires across administrative boundaries except as authorized by agreement, and fuel accumulations and arrangement may be within the natural range of variability and still be hazardous because of the proximity to values at risk.

**Headfire** – A fire spreading or set to spread with the wind (National Wildfire Coordinating Group 1995).

**ICMR** – Incident Commander Multiple Resources

**ICSR** – Incident Commander Single Resource.

**Initial Attack** – The first aggressive suppression action taken on a fire, consistent with firefighter and public safety, and values to be protected.

**Initial Attack Incident Commander** – Leader of first response fire suppression forces.

**Ladder Fuels** – Shrubs and young trees that provide continuous fine material from the forest floor into the crowns of dominant trees (Smith 2000).

**Litter** – The top layer of the forest floor (O1 soil horizon); includes freshly fallen leaves, needles, fine twigs, bark flakes, fruits, matted dead grass and other vegetative parts that are little altered by decomposition. Litter also accumulates beneath rangeland shrubs. Some surface feather moss and lichens are considered to be litter because their moisture response is similar to that of dead fine fuel.

**Long-Term Effects** – Effects lasting more than 10 years. (Personal communication (Oct. 21, 1998) with Wendell Hann, Fire Ecologist and assistant to National Fuels Specialist, U.S. Department of Agriculture, Forest Service).

**Mean Fire Interval** – Arithmetic average of all FIRE INTERVALs determined, in years, for a designated area during a specified time period; the size of the area and the time period must be specified.



**Mitigation Actions** – Mitigation actions are considered to be those on-the-ground activities that serve to check, direct, or delay the spread of fire; and minimize threats to life, property, and resources. Actions may include mechanical and physical non-fire tasks, specific fire applications, and limited suppression actions. These actions will be used to construct firelines, reduce excessive fuel concentrations, reduce vertical fuel continuity, create fuel breaks or barriers around critical or sensitive sites or resources, create "blacklines" through controlled burnouts, and to limit fire spread and behavior.

**Mixed-Severity Fire Regime** – Fire regime in which fires either cause selective mortality in dominant vegetation, depending on different species' susceptibility to fire, or vary between understory and stand replacement (Smith 2000).

**MOA** – Memorandum of Agreement

**MOU** – Memorandum of Understanding.

**National Fire Plan (NFP)** – A plan prepared by agencies of the U.S. Departments of Agriculture and Interior to reduce adverse effect from unwanted wildland fires.

**National Fire Danger Rating System (NFDRS)** – A widely used system to predict several measures of fire probability and resistance to control.

**Natural Fire** – Fires ignited by natural means (usually lightning).

**NFFL Model** – One of the thirteen fuel models used to predict fire behavior using the fire spread formulas developed by Rothermel (1972).

**NPS** – National Park Service, Department of the Interior.

**Organic Soils** – Deep layers of organic matter that develop in poorly drained areas such as bogs, swamps, and marshes (Brown 2000).

**Preparedness** – Activities that lead to a safe, efficient and cost effective fire management program in support of land and resource management objectives through appropriate planning and coordination. This term replaces presuppression.

**Prescribed Fire** – Any fire ignited by management actions to meet specific objectives. Prior to ignition, a written, approved prescribed fire plan must exist, and National Environmental Protection Act requirements must be met. This term replaces management ignited prescribed fire.

**Presettlement Fire Regime** – The time from about 1500 to the mid- to late-1800s, a period when Native American populations had already been heavily impacted by European presence and before extensive settlement by European Americans in most parts of North America, before extensive conversion of wildlands for agricultural and other purposes, and before fires were effectively suppressed in many areas (Smith 2000).

**Prescribed Fire Plan** – A plan required for each fire application ignited by managers. It must be prepared by qualified personnel and approved by the appropriate Agency Administrator prior to implementation. Each plan will follow specific agency direction and must include critical elements described in agency manuals. Formats for plan development vary among agencies, although the content is identical.

**Prescribed Fire Specialist** – The staff specialist with primary duties of managing both the prescribed fire and Wildland Fire Used for Resource Benefit (where applicable) programs.

**Prescription** – Measurable criteria which define conditions under which a prescribed fire may be ignited, guide selection of appropriate management responses, and indicate other required actions. Prescription criteria may include safety, economic, public health, environmental, geographic, administrative, social or legal considerations.

**Relict** – A biotic community or fragment of a community that has survived some important change, often to become in appearance an integral part of existing vegetation

**Resource Management Plan (RMP)** – Park planning document that describes resource management goals and objectives for NPS units.

**Sere** – A succession of plant communities leading to a particular plant association (Smith 2000).

**Short-Term Effects** – Effects lasting less than 10 years (Personal communication (Oct. 21, 1998) with Wendell Hann, Fire Ecologist and assistant to National Fuels Specialist, U.S. Department of Agriculture, Forest Service).

**Snag** – A standing dead tree from which the leaves and some of the branches have fallen (Smith 2000).

**Stand-Replacement Fire Regime** – Fire regime in which fires kill or top-kill aboveground parts of the dominant vegetation, changing the aboveground structure substantially. Approximately 80 percent or more of the aboveground, dominant vegetation is either consumed or dies as a result of fires. Applies to forests, shrublands, and grasslands (Smith 2000).

**Staffing Class** – Staffing classes describe escalating responses (step-up actions) that are pre-approved in the fire management plan. Step-up actions are implemented by the unit when those pre-identified conditions are experienced.

**Succession** – The gradual, somewhat predictable process of community change and replacement leading toward a climax community; the process of continuous colonization and extinction of populations at a particular site (Smith 2000).

**Suppression** – see Wildland Fire Suppression

**Surface Fire** – Fire that burns in litter and other live and dead fuels at or near the surface of the ground, mostly by flaming combustion (Brown 2000).

**T&E** – Threatened and Endangered plants and animals. Also referred to as listed species.

**Top-Kill** – Kills aboveground tissues of plant without killing underground parts from which the plant can produce new stems and leaves (Smith 2000).

**Total Heat Release** – The heat released by combustion during burnout of all fuels, expressed in BTU per square foot or kilocalories per square meter (Brown 2000).

**Underburn** – Understory fire.

**Understory Fire Regime** – Fire regime in which fires are generally not lethal to the dominant vegetation and do not substantially change the structure of the dominant vegetation. Approximately 80 percent or more of the aboveground dominant vegetation survives fires. Applies to forest and woodland vegetation types (Smith 2000).

**Urban Interface** – Locating structures (homes, offices, and other developments) in wildland fuel complexes. Also known as wildland-urban interface.

**Urban Intermix** – Locating structures (homes, offices, and other developments) in wildland fuel complexes. Also known as wildland-urban interface.

**USFS** – United States Forest Service

**Wildfire** – An unwanted wildland fire. *This term was only included to give continuing credence to the historic fire prevention products. This is NOT a separate type of fire.*

**Wildland Fire** – Any non-structure fire, other than prescribed fire, that occurs in the wildland. This term encompasses fires previously called both wildfires and prescribed natural fires.

**Wildland Fire Management Program** – The full range of activities and functions necessary for planning, preparedness, emergency suppression operations, and emergency rehabilitation of wildland fires, and prescribed fire operations, including non-activity fuels management to reduce risks to public safety and to restore and sustain ecosystem health.

**Wildland Fire Situation Analysis (WFSA)** – The decision-making process that evaluates alternative management strategies against selected safety, environmental, social, economic, political, and resource management objectives.

**Wildland Fire Suppression** – An appropriate management response to wildland fire that results in curtailment of fire spread and eliminates all identified threats from the particular fire. All wildland fire suppression activities provide for firefighter and public safety as the highest consideration, but minimize loss of resource values, economic expenditures, and/or the use of critical firefighting resources.

**Wildland Fire Use** – The management of naturally-ignited wildland fires to accomplish specific, pre-stated, resource management objectives in pre-defined geographic areas outlined in Fire Management Plans. Operational management is described in the Wildland Fire Implementation Plan (WFIP). Wildland fire use is not to be confused with "fire use," a broader term encompassing more than just wildland fires.

## APPENDIX C

### C. SPECIES LISTS

The following species lists are derived from an Excel© Spreadsheet. The lists are not all inclusive and constitute a “work in progress” as the Inventory and Monitoring Program matures. The latest information should be available at Memorial headquarters.

Table 1 – Plant List

Common Name	Accepted Scientific Name	Source
Alderleaf Juneberry	<i>Amelanchier alnifolia</i>	Hoffman & Hansen 1986
American Licorice	<i>Glycyrrhiza lepidota</i>	Hoffman & Hansen 1986
American Vetch	<i>Vicia americana</i>	Hoffman & Hansen 1986
American Willow-Herb	<i>Epilobium ciliatum</i>	Hoffman & Hansen 1986
Anise Hyssop	<i>Agastache foeniculum</i>	Hoffman & Hansen 1986
Anise-Root	<i>Osmorhiza longistylis</i>	Hoffman & Hansen 1986
Beaked Hazelnut	<i>Corylus cornuta</i>	Hoffman & Hansen 1986
Bearberry, Kinnikinnik	<i>Arctostaphylos uva-ursi</i>	Hoffman & Hansen 1986
Bearded Couch	<i>Elymus caninus</i>	Hoffman & Hansen 1986
Big Bluestem	<i>Andropogon gerardii</i>	Hoffman & Hansen 1986
Bigflower Cinquefoil	<i>Potentilla fissa</i>	Hoffman & Hansen 1986
Blackeyed Susan	<i>Rudbeckia hirta</i>	Hoffman & Hansen 1986
Bluebell Bellflower	<i>Campanula rotundifolia</i>	Hoffman & Hansen 1986
Bracken Fern	<i>Pteridium aquilinum</i>	Hoffman & Hansen 1986
Bradbury's Bergamot	<i>Monarda bradburiana</i>	Hoffman & Hansen 1986
Breadroot Scurfpea	<i>Pedimelum esculentum</i>	Hoffman & Hansen 1986
Bristly Crowfoot	<i>Ranunculus pensylvanicus</i>	Hoffman & Hansen 1986
Bur Oak	<i>Quercus macrocarpa</i>	Hoffman & Hansen 1986
Canada Bluegrass	<i>Poa compressa</i>	Hoffman & Hansen 1986
Canada Buffalo	<i>Shepherdia canadensis</i>	Hoffman & Hansen 1986
Canada Wildrye	<i>Elymus canadensis</i>	Hoffman & Hansen 1986
Canadian White Violet	<i>Viola canadensis</i>	Hoffman & Hansen 1986
Choke Cherry	<i>Prunus virginiana</i>	Hoffman & Hansen 1986
Common Cottonwood	<i>Populus deltoides</i>	Hoffman & Hansen 1986
Common Dandelion	<i>Taraxacum officinale</i>	Hoffman & Hansen 1986
Common Mullein	<i>Verbascum thapsus</i>	Hoffman & Hansen 1986
Common Plantain	<i>Plantago major</i>	Hoffman & Hansen 1986
Common Snowberry	<i>Symphoricarpos albus</i>	Hoffman & Hansen 1986
Common Yarrow	<i>Achillea millefolium</i>	Hoffman & Hansen 1986
Cream Peavine	<i>Lathyrus ochroleucus</i>	Hoffman & Hansen 1986
Creeping Bentgrass	<i>Agrostis stolonifera</i>	Hoffman & Hansen 1986
Dryspike Sedge	<i>Carex foenea</i>	Hoffman & Hansen 1986
Dwarf Juniper	<i>Juniperus communis</i>	Hoffman & Hansen 1986
Dwarf Raspberry	<i>Rubus pubescens</i>	Hoffman & Hansen 1986
Early Meadowrue	<i>Thalictrum dioicum</i>	Hoffman & Hansen 1986
Eastern Pasqueflower	<i>Pulsatilla patens</i>	Hoffman & Hansen 1986
Eitrot	<i>Heracleum sphondylium</i>	Hoffman & Hansen 1986
False Melic	<i>Schizachne purpurascens</i>	Hoffman & Hansen 1986
Field Bindweed	<i>Convolvulus arvensis</i>	Hoffman & Hansen 1986
Fireweed	<i>Chamerion angustifolium ssp. angustifolium</i>	Hoffman & Hansen 1986
Flatleaf Willow	<i>Salix planifolia</i>	Hoffman & Hansen 1986
Fowl Bluegrass	<i>Poa palustris</i>	Hoffman & Hansen 1986
Fragrant Bedstraw	<i>Galium triflorum</i>	Hoffman & Hansen 1986
Fringed Loosestrife	<i>Lysimachia ciliata</i>	Hoffman & Hansen 1986
Golden Currant	<i>Ribes aureum</i>	Hoffman & Hansen 1986
Goosegrass	<i>Galium aparine</i>	Hoffman & Hansen 1986
Gypsyflower	<i>Cynoglossum officinale</i>	Hoffman & Hansen 1986
Hairy Eveningprimrose	<i>Oenothera villosa</i>	Hoffman & Taylor 1986

Common Name	Accepted Scientific Name	Source
Hairy Four-O'clock	<i>Mirabilis hirsuta</i>	Hoffman & Hansen 1986
Hard Fescue	<i>Festuca trachyphylla</i>	Hoffman & Hansen 1986
Hook-Spurred Violet	<i>Viola adunca</i>	Hoffman & Hansen 1986
Idaho Fescue	<i>Festuca idahoensis</i>	Hoffman & Hansen 1986
Lanceleaf Cottonwood	<i>Populus x acuminata</i>	Hoffman & Hansen 1986
Large Beardtongue	<i>Penstemon grandiflorus</i>	Hoffman & Hansen 1986
Largebract Indian Breadroot	<i>Pediomelum cuspidatum</i>	Hoffman & Hansen 1986
Leiberg's Witchgrass	<i>Dichanthelium leibergii</i>	Hoffman & Hansen 1986
Lesser Burrdock	<i>Arctium minus</i>	Hoffman & Hansen 1986
Lindley's Aster	<i>Symphyotrichum ciliolatum</i>	Hoffman & Hansen 1986
Little Bluestem	<i>Schizachyrium scoparium</i>	Hoffman & Hansen 1986
Little Seeded Ricegrass	<i>Piptatherum micranthum</i>	Hoffman & Hansen 1986
Louisiana Sagewort	<i>Artemisia ludoviciana</i>	Hoffman & Hansen 1986
Low Juneberry	<i>Amelanchier humilis</i>	Hoffman & Hansen 1986
Many-Flowered Stickseed	<i>Hackelia floribunda</i>	Hoffman & Hansen 1986
Marsh Muhly	<i>Muhlenbergia racemosa</i>	Hoffman & Hansen 1986
Maryland Sanicle	<i>Sanicula marilandica</i>	Hoffman & Hansen 1986
Missouri Goldenrod	<i>Solidago missouriensis</i>	Hoffman & Hansen 1986
Missouri Gooseberry	<i>Ribes missouriense</i>	Hoffman & Hansen 1986
Mountain Cliff Fern	<i>Woodsia scopulina</i>	Hoffman & Hansen 1986
Mountain Honeysuckle	<i>Lonicera dioica</i>	Hoffman & Hansen 1986
Mountain Ninebark	<i>Physocarpus monogynus</i>	Hoffman & Hansen 1986
Narrow Beardtongue	<i>Penstemon angustifolius</i>	Hoffman & Hansen 1986
Nodding Stickseed	<i>Hackelia deflexa</i>	Hoffman & Hansen 1986
Openwoods Groundsel	<i>Senecio rapifolius</i>	Hoffman & Hansen 1986
Pale Agoseris	<i>Agoseris glauca</i>	Hoffman & Hansen 1986
Peck's Sedge	<i>Carex peckii</i>	Hoffman & Hansen 1986
Pine Drops	<i>Pterospora andromedea</i>	Hoffman & Hansen 1986
Pink Pussytoes	<i>Antennaria microphylla</i>	Hoffman & Hansen 1986
Plains Muhly	<i>Muhlenbergia cuspidata</i>	Hoffman & Hansen 1986
Plantain Pussy-Toes	<i>Antennaria plantaginifolia</i>	Hoffman & Hansen 1986
Ponderosa Pine	<i>Pinus ponderosa</i>	Hoffman & Hansen 1986
Poverty Oatgrass	<i>Danthonia spicata</i>	Hoffman & Hansen 1986
Prairie Dropseed	<i>Sporobolus heterolepis</i>	Hoffman & Hansen 1986
Prairie Junegrass	<i>Koeleria macrantha</i>	Hoffman & Hansen 1986
Prairie Thermopsis	<i>Thermopsis rhombifolia</i>	Hoffman & Hansen 1986
Prickly Rose	<i>Rosa acicularis</i>	Hoffman & Hansen 1986
Purple Meadowrue	<i>Thalictrum dasycarpum</i>	Hoffman & Hansen 1986
Quaking Aspen	<i>Populus tremuloides</i>	Hoffman & Hansen 1986
Red Baneberry	<i>Actaea rubra</i>	Hoffman & Hansen 1986
Red Elderberry	<i>Sambucus racemosa</i>	Hoffman & Hansen 1986
Red Raspberry	<i>Rubus idaeus</i>	Hoffman & Hansen 1986
Red-Osier Dogwood	<i>Cornus sericea</i>	Hoffman & Hansen 1986
Richardson's Alumroot	<i>Heuchera richardsonii</i>	Hoffman & Hansen 1986
Richardson's Geranium	<i>Geranium richardsonii</i>	Hoffman & Hansen 1986
Roughleaf Ricegrass	<i>Oryzopsis asperifolia</i>	Hoffman & Hansen 1986
Showy Goldenrod	<i>Solidago speciosa</i>	Hoffman & Hansen 1986
Slender Beardtongue	<i>Penstemon gracilis</i>	Hoffman & Hansen 1986
Smooth Aster	<i>Symphyotrichum laeve</i> var. <i>laeve</i>	Hoffman & Hansen 1986
Smooth Brome	<i>Bromus inermis</i>	Hoffman & Hansen 1986
Smooth Solomon's-Seal	<i>Polygonatum biflorum</i>	Hoffman & Hansen 1986
Spotted Water Hemlock	<i>Cicuta maculata</i>	Hoffman & Hansen 1986
Spreading Dogbane	<i>Apocynum androsaemifolium</i>	Hoffman & Hansen 1986
Standing Milkvetch	<i>Astragalus adsurgens</i>	Hoffman & Hansen 1986
Starry False Solomon's Seal	<i>Maianthemum stellatum</i>	Hoffman & Hansen 1986
Stinging Nettle	<i>Urtica dioica</i>	Hoffman & Hansen 1986
Sulphur Indian Paintbrush	<i>Castilleja sulphurea</i>	Hoffman & Hansen 1986
Threenerve Fleabane	<i>Erigeron subtrinervis</i>	Hoffman & Hansen 1986
Ticklegrass	<i>Agrostis hyemalis</i>	Hoffman & Hansen 1986
Ticklegrass	<i>Agrostis scabra</i>	Hoffman & Hansen 1986

Common Name	Accepted Scientific Name	Source
Timothy	<i>Phleum pratense</i>	Hoffman & Hansen 1986
Veiny Meadowrue	<i>Thalictrum venulosum</i>	Hoffman & Hansen 1986
Venus's Looking-Glass	<i>Triodanis perfoliata</i>	Hoffman & Hansen 1986
Virginia Strawberry	<i>Fragaria virginiana</i>	Hoffman & Hansen 1986
Virginia Wildrye	<i>Elymus virginicus</i>	Hoffman & Hansen 1986
Water Birch	<i>Betula occidentalis</i>	Hoffman & Hansen 1986
Wax Currant	<i>Ribes cereum</i>	Hoffman & Hansen 1986
Western Cliff Fern	<i>Woodsia oregana</i>	Hoffman & Hansen 1986
Western Poison Ivy	<i>Toxicodendron rydbergii</i>	Hoffman & Hansen 1986
Western Snowberry	<i>Symphoricarpos occidentalis</i>	Hoffman & Hansen 1986
Western Wheatgrass	<i>Pascopyrum smithii</i>	Hoffman & Hansen 1986
White Clover	<i>Trifolium repens</i>	Hoffman & Hansen 1986
White Or Paper Birch	<i>Betula papyrifera</i>	Hoffman & Hansen 1986
White Spirea	<i>Spiraea betulifolia</i>	Hoffman & Hansen 1986
White Spruce	<i>Picea glauca</i>	Hoffman & Hansen 1986
White-Flowered Hawkweed	<i>Hieracium albiflorum</i>	Hoffman & Hansen 1986
Wild Licorice	<i>Galium circaeans</i>	Hoffman & Hansen 1986
Wild Lily-Of-The-Valley	<i>Maianthemum canadense</i>	Hoffman & Hansen 1986
Wild Mint	<i>Mentha arvensis</i>	Hoffman & Hansen 1986
Wild Sarsaparilla	<i>Aralia nudicaulis</i>	Hoffman & Hansen 1986
Woodbine	<i>Parthenocissus vitacea</i>	Hoffman & Hansen 1986
Woods' Rose	<i>Rosa woodsii</i>	Hoffman & Hansen 1986
Wooly Cinquefoil	<i>Potentilla hippiana</i>	Hoffman & Hansen 1986
Yellowspine Thistle	<i>Cirsium ochrocentrum</i>	Hoffman & Hansen 1986

Table 2 – Mammal List

Common Name	Accepted Scientific Name	Source
13 Lined Ground Squirrel	<i>Spermophilus tridecemlineatus</i>	JONES ET AL 1983
Badger	<i>Taxidea taxus</i>	JONES ET AL 1983
Beaver	<i>Castor canadensis</i>	JONES ET AL 1983
Big Brown Bat	<i>Eptesicus fuscus</i>	JONES ET AL 1983
Bobcat	<i>Lynx rufus</i>	JONES ET AL 1983
Bushy-Tailed Woodrat	<i>Neotoma cinerea</i>	JONES ET AL 1983
Coyote	<i>Canis latrans</i>	JONES ET AL 1983
Deer Mouse	<i>Peromyscus maniculatus</i>	JONES ET AL 1983
Desert Cottontail	<i>Sylvilagus audubonii</i>	JONES ET AL 1983
Dwarf Shrew	<i>Sorex nanus</i>	JONES ET AL 1983
Elk	<i>Cervus elaphus</i>	JONES ET AL 1983
Ermine	<i>Mustela erminea</i>	JONES ET AL 1983
Fringed Myotis	<i>Myotis thysanodes</i>	SDNHP 2000
Hayden's Shrew	<i>Sorex haydeni</i>	BACKLUND 2001
Hoary Bat	<i>Lasiurus cinereus</i>	JONES ET AL 1983
House Mouse	<i>Mus musculus</i>	JONES ET AL 1983
Least Chipmunk	<i>Tamias minimus</i>	JONES ET AL 1983
Little Brown Bat	<i>Myotis lucifugus</i>	JONES ET AL 1983
Long Legged Myotis	<i>Myotis volans</i>	JONES ET AL 1983
Long Tailed Vole	<i>Microtus longicaudus</i>	JONES ET AL 1983
Long Tailed Weasel	<i>Mustela frenata</i>	JONES ET AL 1983
Meadow Jumping Mouse	<i>Zapus hudsonius</i>	JONES ET AL 1983
Meadow Vole	<i>Microtus pennsylvanicus</i>	JONES ET AL 1983
Mink	<i>Mustela vison</i>	JONES ET AL 1983
Mountain Goat	<i>Oreamnos americanus</i>	JONES ET AL 1983
Mountain Lion	<i>Puma concolor</i>	JONES ET AL 1983
Mule Deer	<i>Odocoileus hemionus</i>	JONES ET AL 1983
Northern Flying Squirrel	<i>Glaucomys sabrinus</i>	SDNHP 2000
Northern Grasshopper Mouse	<i>Onychomys leucogaster</i>	JONES ET AL 1983
Northern Myotis	<i>Myotis keenii</i>	SDNHP 2000
Northern Pocket Gopher	<i>Thomomys talpoides</i>	JONES ET AL 1983

Common Name	Accepted Scientific Name	Source
Nuttall's Cottontail	<i>Sylvilagus nuttallii</i>	JONES ET AL 1983
Plains Harvest Mouse	<i>Reithrodontomys montanus</i>	JONES ET AL 1983
Porcupine	<i>Erethizon dorsatum</i>	JONES ET AL 1983
Raccoon	<i>Procyon lotor</i>	JONES ET AL 1983
Red Bat	<i>Lasiurus borealis</i>	JONES ET AL 1983
Red Fox	<i>Vulpes vulpes</i>	JONES ET AL 1983
Red Squirrel	<i>Tamiasciurus hudsonicus</i>	JONES ET AL 1983
Silver-Haired Bat	<i>Lasionycteris noctivagans</i>	SDNHP 2000
Small-Footed Myotis	<i>Myotis leibii</i>	JONES ET AL 1983
Southern Red Backed Vole	<i>Clethrionomys gapperi</i>	JONES ET AL 1983
Spotted Skunk	<i>Spilogale putorius</i>	JONES ET AL 1983
Striped Skunk	<i>Mephitis mephitis</i>	JONES ET AL 1983
Townsend's Big-Eared Bat	<i>Corynorhinus townsendii</i>	SDNHP 2000
Western Harvest Mouse	<i>Reithrodontomys megalotis</i>	JONES ET AL 1983
White Footed Mouse	<i>Peromyscus leucopus</i>	JONES ET AL 1983
White Tailed Deer	<i>Odocoileus virginianus</i>	JONES ET AL 1983
Yellow Bellied Marmot	<i>Marmota flaviventris</i>	JONES ET AL 1983

Note: The mammal list is not confirmed but the species listed are expected to be found within the Memorial's habitats.

Table 3 – Bird List

Common Name	Accepted Scientific Name	Source
American Crow	<i>Corvus brachyrhynchos</i>	SDOU 1991
American Robin	<i>Turdus migratorius</i>	SDOU 1991
Barn Swallow	<i>Hirundo rustica</i>	SDOU 1991
Black-Capped Chickadee	<i>Parus atricapillus</i>	SDOU 1991
Brown Creeper	<i>Certhia americana</i>	SDNHP 2000
Brown-Headed Cowbird	<i>Molothrus ater</i>	SDOU 1991
Canyon Wren	<i>Catherpes mexicanus</i>	SDOU 1991
Chipping Sparrow	<i>Spizella passerina</i>	SDOU 1991
Cordilleran Flycatcher	<i>Empidonax occidentalis</i>	SDOU 1991
Dark Eyed Junco	<i>Junco hyemalis</i>	SDOU 1991
Downy Woodpecker	<i>Picoides pubescens</i>	SDOU 1991
Gray Jay	<i>Perisoreus canadensis</i>	SDOU 1991
Great Horned Owl	<i>Bubo virginianus</i>	SDOU 1991
Hairy Woodpecker	<i>Picoides villosus</i>	SDOU 1991
Northern Flicker	<i>Colaptes auratus</i>	SDOU 1991
Ovenbird	<i>Seiurus aurocapillus</i>	SDOU 1991
Pine Siskin	<i>Carduelis pinus</i>	SDOU 1991
Plumbeous Vireo	<i>Vireo plumbeus</i>	SDOU 1991
Red Breasted Nuthatch	<i>Sitta canadensis</i>	SDOU 1991
Red Crossbill	<i>Loxia curvirostra</i>	SDOU 1991
Ruby-Crowned Kinglet	<i>Regulus calendula</i>	SDOU 1991
Swainson's Thrush	<i>Catharus ustulatus</i>	SDOU 1991
Townsend's Solitaire	<i>Myadestes townsendi</i>	SDOU 1991
Turkey Vulture	<i>Cathartes aura</i>	SDOU 1991
Violet Green Swallow	<i>Tachycineta thalassina</i>	SDOU 1991
Warbling Vireo	<i>Vireo gilvus</i>	SDOU 1991
Western Tanager	<i>Piranga ludoviciana</i>	SDOU 1991
Western Wood Pewee	<i>Contopus sordidulus</i>	SDOU 1991
White Breasted Nuthatch	<i>Sitta carolinensis</i>	SDOU 1991
White-Throated Swift	<i>Aeronautes saxatalis</i>	SDOU 1991
Wild Turkey	<i>Meleagris gallopavo</i>	SDOU 1991
Yellow Rumped Warbler	<i>Dendroica coronata</i>	SDOU 1991

Table 4 – Fish List

Common Name	Accepted Scientific Name	Source
Longnose Dace	<i>Rhinichthys cataractae</i>	MSU 2001
Brook Trout	<i>Salvelinus fontinalis</i>	MSU 2001



## APPENDIX D

### D. NEPA, NHPA AND SECTION 7 COMPLIANCE

Documentation of NHPA compliance in form of letter or other document from State Historic Preservation Officer to be added here. Section 7 approval from USFWS for endangered species also here.

## APPENDIX E

### E. ANNUAL REVISION DOCUMENTS

#### 1. Fire Call-up List

**This list is to be added by the Memorial.**

APPENDIX E

2. Preparedness Inventory

Table 5 – Cache Inventory

Category	Product	On Hand	Reorder Level	Max Stocking	Need to Order	Number Ordered
Nomex	Brush Coat, Large lined	1	2			
Nomex	Brush Coat, Medium lined	1	2			
Nomex	Brush Coat, Small lined	1	1			
Nomex	Brush Coat, X-Large lined	2	2			
Nomex	Brush Coat, XX-Large lined	1	1			
Nomex	Flight Suit - 40R	0	0			
Nomex	Flight Suit - 40S	0	0			
Nomex	Jeans, 26"-30" X 33"	2	4			
Nomex	Jeans, 28 x 30					
Nomex	Jeans, 28 x 34					
Nomex	Jeans, 28"-32" X 33"	2	4			
Nomex	Jeans, 30 x 30					
Nomex	Jeans, 30 x 34					
Nomex	Jeans, 32 x 30					
Nomex	Jeans, 32 x 34					
Nomex	Jeans, 34 x 30					
Nomex	Jeans, 34 x 34					
Nomex	Jeans, 34"-38" X 33"	2	6			
Nomex	Jeans, 36 x 30					
Nomex	Jeans, 36 x 34					
Nomex	Jeans, 38 x 30					
Nomex	Jeans, 38 x 34					
Nomex	Jeans, 40 x 30					
Nomex	Jeans, 40 x 34					
Nomex	Jeans, 40"-44" X 33"	2	2			
Nomex	Jeans, 42 x 34					
Nomex	Jeans, 44 x 34					
Nomex	Jeans, 46 x 34					
Nomex	Jeans, 48 x 34					
Nomex	Jeans, Female, 10					
Nomex	Jeans, Female, 12					
Nomex	Jeans, Female, 14					
Nomex	Jeans, Female, 16					
Nomex	Jeans, Female, 8					
Nomex	Shirt, Large and Large Long	2	4			
Nomex	Shirt, Medium	4	6			
Nomex	Shirt, Small	2	2			
Nomex	shirt, X Large and Long	2	4			
Nomex	Shirt, X-Small	1	1			
Nomex	Shirt, XX-Large	2	2			
Medical-1st	10-Man 1st Aid Kit	1	1			
Medical-1st	Alcohol Pads					
Medical-1st	Band-aids					
Medical-1st	Burn Dressings - Assorted	0	1			
Medical-1st	Burn Kit	1	1			
Medical-1st	Cold Packs	2	4			
Medical-1st	CPR - Masks	1	1			

Category	Product	On Hand	Reorder Level	Max Stocking	Need to Order	Number Ordered
Medical-1st	First Aid Kit, individual	3	6			
Medical-1st	Gauze Pads					
Medical-1st	Insect Repellent					
Medical-1st	Irrigation Solution-Saline	1	1			
Medical-1st	Latex Surgical Gloves - Large					
Medical-1st	Triple Antibiotic					
Medical-1st	Wounded Warrior					
PPE, Other	Canteen Holders	4	8			
PPE, Other	Canteen, 1 Qt.w/o cover	12	30			
PPE, Other	Canteen, 4-Qt.	1	1			
PPE, Other	Earplugs	50	200			
PPE, Other	Glasses, Safety	3	6			
PPE, Other	Gloves, Large	3	6			
PPE, Other	Gloves, Medium	3	6			
PPE, Other	Gloves, Small	3	6			
PPE, Other	Gloves, X-Large	3	6			
PPE, Other	Gloves, X-small	2	4			
PPE, Other	Goggle, Dust	2	4			
PPE, Other	Headlamp, 4 AA cell (or	3	6			
PPE, Other	Helmet Chin Strap	3	6			
PPE, Other	Helmet Suspensions	4	8			
PPE, Other	Helmet, Red, Bullard (Wildfire)					
PPE, Other	Helmet, Yellow (Wildfire)	4	6			
PPE, Other	Pouch, yellow (for web gear)	2	4			
PPE, Other	Protector, Face & Neck	3	6			
PPE, Other	Red Pack, Personal Gear	6	3			
PPE, Other	Shelter, Fire, with case	4	6			
PPE, Other	Shelter, Practice	1	1			
PPE, Other	Shelter,cover					
PPE, Other	Web Gear, Eagle (for Engine)					
PPE, Other	Web gear, yellow GSA	4	6			
PPE, Other	Wool Blankets	0	0			
Batteries,	Battery, "AA"	48	96			
Batteries,	Battery, "D" cell	12	16			
Batteries,	Battery, King, Clamshell					
Batteries,	Battery, King, rechargeable					
Batteries,	Battery, Motorola, HT600					
Fittings	Adapter, 1" NPSH - 1" NH	1	1			
Fittings	Adapter, 1-1/2", NPSH-NH	1	1			
Fittings	Coupling, DBL F., 1 1/2" NH	1	2			
Fittings	Coupling, DBL F., 1" NPSH	1	1			
Fittings	Coupling, DBL F., 2 1/2" NH	1	1			

Category	Product	On Hand	Reorder Level	Max Stocking	Need to Order	Number Ordered
Fittings	Coupling, DBL M., 1 1/2" NH	1	1			
Fittings	Coupling, DBL M., 1: NPSH	1	1			
Fittings	Foot Valve - 1 1/2"	1	1			
Fittings	Gated Wye, 1 1/2"	4	6			
Fittings	Gated Wye, 1"	1	1			
Fittings	Increaser, 1" NPSH to 1 1/2"	1	1			
Fittings	Nozzle, 3/4" tips s/s	2	3			
Fittings	Nozzle, Barrel, 1 1/2"	1	1			
Fittings	Nozzle, Barrel, 1"	4	8			
Fittings	Reducer, 1 1/2" NH to 1" NPSH	4	6			
Fittings	Reducer, 2 1/2" NH to 1 1/2"	1	1			
Fittings	Reducer, 2 1/2" NH to 2" NPSH	1	1			
Fittings	Strainer 2"	1	2			
Fittings	Valve, shutoff, ball, 1 1/2"	1	1			
Fittings	Valve, shutoff, ball, 1"	1	2			
Hose	Hardline Suction - 1" X 8	0	0			
Hose	Hose, 3/4" X 50' P Line	2	4			
Hose	Hose, Filler 1 1/2" x 25'	1	2			
Hose	Hose, High Pressure 1" x 50'	1	1			
Hose	Hose, Suction, 1 1/2" x 8'	0	0			
Hose	Hose, Suction, 2" x 8'	1	1			
Hose	Hose, Syn., 1 1/2" x 100'	6	10			
Hose	Hose, Syn., 1 1/2" x 50'	0	0			
Hose	Hose, Syn., 1" x 100'	5	7			
Tools	Axe					
Tools	Backpack Pump, collapsable	4	6			
Tools	Backpack Pump, Liner	4	6			
Tools	Backpack Pump, rigid					
Tools	Bolt Cutter	0	0			
Tools	Brush Hook					
Tools	Buck Saw					
Tools	Chain Saw					
Tools	Clamp, Hose	1	2			
Tools	Combi-Tool	1	2			
Tools	Council Rake	2	3			
Tools	Double Headed Axe					
Tools	File, 12" Mill Bastard each	2	4			
Tools	Fire, Swatter (flapper)	3	6			
Tools	Handle, Pulaski	1	2			
Tools	Hydrant Wrench, Adjustable	1	1			
Tools	McLeod	2	3			

Category	Product	On Hand	Reorder Level	Max Stocking	Need to Order	Number Ordered
Tools	Pail, Collapsable	1	1			
Tools	Priming Pump	1	1			
Tools	Pulaski	3	5			
Tools	Rake, collapsible, fire	1	1			
Tools	Rake, leaf	1	2			
Tools	Reinhart - Bent Shovel	1	2			
Tools	Sandpaper, Med. Grit, Pkg. Of	.5	1			
Tools	Shovel	3	6			
Tools	Spanner, 1 1/2" & 2 1/2"	1	2			
Tools	Torch, Drip	2	3			
Foam	Foam, Class A, Firetrol, 4 Oz.					
Foam	Foam, Class A, Silvex, 5-gal	2	4			
Misc.	Backpack (bladder) Bag Pump	1	3			
Misc.	Belt Weather Kit	1	1			
Misc.	Filter, water (portable)	1	1			
Misc.	Flagging, "Escape Route"	2	14			
Misc.	Flagging, "Hazard"					
Misc.	Flagging, "Killer Tree"					
Misc.	Flagging, Red & White	4	6			
Misc.	Flashlight, 3-cell	1	1			
Misc.	Fluids, Thirst-Quenching, 16-oz	0	0			
Misc.	Fusees, case of 72	.5	1			
Misc.	Knapsack, (Packsack)	2	3			
Misc.	Mark III pump					
Misc.	MRE's, Case of 12	1	1			
Misc.	Paint, Black, spray					
Misc.	Paint, Red, spray					
Misc.	Psychrometer	1	1			
Misc.	Pumkin, 2000 gl or +					
Misc.	Sleeping Bags	3	4			
Misc.	Sleeping Pad	3	4			
Misc.	Tape, Filament	1	1			
Misc.	Tape, Masking	1	1			
Misc.	Tent, 2-person	3	4			

The data in this table is available in the Microsoft Access© application for cache inventories, NGPA fire office.

## APPENDIX E

### 3. Cooperative Agreements

October 1996

INTERPARK AGREEMENT  
BETWEEN  
WIND CAVE NATIONAL PARK  
AND  
AGATE FOSSIL BEDS NATIONAL MONUMENT  
BADLANDS NATIONAL PARK  
DEVILS TOWER NATIONAL MONUMENT  
FORT UNION TRADING POST NATIONAL HISTORIC SITE  
KNIFE RIVER INDIAN VILLAGES NATIONAL HISTORIC SITE  
MOUNT RUSHMORE NATIONAL MEMORIAL  
SCOTTS BLUFF NATIONAL MONUMENT  
THEODORE ROOSEVELT NATIONAL PARK

#### ARTICLE I. PURPOSE

Wind Cave National Park is assigned three permanent fire management positions - fire management staff officer, fire program assistant and prescribed fire technician. These three positions will be referred to in this document collectively as the "Fire Staff". The purpose of this agreement is to define the mutual responsibilities of the Fire Staff and staff from the other NPS units in the Northern Great Plains Area in terms of fire management activities. Those are Agate Fossil Beds National Monument, Badlands National Park, Devils Tower National Monument, Fort Union Trading Post National Historic Site, Knife River Indian Villages National Historic Site, Mount Rushmore National Memorial, Scotts Bluff National Monument, Theodore Roosevelt National Park, and Wind Cave National Park.

#### ARTICLE II. RESPONSIBILITIES

The duties of the Fire Staff will include providing professional and technical support for the fire management programs at all Northern Great Plains units identified in Article I. The performance of these responsibilities will be based on an annual work plan developed by and coordinated with the area superintendents, Fire Management Officer, and other staff.

##### A. Specific responsibilities of the Fire Management Staff include:

1. Assist in development and implementation of prevention, pre-suppression, suppression, and aviation programs with appropriate staff through site visits, program reviews, inspections, and other staff work.

October 1996

2. Assist in coordination of reports, correspondence, preparation/review of fire management plans, aviation plans, and participate in fire management planning as requested.
  3. Assist in coordination and implementation of prescribed fire programs and natural prescribed fire programs according to area fire management plans.
  4. Coordinate, through appropriate zone coordination center, mobilization of National Park Service personnel for fire assignments.
  5. Develop, coordinate, and conduct fire-related training as necessary to meet wildland fire needs of the units and interagency needs according to approved fire management plans, zone, field area, cluster, and national guidelines.
  6. Manage fire qualification/training records in the National Park Service Wildland Fire Computer System, including: initial record input; updating fitness scores, training, experience, and instructor records, and issues incident qualification cards. Fire Staff will provide an annual timetable to each unit fire coordinator.
  7. Communicate with respective units on issues and concerns prior to representing the Great Plains Area at meetings, conferences, seminars, and other functions as requested and required, including: National FIREPRO Steering Committee, South Dakota Interagency Fire Council, NPS Intermountain and Midwest Field Areas and others.
  8. Coordinate NPS role in the interagency fire community; developing interagency agreements, cooperative agreements, and other agreements necessary for carrying out wildland fire management.
- B. Responsibilities of the superintendents of Northern Great Plains Area include:
1. Make requests for assistance through the fire management office with sufficient leadtime to meet due dates, set-up meetings, etc. Each unit superintendent will designate a unit fire coordinator who requests program assistance, budget, supplies, and training needs through the Fire Management Officer.
  2. Submit personnel file updates, physical fitness scores, individual fire reports (DI-1202), situation reports, accomplishment reports, physical exam records, and OVERSTAT (overhead statistics) information following established times and due dates. Unit fire coordinators will be responsible for maintaining fire readiness to the level identified in the park's fire management plan, or if no fire management plan exists, to the level agreed to by the unit superintendent and Fire Management Staff Officer.



October 1996

3. Notify the Fire Staff as soon as practical of any fire restrictions, closures, of fire occurrences.
4. Participate in the overall fire management of the great Plains area units and of the NPS by committing to sharing of training and available personnel upon request.

ARTICLE III. INTERPARK COORDINATION

1. The Fire Management Staff Officer will meet with each superintendent annually to prepare a work plan (unit goals) for each unit.
2. The Fire Management Staff Officer will facilitate a Fire Management Work Group, which meets twice a year to review budget inputs prior to submission, review the Interpark Agreement, prioritize work plan activities, and assist with distribution of supplemental funding for the Northern Great Plains Area Parks.
  - a. The Work Group will be composed of two members from any park covered by this Agreement, who will each serve for two years.
    - i. One of the first two people serving on the work group will rotate after the first year. This will allow for overlapping terms and better continuity.
  - b. Membership will be solicited from the Northern Great Plains parks via letter every two years.
    - i. If only two people apply for the work group, they will be notified via a letter from the Fire Management Staff Officer.
    - ii. If three or more people apply for the work group, the Fire Management Staff Officer will ask two superintendents to make the selection. After selection, the selectee will be notified via letter from the Fire Management Staff Officer.

ARTICLE IV. FUNDING

Program costs (travel/per diem, communication, supplies and materials, etc.) incurred by the Fire Staff will be charged to FIREPRO accounts. In addition, any costs associated with the work group may be funded through FIREPRO accounts maintained by Wind Cave National Park; and if personnel are working on a project which has been individually funded, the personnel may be paid from appropriate project funds. The annual budget request will be reviewed and concurred with by the Work Group so that any supplemental requests for supporting other areas, i.e.: physical exams, personal protective equipment,

training cache items, travel hazard fuel reduction projects, etc., are reflected in the annual budget request.

October 1996

ARTICLE V. TERM OF AGREEMENT

The term of this Agreement will be five (5) years, beginning in fiscal year 1997. It is renewable at the end of each five-year period by written letter of agreement signed by each of the superintendents of the Northern Great Plains Area.

Amendments to this Agreement can be made at any time subject to the written concurrence and approval of all superintendents.

ARTICLE VI. REPORTS

The Fire Staff will supply trip reports (within 2 weeks) situation reports and weather reports (daily May 1 - September 15), personnel fire information, or other pertinent reports to each area.

October 1996

---

Unit Manager  
Agate Fossil Beds National Monument

Date

---

Superintendent  
Badlands National Park

Date

---

Superintendent  
Devils Tower National Monument

Date

---

Superintendent  
Fort Union Trading Post  
National Historic Site

Date

---

Superintendent  
Knife River Indian Villages  
National Historic Site

Date

---

Superintendent  
Mount Rushmore National Memorial

Date

---

Superintendent  
Scotts Bluff National Monument

Date

---

Superintendent  
Theodore Roosevelt National Park

Date

---

Superintendent  
Wind Cave National Park

Date

## APPENDIX E

ANNUAL OPERATING PLAN  
between  
THE BLACK HILLS NATIONAL FOREST  
and  
DEVILS TOWER NATIONAL MONUMENT  
MOUNT RUSHMORE NATIONAL MEMORIAL  
JEWEL CAVE NATIONAL MONUMENT  
and  
WIND CAVE NATIONAL PARK

### I. PURPOSE

This Operating Plan establishes specific procedures for Interagency Fire Protection by each agency on forest/range fires reported within the Black Hills National Forest, Devils Tower National Monument Mount Rushmore National Memorial, Jewel Cave National Monument, and Wind Cave National Park.

### II. AUTHORITY

1. Listed under Interagency Cooperative Fire Protection Agreement #1102-0005-95-013, between agencies of the United States Department of Agriculture, agencies of the United States Department of the Interior and the State of South Dakota.

### III. GENERAL

1. Crew Definition  
Crews normally consist of two fire-qualified personnel with engine, but may consist of additional resources depending values at risk and incident potential.
2. Reporting a Fire  
When a smoke is detected and reported, it will be the responsibility of the detecting agency to promptly notify the other agency dispatch center so initial attack crews may be promptly dispatched.
3. Contact Points
  - A. Forest Service - All requests will be directed to the Interagency Dispatch Center located at Custer, SD
  - B. National Park Service - Requests will be made to the headquarters of the appropriate National Park Service Area.
4. Release of Resources
  - A. All crews assigned to an incident will be utilized until demobilized.
  - B. Other agency crews will normally be demobilized first.
  - C. Home unit requests for early release of specified personnel or equipment will be honored whenever possible, when made through the appropriate contact point.

IV. INITIAL ATTACK PROCEDURES

1. Black Hills National Forest

A. Adjective rating class of Moderate -High

Forest Service District fire crews, unless otherwise notified by the National Park Service through the zone dispatcher, will:

- (1) Respond to all-fires reported within the boundaries of Jewel Cave National Monument and the Mount Rushmore National Memorial.
- (2) Respond to fire on Wind Cave National Park as follows:
  - (a) All fires west of US 385 and State Hwy 87
  - (b) Fires east of US 385 and State Hwy 87 upon request.

B. Adjective Rating Class of Very High -Extreme -Red Flag Alert

- (1) Forest Service District crews, unless otherwise notified by the National Park Service, will:
  - (a) Respond to all fires within the boundaries of Jewel Cave National Monument and Wind Cave National Park and Mount Rushmore National Memorial.
  - (b) Respond to fires of Devils Tower National Monument upon request only.
- (2) Available helicopters and/or air tankers will be dispatched to National Park Service lands or requested through the Custer Zone Dispatcher.

2. National Park Service

Adjective Rating Class of Moderate and above, including Red Flag Alerts

- A. National Park Service crews from Wind Cave and Jewel Cave, unless otherwise notified by Forest Service Zone Dispatcher, will respond to all reported fires on National Forest land within three (3) miles of contiguous Park boundaries. Crews from these units, if asked and available, will respond forest-wide.
- B. National Park Service crews from Mount Rushmore, unless otherwise notified by the Forest Zone Dispatcher, will respond to all fires on National Forest lands within one (1) mile contiguous to National Memorial boundary.
- C. National Park Service crews from Devils Tower, if requested, will respond to fires in the Bearlodge Ranger District of the Black Hills National Forest.

V. REVIEW/PERIOD OF AGREEMENT

This Operating Plan will be reviewed annually to evaluate the effectiveness of action by all parties and to provide for amendment prior to Feb. 28.

VI. DISCRIMINATION

The parties of this Memorandum of Understanding shall not discriminate against any employee or applicant for employment because of race, color, religion, sex

or National origin. They will take affirmative action to insure that applicants are employed, and that employees are treated fairly during employment without regard to race, color, religion, sex or National origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

They further agree to post hereafter in conspicuous places, available for employees and applicants for employment, notices to be provided by the responsible officers setting for the provisions of the nondiscrimination clause.

All parties agree to insert the foregoing provision in subcontracts hereunder, except subcontracts for standard commercial supplies or raw materials.

**VII. OFFICIAL NOT TO BENEFIT**

No member of or delegate to Congress, or resident Commissioner, shall be admitted to any share or part of this contract, or to any benefits that may arise therefrom.

**IV. IN WITNESS WHEREOF,** the parties hereto have executed this Operating Plan as of the date last signed below.

Supervisor Black Hills National Forest Date

Superintendent, Wind Cave National Park Date

Superintendent, Mount Rushmore National Memorial Date

Superintendent, Devils Tower National Monument Date

Superintendent, Jewel Cave National Monument Date

## APPENDIX E

### 4. Sample Delegation of Authority

Mount Rushmore National Memorial  
Keystone, SD

#### **Limited Delegation of Authority**

As of 1800, September 2, 2001, I have delegated authority to manage the Starling 1 fire, number 0102, Mount Rushmore National Memorial, to Incident Commander, John Doe and his Incident Management Team.

The fire which originated as an arson fire on August 31, 2001, is burning in habitat near the Memorial boundary with the USFS Black Elk Wilderness Area. My considerations for management of this fire are:

1. Provide for firefighter safety.
2. I would like the fire managed in such a manner that suppression actions will cause little environmental damage as possible.
3. Key features requiring priority protection are: old growth ponderosa pine stand, and streams in the area.
4. Restrictions for suppression actions are no tracked vehicles will be utilized.
5. Minimum tools for use are Type II/III helicopters, and chainsaws.
6. My agency advisor will be the Park Fire Coordinator.
7. Managing the fire cost-effectively for the values at risk is a significant concern.
8. Providing training opportunities for park personnel is requested to strengthen our organizational capabilities.

Superintendent, Mount Rushmore National Memorial  
September 2, 2001

## APPENDIX E

### 5. Historic Fuel Treatments

**This section will be added as treatments are completed.**



## APPENDIX E

### 6. Interagency Contacts

**Table 6 – List of Interagency Contacts**

<b>Organization</b>	<b>Contact</b>	<b>Address</b>	<b>Phone Number</b>
USFS, Black Hills National Forest, Pactola Ranger District	Bob Thompson, District Ranger	800 SooSan Drive Rapid City, SD	(605) 343-3530
Keystone Volunteer Fire Department	Wayne Kummer, Fire Chief	Keystone, SD	(605) 666-4936
Custer Zone Dispatch Center	Duty Dispatcher	Custer, SD	(605) 673-9200

## **APPENDIX F**

### **F. WILDLAND AND PRESCRIBED FIRE MONITORING PLAN**

**Plan is in development and will be added when complete.**

**APPENDIX G**

**G. PRE-ATTACK PLAN**

**Table 7 – Pre-Attack Plan**

Function/Item	Available	Needed	Not Needed
<b>Command</b>			
Pre-attack WFSAs			
Pre-positioning Needs			
Draft Delegation of Authority	X		
Management Constraints	X		
Interagency Agreements	X		
Evacuation Procedures			
Structural Protection Needs			
Closure Procedures			
<b>Operations</b>			
Water Sources			
Control Line Locations			
Natural Barriers	X		
Safety Zones			
Flight Routes/Restrictions	X		
Staging Area Locations			
Helispot/Helibase Locations			
<b>Logistics</b>			
ICP Location	X		
Roads/Trails with Limitations	X		
Utilities	X		
Medical Facilities	X		
Stores/Restaurants/Services	X		
Rental Equipment Sources			
Construction Contractors			
Sanitary Facilities			
Law Enforcement/Fire Departments	X		
Communications (availability)			
Maintenance Facilities	X		
Sanitary Landfills	X		
<b>Planning</b>			
Park Base Map	X		
Area Topographic Maps	X		
Infrared Imagery			
Vegetation/Fuel Maps			
Hazard Maps (ground and aerial)			
Special Visitor Use Areas	X		
Land Ownership Status			
Archeological/Cultural Resource Maps	X		
Sensitive Plant Area Maps			

APPENDIX H

H. STEP-UP PLAN

Table 8 – Step-up Plan

Staffing Class (SC)	Fuel Model	Burning Index	Step up Actions
SC-1	C	0-10	Memorial will continue with normal operations.  Emphasis on equipment maintenance.
SC-2	C	11-20	All actions under SC-1 plus the following:  Engine should be fully equipped and filled.
SC-3	C	21-42	All actions under SC-2 plus the following:  Staff notified of fire weather conditions.  Prevention plan implemented.  Fire awareness incorporated in public contacts.  Record of available staff and locations maintained.  Under unusual conditions, the FMO or Memorial Superintendent may upgrade the staffing level from SC-3 to SC-4 if there is an unusually high level of visitor use, there is a possibility of lightning caused fires being detected, or if the National Fire Danger Rating System (NFDRS) appears to under-predict the actual fire danger.
SC-4	C	43-51	All actions under SC-3 plus:  Northern Great Plains FMO may open emergency preparedness account.  Overtime may be authorized to enhance fire preparedness by firefighters working their days off or after normal working hours in the evening to staff the engine.  Off-duty roster kept of trained personnel.  Primitive road use restricted in tall grass areas.  Use of chainsaws for other than fire suppression curtailed.  May supplement Memorial personnel with outside overhead, crews and equipment as wildfire occurrence increases.

Staffing Class (SC)	Fuel Model	Burning Index	Step up Actions
			Automatic dispatch of USFS personnel and helicopter to reported fires per Memorandum of Understanding between NPS and Black Hills National Forest.
SC-5	C	52+	All actions under SC-4 plus:  Additional fire qualified personnel may be on paid standby duty and readily available for suppression.

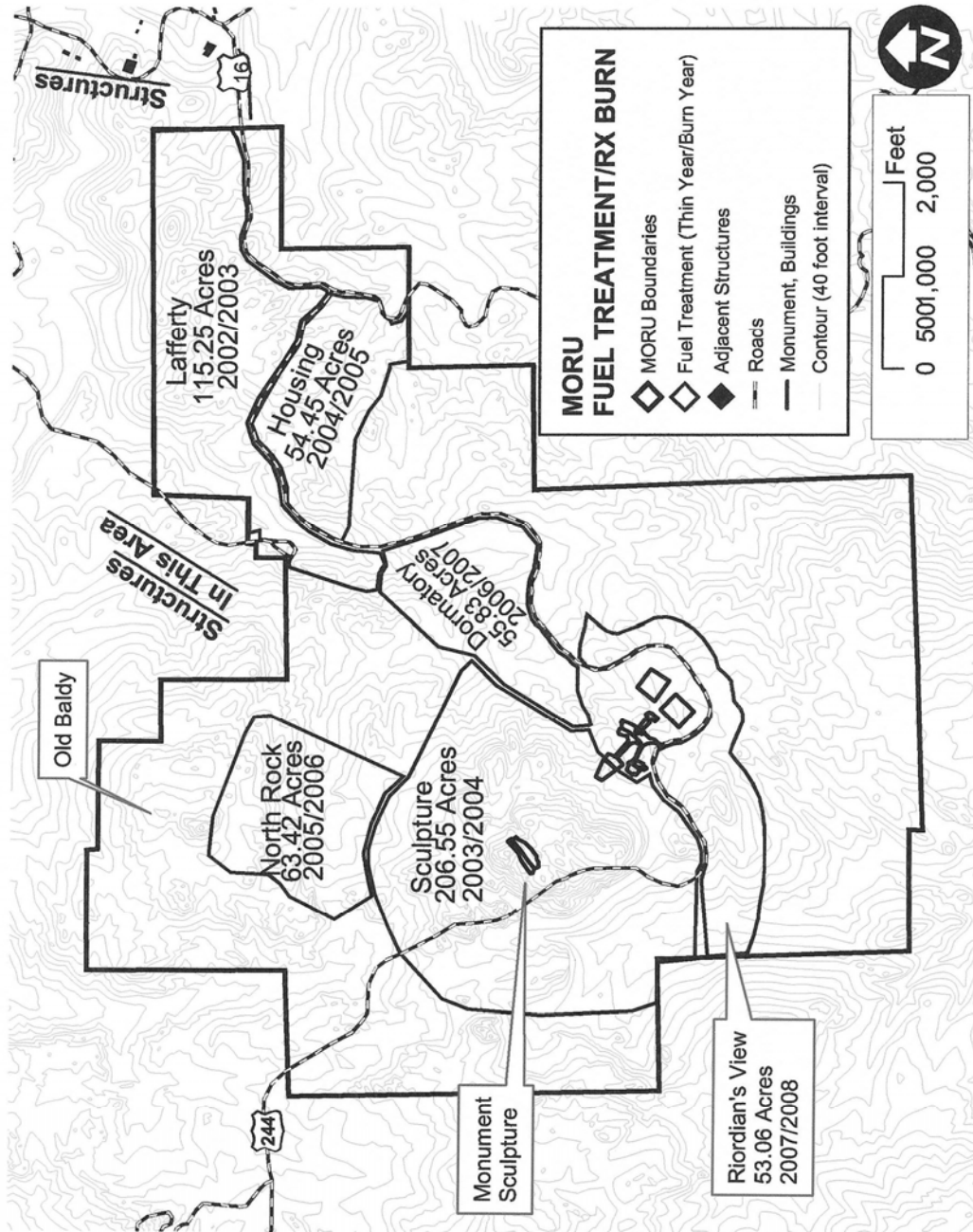
APPENDIX I

I. LONG-TERM PRESCRIBED FIRE AND HAZARD REDUCTION PLAN

Table 9 – Prescribed Fire and Hazard Reduction Schedule

UNIT NAME	AREA (Acres)	TYPE of TREATMENT	SCHEDULED YEAR
Lafferty	115.3	Mechanical	2002
<b>Total acres for 2002</b>	<b>115.3</b>		
Sculpture	206.6	Mechanical	2003
Lafferty	115.3	Rx Fire	2003
<b>Total Acres for 2003</b>	<b>321.9</b>		
Sculpture	206.6	Rx Fire	2004
Housing	54.5	Mechanical	2004
<b>Total Acres for 2004</b>	<b>261.1</b>		
North Rock	63.4	Mechanical	2005
Housing	54.5	Rx Fire	2005
<b>Total Acres for 2005</b>	<b>117.9</b>		
North Rock	63.4	Rx Fire	2006
Dormitory	55.8	Mechanical	2006
<b>Total Acres for 2006</b>	<b>119.2</b>		
Dormitory	55.8	Rx Fire	2007
Riordian's View	53.1	Mechanical	2007
<b>Total Acres for 2007</b>	<b>108.9</b>		
Riordian's View	53.1	Rx Fire	2008
<b>Total Acres for 2008</b>	<b>53.1</b>		

Figure 1 – Proposed Fuel Management Map



## APPENDIX J

### J. FIRE PREVENTION PLAN

There is no current Fire Prevention Plan. **This will be completed by the Memorial staff with assistance from the Northern Great Plains Fire Management Office.**



## APPENDIX K

### K. RENTAL EQUIPMENT AGREEMENTS

There no current agreements.

## **APPENDIX L**

### **L. CONTRACTS FOR SUPPRESSION AND PRESCRIBED FIRE RESOURCES**

No current contracts.