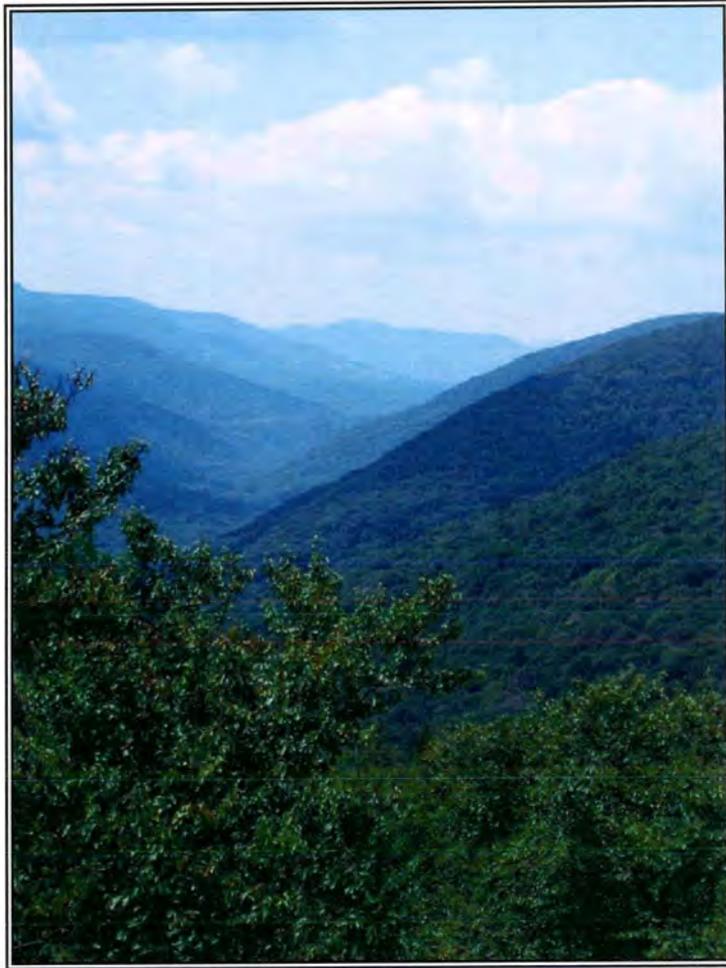


**ORDNANCE AND EXPLOSIVES
RECURRING REVIEW**

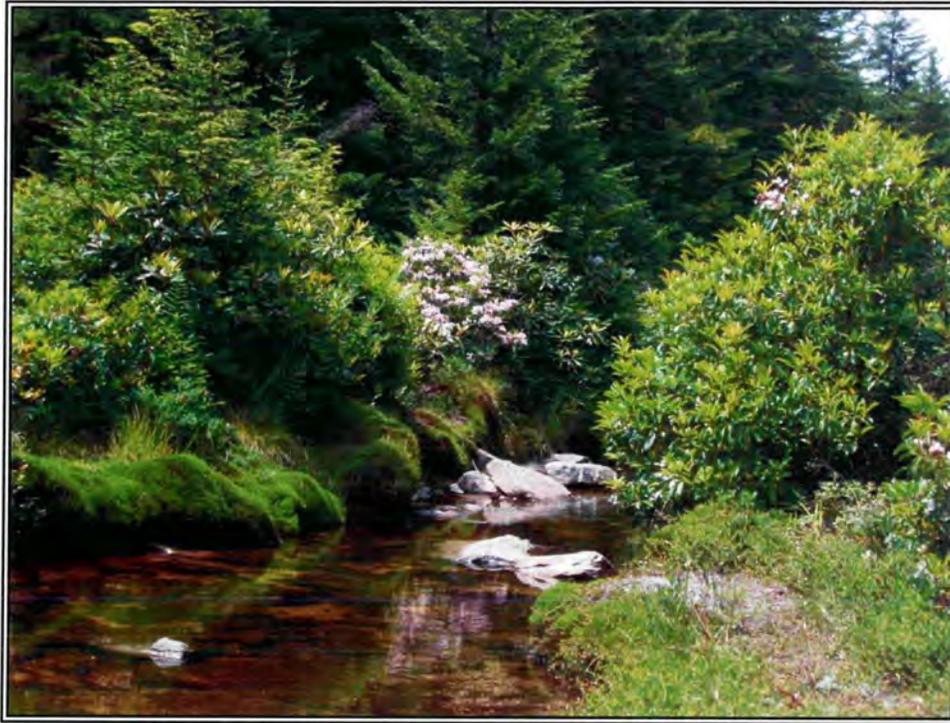


**DOLLY SODS PROJECT
WEST VIRGINIA MANEUVER AREA/DOLLY SODS FORMERLY
USED DEFENSE SITE (FUDS) PROPERTY**

**DOLLY SODS WILDERNESS AREA,
MONONGAHELA NATIONAL FOREST, WEST VIRGINIA
SEPTEMBER 2011 – FINAL REPORT**



ORDNANCE AND EXPLOSIVES RECURRING REVIEW



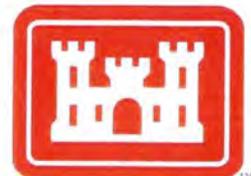
DOLLY SODS PROJECT WEST VIRGINIA MANEUVER AREA/DOLLY SODS FORMERLY USED DEFENSE SITE (FUDS) PROPERTY

DOLLY SODS WILDERNESS AREA, MONONGAHELA NATIONAL FOREST, WEST VIRGINIA FINAL REPORT – SEPTEMBER 2011

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Remediation Section

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Colonel, Corps of Engineers, Louisville District
Commanding



West Virginia Maneuver Area/Dolly Sods
Formerly Used Defense Site Project
Second Recurring Review Report
September 2011
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West Virginia Maneuver Area/Dolly Sods
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List of Acronyms

AP	Armor-Piercing
AR	Administrative Record
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
DOQQ	Digital Orthophoto Quarter Quads
DSN	Dolly Sods North
DSSA	Dolly Sods Scenic Area
DSW	Dolly Sods Wilderness
EA	Environmental Assessment
EOD	Explosive Ordnance Disposal
FONSI	Finding of No Significant Impact
FR 19	Forest Road 19
FR 75	Forest Road 75
FR 80	Forest Road 80
FUDS	Formerly Used Defense Sites
GIS	Geographic Information System
GPS	Global Positioning System
HE	High Explosive
HFA	Human Factors Applications, Inc.
HQDoA	Headquarters, Department of the Army
MMRP	Military Munitions Response Program
NBE	New Bold Enterprises
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
OE	Ordnance and Explosives
PA	Preliminary Assessment
PAP	Public Awareness and Organizational Plan
PIP	Public Involvement Plan
PR	Public Repository
RAB	Restoration Advisory Board
RI/FS	Remedial Investigation/Feasibility Study
SCPR	S&C Advertising and Public Relations
SSHP	Site Safety and Health Plan
SR	Smoke Round
USACE	United States Army Corps of Engineers
USAESC	United States Army Engineering and Support Center
USDoA	United States Department of the Army
USFS	United States Forest Service
USGS	United States Geological Survey
UXO	Unexploded Ordnance
WVDEP	West Virginia Department of Environmental Protection
WVDoF	West Virginia Division of Forestry
WVMA	West Virginia Maneuver Area
WVU	West Virginia University
WRI	West Virginia University Water Research Institute
WWII	World War II

**West Virginia Maneuver Area/Dolly Sods
Formerly Used Defense Site Project
Second Recurring Review Report
September 2011
Executive Summary**

EXECUTIVE SUMMARY

The U.S. Army Corps of Engineers (USACE), Huntington District, Environmental and Remediation Section (EC-CE), conducted the second Recurring Review of the Dolly Sods region of the former West Virginia Maneuver Area (WVMA). This report was conducted on behalf of the USACE Louisville District, who is the Formerly Used Defense Site (FUDS) Project Management (PM) District for the WVMA property. The purpose of this review is to ensure that an implemented 1997 to 1998 ordnance removal action continues to minimize explosives safety risks and continues to be protective of human health, safety, and the environment. The review process consisted of the following activities: notification and involvement of the community and stakeholders; review of existing and relevant documentation and data; identification and review of recent and new information; and assessment of site conditions. This report documents review process methodologies, and presents the findings, conclusions, and recommendations attained.

As part of the Recurring Review process, this second Recurring Review report must comment on the process findings judged against three questions spelled out in the Recurring Review guidance documents. Those questions are as follows:

- 1) Is the response action functioning as intended?
- 2) Are any assumptions used at the time of response selection still valid?
- 3) Does new information indicate that the previously selected response no longer minimizes explosives safety risks or is no longer protective of human health, safety and the environment considering the best available technology?

The results of this second Recurring Review, in relation to those three questions, are discussed in the following table. Following the table is a discussion on other results and recommendations of this Recurring Review process.

Recurring Review Essential Question	USACE Response	Timeframe for rectification (if necessary)
<p>a) Is the response functioning as intended?</p>	<p>This review concludes that for the areas originally covered under the initial removal action in 1997-98 (trails and campsites in the Dolly Sods Wilderness, Dolly Sods North, and Dolly Sods Scenic Areas) the response action is functioning as intended, and is still protective of human health, safety and the environment. This is evident by the lack or infrequency of military munitions (previously known as unexploded ordnance (UXO)) finds along trails and in campsites that were cleared by the initial response action.</p> <p>However, while the removal action is functioning as intended on the trails and campsites that were cleared during the 1997-1998 removal, it was noted during the site visit that the public is using several unofficial campsites and social trails which have been created by visitors to the Dolly Sods Wilderness Area. Both the campsites and social trails appear to have been well worn and heavily used. These new findings indicate a potential increase of risk due to these areas being outside of the zone that had been initially cleared of military munitions, and therefore pose a threat to human health, safety and the environment. It is recommended that a site visit be conducted, by an appropriate OE Safety specialist, to sweep these areas. This effort will be to ensure there are no potential military munitions in these areas. Furthermore the use of these trails and campsites, by visitors, should be discouraged by all project stakeholders to limit risk.</p>	<p>See response to Question (c) Below.</p>
<p>b) Are any assumptions used at the time of response selection still valid?</p>	<p>At the time of the removal response, the focus of the project was to remove UXO from the most heavily visited portions of the Wilderness Area which would decrease the likelihood of visitors encountering UXO. To date there have been no Decision Documents or Records of Decisions concerning the removal of munitions constituents for this particular project. Therefore, no Applicable or Relevant and Appropriate Requirements (ARARs) or other munitions constituent cleanup standards have been established for this project.</p>	<p>At some point in the near future the project delivery team will need to make a determination on the steps forward to determine if the munitions if there are munitions constituents present, and if so the steps necessary for remediating them. This process will follow the CERCL process guidelines. It is recommended that this action take place prior to the commencement of the next (third) Recurring Review on this project.</p>
<p>c) Does new information indicate that the previously selected response no longer minimizes explosives safety risks or is no longer protective of human health, safety and the environment considering the best available technology?</p>	<p>During the site investigation portion of this second Recurring review, it was discovered that there were several areas within the Dolly Sods Wilderness Area where campsites and "social trails" had been created to go off of the official trail system. While the areas that were covered under the initial UXO response action (official trails and campsites throughout the Dolly Sods Wilderness Area) are felt to be functioning as intended, it is obvious that the social trails and campsites that were created since the last Recurring Review have increased the risk to human health and the environment.</p>	<p>It is recommended that a OE Safety specialist from either the Environmental and Munitions Center of Expertise, local USACE UXO Design Center, or a Contractor to conduct a site visit to clear the social trails and previously undocumented campsites by the end of FY12 (if funding is available). If funding is not available then this activity shall be completed prior to the commencement of the next (third) Recurring Review at a minimum.</p>

It should be noted that no military munitions or munitions debris were identified during the site assessment, which encompassed the entire DSWA trail system; nor were any military munitions concerns present due to erosion, storm damage, changes in land-use, or recreation. Vegetation provides soil

stability across most of the region, and site conditions and usage have not changed noticeably since the removal action or since the previous Recurring Review. Mountainous and rugged terrain along with dense vegetation makes human access to many portions of the region that were not cleared for munitions difficult. If high amounts of erosion occur (e.g., due to a severe storm), if vegetation is removed (e.g., due to fire), or if recreational or land-use changes occur (e.g., if new campsites, roads, or trails are made), then an increased potential of encountering UXO in these areas may result.

Prior to the 1997 to 1998 removal action there were many instances (e.g. an average of ten per year during one ten year period) in which military munitions were encountered along designated trails and at inventoried campsites (USACE, 2004a). Since the removal action, there have been nine cases of encountered UXO by recreational visitors. It should be further noted that since the previous Recurring Review, only three such UXO finds were reported within the DSWA, meaning an even further decrease in finds per year since the first Recurring Review. In each case, UXO was found in areas that receive little visitor traffic, nobody was injured, and the U.S. Army EOD conducted disposal after being contacted through established notification and reporting processes. No UXO has been found since 1998 in the highly used areas of Dolly Sods (i.e. along the trails or at the campsites that were cleared for UXO). This indicates that the areas encompassed by the removal action are functioning as intended. Historically, visitors encounter UXO when they have ventured away from trails and campsites that were cleared during the removal action. Other areas were not cleared due to resulting environmental damage, extremely high costs, and technological limitations. The intent of the 1997-98 removal action was not expected to completely negate UXO-related risk; therefore, continued periodic reviews of the site and education of visitors, continue to be a necessity.

Institutional controls, which were put in place as a result of the previous Recurring Review, are still effective in warning visitors of the UXO issue at Dolly Sods. The controls were implemented to increase public awareness and ensure continued visitor safety. It is recommended that the current controls continue. Warning signs that were created and posted under the previous Recurring Review should continue to have semi-annual checks to ensure they are present and not damaged or removed. In the event that the reserves of warning signs run low, it is recommended that the USACE conduct a re-print of the signs. Many designated trail sections are not well marked, which may make it difficult for hikers to remain in areas that have been previously cleared of military munitions. Therefore continued efforts by the U.S. Forest Service (USFS) to replace worn or missing trail markers are encouraged.

It is also recommended that several community awareness programs, focused on educating the public, continue and improve where feasible. The continued use of the project's Public Awareness Plan (PAP) and Public Involvement Plan (PIP) should remain in place to guide community outreach efforts.

**West Virginia Maneuver Area/Dolly Sods
Formerly Used Defense Site Project
Second Recurring Review Report
September 2011
Main Report**

1.0 INTRODUCTION

The United States Army Corps of Engineers (USACE) has conducted a Second Recurring Review for the Military Munitions (MM) Response Action at the former West Virginia Maneuver Area (WVMA)/Dolly Sods Formerly Used Defense Site (FUDS) [G03WV0013] near the town of Davis in Grant and Tucker Counties, West Virginia. The Dolly Sods Wilderness Area (DSWA), a component of the Monongahela National Forest, is the subject location of this review. The location of the DSWA is illustrated in Figure 1.1, with a detailed map of the DSWA illustrated in Figure 1.2.

The Recurring Review was conducted from 1 October 2008 to 31 September 2009 and is the second Recurring Review for this site. On-site field work for the response action occurred from June 1997 to August 1998 (HFA, 1998; HFA, 1999a). The first review was conducted in 2003-2004.

This report presents the methods, findings, conclusions, and recommendations for the Second Recurring Review on the DSWA. The review was performed by the U.S. Army Corps of Engineers (USACE), Huntington District, with UXO safety field support provided by the USACE, Baltimore District. For individuals involved with the preparation of this report, please refer to Table 1.1 and Section 4.1. This report was conducted on behalf of the USACE Louisville District, who is the Formerly Used Defense Site (FUDS) Project Management (PM) District for the WVMA property.

1.1 Recurring Review Purpose

The purpose of this Recurring Review was to ensure that the implemented 1997 to 1998 Ordnance and Explosives (OE) response action continues to minimize munitions and explosives of concern (MEC) safety risks and continues to be protective of human health, safety, and the environment. Protectiveness is achieved when the potential for harm is reduced or managed, and is maximized when the potential for harm is minimized. This Second Recurring Review Report is to assure sustained functional effectiveness of the removal action, and, in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), to note the identification of any issues of concern, and to recommend remedies to address issues of concern noted. This report is also conducted in compliance with USACE Engineering Pamphlet 75-1-4, Recurring Reviews on Ordnance and Explosives (OE) Response Actions, 31 October 2003.

It was also the purpose of this Recurring Review to revisit and review the conclusions and recommendations of the first review to determine their implementation and effectiveness.

2.0 SITE DESCRIPTION AND HISTORY

2.1 Physical Characteristics

The DSWA, of the former WVMA, is located between Canaan Valley and Seneca Rocks within the Monongahela National Forest in parts of Grant, Randolph, and Tucker Counties of West Virginia. The DSWA is part of the Allegheny Mountain Province of the Potomac Highlands Region. The Allegheny Front, a prominent geological feature bordering the eastern edge of the DSWA, runs northeast-southwest across West Virginia, separates the Allegheny Plateau Province to the west and the Valley and Ridge Province to the east. The Allegheny Front is an almost unbroken wall of mountains rising more than 4,000 feet. The Front follows the trend of the Appalachian Mountains northwest to southeast for more than 160 miles. The more than 40 mountains induce heavy precipitation in the area.

The DSWA, sits high atop the Appalachian Plateau, and has internal elevations that range from 2,500 to 4,700 feet. The region, approximately 18,500 acres in size, is known specifically for its extensive rocky plains, upland bogs and sweeping vistas. The Sods' bog and heath eco-types are more typical to southern Canada.

2.2 Pre-WWII Site Status

The Dolly Sods area is named for the pioneer Dahle (pronounced "Dolly") family, which formerly owned and cleared some of the present day Dolly Sods Region for grazing. Logging occurred in the area during the late 1800s and came to an end between 1910 and 1913. Fires from logging operations burned so hot that the local topsoil and humus layers were destroyed, thus contributing to the formation of the unique environment found in the Dolly Sods Region today. The U.S. Forest Service (USFS) purchased the land in the early 1900's, and during the 1930s the Civilian Conservation Corps (CCC) planted red pine and other conifers, and aided in the construction of Forest Service Road 75 (FR 75) (USACE, 1995).

2.3 WWII Military Operations

Many of the lands now referred to as Dolly Sods were acquired by the U.S. Federal Government between 1916 and 1939, under authority of the Weeks Act of 1911. This act sanctioned the purchase of lands for natural resource management purposes. From 1943-1944, the U.S. Department of the Army (USDoA) took control of these and other lands within a five county radius in north-central West Virginia and conducted military maneuver exercises and artillery/mortar practice. This training area, known as the WVMA, was a site that trained troops who were being sent into combat during World War II (WWII). Of this acreage, 350,416 were public lands (all part of the Monongahela National Forest), 48,557 were leased from private individuals or businesses, and 1,781,769 were so-called "lesser interests". According to a warning order notice dated 26 March 1945; these "lesser interests" were covered by "trespass agreements." Apparently, the land owners had given use of these lands to the Army verbally; however there are no records that describe the "trespass agreements" or the area that they covered (USACE, 1991). The Dolly Sods region was a part of the 2,180,367 total acres of land (USACE, 1991) that comprised the former WVMA. Artillery/mortar practice activities were reported to have been confined to an area of approximately 50,000 acres in a region that was bound by Route 32 in Canaan Valley to the west, Jordan Run Road to the east, Laneville Road to the south, and the community of Davis to the north (USACE, 2004b and USACE, 2009).

It is documented (based upon historical records, found UXO and Munitions debris) that rounds fired during the 1943 to 1944 military training included, but may not be limited to: 40 mm and 57 mm armor-piercing (AP); 105 mm and 155 mm high explosive (HE) projectiles; 60 and 81 mm HE and smoke rounds (SR); 4.2 inch inert (sand-loaded rounds), HE and SR mortars (USACE, 2004a and USACE, 2009). The SR were reported to contain a solution of sulphur trioxide in chlorosulfonic acid (FS) as the filler (USACE, 2004b), and were intended for marking and smoke screen purposes. It is documented (USACE, 2004b) that 75 mm artillery fire occurred in the region, although no physical evidence of such activity has yet been found. It is also documented (USACE, 2004b and USACE, 2008) that the Allegany Ballistics Laboratory of George Washington University fired experimental rocket mortars; the rocket mortars were thought not to contain explosives of concern. The laboratory completed its firing in November 1945 but no physical evidence of such activity has yet to be found. Information concerning the actual amount of ordnance that was used at the WVMA has not been found. Records regarding military operations in the area are scarce because the majority of pertinent documents are thought to be lost or destroyed.

Records regarding training operations at the former WVMA are scarce. A Preliminary Assessment (PA) was conducted on the entire former WVMA in 2008-09 (USACE, 2009). This effort included the most exhaustive records search for historical records pertaining to the property to date. The PA contains original mapping believed to be from the Army's "dedudiving" missions following the use of the WVMA. The mapping depicts military firing points and target locations within and around the Dolly Sods and Canaan Valley areas. The mapping depicts impact locations at Blackbird Knob, Upper Red Creek, Cabin Mountain, and Breathed Mountain within the Dolly Sods Area. The mapping also shows suspected target locations at Bear Rocks and Stacked Rocks, which are just north of the DSWA. "Concentrations of fire" were reported to have fallen in the general area of Bear Rocks and Stack Rock (located north of Bear Rocks) (USACE, 2004b). The location of found UXO suggests that there were additional artillery and mortar targets in the region. Historical mapping showing the locations of found UXO is not contained in this report due to safety- and security-related issues. This course of action was agreed upon by the project team (see below for team members) during the First Recurring Review.

According to the First Recurring Review, three groups of gun emplacements were reportedly located somewhere in Canaan Valley, along FR 75 from "a point near the Bell Knob tower, north to the end of the road", and "on the east side of the mountain on the Allegheny Front, in the north part of the Dolly Sods region" (USACE, 1995). A map contained in a recent USACE memorandum (USACE, 2004b) indicates that guns may have also been positioned in the southeast, western and northeast regions of the DSWA. Previous reports, locations of found UXO (USACE, 2004a), and a feasibility study (Metcalf & Eddy, 1992) suggest that rounds were fired from multiple locations and at numerous targets in the Dolly Sods region. The mapping used to develop of the PA also confirms this assertion.

2.4 Post-WWII Site Status

Property acquired by the USDoA was returned to the U.S. Department of Agriculture in 1950. In 1970, 10,200 acres of the Dolly Sods region were designated a National Forest Scenic Area to protect their unique qualities. The DSWA was created by an act of Congress in 1975 to preserve and protect the area for special opportunities of solitude, recreation, and other scientific, educational, scenic and historical values (NBE, 1997). Management efforts within the 10,215 acre DSW focused on allowing the forces of nature to reclaim the land, returning it to a natural state. During 1992 and 1993, 6,168.5 acres located north of the DSW were purchased by the

USFS from The Nature Conservancy (USACE, 1995); this area is known as the Dolly Sods North (DSN) Area. To the immediate east and southeast of DSN, and to the immediate east of DSW, 2,268 acres along FR 75 have the designation of National Scenic Area. In 2009, Congress added the land that was previously known as the DSN Area, and a portion of the Dolly Sods Scenic Area (DSSA), to the DSWA, creating a larger 17,371-acre DSWA. The Dolly Sods Scenic Area still remains, but currently has less of a footprint.

3.0 ORDNANCE RESPONSE ACTIONS

3.1 Pre-1997 Response Actions

Following the 1943 to 1944 military maneuvers in the Dolly Sods region, and prior to returning the land to the USFS in 1950, the USDoA (i.e., the Engineer Bomb and Shell Disposal Team No. 6) conducted an UXO clearance during May 1946 (USACE, 2004b). The team completed a “thorough reconnaissance of the entire WVMA” as was noted in their records. Records indicate that the team found and destroyed 189 4.2 inch SR mortars, one 155 mm HE projectile, three 105 mm HE projectiles, two 40 mm projectiles, and “12 or 14” inert (sand-loaded) rounds in the Dolly Sods region. Information concerning the locations of all of these found items was not available. All suspected impact areas (which were pointed out to the team by USFS personnel), with the exception of certain regions to the north and northeast of the DSN and DSSA (which were too rough or overgrown to be searched) were thoroughly searched during the 1946 clearance effort; all lands except for the regions not searched were “recommended as safe for grazing, lumbering, or hunting” subsequent to the clearance.

During May of 1953, the 549 Ordnance EOD from Baltimore, Maryland conducted a follow-up reconnaissance and disposal mission of suspected impact areas in the Dolly Sods region. Six live rounds were located and destroyed during this mission, and from the field work it was determined that “previous clearance operations were good” according to their records. Additional information concerning these clearance operations is not available; records regarding military operations in the area are scarce because the majority of pertinent documents are thought to have been lost or destroyed.

The exact amount of ordnance remaining in the Dolly Sods region is undetermined. However, ordnance-related risk is illustrated by a sporadic but continuous discovery of UXO by recreational visitors. One known ordnance-related injury occurred in 1951. Information concerning the amount and types of munitions debris and UXO found and removed/disposed of since 1983 is well documented (USACE, 2004a) and maintained in a database updated by the USACE Huntington District.

To address ordnance-related concerns in the DSWA region, an ordnance response project was authorized by the USACE. This response action project was funded under the Defense Environmental Restoration Program (DERP), of which the Formerly Used Defense Sites (FUDS) is a part of this program (DERP-FUDS). DERP was established to evaluate and remediate contamination at both active and FUDS. The USACE Louisville District is the Geographic District with program and project management responsibilities over the former WVMA/Dolly Sods FUDS Project, with technical support provided by the USACE, Baltimore District for OE Safety Specialists. USACE Louisville District utilizes USACE Huntington District for project management and technical support on this project.

A remedial investigation/feasibility study (RI/FS) was authorized in 1990 for this property. During 1991, the USACE conducted field work to estimate the extent of contamination resulting

from munitions and explosives of concern (MEC) in the Dolly Sods region. Sixteen areas totaling 281 acres in the DSW were searched using hand-held magnetometers (Metcalf & Eddy, 1991). The sixteen investigation areas were selected to provide an even distribution across the site and because they were suspected of containing UXO (based on topography and information obtained during a records search and site investigation). The areas included hilltops (e.g., Breathed Mountain and Cabin Mountain) because they were considered likely targets, as well as locations which were considered to likely contain undershots from firing at Blackbird Knob (which is located in DSN and just north of DSW). A “surface sweep” (within six inches of the surface) was conducted and seven pieces of munitions debris were found. A “subsurface sweep” (between six and 24 inches depth) was also conducted, and six pieces of UXO were found. The 13 total UXO included a 57 mm AP projectile, and 60 mm HE, 81 mm HE and SR, and 4.2 inch inert, HE, and SR mortars. Nine fragments were found in addition to these items. Some of the found UXO was exploded in place while some was moved a short distance and then exploded (Metcalf & Eddy, 1992).

3.2 1997 to 1998 Response Action

Based on information obtained during the 1991 feasibility study (see above), an Environmental Assessment (EA) was initiated by USACE in 1995 to address remediation alternatives for the Dolly Sods project. An EA and Finding of No Significant Impact (FONSI) were completed for both DSW and DSN in 1995 and 1997 respectively (NBE, 1995; NBE, 1997). An ordnance removal action, focused on significant reduction of public risk in DSW, DSN and DSSA, which considered factors such as cost and environmental impact, was conducted by USACE during 1997 and 1998.

UXO removal activities in DSW occurred between 4 June 1997 and 17 October 1997. Using hand-held magnetometers, Human Factors Applications, Inc. (HFA) cleared 26.14 miles of designated and maintained trails (Appendix A: Map A2) and 20 feet each side (126.7 total acres), to a depth of one foot depth. Inventoried campsites (112 campsites; 8.83 total acres) were cleared to a depth of four feet. Magnetic anomalies resulted in 32,594 digs. Most anomalies resulted from railroad debris and spikes, artifacts such as axes, hammers, picks, and stove parts, and magnetic rocks; such items were returned to their original location. A total of 14 live mortars, including 60 mm HE and 81 mm HE, were found and destroyed by detonation. Munitions debris (a total of 108 pounds) was recovered in DSW, inspected, certified and then turned over to ENVIRCO Inc. of Baker, WV (HFA, 1998).

Removal activities within the DSN and DSSA occurred between 20 October 1997 and 18 August 1998 (field work did not occur between November 1997 and May 1998 due to inclement weather). Using hand-held magnetometers, HFA cleared 29.65 miles of designated and maintained trails (Appendix A: Map A2) and 20 feet each side (143.76 total acres), to a depth of one foot. Inventoried campsites and cabins (66 campsites and 6 cabins; 2.18 total acres) were cleared to a depth of four feet. Magnetic anomalies resulted in 23,191 digs. Most anomalies were found to result from railroad debris and spikes, artifacts (see above), and magnetic rocks; such items were returned to their original location. A total of eight live mortars, including 60 mm HE and 4.2 inch SR and HE, were found and destroyed by detonation. Inert (19 4.2 inch mortars) rounds were also located during the clearance and properly disposed of. Munitions debris (a total of 1043.5 pounds) was recovered in DSN and DSSA, inspected, certified and then turned over to Champs Salvage of Petersburg, WV (HFA, 1999a).

The 1997 to 1998 ordnance removal action was the most feasible alternative based on the influencing factors of cost, environmental impact, and reduction of public risk. The

removal/disposal of 22 live mortars, 19 inert mortars, and 1151.5 pounds of Munitions debris, significantly reduced the quantity of items posing a hazard to the public in the most widely used areas of the Dolly Sods region. Due to the following conditions and facts, the action could not and was not expected to negate ordnance-related risk entirely: 1) the environment has changed over the course of sixty years since World War II training; 2) movements of military forces in the area were random in nature and undocumented, and cleared areas were chosen based upon speculation of past military maneuvers and locations of targets and firing positions; 3) the region consists of a vast amount of mountainous and rugged terrain, and heavy rains could dislodge UXO which coupled with the mountain slopes could cause migration; 4) the course of the cleared trails could change over time due to public movement and/or erosion, hunters and adventurous explorers are apt to roam without regard to existing trails, and throughout the region there are numerous trails that are not designated or maintained but have been and could continue to be used; 5) campsites are not permanently marked and there is no restriction upon where camping can occur; and 6), a comprehensive search of the entire region would not reduce potential risk to zero (current technology cannot provide a 100 percent certainty that all ordnance and explosives have been removed), and would likely prove as environmentally damaging as it would be expensive.

3.3 Munitions Constituents

It should be noted that the Dolly Sods FUDS Project of the WVMA/Dolly Sods FUDS Property has only focused on the presence of UXO to this point in the project's lifecycle. The 1997-98 removal action was only used to remove or dispose of UXO found on trails or campsites, and did not discuss the potential for munitions constituents (MC). As such, MC, which are any materials originating from UXO, discarded military munitions, or other military munitions, including explosive and non-explosive materials, have yet to be fully addressed at this project site. At this time no decision or decision document has been developed to address the potential for munitions constituents at the project site. Therefore no Appropriate or Relevant and Appropriate Requirements (ARARs) or other standards have been developed for this site.

4.0 RECURRING REVIEW METHODS AND FINDINGS

This review consisted of the following activities notification and involvement of the community and stakeholders; review of existing and relevant documentation and data; identification and review of recent and new information; assessment of site conditions; and preparation of this report.

4.1 Administrative Components

This review was led by the USACE, Huntington District, Environmental and Remediation Section (CELRH-EC-CE) on behalf of the Louisville District, USACE, who is the Program Management District. The following individuals from CELRH-EC-CE conducted the site assessment, technical tasks, and report preparation:

Nick McHenry Environmental Engineer CELRH-EC-CE

The following individuals from the U.S. Army Corps of Engineers, Huntington District, Project Management Branch (CELRH-PM-P) and U.S. Army Corps of Engineers, Baltimore District, Explosives Safety Team (CENAB-EN-HI) conducted management and site assessment safety support:

Richard Meadows
Jeff Brewer

Project Manager
OE Safety Specialist

CELRH-PM-PP-P
CENAB-EN-HI

Julie Fosbender, Eric Sandeno, Kate Goodrich, Sam Lammie, Jim Markley, and Carol Whetsell from the USFS, Don Martin and Tom Bass from the West Virginia Department of Environmental Protection (WVDEP), John Quaranta, Jennifer Fulton, Melissa O'Neal, Lucy Oldfield and Eric Baker from West Virginia University (WVU), and Rudy Williams from the West Virginia Division of Forestry (WVDoF) also assisted in this Recurring Review.

4.2 Stakeholder Notification and Involvement

A notice regarding the forthcoming Recurring Review, which also announced a public meeting regarding the Recurring Review, was placed in local newspapers during April 2009. Specifically, the notice was published in the Grant County Press on April 21st and 28th, 2009, in the Parson's Advocate on April 22nd and 29th, 2009, in the Pendleton Times on April 23rd and 30th, 2009 and in the Elkins Inter-Mountain on April 25th and 29th, 2009. The public meeting was held on Thursday, April 30, 2009 at the Seneca Rocks Discovery Center in Seneca Rocks, West Virginia. A total of sixteen people attended the meeting; they included representatives from the organizations listed in Section 4.1, as well as officials from other stakeholder organizations and the general public. During the meeting USACE representatives made project- and Recurring Review-related presentations. These presentations included a discussion on the history of the former WVMA and Dolly Sods, an overview of the WVMA/Dolly Sods FUDS Property, the previous Recurring Review, other project activities, and the activities that will be going on as a result of the current Recurring Review. Following the USACE presentations there was an open discussion forum which allowed the attendees to discuss any questions/concerns associated with the project.

The draft and final versions of this Recurring Review report will be available in the public repository (PR), which was relocated to the USFS Cheat-Potomac Ranger's Office in Petersburg, WV. The PR is currently up to date; it is kept up to date and maintained by the USACE Huntington District. The PR consists of a portable hard drive located at the USFS office, and a publicly available computer whereby a member of the public can come in, request the portable hard drive, and sit at the computer terminal and browse the PR for project related information.

The final version of the report will also be available in the project administrative record (AR) and available for download from the USACE Huntington District's project website. Notice of the draft Recurring Review report completion, announcement of a 30-day public review and comment period, and announcement of a public meeting to discuss findings of the Recurring Review, will be presented in a local newspaper. The public meeting, at which USACE representatives will make presentations and discuss Recurring Review conclusions and recommendations, will be held at a location within close proximity to the Dolly Sods Region. Subsequent to the 30-day public review and comment period, a Responsiveness Summary (Appendix G) will be prepared to discuss any significant public comments received on the report and the actions taken to address any such comments.

4.3 Documentation and Data Review

4.3.1 Post-1998 Ordnance-Related Incidents Research

The quantity and nature of UXO-related incidents (e.g. a visitor finding UXO in the Dolly Sods region) that had occurred since completion of the 1997 to 1998 USACE response action were

researched. Since 1998, there have been nine instances in which UXO was found in the Dolly Sods region by recreational visitors and contractors; no one was injured during any of these incidents.

The following UXO finds were reported in the previous Recurring Review (USACE, 2004):

- During 1999, HFA was contracted by Virginia Power to provide UXO avoidance and identification services in support of their survey crew at Bear Rocks. In October 1999, one 105 mm HE projectile was identified by HFA (HFA, 1999b) at a location northeast of DSN and north of DSSA (2900m north of the eastern extent of the Bear Rocks trail).
- In July 2000, three 4.2 inch HE mortars were found in DSN by visitors (Schell, 2003). The mortars were located 25m, 70m, and 90m respectively to the northwest of the Dobbin Grade trail, and west of the junction between the Beaver Dam trail and the Dobbin Grade trail.
- In July 2001, one 4.2 inch HE mortar was found in DSN by a visitor (Schell, 2003). The mortar was located 265m east of the Dobbin Grade trail, and between the Beaver Dam trail and the Bear Rocks trail. It is worth noting that during the site assessment (see below), the Recurring Review field team experienced difficulty maintaining its desired course along cleared trails in these areas, because the trail sections were not adequately marked. It is therefore likely that the lack of markings along these trail sections may have contributed to this encounter with ordnance by recreational visitors.
- During July 2003, a visitor found one 4.2 inch HE mortar in DSN (Hammes, 2003). The mortar was located 225 meters south of the Bear Rocks trail, and between the Raven Ridge trail and Dobbin Grade trail.

The following UXO finds were reported between the previous Recurring Review (2003-04) and the current Recurring Review (2009-10) within the Dolly Sods Area:

- In July 2006, a visitor found two 4.2 inch mortars in what was formerly the Dolly Sods North Area (now part of the Dolly Sods Wilderness). The mortars were located near Raven's Ridge Trail just south of the trail's intersection with Bear Rock's Trail.
- In July 2007, a USACE OE Safety Specialist who was escorting West Virginia University (WVU) students and professors, who conducting a research project, found one 60-mm mortar in the Dolly Sods Wilderness Area. The find occurred approximately 12m east of the Fisher Spring Run Trail, just north of the trail's intersection with Red Creek Trail.
- It should also be noted that several UXO and UXO-related finds have occurred since the previous Recurring Review on areas outside, but adjacent to, the Dolly Sods Wilderness Area. There have been one 105-mm HE howitzer round find and multiple 3.25-inch rocket finds in the area to the west of the Dolly Sods Wilderness Area. In the instance of the 105-mm HE howitzer find, it was located on an adjacent property by a hunter in the forest. In the instances of the 3.25-inch rockets, these were located on private property northwest of the DSWA and were found by hikers.

None of the UXO found subsequent to 1998 were located in areas that were covered during the 1997 to 1998 response action. In all cases, UXO were found on the ground surface (i.e., UXO were not unearthed through digging, or dislodged from beneath rocks by prying), and were not found in areas where high rates of erosion have occurred (see below). When encountered, the UXO were not moved from their found position until the U.S. Army EOD from Fort Meade, Maryland (or other surrounding base) arrived and conducted proper disposal (HFA, 1999b; Hammes, 2003; Schell, 2003).

4.3.2 GIS Development and Data Review

A Geographic Information System (GIS) was developed for the Dolly Sods project during the project's initial Recurring Review. A GIS is a computer system that enables the capturing, storing, analyzing, and displaying or mapping of spatially-referenced data; a GIS therefore facilitates effective project management and decision-making.

Dolly Sods project-related data (i.e. multi-source data consisting of base maps, mapped trails, previous ordnance-related information, photographs, etc.) were spatially referenced and assigned attributes in the GIS. This allowed data such as that regarding previously located UXO, or previously cleared trails to be more effectively analyzed, and viewed in multiple ways. It was possible for instance, to quickly view different maps which showed locations of past UXO: one map showed the type of UXO that was found at each location, while another map showed the date information. Data was overlaid onto digital aerial photography and topographic maps, and this allowed quick assessments of the type of terrain that certain trails passed over for example. GIS was used to review and assess existing project-related data, and to plan the Recurring Review field work. GIS also served as a useful tool for archiving and evaluating data (e.g. photographs, Global Positioning System (GPS) coordinates, and institutional controls-related data) that were acquired during field work (see below).

Under this Second Recurring Review, the project's GIS database was completely updated. USACE contracted WVU's Water Research Institute (WRI) to conduct the update. As part of the update, WVU personnel walked each trail with the USACE site inspection team taking GPS coordinate readings to get the most accurate trail route coordinates to date. They also incorporated the most recent UXO finds, updated background mapping to include historical mapping included in the WVMA PA, and provided interpretations of individual trail use and trail conditions. As part of this contract, WVU also created an interactive GIS database that could be accessed from the project's website. The online GIS database allows visitors to the website the opportunity to see the updated trail map in an interactive HTML formatted map so the visitor could zoom in to view the individual trails or zoom out to see where the site was in relation to the surrounding area.

4.4 Site Assessment

Members of the site assessment team (see above) conducted field operations in the Dolly Sods region from 6 July to 12 July 2009. A site safety and health plan (SSHP) was implemented and followed (Appendix C), and daily safety meetings were led by an OE Safety specialist team member. One objective of the field operation was to determine whether site conditions changed since the 1997 to 1998 UXO removal action and First Recurring Review. Changes could potentially impact public safety. Specific factors of concern that have the potential to alter site conditions included: erosion, vegetation loss, changes in land-use, and recreational use. The team visually inspected and evaluated the terrain for evidence of such factors and the existence of UXO. The team hiked each trail within the Dolly Sods Wilderness Area (48 miles of trails) to

accomplish this inspection. The inspection of on-site institutional controls (e.g., the presence and condition of trailhead, trail markers, and warning signs) was another objective accomplished during field operations.

A photographic log was developed during field operations to assist monitoring site changes when conducting future reviews. All photographs, along with relevant data and observations, are presented in Appendix D. Detailed discussions concerning the terrain and on-site institutional control inspections are presented in the following sub-sections. Photos from the previous Recurring Review were also included in this report with the current photo of the same area to allow comparison between the two time periods.

4.4.1 Terrain Inspection

A four-person field crew (the USACE Huntington District technical manager, a USACE Baltimore District OE Safety specialist, and two WVU WRI employees) inspected terrain by hiking all of the trails within the Dolly Sods Wilderness Area. The following paragraphs describe the daily activities, trails examined, and the findings of the terrain inspection process.

6 July 2009

The four person crew, described above, hiked from the trailhead of the Wildlife Trail at FR 75 (Appendix D: photograph 1) to its junction with the Rohrbaugh Trail (Appendix D: photograph 4). The crew then followed the Rohrbaugh Trail south to its trailhead at the intersection with FR 75 (Appendix D: photograph 8). Dense vegetation was abundant along this entire route (Appendix D: photograph 3), with only minor erosion observed at isolated surface water runoff locations (Appendix D: photograph 2). Such erosion was deemed non-problematic because it was not extensive or excessive, it did not appear to be occurring at an accelerated rate, and it did not extend to the one-foot ordnance removal depth of the 1997 to 1998 removal action. No areas of vegetation loss or land-use changes were observed along this route.

It should be noted that the field crew encountered an Outward Bound group of students who were camping in an unofficial campsite area. The area appeared to be heavily used prior to the group establishing a camp at the site and had a social trail that lead through the area. According to the USFS, social trails are unofficial trails that the public has created to access various items. The OE Safety specialist swept the entire area for signs of anomalies, and there was one anomaly found at the back (eastern side) of the campsite. No further action was taken at the time on this anomaly due to the nature of the site visit, but it was noted to the leader of the Outward Bound group to avoid the area in the vicinity of the anomaly.

7 July 2009

The four person crew, described in the introductory paragraph above, hiked from the eastern trailhead of the Blackbird Knob Trail at FR 75 (Appendix D: photograph 9/10) to its junction with the Red Creek Trail (Appendix D: photograph 15). The crew then followed the Red Creek Trail south to its trailhead at the intersection with FR 75 (Appendix D: photograph 25). Dense vegetation was abundant along this entire route. There were minor areas of erosion observed at isolated surface water runoff locations (Appendix D: photographs 12,14). Such erosion was deemed non-problematic because it was not extensive or excessive, occurred for a short portion of the length of the trail and did not appear to be occurring at an accelerated rate. There were isolated areas where the erosion did extend beyond the one-foot ordnance removal depth of the 1997 to 1998 removal action. No areas of vegetation loss or land-use changes were observed along this route.

The field crew encountered multiple social trails that lead from the main Red Creek Trail to Red Creek. These trails were unmarked and were not cleared during the 1997 to 1998 removal action. These trails were most notably present just before the intersection of Red Creek and Breathed Mountain Trails.

It should also be noted that a significant portion of streambank between Red Creek and the Red Creek had been washed out (Appendix D: photograph 24). The section of streambank that was washed out was approximately 30 ft wide by 30 ft tall. The washout had not affected the Red Creek Trail itself.

8 July 2009

The four person crew hiked from the Fisher Spring Run Trail (Appendix D: photograph 27) to its intersection with the Red Creek Trail (Appendix D: photograph 21/22). The crew then retraced Fisher Spring Run Trail back to FR 75. Dense vegetation was abundant along this entire route. There were minimal areas of erosion observed along the Fisher Spring Run Trail. No areas of vegetation loss or land-use changes were observed along this route.

Following the inspection of the Fisher Spring Run Trail, the field crew hiked the Northland Loop Trail (Appendix D: photograph 30/31). Dense vegetation was abundant along this entire trail. There were no areas of erosion observed along this trail. No areas of vegetation loss or land-use changes were observed along this route.

From the Northland Loop Trail, the field crew moved to the Bear Rocks Trail in the area formerly known as Dolly Sods North (now included as part of the Dolly Sods Wilderness Area). The field crew hiked west from the Bear Rocks Trailhead (Appendix D: photograph 33) to the intersection of Raven Ridge Trail (Appendix D: photograph 41) in the north central portion of the Dolly Sods Wilderness Area. From there the field crew hiked southeast to the intersection of Raven Ridge Trail and Dobbin Grade Trail (Appendix D: photograph 42). The crew then hiked northeast to the intersection of Dobbin Grade Trail and Beaver Dam Trail (Appendix D: photograph 44). The field crew then hiked east on Beaver Dam Trail to its trailhead at FR 75 (Appendix D: photograph 45).

An area of extreme erosion (>3' in depth) on Bear Rocks Trail (Appendix D: photograph 34) was noted during the terrain inspection. When compared to the findings of the previous Recurring Review, it was noted that this area of erosion was reported in that report as well. The appearances of the area of erosion in the previous report are similar to what was encountered during this terrain inspection. Concerning this area, the previous Recurring Review stated "Erosion along Bear Rocks trail was limited to this isolated occurrence; it appeared to result from an intermittent stream that has flowed through this location during heavy rainfall events." This statement still seems to accurately reflect the circumstances of the erosion at this time. Other than this isolated area, there were no concerns due to excessive erosion, vegetation loss, or land-use changes along the trail segments covered on 8 July 2009.

9 July 2009

The four person crew drove to the Wilderness Area boundary on the western side of the DSWA along FR 80. Boulders are located at the start of USFS property on FR 80 to stop vehicle access past this point (Appendix D: photograph 46). The field crew hiked from that point to the trailheads of Breathed Mountain and Big Stonecoal Trails (Appendix D; photograph 47/48). The field crew then hiked north on Blackbird Knob (Appendix D: photograph 49) and Rocky Ridge Trails (Appendix D: photograph 50) to the intersection of Rocky Ridge and Raven Ridge Trails (Appendix D: photograph 55).

An area of notable erosion was located along Rocky Ridge Trail just past its intersection with Harman Trail (Appendix D: photograph 52). When compared to the findings of the previous Recurring Review, it was noted that this area of erosion was reported in that report as well. The appearances of the area of erosion in the previous report are similar to what was encountered during this terrain inspection. Concerning this area, the previous Recurring Review stated “The trail base was erosion-resistant rock along most of the trail, with only one isolated area of erosion observed; this minor erosion appeared to result from previous heavy rainfall events.” This statement still seems to accurately reflect the circumstances of the erosion at this time. Other than this isolated area, there were no concerns due to excessive erosion or vegetation loss, or land-use changes were observed along the route along Rocky Ridge Trail, which is mainly comprised of rock outcrops with no vegetative cover along the ridge.

From the intersection of Rocky Ridge and Raven Ridge Trails, the crew hiked east along Raven Ridge Trail to its intersection with Beaver View Trail (Appendix D: photograph 56). From that intersection, the crew proceeded to follow Beaver View Trail to its intersection with Dobbin Grade Trail (Appendix D: photograph 57). The crew then proceeded west along the Dobbin Grade Trail to its intersection with Rocky Ridge Trail (Appendix D: photograph 53). The crew then followed Rocky Ridge Trail south to its intersection with Harman Trail (Appendix D: photograph 51). The field crew then followed Harman Trail to its intersection with Blackbird Knob Trail (Appendix D: photograph 58). Blackbird Knob was then followed west to its intersection with FR 80. All of the areas described in this paragraph had dense vegetation along the trails with only minor areas of erosion. No areas of vegetation loss, erosion or land-use changes were observed along this route.

10 July 2009

The four person crew drove to the Wilderness Area boundary on the western side of the DSWA along FR 80. The field crew hiked from that point to the trailheads of Breathed Mountain and Big Stonecoal Trails (Appendix D; photograph 47/48). From this location the field crew hiked southeast on Breathed Mountain Trail to its intersection with Red Creek Trail (Appendix D: photograph 17). It should be noted that there were several areas along Breathed Mountain Trail where standing water was present and visitors had created paths around the water (Appendix D: photograph 59).

From the intersection of Red Creek and Breathed Mountain Trails, the crew followed Red Creek Trail south to its intersection with Rocky Point Trail (Appendix D: photograph 19). The field crew then hiked Rocky Point Trail to its intersection with Big Stonecoal Trail (Appendix D: photograph 60). Rocky Point Trail was made largely of rock along the trail. From the intersection of Rocky Point and Big Stonecoal Trails, the crew hiked north along Big Stonecoal to its intersection with Dunkenbarger Trail (Appendix D: photograph 61/62). From this point the crew hiked west along Dunkenbarger Trail to its intersection with Little Stonecoal Trail (Appendix D: photograph 63/64). The crew then followed Little Stonecoal Trail to its intersection with Red Creek Trail (Appendix D: photograph 66). From there, the crew followed Red Creek Trail to its trailhead at FR 75.

There were areas of extreme trail disruption along Little Stonecoal Trail due to multiple large trees falling on or near the trail (Appendix D: photograph 65). In many instances visitors had to maneuver crossing over the trees at areas that were not in the immediate vicinity of the trail, meaning the hiker had to either go uphill or downhill in order to cross over the tree to continue on the path. In all other instances along the route taken on 10 July 2009, there was thick vegetative cover present along all of the paths noted in the paragraphs above. There were no other concerns noted due to vegetation loss, erosion or land-use changes along the route.

11 July 2009

In this instance there was only a three person field crew present during the site visit on this day. The OE Safety Specialist had vehicle trouble and was unable to attend. The field crew drove to the Wilderness Area boundary on the western side of the DSWA near FR 80. The field crew then hiked from that point to the trailheads of Breathed Mountain and Big Stonecoal Trails (Appendix D: photographs 47/48). From this location the field crew hiked south along Big Stonecoal Trail to its intersection with Red Creek Trail (Appendix D: photograph 23). From that location the field crew hiked southwest to the Red Creek Trailhead located along FR 75.

There was an area of confusion along Big Stonecoal Trail in a pine tree grove where the trail was not evident and multiple social trails were located to get visitors through the grove of trees (Appendix D: photographs 67/68). Using GIS information that had been uploaded to the GPS handheld unit to guide the path that had been cleared during the ordnance removal, the field crew blocked off the incorrect social trails that had been created to navigate the pine tree grove. Down tree limbs were used to block access to areas that had not previously been cleared and to promote the use of the trail that had been cleared of UXO. Rock cairns were also constructed to help promote the use of the correct trail as well. Cairns were also present on both sides of the stream where the Big Stonecoal Trail crosses Red Creek (Appendix D: photographs 70-72).

12 July 2009

The four person crew drove to the Wilderness Area boundary on the western side of the DSWA along FR 80. The field crew hiked from that point to the trailheads of Breathed Mountain and Big Stonecoal Trails (Appendix D; photograph 47/48). From this location the field crew hiked Blackbird Knob Trail east to its intersection with Upper Red Creek Trail (Appendix D: photograph 13). From here the field crew hiked north along Upper Red Creek Trail to its intersection with Dobbin Grade Trail (Appendix D: photographs 76/77). The crew then hiked west on Dobbin Grade Trail to its intersection with Rocky Ridge Trail (Appendix D: photograph 53) and then returned to its vehicle parked along FR 80 on the western edge of the DSWA.

There was a relatively small area of notable erosion located on the Blackbird Knob Trail just to the east of where the trail crosses the Left Fork of Red Creek (Appendix D: photograph 75). In all other instances along the route taken on 12 July 2009, there was thick vegetative cover present along the entire route taken in the paragraph above. There were no other concerns noted due to vegetation loss, erosion or land-use changes along the route.

General Note Concerning Site Visit

It was noted during the field operations that there were many campsites, mostly located along the individual trails that had been in use. A number of the campsites that were noted during the site visit were ones which were not represented as ones which had been cleared during the 1997-1998 removal action based upon the coordinates that were provided from the initial response action. Some of the campsites fell within 20' of the centerline of cleared trails, which means they should have been swept for ordnance as well, but there were others that fell outside of 20' off a cleared trail.

It should also be noted that a number of social trails were found to have been used at various locations throughout Dolly Sods. A majority of the social trails that were noted by the field crew during the site visit were created to access water resources (Red Creek, Big Stonecoal Creek, etc) or campsites. These social trails were not cleared as part of the initial response action.

No UXO or Munitions debris were identified during the July 2009 field operations, nor were any UXO concerns due to severe erosion (e.g., due to a severe storm), severe vegetation loss (e.g., due to fire), or major land-use changes (e.g., new campsite, roads, or trails construction) found.

Vegetation was found to provide soil stability across a majority of the region, and site conditions and usage have not changed noticeably since the 1997 to 1998 removal action, or since the previous Recurring Review. Further, mountainous and rugged terrain along with dense vegetation makes human access to many portions of the region that were not previously cleared for ordnance difficult. Based upon the terrain inspection, the field team determined that the previous ordnance removal action had been successful and is still generally protective of human health and the environment.

4.4.2 Trailhead and Trail Markings Inspection

Many of the trails that were cleared OF UXO during the 1997 to 1998 removal action at Dolly Sods were found to have a sign marking their trailhead location (Appendix D: 2009 site visit photographs: 1, 8, 9, 27, 33, 45, 47, 49, 50, 51, 53, and 55). Based on the site inspection, however, there were five locations where trailhead signs were missing or severely damaged. The missing/damaged signs were located at the following locations:

- Intersection of Red Creek and Breathed Mountain – Sign had been knocked down (Appendix D: 2009 Site Visit Photographs: 17)
- Intersection of Red Creek and Rocky Point Trails – Sign was not affixed to anything (Appendix D: 2009 Site Visit Photographs: 19)
- Intersection of Big Stonecoal and Red Creek Trails – Trail sign is missing (Appendix D: 2009 Site Visit Photographs: 23)
- Intersection of Rocky Point and Big Stonecoal Trails – Trail sign is missing (Appendix D: 2009 Site Visit Photographs: 60)
- Intersection of Red Creek and Little Stonecoal Trails – Trail sign is missing (Appendix D: 2009 Site Visit Photographs: 66)

Signage informing visitors to remain on designated trails, and camp only at inventoried campsites that were cleared of ordnance were not located at any of the trailheads. Warning signs which contained the USFS' Hotline for reporting UXO finds (1888-283-0303) were located on all of the major trailheads, with the exception of the Big Stonecoal/Breathed Mountain Trailheads located on the western entrance to the Dolly Sods Wilderness Area. The UXO warning sign at that location had been removed. Other than a phone number for ordnance-related incident reporting (which was contained on the warning sign), visitors are currently not receiving any information regarding the notification process (i.e. how they should specifically behave if UXO is encountered) at trailheads.

In a majority of the areas assessed during the site assessment, the field team was able to easily follow along trails when conducting the site assessment, as a worn path was visible or stacks of rocks were present which marked spots along trails (Appendix D: 2009 Site Assessment Photographs 3, 4, 15, 19, 21, 23, 31, 40, 63, 66, 70, and 72). However, the team had to rely upon GPS measurements and a USACE trails map in order to follow and remain on certain sections of trails. Such tactics were necessary to maintain the desired course, because along a few trail sections a worn path was not visible, nor were any type of trail section markers present. One such example was the pine grove section located along Big Stonecoal Trail (Appendix D: 2009 Site Assessment Photographs 67 and 68). Based on conditions observed during the site assessment, some recreational users could potentially experience difficulty maintaining course on trail sections in the event they did not have a GPS unit. Note that even with a GPS unit, maintaining course can be difficult when trails aren't marked. High topographic relief and thick vegetative cover can prevent adequate GPS signal reception.

4.4.3 Warning Signs Inspection

Signs that warn visitors to the Dolly Sods region about the potential of encountering UXO, were found to exist at most trailheads within the Dolly Sods Wilderness Area and other locations. Signs that were present contained a warning message (“Highly explosive LIVE BOMBS from WWII training can still be found in Dolly Sods. DO NOT TOUCH!”), a photograph of UXO, and a phone number for ordnance-related incident reporting (1888-283-0303). There were nine locations in the region where color warning signs remained intact (Appendix D: 2009 Site Assessment Photographs 1, 8, 9, 25, 26, 27, 30, 32, and 45). As noted in Section 4.4.2 above, the informational sign at the intersection of Big Stonecoal and Breathed Mountain Trailheads, located on the western entrance to the Dolly Sods Wilderness Area, did not contain a sign as it had in the past (Appendix D: 2009 Site Assessment Photographs 47 and 48). At the time of the inspection, there were no UXO warning signs located on the trails on the western entrance to the Dolly Sods Wilderness Area. According to the USFS, there continues to be a problem with the UXO warning signs being stolen as has been in the past. The USFS periodically replaces signs at locations when it is noticed that they are missing. The USACE conducts semi-annual inspections of all of the trailheads to determine if the UXO warning signs are still present. In the event they are not still present, the locations of the missing warning signs are reported to the USFS, who uses a reserve of colored signs to replace the missing ones.

4.4.4 Notification and Reporting Processes Evaluation

Notification and reporting processes for any ordnance-related incidents in the Dolly Sods region currently exist, are updated annually, and are outlined in the Public Awareness and Organizational Plan (PAP). The notification process details how one should behave when suspected ordnance is found (i.e., the Army’s 3Rs to OE safety: Recognize, Retreat, Report). The reporting process details the procedures which should occur once an individual provides notification of an ordnance-related find (i.e., the USFS should verify the find, should contact an EOD, and should then report the incident to other agencies).

The 24-hour notification phone number for an ordnance-related incident (888-283-0303) is currently provided on warning signs present in Dolly Sods. Since the initial Recurring Review report was completed, the 24-hour notification phone number was also incorporated on trail maps, safety brochures, and promotional items, to increase the public’s knowledge on what to do in the event they encounter an UXO.

On 15 December 2010, this phone number was dialed by USACE Huntington District personnel to ensure that it was operational. The phone number was functional, and the operator on duty was aware of how to handle ordnance-related incident information when it was provided. The operator provided a rundown of the proper procedure for handling ordnance related incidents and whom to contact within the USFS in the event of an ordnance-related find. It appears from this test that the ordnance hotline is still functioning as intended.

It should be noted that USACE personnel have used this phone number to report an actual UXO find since the previous Recurring Review. In 2007, the USACE partnered with WVU to conduct a research project on contamination constituents that may be present at the DSWA as a result of the property’s use as a military training area. The USACE’s role in the research project was primarily to provide a OE Safety Specialist for WVU faculty and graduate students who were conducting soil sampling in areas where UXO had previously been found. On 26 June 2007, while conducting soil sampling along the Fisher Spring Run Trail in the DSWA, near the intersection of Fisher Spring Run and Red Creek Trails, the OE Safety Specialist present at the

time, Walt Zange of Huntsville CX-MM, identified a live 60-mm mortar approximately 30-35' east of the trail wedged between two rock formations. After carefully flagging the area so that it may be found by responders, but not be obvious to the general public, the group moved on to collect additional samples. Once the group had returned back to their hotel later that afternoon, Nick McHenry, USACE Huntington District, reported the find to the UXO hotline. The following day, following protocol, the USFS sent an official to the site to verify the find. Once the find and location were verified, the UXO was reported to an EOD unit out of Fort Meade. The EOD unit reported to the site on the second day after the find and detonated the mortar. Based on this experience with the use of the 24-hour UXO hotline, it appears as though the person answering the hotline knew the proper procedures to follow in this type of reporting, all proper procedures were followed, and the unit was detonated in a timely fashion.

5.0 UPDATES ON PREVIOUS RECURRING REVIEW RECOMMENDATIONS

As part of this Second Recurring Review, a review of the recommendations presented in the property's first Recurring Review, completed in 2004, was initiated. The review focused on the implementation and success of the recommendations that were provided in the prior report. The following sections evaluate the implementation of the recommendations.

5.1 Public Information Needs Service

Previous Recurring Review Recommendation: Up to date project-related information should continue to be provided to the public through the PR which is located at the USFS office in Elkins, West Virginia, and the AR which is located on the USACE Huntington District's website. The USACE Huntington District's annual FUDS Newsletter, which contains project-related articles, should also continue to be provided to the public. During the community survey, 40 people asked to receive future project status updates; a mailing list may be established to ensure that they are kept well informed. Results of the community survey indicate that 17 individuals would be interested in serving on a Restoration Advisory Board (RAB); USACE should consider local interest and evaluate the potential net benefits of establishing a project RAB.

Implementation and Results of Recommendation: Shortly after the original Recurring Review recommendations were implemented, the Elkins Headquarters of the Monongahela National Forest went under a remodeling and renovation. During the renovation, the PR for the WVMA/Dolly Sods FUDS Project was mistakenly discarded. Within the past year, the PR has been re-established in the Cheat-Potomac Ranger's Office of the Monongahela National Forest in Petersburg, WV. As described in Section 4.2, at this office, the PR is on an external hard drive whereby the public can come into the office and check out the PR external hard drive and sit at a computer station and look through the documents. The PR will be updated regularly as documents get added to it. The AR, which is located at the USACE District Office in Huntington, WV, is still functional and is updated as new information is obtained. CELRH-EC-CE has a specific portion of their office space that has been designated for this AR and is open during normal business hours for the public to come and utilize.

The annual FUDS Newsletter is still being created by the Huntington District on an annual basis. Over the past five years, an average of four to five articles relating to the WVMA/Dolly Sods FUDS Project has been included within each version of the newsletter. This information continues to act as one of the avenues to which the public is kept informed of the latest activities ongoing with this project.

A mailing list, consisting of project stakeholders, local businesses, government officials and interested members of the local public was created following the initial Recurring Review and has been incorporated into the projects PAP and Public Involvement Plan (PIP). In the event there is a meeting or large event having to do with public notification concerning the project, a mass mailing can happen rather quickly to notify these entities.

A Restoration Advisory Board (RAB) was briefly considered following the initial Recurring Review, but interest seemingly waned and the creation of a RAB was put on hold until a stronger public interest was shown in the project.

5.2 Public and Organizational Plan and Public Involvement Plan Updating

Previous Recurring Review Recommendation: The project PAP (SCPR, 2004a) provides a process to educate the public on the hazards of UXO and the organizational procedures associated with the management of these hazards. An objective of this plan is to manage the risk to public safety from the hazards of any UXO resulting from past DoD activities in the Dolly Sods region. Other objectives of this plan are to support Federal and State fire suppression objectives in potential ordnance areas, and to maintain ordnance-related incident notification and reporting processes. Public education activities are implemented through the project Public Involvement Plan (PIP) (SCPR, 2004b). The PIP identifies and evaluates community concerns, and outlines specific communication and education strategies. The PAP and PIP should continue to be reviewed annually by USACE, USAESC, USFS, WVDEP, and WVDof, and updated as necessary to ensure that procedures, phone numbers, and contacts continue to remain current and be effective.

Implementation and Results of Recommendation: The project's PAP and PIP were implemented around the time of the initial Recurring Review. CELRH-EC-CE annually reviews these documents to ensure the most up-to-date information is included in them. Once the documents have been revised with current information, copies of each are sent to the project stakeholders. This effort will continue as long as the documents are still in use.

5.3 Fire Suppression/Safety Plan Maintenance

Previous Recurring Review Recommendation: The USFS should continue to maintain a functional fire suppression/safety plan, and should notify the USACE Huntington District in the event of any large fire in the DSW, DSN, or DSSA. The protection of private property, the Monongahela National Forest, public safety, and important resource values are priorities which should continue to be balanced in the plan.

Implementation and Results of Recommendation: As part of the current Recurring Review process, the previous fire suppression plan was analyzed by the USFS (Peter Fisher) and deemed to still be current. Until which time the USFS updates it, the previous fire suppression plan will continue to be the most current plan.

5.4 Notification and Reporting Processes Maintenance

Previous Recurring Review Recommendation: Up to date notification and reporting processes as provided in the project PAP should continue to be followed. The 24-hour notification phone number for an ordnance-related incident is currently provided on warning signs, but nowhere else and by no other means in the region. USACE and USFS should ensure that visitors to the Dolly Sods region are educated regarding proper notification processes for the case of an ordnance-

related incident. USFS should ensure that persons operating the 24-hour reporting hotline are aware of ordnance-related incident reporting procedures. The USFS should continue to follow proper ordnance-related incident response procedures, and should report any incidents to the USACE Huntington District.

Implementation and Results of Recommendation: The USFS still maintains the UXO reporting hotline phone number. According to Mrs. Julie Fosbender, USFS Recreation Manager, USFS personnel are still trained on how to respond if UXO is reported to the hotline. The hotline phone number is now on every map, brochure, and public awareness promotional item that the USACE hands out concerning the WVMA/Dolly Sods FUDS Project.

The partnership in reporting UXO-related incidents between the USACE and USFS has been working well since the initial Recurring Review. In the instances where UXO, or munitions debris, has been reported, the USFS has provided that information to the USACE in a very timely manner.

5.5 Warning Signs Placement and Monitoring

Previous Recurring Review Recommendation: Highly visible, colored signs warning visitors about the potential to find hazardous ordnance items should be placed at regional locations which receive high visitor traffic. Currently, many highly used areas of the region have a gray sign or no sign present; signs should initially be re-placed or placed in these areas by USACE. Signs should contain a warning message and a phone number for reporting any possible ordnance-related incidents. Since theft of signs has been a recurring problem in the region, bi-annual monitoring and any necessary replacement of signs should be conducted by USACE and USFS. Specifically, it is recommended that colored warning signs exist at the 13 locations comprising designated trailhead entry points, the information display located to the northeast of the Dolly Sods picnic area, and the Red Creek campground (Appendix D: photographs 1, 2, 3, 4, 6, 10, 12, 16, 19, 23, 24, 62, and 37/63 [the same location is shown in photographs 37 and 63]). Three existing warning signs (Appendix D: photographs 11, 13, and 17) should be removed since they would either encourage use of a non-designated trail or are immediately adjacent to another recommended warning sign location. At Bear Rocks Preserve (Appendix D: photograph 14), the text of a welcome sign contained an UXO warning message, but it didn't contain information regarding who to contact in the case of an ordnance-related incident. It is recommended that the USFS have the ordnance reporting phone number added to the welcome sign.

Implementation and Results of Recommendation: As a result of the initial Recurring Review, new more colorful UXO warning signs were placed at all of the trailheads, information displays, campground signs, and other locations of high visibility within Dolly Sods. The USACE initially replaced all of the signs in Dolly Sods, and continues to conduct bi-annual visits to the region to examine the signs and ensure they're still present. If a sign is not present, it is reported to the USFS who sends personnel out to replace it as expeditiously as possible. The old warning signs that were recommended to be removed, have been.

5.6 Trailheads and Trails Marking

Previous Recurring Review Recommendation: It is currently difficult for visitors to remain only in areas that have been cleared of UXO when using the region for hiking. This is due to the facts that certain designated trailhead locations are not currently indicated with a sign, and many trail sections are not currently well maintained or marked. USFS should mark the heads of all trails that have been cleared for ordnance with signs containing the appropriate trail name. Such

signs should not contain information which encourages visitors to stray from cleared trails and/or perform excavations (for instance, the following message currently on the trailhead sign for the Big Stonecoal and Breathed mountain trails should be removed: “camp out of sight and sound of trails and other campsites” and “bury human waste in cat holes”). Rather, trailhead signs should contain a message recommending that visitors not stray from designated trails and camp only at inventoried campsites. Trailhead locations for five trails which have been cleared of UXO were not indicated with a sign at the time of the site assessment (Appendix D: photographs: 4, 10, 12, 38, and 62). Any regional trail that was not cleared of UXO should not have any type of marking (e.g. a sign, or a pile of stones) at its trailhead; such markings that currently exist (i.e. the three locations shown in Appendix D: photographs 18, 21, and 22) should be removed to discourage visitor use. Regardless of any wilderness protocol aspects, all trail sections which have been cleared for ordnance in the DSW, DSN, and DSSA should be maintained and effectively marked in some way by the USFS to encourage their use by visitors and allow them to be easily followed. USACE and USFS should conduct bi-annual monitoring to ensure that trailhead signs and trail markers remain in place.

Implementation and Results of Recommendation: Based on observations made during the site visit for this Recurring Review, trailhead markers with the appropriate trail name appear to be in place for all of the trails that were cleared of ordnance within Dolly Sods.

Within the past year, the USFS conducted an extensive effort to replace all of the missing or dilapidated trailhead and trail intersection markers within Dolly Sods. According to the USFS, all of these markers that were missing or were in a state of disrepair have been replaced with a new sign.

During the bi-annual examination of the UXO warning signs located at the trailheads, USACE personnel also examines the trailhead marker to ensure all of the information is still present.

5.7 Trails Map Distribution

Previous Recurring Review Recommendation: An accurate map of designated DSW, DSN, and DSSA trails that have been cleared of UXO is not currently available to the public. To facilitate usage of cleared trails and campsites, and assist hikers in maintaining their course on the cleared trails, such a map should be generated and distributed to the public by USACE. Distribution could be accomplished by placing hard copies of the map at the most highly visited trailheads and at other local visitor centers and offices, and by placing a digital copy on the USACE Huntington District website and the USFS website for download. Notifying the public when such a map becomes available could be facilitated through the publication of a short article in a magazine oriented towards hiking/outdoor communities.

Implementation and Results of Recommendation: Such a map was created, and has been distributed by the USACE following the initial Recurring Review. To date, over 10,000 copies of this map have been distributed to the public. The maps were not distributed at the trailheads, as noted in the recommendation above, due to concerns over littering. Rather the maps have been distributed directly by USACE at various events, as well as through local businesses, organizations, and project stakeholders. A digital copy was placed on the USACE WVMA/Dolly Sods FUDS project website and continues to be accessible to the public at this location.

5.8 Brochures, Promotional Items, and Presentations Distribution

Previous Recurring Review Recommendation: To better educate the public on the hazards of UXO and to continue to effectively manage the risk to public safety, the USACE should generate and make informational brochures, promotional items, and presentations available to the public. Distribution of such materials could be accomplished by placing brochure hard copies at the most highly visited trailheads and at other local visitor centers and offices, and by placing digital copies of the brochures and presentations on the Huntington District website for download. The USACE and USFS should perform public outreach at a local community event, to local schools, and facilitate ordnance training for local fire departments, by providing them with, or directing them to such materials. Such materials should also be distributed at any future public meetings held by USACE in the region.

Implementation and Results of Recommendation: As a response to this recommendation, as well as being part of the PIP and PAP, the USACE has extensively sought opportunities to share the UXO safety message with the public. Initially, as a direct result of this recommendation in the initial Recurring Review, the USACE contracted with S&C Advertising to develop information brochures, promotional items, safety presentations that included a project mascot, and develop a public website. All of these items were implemented and have been used to convey the safety message to the public. To date, a trail map, two safety themed brochures, and various different promotional items with the Dolly Sods safety theme, have all been passed out to the general public at various speaking engagements and community events.

As noted in Section 5.7 above, the materials were not distributed at the trailheads, due to concerns over littering. The items have been distributed directly by USACE at various events, as well as through local businesses, organizations, and project stakeholders.

As a result of this recommendation, the USACE has annually hosted an information booth held each October at the Mountain State Forest Festival in Elkins, WV. This booth gives the USACE personnel the opportunity to interact with the public and pass out public awareness items concerning the UXO issue at Dolly Sods. Each year, USACE hands out thousands of promotional items, safety brochures and trail maps to patrons of this event, increasing the public's knowledge of the UXO issue at Dolly Sods.

In 2008, the USACE, along with Bill Veith, USACE MMRP-CX, hosted an ordnance safety training session for local fire departments at the Blackwater Falls State Park in Thomas, WV. This session informed the fire department personnel as to the history of the site, as well as included a discussion on information about the types of ordnance that can be found in Dolly Sods.

5.9 Media Information and Publications Review

Previous Recurring Review Recommendation: Because the Dolly Sods region is a popular tourist destination, many non-federal and non-state publications regarding the region are generated each year. Such publications often encourage readers to visit and enjoy the region without making them aware of ordnance-related concerns (making readers aware of such concerns when publishing articles is not a requirement). For instance, a recent book entitled "Dolly Sods" (Venable, 2001) doesn't mention the potential for finding UXO in the region. Another recent article, by the West Virginia Mountain Highlands (2003), states that "You can pick (blueberries) just about anywhere. Park along Forest Road 75, walk into the Sods and pick to your hearts content." When such publications are noticed or reviewed by USACE, USAESC, USFS, WVDEP, or WVDofF personnel, the publication's author should be contacted, and a

request should be respectfully made that the author consider including a short message regarding the potential to find UXO in any similar future publications for the purpose of increasing tourist industry awareness.

Implementation and Results of Recommendation: Several articles have been reviewed by USACE personnel after their initial publication. In instances where no mention of the UXO issue is made, attempts have been made to contact the author to request that future publications the issue be noted. When articles have been read that do note the UXO issue at Dolly Sods, the author has also been contacted to thank them for the inclusion.

5.10 GIS Application

Previous Recurring Review Recommendation: The project GIS should continue to be updated, applied, and further developed by USACE. Such efforts will allow a current database of project information (e.g., all ordnance-related incidents) to be maintained, and will facilitate future project management, site monitoring, and site reviews.

Implementation and Results of Recommendation: As part of this current Recurring Review, USACE contracted WVU's WRI to extensively update the project's GIS database. The GIS database had been sporadically updated in the previous five years, since the initial review, but little effort had been placed in doing a comprehensive update of the database. As part of this update, WVU hiked all of the trails at Dolly Sods and took more specific coordinates of each trails exact location. They also documented social trails and all campsites that appear to have been used. Their efforts also noted coordinates of areas with erosion concerns, overall trail conditions, trail intensity, and coordinates of known geocaching locations. WVU also implemented new technology which allowed photos that were taken during the site visit to be linked to exact coordinates and direction of photo read by their GPS. These photos, and their respective coordinates, were then fed into the project's GIS database.

6.0 CONCLUSIONS

As part of the Recurring Review process, the resulting Recurring Review report must comment on the process findings judged against criteria developed as a result of three questions specific to the Recurring Review process. Those questions spelled out in the Recurring Review guidance documents are as follows:

- 1) Is the response action functioning as intended?
- 2) Are any assumptions used at the time of response selection still valid?
- 3) Does new information indicate that the previously selected response no longer minimizes explosives safety risks or is no longer protective of human health, safety and the environment considering the best available technology?

The results of this Recurring Review, in relation to those three questions, are discussed in the following table. Following the table is a discussion on other results and recommendations of this Recurring Review process.

Recurring Review Essential Question	USACE Response	Timeframe for rectification (if necessary)
<p>a) Is the response functioning as intended?</p>	<p>This review concludes that for the areas originally covered under the initial removal action in 1997-98 (trails and campsites in the Dolly Sods Wilderness, Dolly Sods North, and Dolly Sods Scenic Areas) the response action is functioning as intended, and is still protective of human health, safety and the environment. This is evident by the lack or infrequency of military munitions (previously known as unexploded ordnance (UXO)) finds along trails and in campsites that were cleared by the initial response action.</p> <p>However, while the removal action is functioning as intended on the trails and campsites that were cleared during the 1997-1998 removal, it was noted during the site visit that the public is using several unofficial campsites and social trails which have been created by visitors to the Dolly Sods Wilderness Area. Both the campsites and social trails appear to have been well worn and heavily used. These new findings indicate a potential increase of risk due to these areas being outside of the zone that had been initially cleared of military munitions, and therefore pose a threat to human health, safety and the environment. It is recommended that a site visit be conducted, by an appropriate OE safety specialist, to sweep these areas. This effort will be to ensure there are no potential military munitions in these areas. Furthermore the use of these trails and campsites, by visitors, should be discouraged by all project stakeholders to limit risk.</p>	<p>See response to Question (c) Below.</p>
<p>b) Are any assumptions used at the time of response selection still valid?</p>	<p>At the time of the removal response, the focus of the project was to remove UXO from the most heavily visited portions of the Wilderness Area which would decrease the likelihood of visitors encountering UXO. To date there have been no Decision Documents or Records of Decisions concerning the removal of munitions constituents for this particular project.</p> <p>Therefore, no Applicable or Relevant and Appropriate Requirements (ARARs) or other munitions constituent cleanup standards have been established for this project.</p>	<p>At some point in the near future the project delivery team will need to make a determination on the steps forward to determine if the munitions if there are munitions constituents present, and if so the steps necessary for remediating them. This process will follow the CERCL process guidelines. It is recommended that this action take place prior to the commencement of the next Recurring Review on this project.</p>
<p>c) Does new information indicate that the previously selected response no longer minimizes explosives safety risks or is no longer protective of human health, safety and the environment considering the best available technology?</p>	<p>During the site investigation portion of this Recurring Review, it was discovered that there were several areas within the Dolly Sods Wilderness Area where campsites and "social trails" had been created to go off of the official trail system. While the areas that were covered under the initial UXO response action (official trails and campsites throughout the Dolly Sods Wilderness Area) are felt to be functioning as intended, it is obvious that the social trails and campsites that were created since the last Recurring Review have increased the risk to human health and the environment.</p>	<p>It is recommended that a OE safety specialist from either the Environmental and Munitions Center of Expertise, local USACE UXO Design Center, or a Contractor to conduct a site visit to clear the social trails and previously undocumented campsites by the end of FY12 (if funding is available). If funding is not available then this activity shall be completed prior to the commencement of the next Recurring Review at a minimum.</p>

It should be noted that no military munitions or munitions debris were identified during the site assessment, which encompassed the entire DSWA trail system; nor were any military munition concerns present due to erosion, storm damage, changes in land-use, or recreation. Vegetation provides soil stability across most of the region, and site conditions and usage have not changed noticeably since the removal action or since the previous Recurring Review. Mountainous and rugged terrain along with dense vegetation makes human access to many portions of the region that were not cleared for munitions difficult. If high amounts of erosion occur (e.g., due to a severe storm), if vegetation is removed (e.g., due to fire), or if recreational or land-use changes occur (e.g., if new campsites, roads, or trails are made), then an increased potential of encountering UXO in these areas may result.

Prior to the 1997 to 1998 removal action there were many instances (e.g. an average of ten per year during one ten year period) in which military munitions were encountered along designated trails and at inventoried campsites (USACE, 2004a). Since the removal action, there have been nine cases of encountered UXO by recreational visitors. It should be further noted that since the previous Recurring Review, only three such UXO finds were reported within the DSWA, meaning an even further decrease in finds per year since the first Recurring Review. In each case, UXO was found in areas that receive little visitor traffic, nobody was injured, and the U.S. Army EOD conducted disposal after being contacted through established notification and reporting processes. No UXO has been found since 1998 in the highly used areas of Dolly Sods (i.e. along the trails or at the campsites that were cleared for UXO). This indicates that the areas encompassed by the removal action are functioning as intended. Historically, visitors encounter UXO when they have ventured away from trails and campsites that were cleared during the removal action. Other areas were not cleared due to resulting environmental damage, extremely high costs, and technological limitations. The intent of the 1997-98 removal action was not expected to completely negate UXO-related risk; therefore, continued periodic reviews of the site and education of visitors, continue to be a necessity.

Institutional controls, which were put in place as a result of the previous Recurring Review, are still effective in warning visitors of the UXO issue at Dolly Sods. The controls were implemented to increase public awareness and ensure continued visitor safety. It is recommended that the current controls continue. Warning signs that were created and posted under the previous Recurring Review should continue to have semi-annual checks to ensure they are present and not damaged or removed. In the event that the reserves of warning signs run low, it is recommended that the USACE conduct a re-print of the signs. Many designated trail sections are not well marked, which may make it difficult for hikers to remain in areas that have been previously cleared of military munitions. Therefore continued efforts by the U.S. Forest Service (USFS) to replace worn or missing trail markers are encouraged.

It is also recommended that several community awareness programs, focused on educating the public, continue and improve where feasible. The continued use of the project's Public Awareness Plan (PAP) and Public Involvement Plan (PIP) should remain in place to guide community outreach efforts.

7.0 RECOMMENDATIONS

Recommendations provided in this section are based upon the results obtained and the conclusions drawn from the Recurring Review process. USACE and other involved agencies should attempt to execute responsibilities associated with these recommendations in accordance with overall fiscal responsibilities and the receipt of appropriate funding. These

recommendations do not commit USACE or other involved agencies to any activity for which funding is not made available for through their respective budgetary processes.

7.1 Continual Update of Project Information

To ensure that the most up-to-date project information is present for the public, project stakeholders, and project team members, a concerted effort must be made to continually share and update project information. Project information, as it is suggested here, can include project related reports, information on new presentations given concerning the project, the continual update and sharing of the USACE GIS database, the continual update and sharing of the USACE UXO finds database amongst project stakeholders, updating the project website as new information becomes available, and other informational items as they become available. Also, when new public awareness information is available or when reserves of these items become depleted, updated materials should be produced in a timely manner so that there is no lapse in materials available for public use and awareness.

7.2 Geocache Restrictions within the Dolly Sods Wilderness Area

To better educate the public on the dangers of venturing off cleared trails within the DSWA, it is recommended that the USFS generate strict Geocaching rules and regulations to be enforced within Dolly Sods. The rules should limit or eliminate geocaching within the wilderness area due to the potential to encounter UXO.

7.3 Clearing New Campsites and Heavily Used Social Trails

As noted in the Table in Section 6, the field crew noted and recorded campsites that were not on the list of original campsites that were cleared of UXO. During the site visit it was also noted that there were several minor social trails that at a minimum had received regular foot traffic based upon the amount of wear present on them. These trails and campsites were recorded and have been added as a layer on the project's GIS database.

This recommendation is for the USACE to conduct a UXO sweep of these campsites and social trails, using a USACE OE safety specialist from a design center or the Munitions Center of Expertise, to ensure that there are no UXO present and ensure visitor safety. It is also recommended that the USFS place logs or other such obstructions at the entrance of the social trails so as to discourage their use by visitors.

7.4 Establish UXO Reporting Standards for Areas Outside Dolly Sods

As noted in Section 4.3.1, while there has been a steady decline in the number of UXO finds within the DSWA, the number of reported UXO related finds in areas surrounding the DSWA has increased since the previous Recurring Review. It is recommended that the USACE, USFS and other project stakeholders develop a standard reporting protocol to follow in the event that UXO is found on areas surrounding the DSWA. These standards can include the USDoA's 3Rs of UXO safety message, notification that in the event that a suspected UXO is found to contact your local 911 emergency number or the West Virginia State Police, whose effort in this matter will also require coordination. It is also recommended that the project team and stakeholders create a concrete decision matrix which can be followed in the event of a find on property outside the Monongahela National Forest.

7.5 Annual Public/Stakeholder Meetings

In order to ensure adequate communication amongst the project stakeholders, it is recommended that the stakeholders agree to conduct an annual stakeholder meeting (whether it be private or open to the public) to ensure lines of communication are open amongst the participants. This meeting can be used to share project information, update progress, work out any differences the stakeholders may encounter, voice any concerns about the project, or to simply introduce new team members and renew agreements.

With this project, open communication amongst the project stakeholders is crucial. It is imperative that there is cooperation and open/frank dialogue amongst all of the project stakeholders to succeed in protecting human health and the environment. Risks associated with lack of communication amongst the stakeholders could jeopardize worker or visitor safety and could result in such things as stakeholders working in areas that have not been previously cleared of ordnance or inadvertently allowing visitor access to areas that have not been cleared of ordnance. For example, if a land owner within the Impact Area of the former WVMA decides to conduct a trail re-route without first consulting the USACE to determine the UXO risk associated with the new route. The new trail layout could potentially be constructed in an area of either known or suspected UXO, where no UXO clearance had been conducted in the past. This action would result in a potential increased risk to the worker or visitor's safety.

7.6 Offer Additional UXO Training

Due to the rugged terrain and areas of confusing trail patterns, it is possible for hikers to become lost within the DSWA. If these hikers are lost for a considerable period of time, officials or family members may deem it become necessary for search and rescue teams, or volunteers, to be called into the Wilderness Area to locate the lost individuals. An example of one such incident occurred in 2007, when a teenager who was hiking with his parents became separated and lost along a trail within in the DSWA. It took four days, and approximately 300 volunteer and professional rescuers to locate the missing hiker. This is not the only occurrence, and has happened several times throughout the history of the DSWA. When this occurs, many rescuers are in the Wilderness Area on foot, ATV or other method, and may not adhere to the proper protocol of following designated trails/campsites, as that may not be the most effective way to locate the lost individual.

It is recommended that the USACE invite and present on UXO safety to local search and rescue teams, as was done for the local fire departments following the previous Recurring Review. This same UXO-related safety training should also be offered to local Office of Emergency Services, the USFS at their annual Fire Presentation workshop, project stakeholders, and other emergency response officials. This effort would be to ensure UXO safety related information gets to individuals who use the DSWA or surrounding areas regularly, or use the DSWA in the event of an emergency response, so they know what UXO is and what to do in the event they encounter it.

7.7 Addition of UXO Warning Message

Presently, the UXO warning message is not located on the official USFS Monongahela National Forest Map or official USFS DSWA map. It is recommended that in future prints of these maps that a UXO warning message (including the UXO reporting hotline) be included. It is also recommended that the UXO warning message be included on special use permits that the USFS issues for use of the DSWA. It is also recommended that a UXO warning message be included with the radio feed that is broadcast on the USFS radio frequency at the Seneca Rocks Discovery

Center. This radio feed presents visitors to the area with information about the Monongahela National Forest and recreation activities that are present within.

These recommendations are all made in an attempt to increase the public's knowledge of the UXO issue at the DSWA.

7.8 Additional UXO Warning Signs

In an attempt to avoid a shortage of UXO warning signs, which are placed at trailheads within the DSWA, it is recommended that the USACE order additional signs. It is recommended that this effort be coordinated with the USFS so that the re-order may take place in a timely manner and that there is no lapse in signs available to warn the public of the UXO issue at the DSWA.

7.9 Continue USACE UXO Avoidance Assistance to Project Stakeholders

It is recommended that the USACE continue to provide UXO avoidance assistance, through the use of OE safety specialists out of USACE MMRP Design Centers, to project stakeholders. This effort is to ensure that the stakeholders are safe while conducting work within the DSWA that may be in areas that are known or suspected of having UXO.

An example of this effort is the use of a OE safety specialist on the USFS' reroute of the Raven Ridge Trail in the northern portion of the DSWA. The USFS wanted to move the trail back onto USFS property, which had previously been on private land. So the USFS flagged the proposed route of the new portion of trail and a USACE safety specialist cleared this area of UXO so the new portion of the trail could be constructed. This effort ensured that construction workers in the building the new portion of trail remained safe, as well as visitors who would use the trail in the future.

7.10 Continual Achievements of First Recurring Review

It is recommended that all of the recommendations within the first Recurring Review continue to be upheld and accomplished, in the event the task is ongoing and has yet to be achieved.

7.11 Next Recurring Review

The next (i.e. third) Recurring Review of the 1997 to 1998 ordnance response action conducted in the Dolly Sods region should occur within five years of the completion of the final version of this report.

8.0 REFERENCES

Hammes, J., 2003, Letter dated 5 August 2003 concerning found UXO at Dolly Sods, USFS, Monongahela National Forest, Petersburg, WV.

Human Factors Applications, Inc. (HFA), 1998, Final Removal Report: Ordnance and Explosives Removal Action Dolly Sods Wilderness, Monongahela National Forest. Prepared for USAESC, Huntsville, AL.

HFA, 1999a, Final Removal Report: Ordnance and Explosives Removal Action Dolly Sods North, Monongahela National Forest. Prepared for USAESC, Huntsville, AL.

HFA, 1999b, Final UXO Avoidance Report for the Bear Rocks Property, Monongahela National Forest. Prepared for Virginia Power.

Metcalf & Eddy, Inc., 1991, Feasibility Study Dolly Sods Wilderness: Final Work Plan for Surface and Subsurface Investigation and On-Site Disposal of Ordnance. Prepared for USACE, Huntsville District, Huntsville, AL.

Metcalf & Eddy, Inc., 1992, Feasibility Study Dolly Sods Wilderness: Engineering Report for Extent of UXOW Contamination and Evaluation of Remedial Action Alternatives. Prepared for USACE, Huntsville District, Huntsville, AL.

New Bold Enterprises (NBE), 1995, Dolly Sods Wilderness Ordnance Removal Project Environmental Assessment. Prepared for USACE, Huntington District, Huntington, WV.

NBE, 1997, Dolly Sods North Ordnance Removal Project Environmental Assessment. Prepared for USACE, Huntington District, Huntington, WV.

Schell, S., 2003, Personal communications during September 2003 regarding found UXO at Dolly Sods, USFS, Monongahela National Forest, Petersburg, WV.

S&C Advertising and Public Relations (SCPR), 2004a, Public Awareness and Organizational Plan of Unexploded Ordnance at Dolly Sods. Prepared for USACE, Huntington District, Huntington, WV.

SCPR, 2004b, Draft Public Involvement Plan: Dolly Sods Region, Former West Virginia Maneuver Area. Prepared for USACE, Huntington District, Huntington, WV.

U.S. Army Corps of Engineers (USACE), 1991, Inventory Project Report for West Virginia Maneuver Area, Davis, WV. Prepared by USACE, Ohio River Division.

USACE, 1995, Archives Search Report: Findings for the Former Dolly Sods North. Prepared by USACE, Rock Island District, Rock Island, IL. Prepared for USACE, Huntsville District, Huntsville, AL.

USACE, 2003a, Recurring Reviews on Ordnance and Explosives (UXO) Response Actions, EP 75-1-4, 31 Washington, DC.

USACE, 2003b, Formerly Used Defense Sites Newsletter. Prepared by USACE, Huntington District, Huntington, WV.

USACE, 2004a, Database containing information regarding Munitions debris and UXO found in the Dolly Sods region. Developed and maintained by USACE, Huntington District, Huntington, WV.

USACE, 2004b, CEMVS-ED-P Memorandum dated 26 April 2004, Subject: Potential DERP FUDS Projects – West Virginia Maneuver Area.

USACE, 2004c, West Virginia Maneuver Area/Dolly Sods FUDS Project Recurring Recurring Review on the Dolly Sods Wilderness Area. Developed by the USACE, Huntington District, Huntington, WV.

USACE, 2009, West Virginia Maneuver Area/Dolly Sods FUDS Project Preliminary Assessment Report. Prepared y USACE Huntington District, Huntington, WV.

U.S. Army Engineering and Support Center (USAESC), 2003, Ordnance and Explosives Recurring Review: Mission Trails Regional Park (located in San Diego, CA), Huntsville, AL.

U.S. Geological Survey (USGS), 1996-1999, West Virginia statewide (1:12,000) Digital Orthophoto Quarter Quads.

Vandevelde, C., 1990, Letter dated 9 August 1990 concerning approval of remedial investigation/feasibility study for Dolly Sods Wilderness, USACE, Huntington District, WV.

Venable, N.J., 2001, Dolly Sods, West Virginia University Extension Service, Morgantown, WV, and McClain Printing Company, Parsons, WV, 24 p.

West Virginia Mountain Highlands, 2003, Brochure article: Family-Fun Treks & Overnights in the Monongahela National Forest, p. 14

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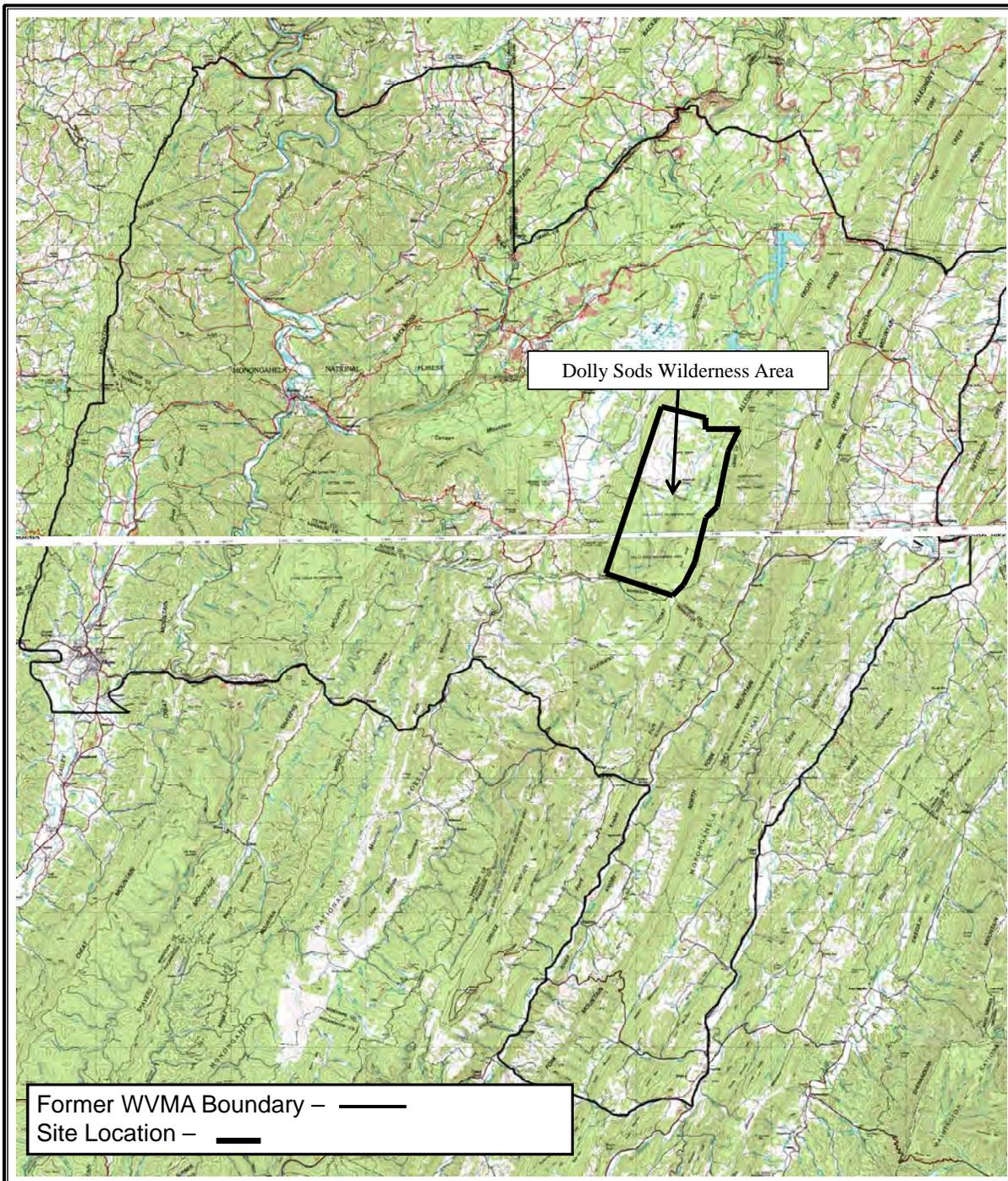
US Army Corps of Engineers

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**ENVIRONMENTAL &
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**Former WVMA/Dolly Sods FUDS Project
Recurring Review**



**US Army Corps
of Engineers**

U. S. ARMY CORPS OF
ENGINEERS
HUNTINGTON DISTRICT

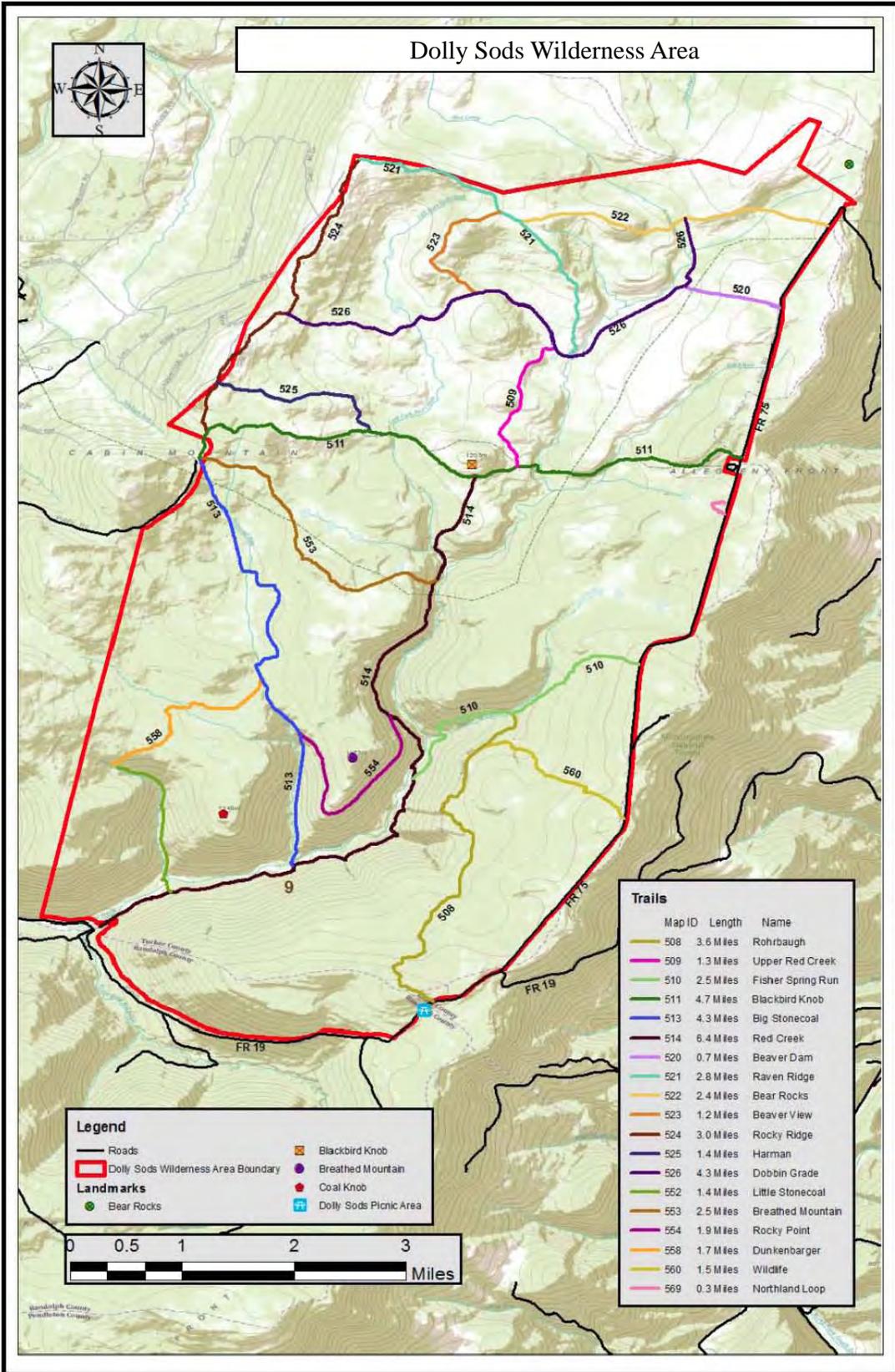
ENVIRONMENTAL &
REMEDIATION SECTION

Site Location
Figure 1.1

Former WVMA/Dolly Sods FUDS Project
Recurring Review

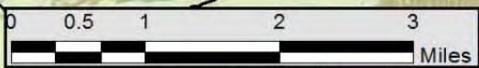


Dolly Sods Wilderness Area



Legend

- Roads
- Dolly Sods Wilderness Area Boundary
- Blackbird Knob
- Breathed Mountain
- Coal Knob
- Dolly Sods Picnic Area



US Army Corps of Engineers

U. S. ARMY CORPS OF ENGINEERS
HUNTINGTON DISTRICT

ENVIRONMENTAL & REMEDIATION SECTION

Site Under Investigation
Figure 1.2

Former WVMA/Dolly Sods FUDS Project
Recurring Review

Appendix A: SITE MAPPING REPORT

Geoenvironmental Assessment of the Dolly Sods Trail Network for CERCLA Review

Final Report

February 5, 2010

USACE Project: **W91237-09-P-0089**

WVU Project: GEO-25

Submitted to the
U.S. ARMY CORPS OF ENGINEERS,
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EXECUTIVE SUMMARY

The U.S. Army Corps of Engineers (USACE) Huntington District, Environmental and Remediation Section (CELRH-EC-CE) has contracted West Virginia University (WVU) to conduct an update of the West Virginia Maneuver Area/Dolly Sods Formerly Used Defense Site (FUDS) Project GIS database. This GIS database update is necessary for inclusion in the project's second five year recurring review, currently being conducted on the site. Internally within WVU, this project is a collaborative effort involving three WVU departments: the Department of Civil and Environmental Engineering, the Water Research Institute, and the Department of Chemistry. All field work was performed within the West Virginia Maneuver Area (WVMA) FUDS Property, specifically the Dolly Sods Region. The work scope activities included collection of GIS information and development of a GIS database, preparation of a GIS summary report, and planning meetings and conference calls.

In a sense, this project is a continuation of an investigation into the geoenvironmental impacts associated with Munitions Constituents (MC) and Unexploded Ordnance (UXO) in the Dolly Sods Area of the Monongahela National Forest. This project supports assessment of the trail network as it has been impacted by human use and natural erosion from surface water runoff.

1.0 INTRODUCTION

The Dolly Sods Area is comprised of the Dolly Sods Wilderness Area and the Dolly Sods Scenic Area. Located in Grant, Randolph, and Tucker Counties of West Virginia, it is positioned between Canaan Valley and Seneca Rocks within the Monongahela National Forest (Figure 1). The Dolly Sods Area is on the Allegheny Plateau, and has elevations ranging from 2,600 to 4,100 feet. The Dolly Sods Region consists of more than 18,500 acres and is well known for its extensive rocky plains, upland bogs and sweeping vistas. The U.S. Army Corps of Engineers (USACE) reports that visitors to the area range from 45,000 to 76,000 annually. The remoteness, natural experience, and limited human influences attract adventurous hikers, mountain bikers, anglers, hunters, and berry pickers.

Dolly Sods falls within the 2.18 million acre WVMA, where during World War II, the Department of the Army trained troops in order to simulate conditions in the mountains of Italy. A portion of the training in the WVMA included a 50,000-acre Impact Area used for heavy artillery (105-mm howitzer rounds) and mortar (60-mm, 81-mm) firing ranges. The USACE, Huntington District, has project management responsibilities for the WVMA. This project is authorized under the Defense Environmental Restoration Program (DERP) Formerly Used Defense Sites (FUDS).

The Environmental and Remediation Section of the Huntington District (CELRH-EC-CE) of the USACE is conducting the second five year recurring review on the WVMA/Dolly Sods FUDS

Project. The purpose of Recurring Reviews for Ordnance and Explosives (OE) response actions is to determine if a response action, in this case the 1997-1998 ordnance removal action at Dolly Sods, continues to minimize explosives safety risks and continues to be protective of human health, safety, and the environment. Recurring reviews are conducted under the Long Term Management (LTM) phase once a Formerly Used Defense Site (FUDS) achieves Response Complete status. Recurring Review satisfies the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) five-year review requirement.

CELRH-EC-CE, with technical support provided by the U.S. Army Engineering and Support Center (USAESC), Ordnance and Explosives Center of Expertise, Huntsville, conducted the original Ordnance and Explosives (OE) recurring review of the Dolly Sods region of the former West Virginia Maneuver Area (WVMA) in 2003-2004. The review process consisted of the following activities: notification and involvement of stakeholders, the review of existing and relevant documentation and data, the identification and review of recent and new information, a community survey and public interviews, development of a project GIS database and an assessment of site conditions.

2.0 SCOPE OF WORK

West Virginia University has provided GIS support to the USACE for the development of the second five-year Recurring Review of the WV Maneuver Area/Dolly Sods FUDS Property. As part of this Five-Year Recurring Review, the Huntington District has found it necessary to update and revise the existing Dolly Sods GIS database, originally created under the initial Five-Year Recurring Review, to accurately document current trail/campsite conditions, recent UXO finds, Community Survey Results and other pertinent project information. Our work was comprised of a Quality Control Plan and a series of four GIS work tasks:

2.1 QUALITY CONTROL PLAN

Prior to initiating any activities, WVU prepared and implemented an approved Project-Specific Quality Control Plan (QCP) for all tasks/activities and products. The QCP was prepared according to CELRHR 5-2-7, Quality Management Plan, ER 1110-1-2, Engineering and Design Quality Management, CELRDC 5-1-1 Quality Management Plan and the applicable ISO 9000 processes developed for this type of work. The QCP defined the responsibilities and roles of members on the Independent Quality Control Team (IQCT), along with those team members preparing or performing the tasks/activities.

2.2 PROJECT DELIVERABLES

West Virginia University developed a GIS database and series of maps in order to manage data collected during this year's Dolly Sods 5-Year Recurring Review. The GIS work involved updating the existing database previously collected by the USACE for the Dolly Sods FUDS Project. WVU utilized and expanded on the GIS database created for the 2007 "Environmental

Forensics for Characterization of Unexploded Ordnance at the Dolly Sods Wilderness Area” Research Project. The SOW included the following project tasks:

Collection of GIS information and development of a GIS database

Spatial Data Collection

West Virginia University collected spatial data from unreferenced maps and through site visits to each trail in the Dolly Sods Region (North Area, Scenic Area, and Wilderness Area) in summer 2009 (Figure 1). The field crew comprised of WVU researches and USACE personnel (Figure 2). Field data was collected using a Trimble ProXH GPS receiver and Ranger data collector (Figure 3). West Virginia University coordinated site visits with Nickolas McHenry, CELRH-EC-CE, who served as the USACE Technical Point of Contact. West Virginia University were escorted by a USACE Unexploded Ordnance (UXO) Safety Specialist during all hikes. West Virginia University followed the Site-Specific Safety and Health Plan developed by the UXO Safety Specialist.

Parameters such as trail conditions and trail markings were included in the GIS with photos of trail intersections and other points or features of interest. Features of interest included locations of off-trail campsites (Figure 4), social trails, erosion concerns (Figure 5), existing trail marking signs (Figure 6), and geo-caching sites. Using Trimble Pathfinder Office software, WVU developed an appropriate ranking system for features of interest that included trail header markings, degree of erosion, trail hiking difficulty, trail condition, trail use, and camping area use (Figure 7). Dolly Sods Region and detailed maps were created depicting the features of interest (Figures 8-51).

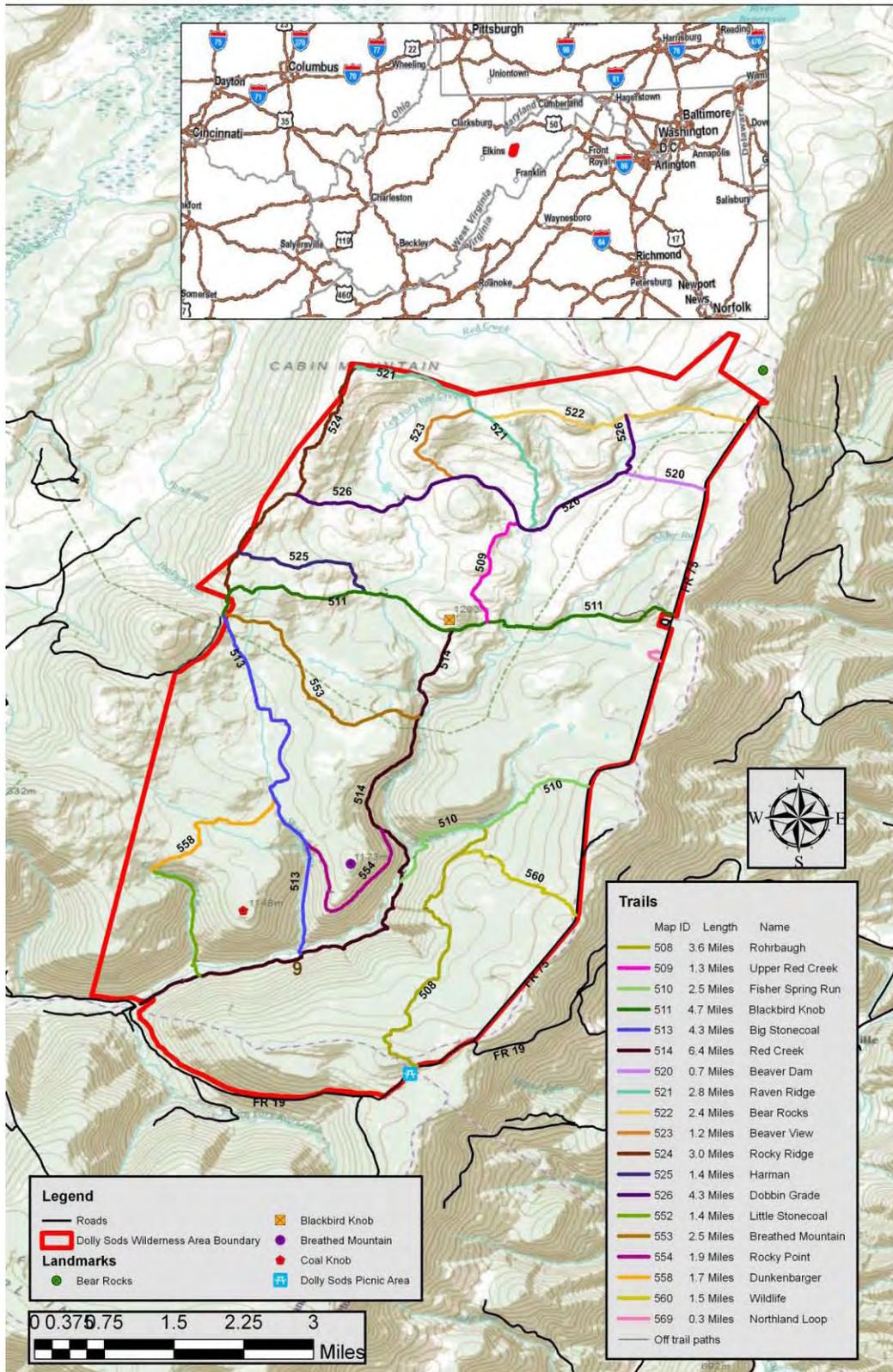


Figure 1. Map of Dolly Sods Wilderness Area depicting trails covered during WVU and USACE 2009 field survey.



Figure 2. Field crew including WVU researchers and USACE personnel

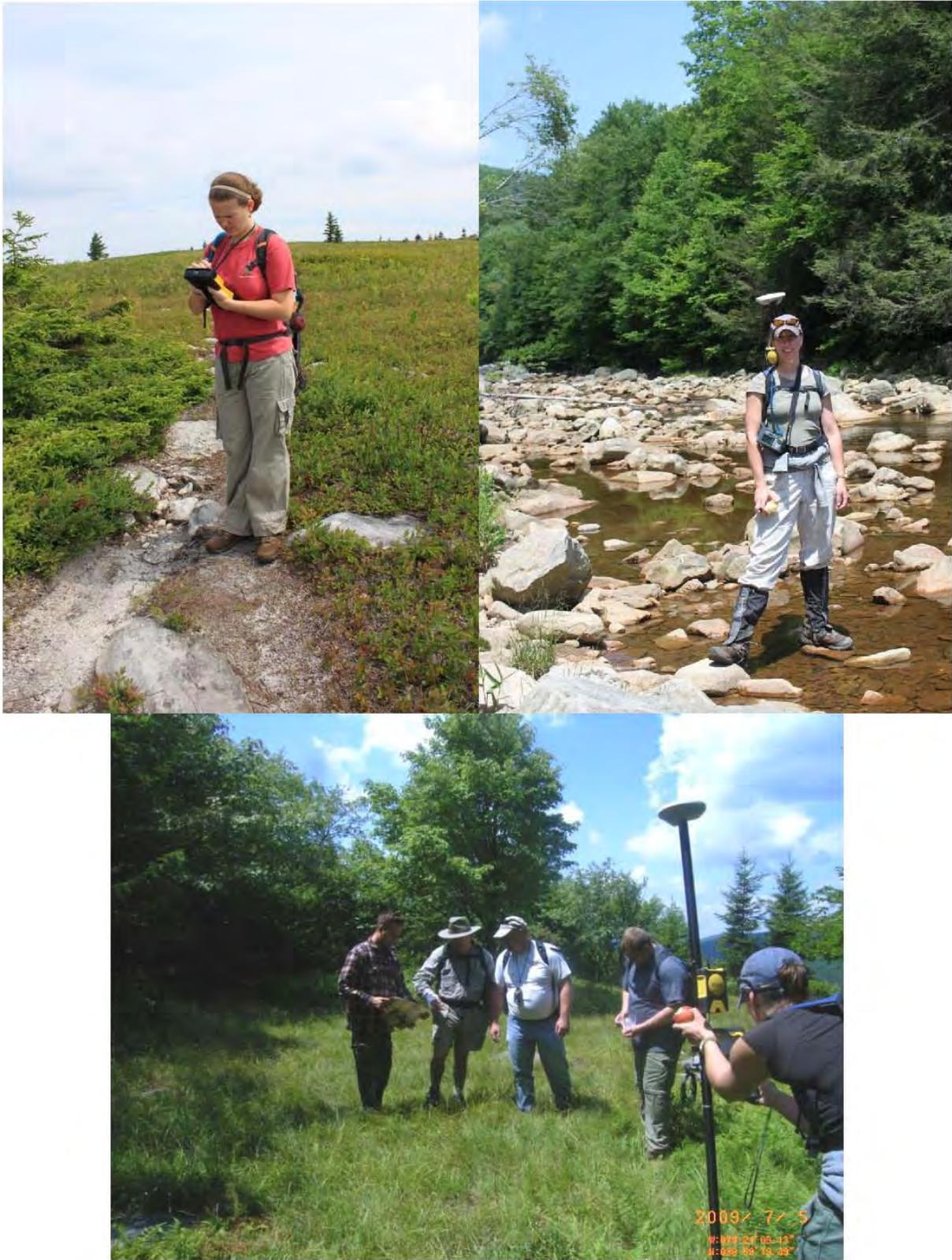


Figure 3. WVU researchers and USACE personnel collecting GPS data using Trimble GPS equipment



Figure 4. Examples of off-trail campsites mapped by the field research team on Red Creek Trail, Big Stonecoal Trail, and Rohrbaugh Trail.



Figure 5. Examples of trail erosion concerns on Upper Red Creek Trail and Bear Rocks Trail

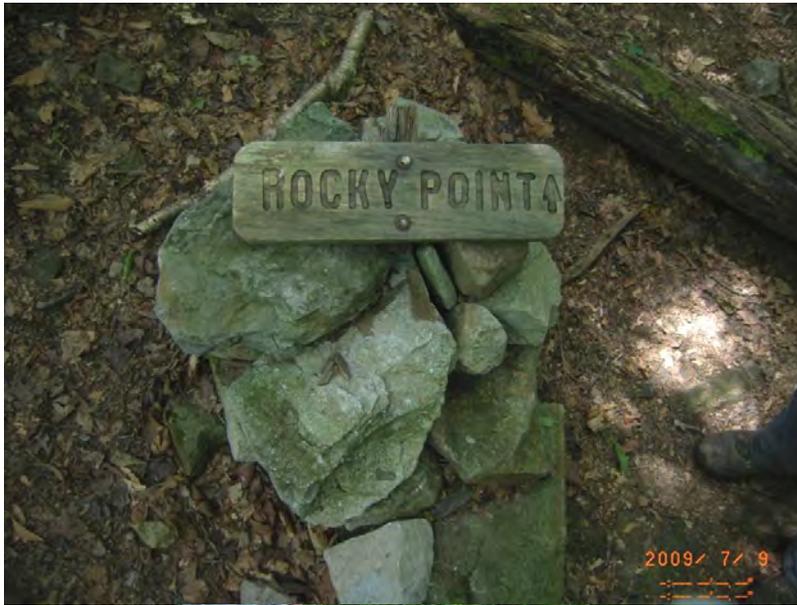


Figure 6. Existing trail marking on Rocky Point Trail and Red Creek Trail.

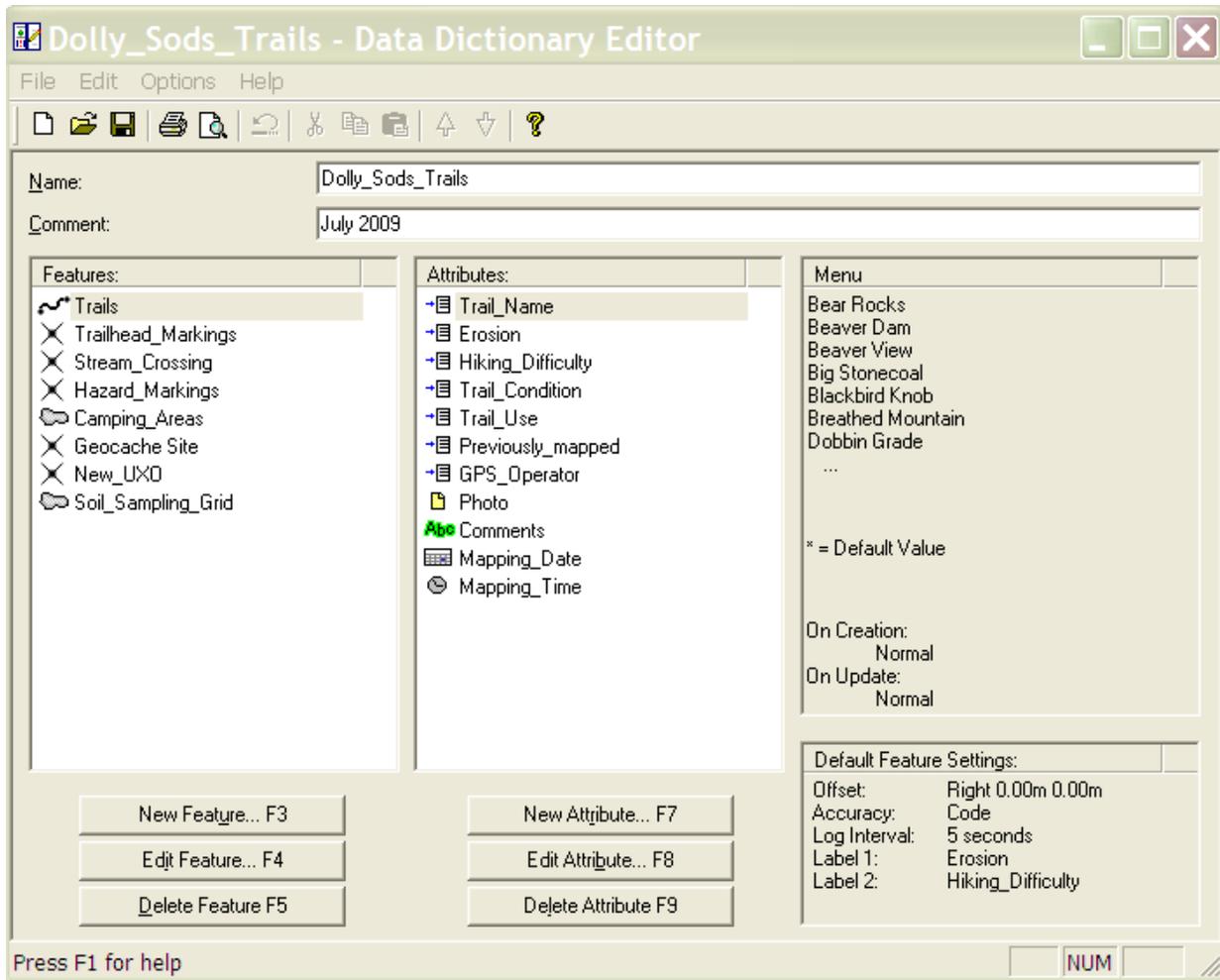


Figure 7. Trimble Pathfinder Office data dictionary editor used to develop GPS classifications.

WVU downloaded all GPS data collected at the end of each collection day for on-site processing. Data were converted into shapefiles and the information was reviewed to ensure complete collection and functionality. Our daily data reduction approach allowed us to check all data in the field and make on-site corrections as appropriate.

GIS database development

WVU developed and revised the existing Dolly Sods GIS database for inclusion in the second 5-year Recurring Review. GIS files will be developed in ArcGIS 9/ArcMap. Map data on the West Virginia Maneuver Area, plus existing Dolly Sods GIS shape files developed during the 2007-2008 Strategic Environmental Research and Development Program (SERDP) project and previous 5-Year Recurring Review, were incorporated into the proposed project. Work conducted under this subtask included:

Create/update GIS background images and files

WVU obtained historic maps of the Dolly Sods Region and georeferenced the maps for inclusion in the GIS (Figures 8 – 10). The Potomac Ranger District map was georeferenced by first projecting a local town shapefile to a Polyconic projection in order to match the original map projection. The map was georeferenced using 36 control points, and was transformed using a Spline transformation to minimize RMS error to 0.00005. The impact area mapping with notations was overlaid with a US topographical layer, and was georeferenced using 13 control points. The shapefile was transformed using a third order transformation to minimize RMS error to 33.5. The impact area (leased areas) map was overlaid with a US topographical layer, and was georeferenced using 4 control points. The shapefile was transformed using a first order transformation to minimize RMS error to 23.96. For both impact area maps, more points would have resulted in a closer fit, but the historical maps had very few reference locations shown.

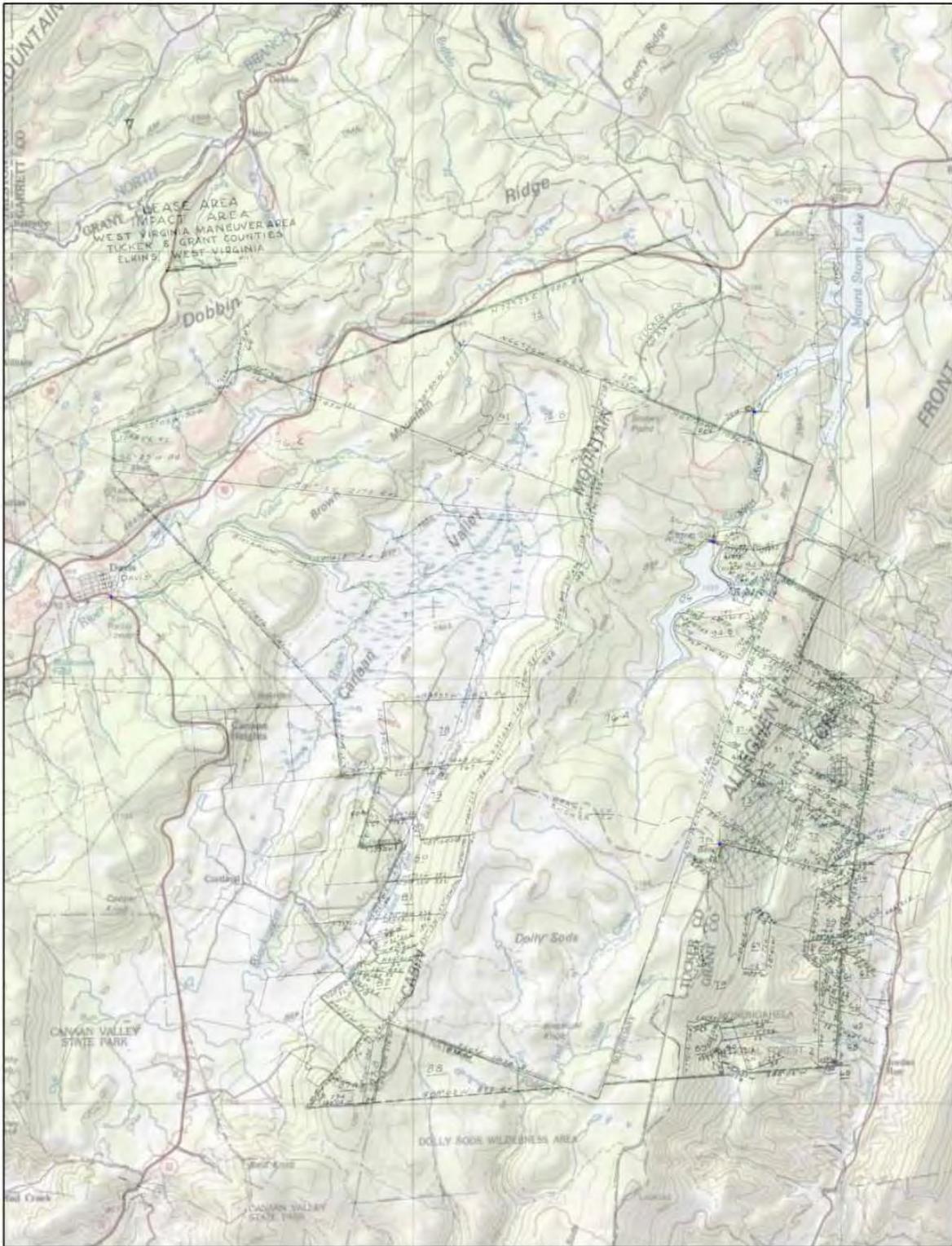


Figure 10. Historic lease map of Impact Area.

Table 1. Campsites identified during WVU/USACE 2009 field survey of Dolly Sods Wilderness Area.

ID	Trail Number	Trail Name	Longitude	Latitude	Mapping Date
1	511	Blackbird Knob	-79.31532187440	39.03378328930	7/7/2009
2	511	Blackbird Knob	-79.31824295960	39.03426922880	7/7/2009
3	511	Blackbird Knob	-79.31774767880	39.03398427960	7/7/2009
4	511	Blackbird Knob	-79.32128928550	39.03355003680	7/7/2009
5	511	Blackbird Knob	-79.34046452280	39.03210284260	7/7/2009
6	514	Red Creek	-79.35350006010	39.02160753040	7/7/2009
7	514	Red Creek	-79.35290801550	39.02009648640	7/7/2009
8	514	Red Creek	-79.35292608540	39.01947224270	7/7/2009
9	514	Red Creek	-79.35573094270	38.99690551460	7/7/2009
10	514	Red Creek	-79.35545925720	38.99528255350	7/7/2009
11	514	Red Creek	-79.35594604220	38.99392645640	7/7/2009
12	514	Red Creek	-79.37222766030	38.98042466520	7/7/2009
13	514	Red Creek	-79.39040743290	38.97668794540	7/7/2009
14	510	Fisher Spring Run	-79.33986955450	39.00284873320	7/8/2009
15	510	Fisher Spring Run	-79.35494720900	38.99569899650	7/8/2009
16	522	Bear Rocks	-79.32317275040	39.06420716960	7/8/2009
17	520	Beaver Dam	-79.31752372820	39.05482470320	7/8/2009
18	524	Rocky Ridge	-79.37222548960	39.05318075550	7/9/2009
19	523	Beaver View	-79.34998145550	39.05670025690	7/9/2009
20	526	Dobbin Grade	-79.35711675030	39.05165768930	7/9/2009
21	553	Breathed Mountain	-79.36015941830	39.01784151770	7/10/2009
22	558	Dunkenbarger	-79.38641497100	39.00101749020	7/10/2009
23	558	Dunkenbarger	-79.38826783520	38.99751243160	7/10/2009
24	552	Little Stonecoal	-79.39533282480	38.99357619510	7/10/2009
25	552	Little Stonecoal	-79.38816499650	38.97950056320	7/10/2009
26	552	Little Stonecoal	-79.38877792590	38.97772274840	7/10/2009
27	513	Big Stonecoal	-79.37968993730	39.02310493550	7/11/2009
28	513	Big Stonecoal	-79.37778091950	39.01900600820	7/11/2009
29	513	Big Stonecoal	-79.37651689800	39.00509361380	7/11/2009
30	511	Blackbird Knob	-79.38138778300	39.03732621640	7/12/2009
31	511	Blackbird Knob	-79.35899433700	39.03642811410	7/12/2009
32	511	Blackbird Knob	-79.35891251220	39.03652024970	7/12/2009
33	511	Blackbird Knob	-79.35907338610	39.03759364630	7/12/2009
34	526	Dobbin Grade	-79.34149386520	39.05305980550	7/12/2009
35	526	Dobbin Grade	-79.32095079210	39.05965587610	7/12/2009
36	560	Wildlife	-79.34285429410	38.99597814230	7/6/2009
37	560	Wildlife	-79.34227536830	38.99568510580	7/6/2009
38	560	Wildlife	-79.34091739420	38.99340513880	7/6/2009
39	508	Rohrbaugh	-79.35303884600	38.98785276960	7/6/2009
40	508	Rohrbaugh	-79.35280816620	38.98869338260	7/6/2009
41	508	Rohrbaugh	-79.35198319250	38.98834149810	7/6/2009
42	508	Rohrbaugh	-79.35141626740	38.98795442510	7/6/2009
43	508	Rohrbaugh	-79.35104874360	38.98783713020	7/6/2009
44	508	Rohrbaugh	-79.35229684070	38.98965115020	7/6/2009

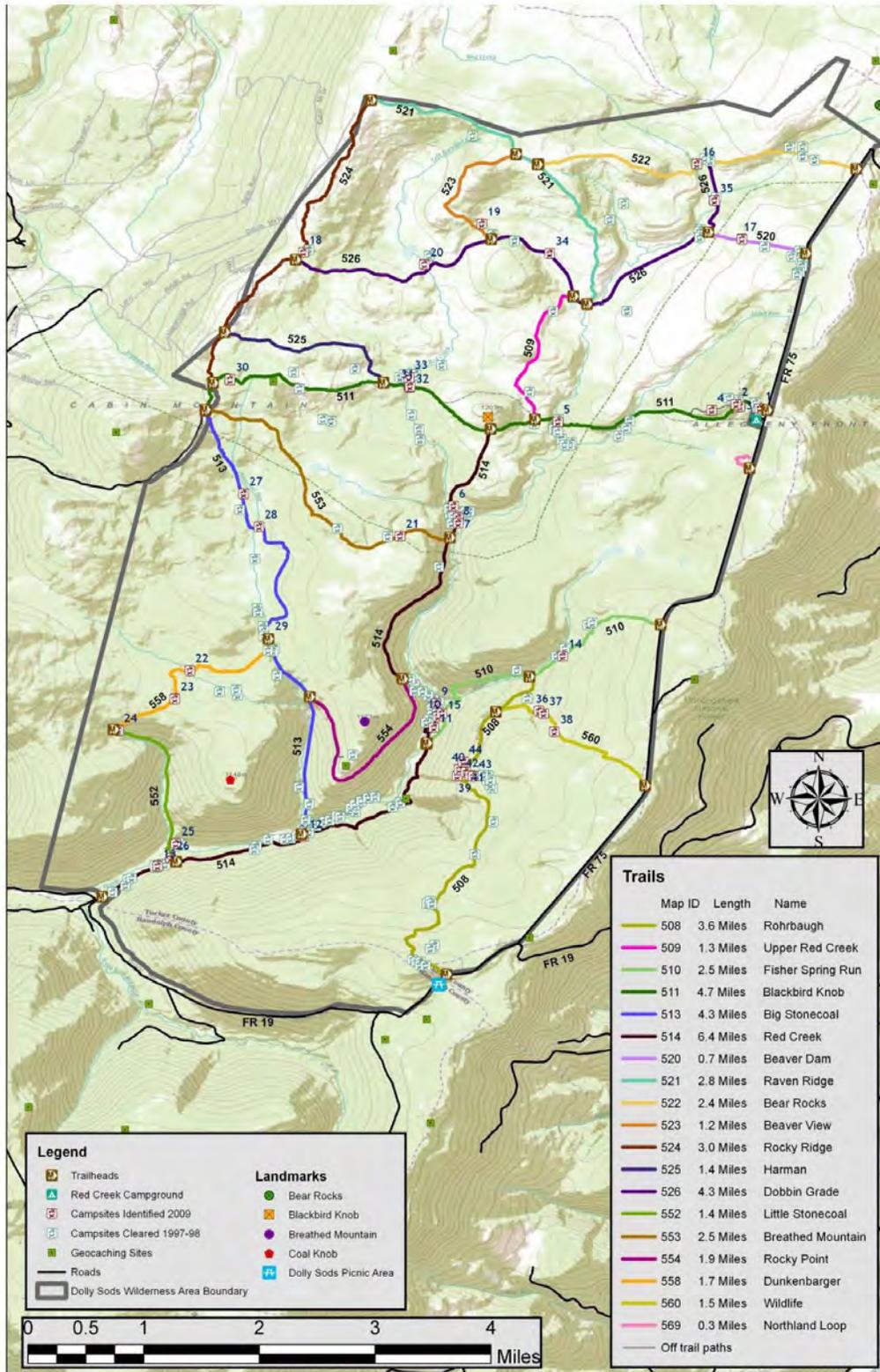


Figure 11. Map of campsites identified during WVU and USACE 2009 field survey and campsites cleared during 1997-98 clearance.

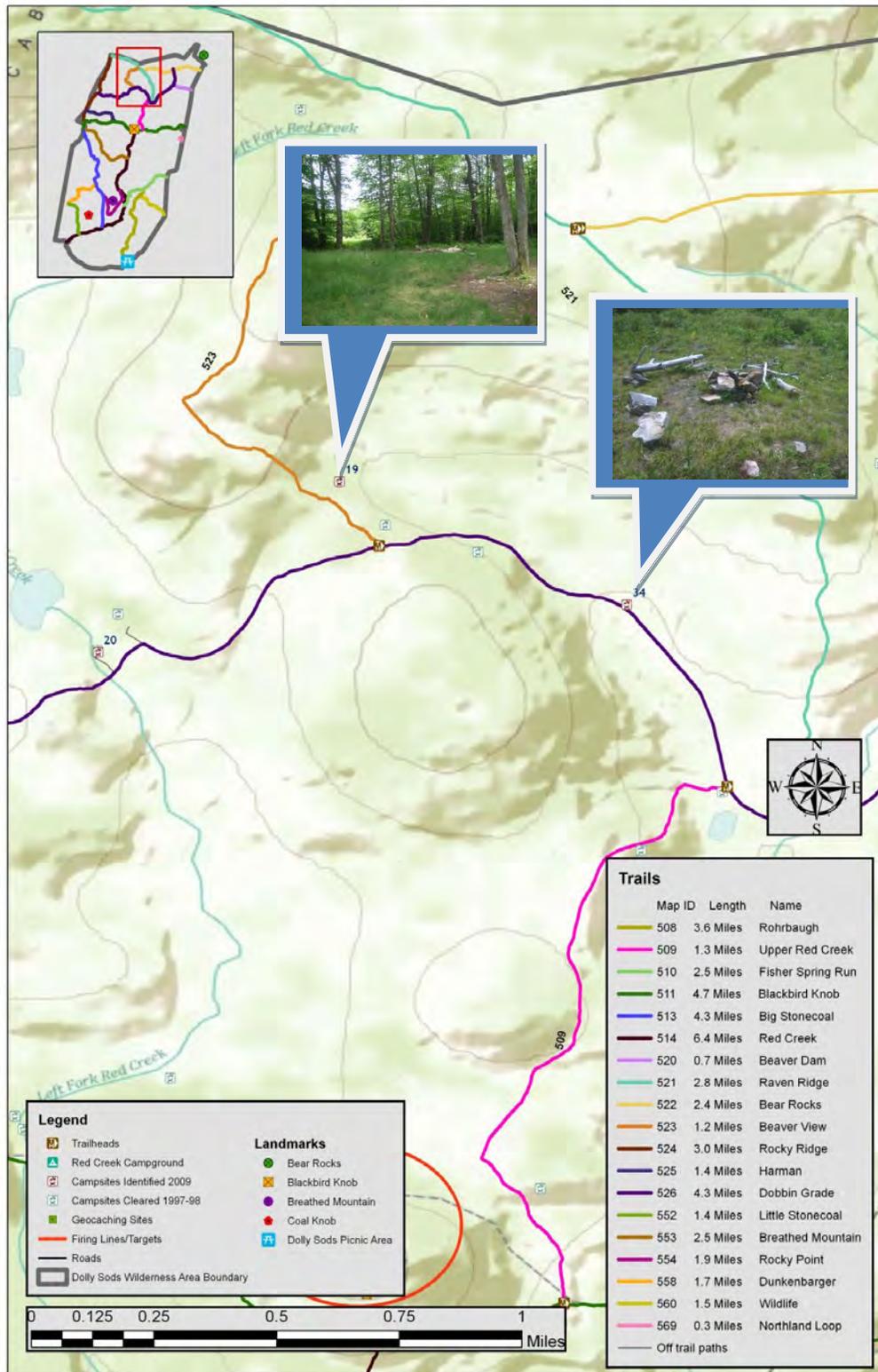


Figure 12. Detailed map of Upper Red Creek Trail area depicting campsites identified by WVU and USACE during 2009 survey.

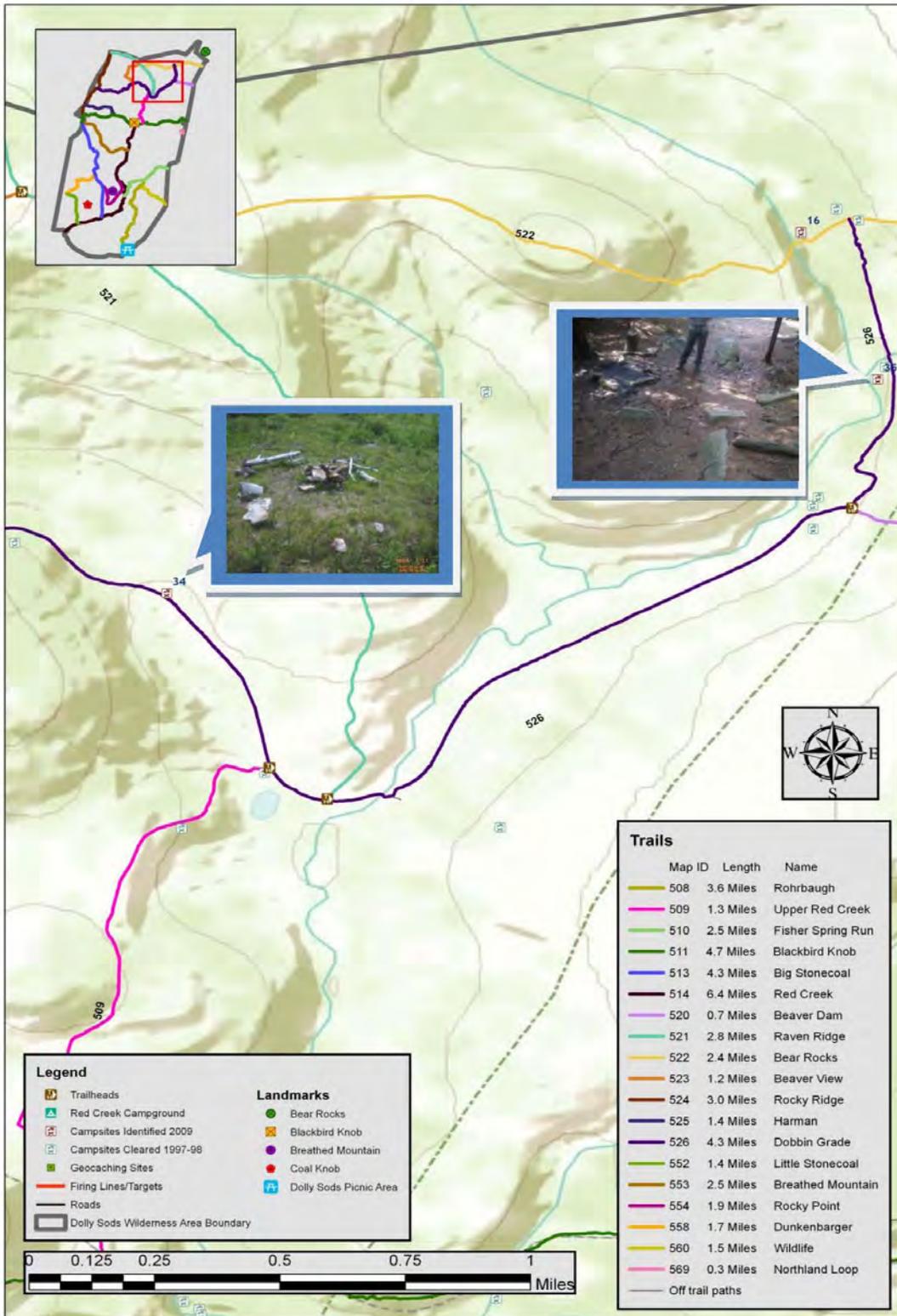


Figure 13. Detailed map of Dobbin Grade Trail area depicting campsites identified by WVU and USACE during 2009 survey.

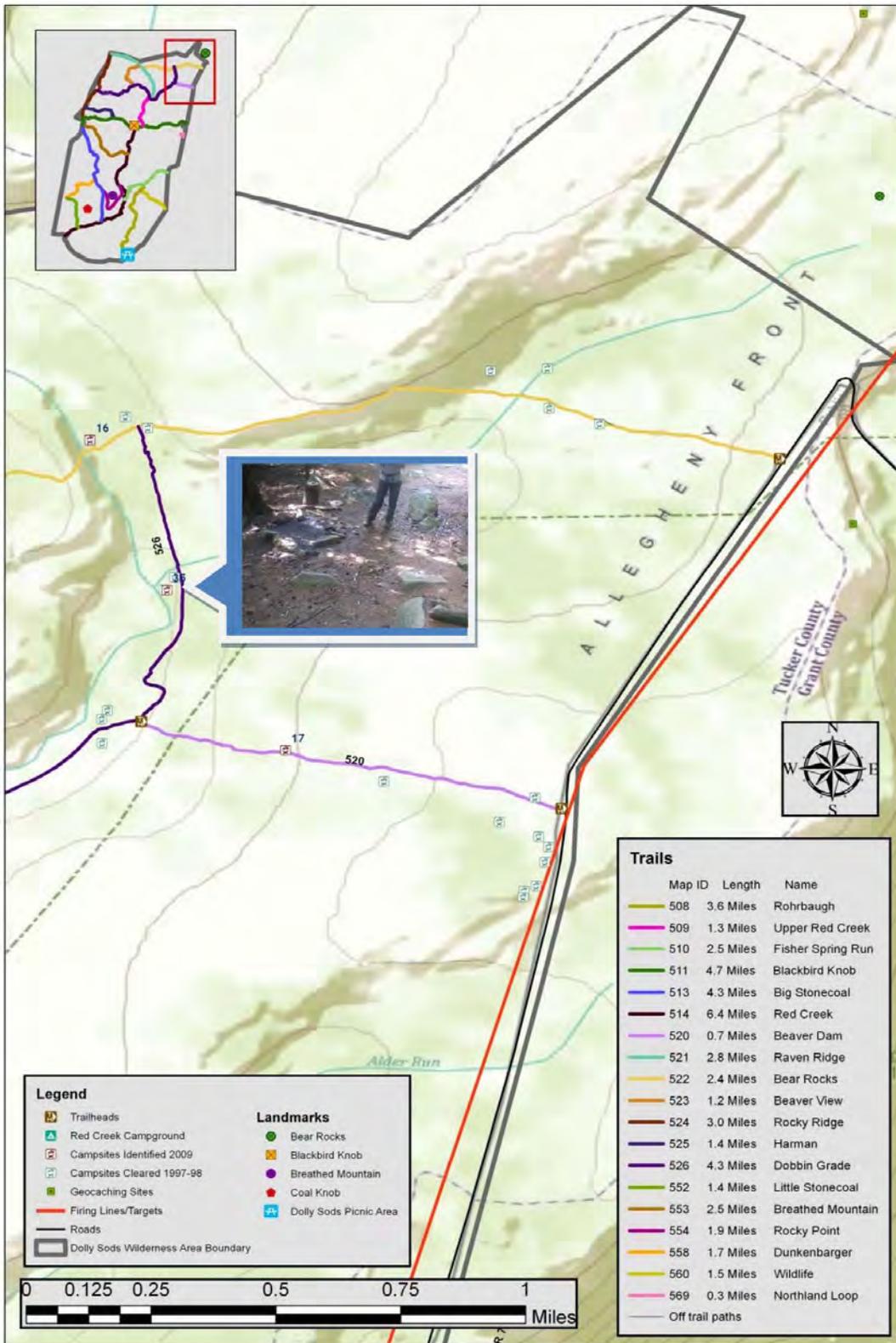


Figure 14. Detailed map of Beaver Dam Trail area depicting campsites identified by WVU and USACE during 2009 survey.

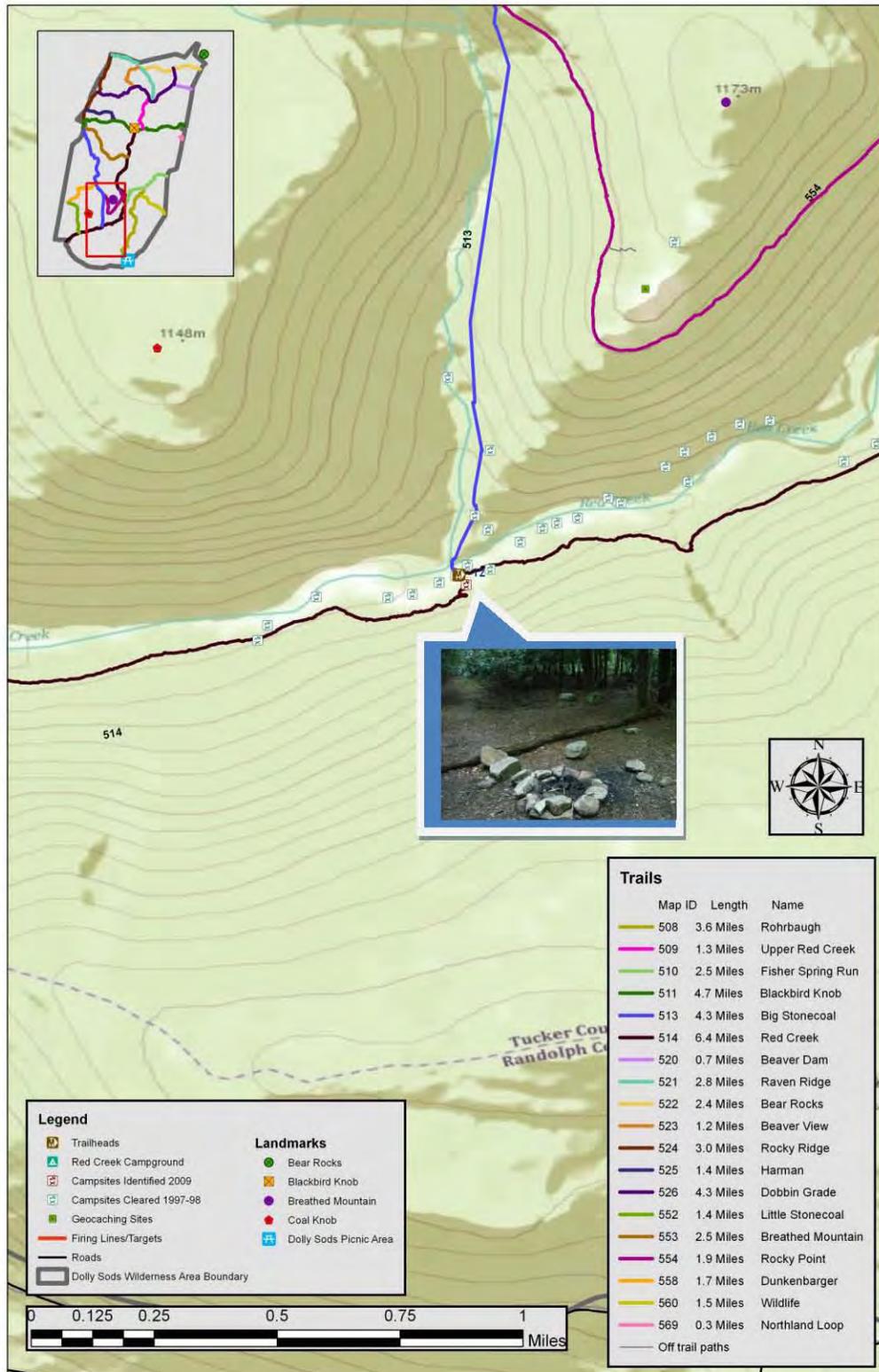


Figure 15. Detailed map of the Big Stonecoal Trail area depicting campsites identified by WVU and USACE during 2009 survey.



Figure 16. Detailed map of the Breathed Mountain Trail area depicting campsites identified by WVU and USACE during 2009 survey.



Figure 17. Detailed map of the Little Stonecoal Trail area depicting campsites identified by WVU and USACE during 2009 survey.



Figure 18. Detailed map of the Fisher Spring Run Trail area depicting campsites identified by WVU and USACE during 2009 survey.

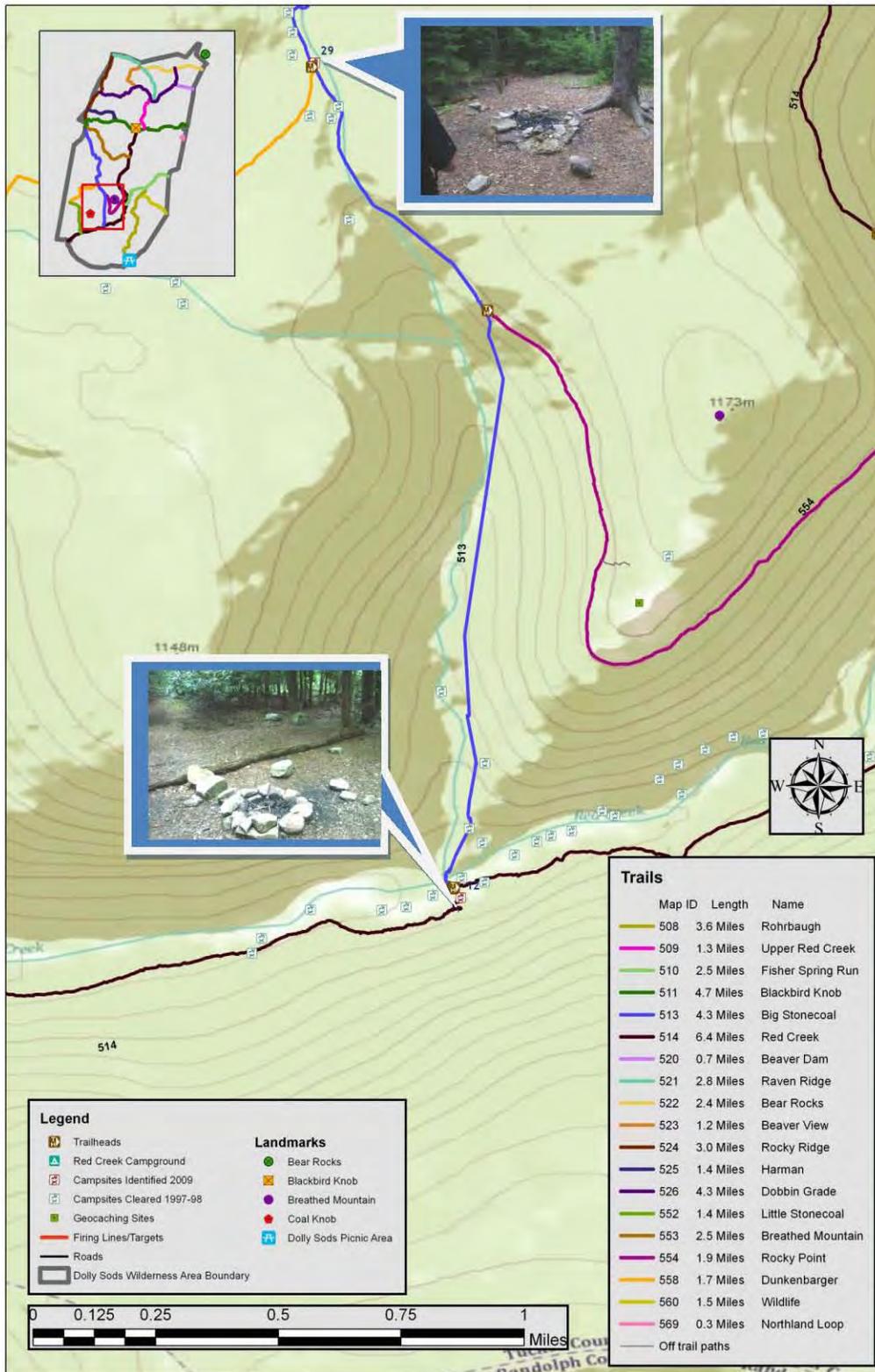


Figure 19. Detailed map of the Rocky Point Trail area depicting campsites identified by WVU and USACE during 2009 survey.

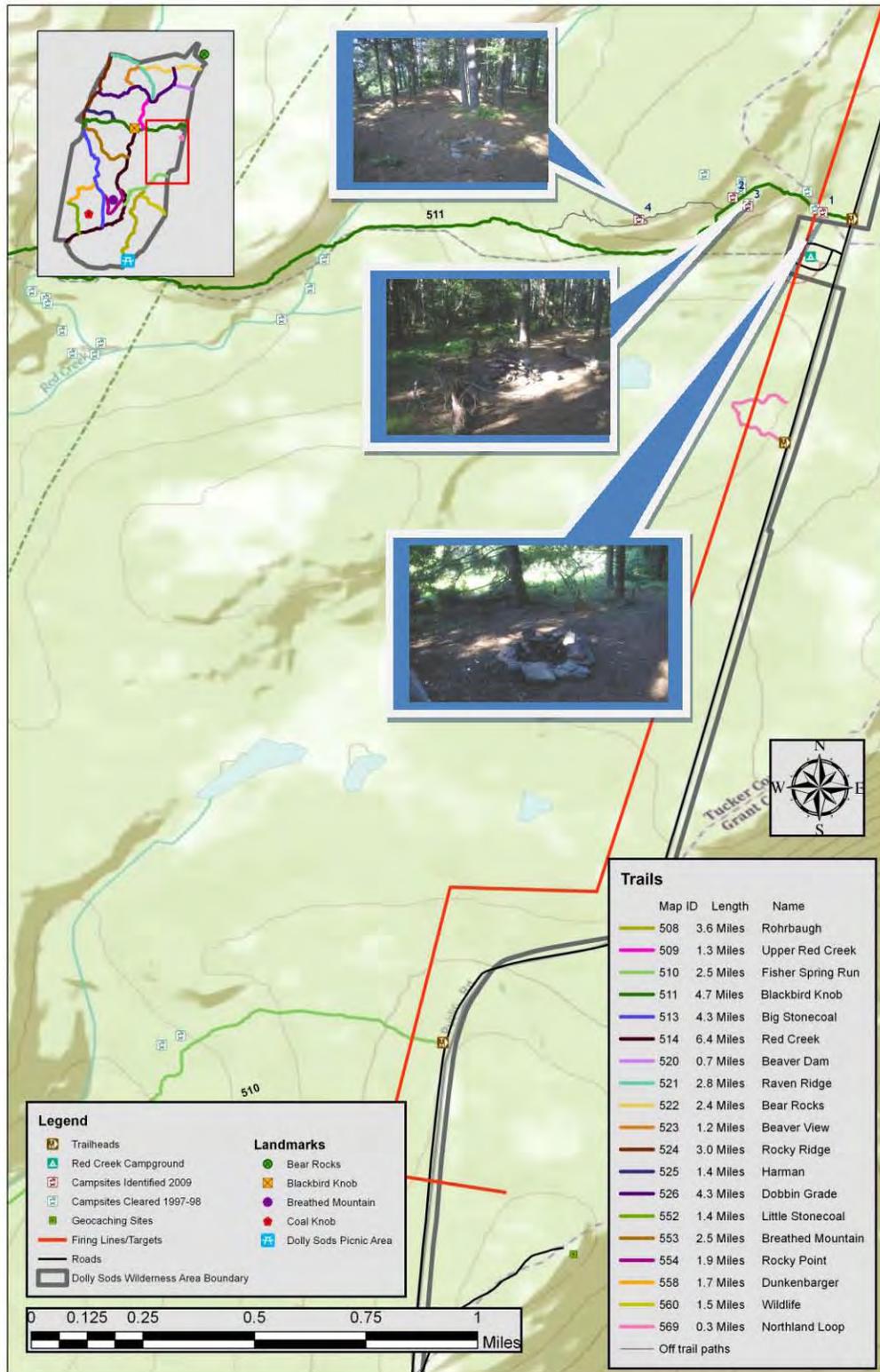


Figure 20. Detailed map of the Blackbird Knob Trail area depicting campsites identified by WVU and USACE during 2009 survey.



Figure 21. Detailed map of the Dobbin Grade Trail area depicting campsites identified by WVU and USACE during 2009 survey.

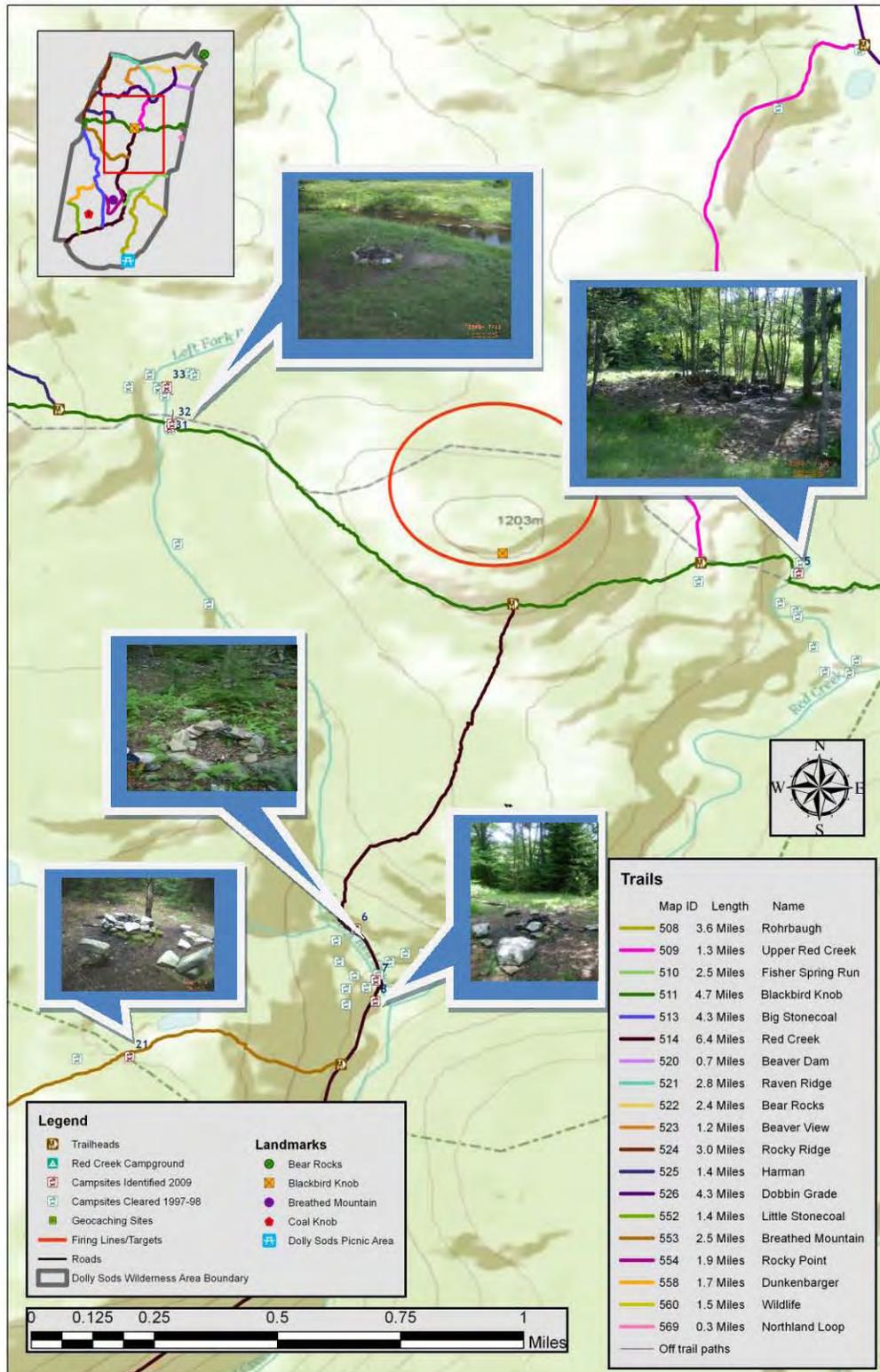


Figure 22. Detailed map of the Breathed Mountain Trail area depicting campsites identified by WVU and USACE during 2009 survey.

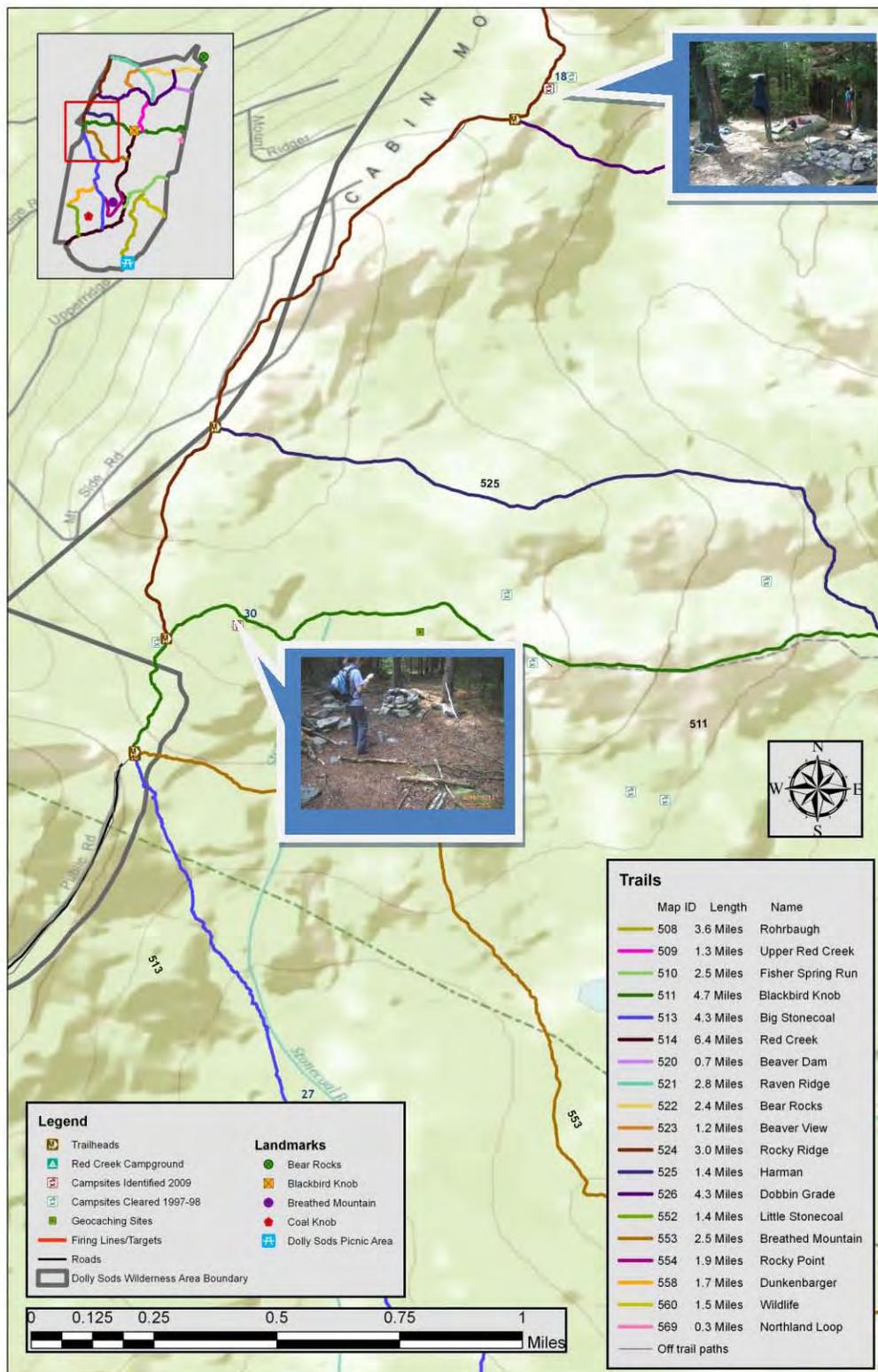


Figure 23. Detailed map of the Harman Trail area depicting campsites identified by WVU and USACE during 2009 survey.

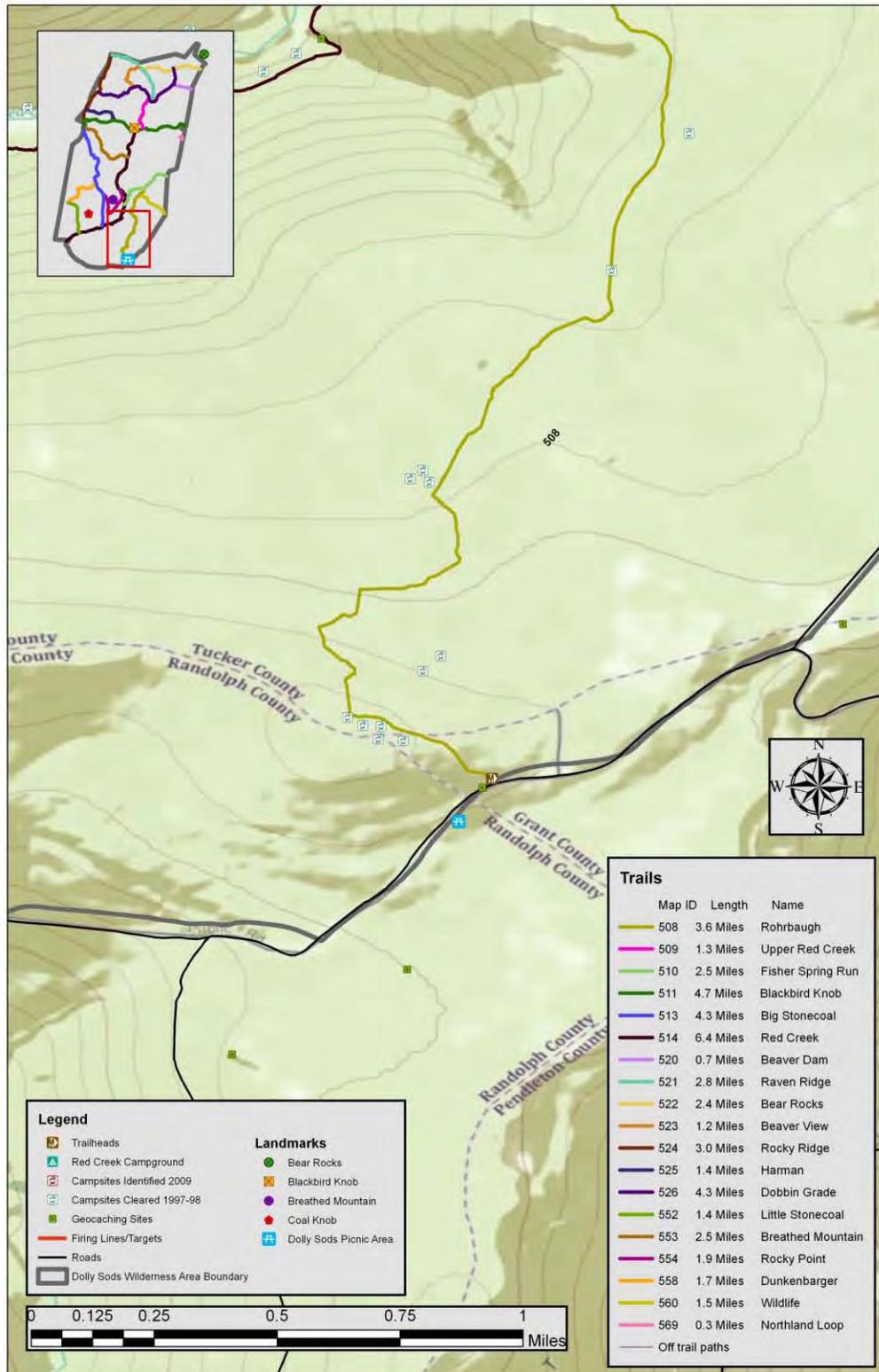


Figure 24. Detailed map of the Rohrbaugh Trail area depicting campsites identified by WVU and USACE during 2009 survey.



Figure 25. Detailed map of the Wildlife Trail area depicting campsites identified by WVU and USACE during 2009 survey.

Table 2. Trail head markings observed during WVU and USACE 2009 field survey.

ID	Trail Name	Marking	Marking Comment	Comments	Longitude	Latitude
1	Rocky Point	Yes	Good		-79.37143594090	38.99776703160
2	Bear Rocks	Yes	Good	trail start	-79.30324502620	39.06363191610
3	Beaver Dam	Yes	Good	trailhead	-79.32169329880	39.05568643860
4	Beaver Dam	Yes	Fair		-79.30955236110	39.05305944510
5	Beaver View	Yes	Good	trailhead 523	-79.34567781980	39.06542789250
6	Beaver View	Yes	Good		-79.34881011150	39.05479834920
7	Big Stonecoal	Yes	Good	no number 558	-79.37660641270	39.00496946570
8	Big Stonecoal	Yes	Good	trailhead north end	-79.38442768410	39.03349574430
9	Red Creek	Yes	Poor	513 trailhead no sign on post	-79.37246286130	38.98069110180
10	Blackbird Knob	Yes	Good		-79.31436397370	39.03356787150
11	Blackbird Knob	Yes	Poor	sign needs info for 511	-79.34334048680	39.03241666110
12	Blackbird Knob	No	Poor	no sign	-79.34887194870	39.03119988900
13	Breathed Mountain	Yes	Fair	sign damaged	-79.35394182760	39.01760863840
14	Dobbin Grade	Yes	Good	erosion prior to sign	-79.37321876760	39.05226569720
15	Fisher Spring Run	Yes	Good	no number	-79.32765101740	39.00677521120
16	Fisher Spring Run	Yes	Fair	number fading	-79.35682930710	38.99199043370
17	Harman	Yes	Good	trailhead	-79.38206325880	39.04318946370
18	Harman	Yes	Good		-79.36224494150	39.03694410500
19	Little Stonecoal	Yes	Fair	no clear trail number	-79.39592402030	38.99368415380
20	Little Stonecoal	No	Poor	only stone marking	-79.38809682650	38.97724048820
21	Northland Loop	Yes	Good	no number on sign	-79.31654599820	39.02631561800
22	Raven Ridge	Yes	Poor	confusing intersection	-79.34298450520	39.06416121240
23	Raven Ridge	Yes	Good		-79.33684981910	39.04671354100
24	Raven Ridge	Yes	Fair		-79.36375499930	39.07221350540
25	Rocky Point	Yes	Poor	sign on rocks	-79.35982164240	39.00000455620
26	Rocky Ridge	Yes	Good		-79.38351008420	39.03693824630
27	Rohrbaugh	Yes	Fair	rohrbaugh & fisher springs	-79.34404058870	39.00025722230
28	Rohrbaugh	Yes	Good		-79.35436031970	38.96318826240
29	Upper Red Creek	Yes	Good	trail head at 526 crossing	-79.33852465700	39.04767866030
30	Wildlife	Yes	Poor	no trailhead number	-79.32957014150	38.98668172010
31	Wildlife	Yes	Good	rohrbaugh and wildlife	-79.34820982390	38.99588824410
32	Dobbin Grade	Yes	Good		-79.32181099990	39.06460237690

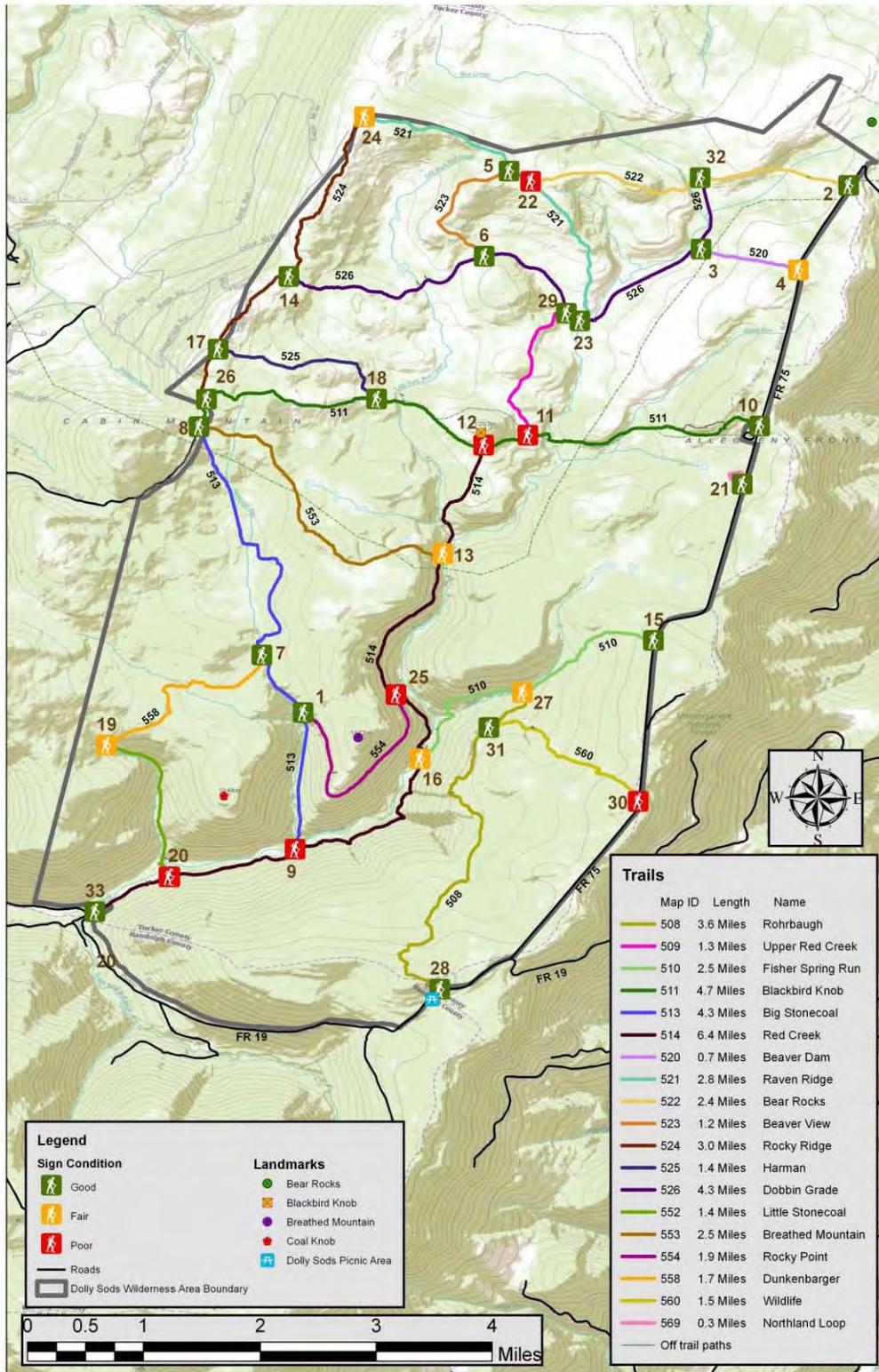


Figure 26. Detailed map of Dolly Sods Wilderness Area depicting Trail Head Markings identified by WVU and USACE 2009 field survey crew.

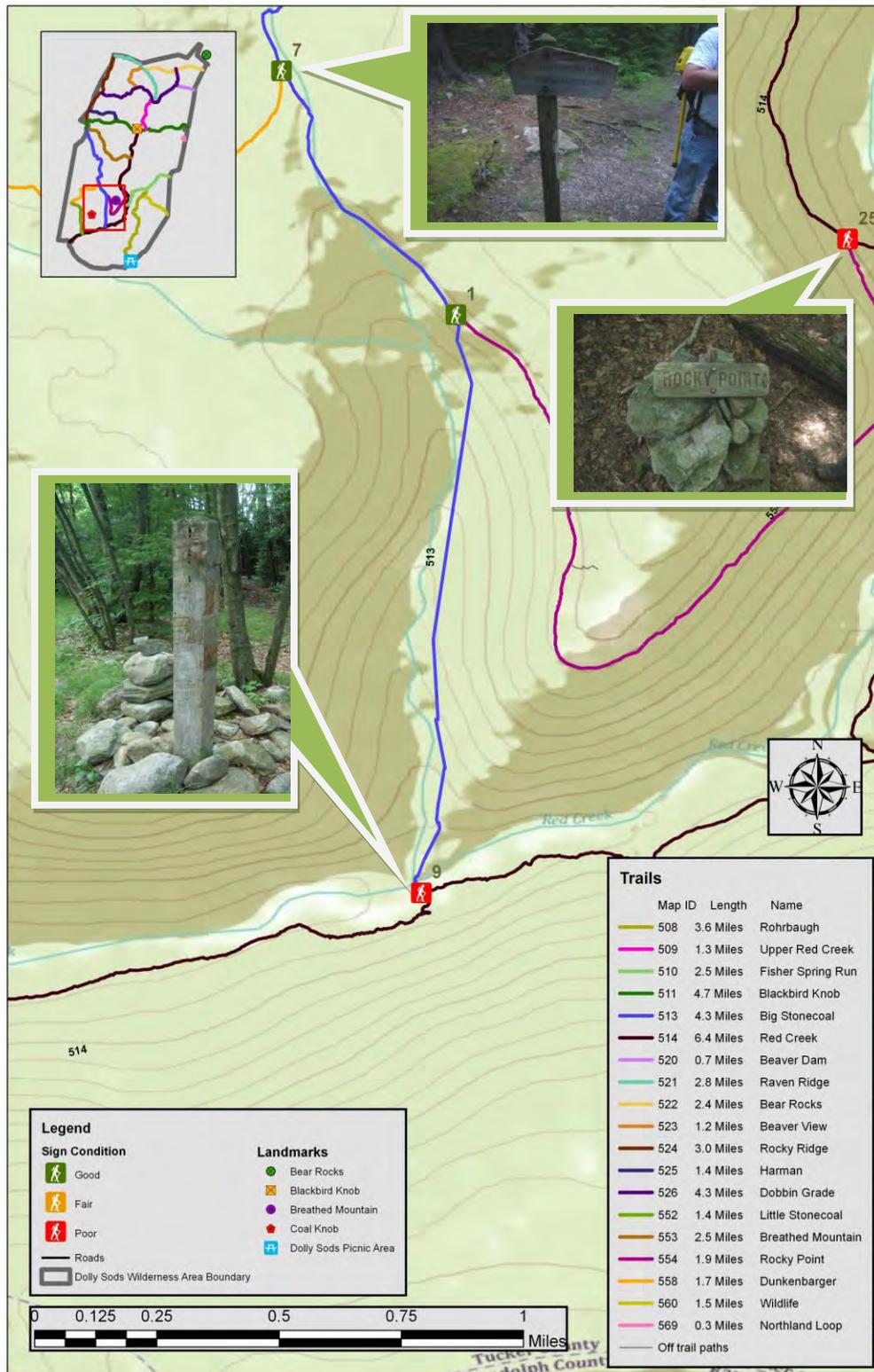


Figure 27. Detailed map of the Big Stonecoal Trail area depicting Trail Head Markings identified by WVU and USACE during 2009 field survey.



Figure 28. Detailed map of the Blackbird Knob Trail area depicting Trail Head Markings identified by WVU and USACE during 2009 field survey.

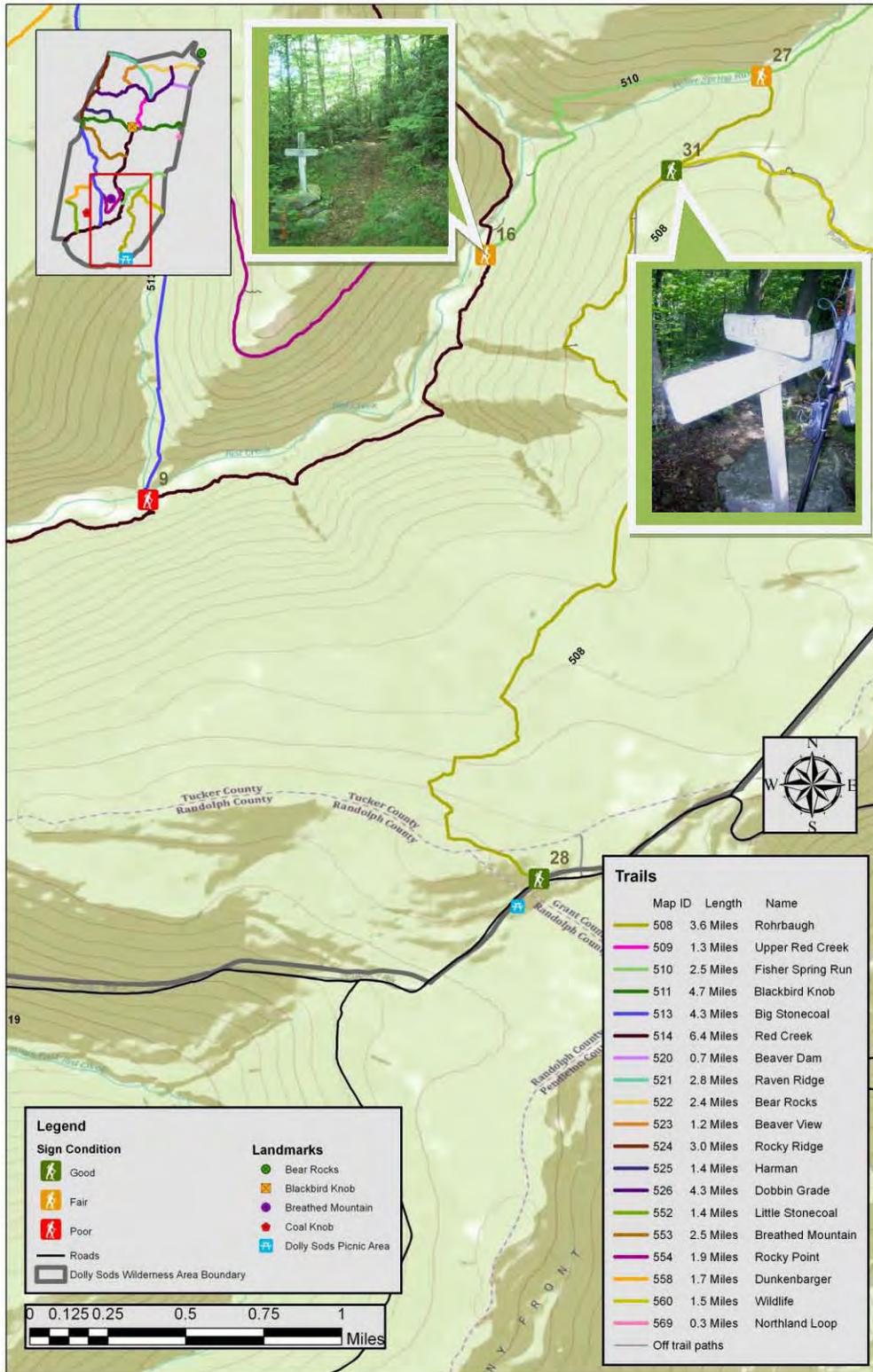


Figure 29. Detailed map of the Rohrbaugh Trail area depicting Trail Head Markings identified by WVU and USACE during 2009 field survey.



Figure 30. Detailed map of the Wildlife Trail area depicting Trail Head Markings identified by WVU and USACE during 2009 field survey.

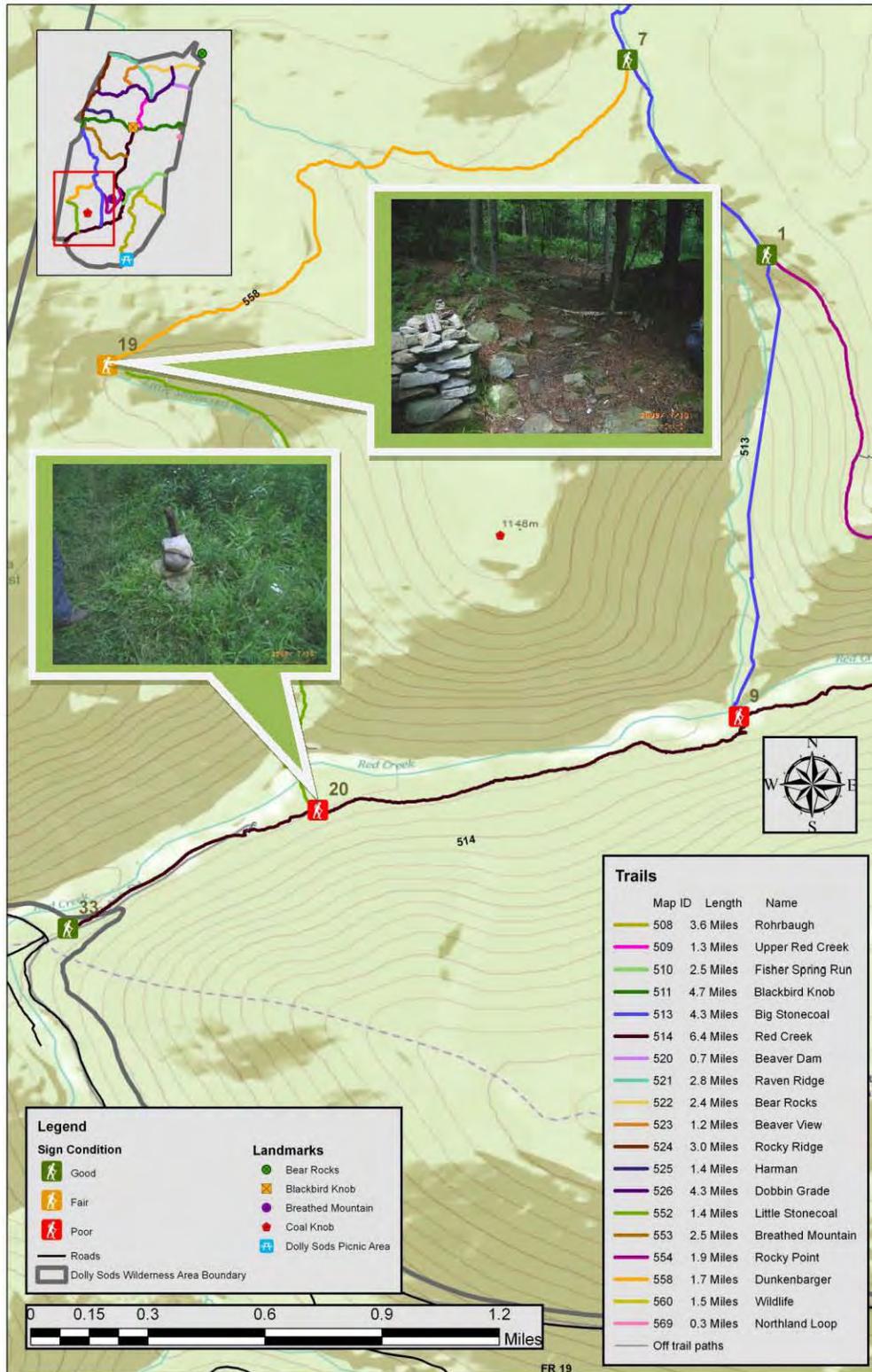


Figure 31. Detailed map of the Dunkenbarger Trail area depicting Trail Head Markings identified by WVU and USACE during 2009 field survey.

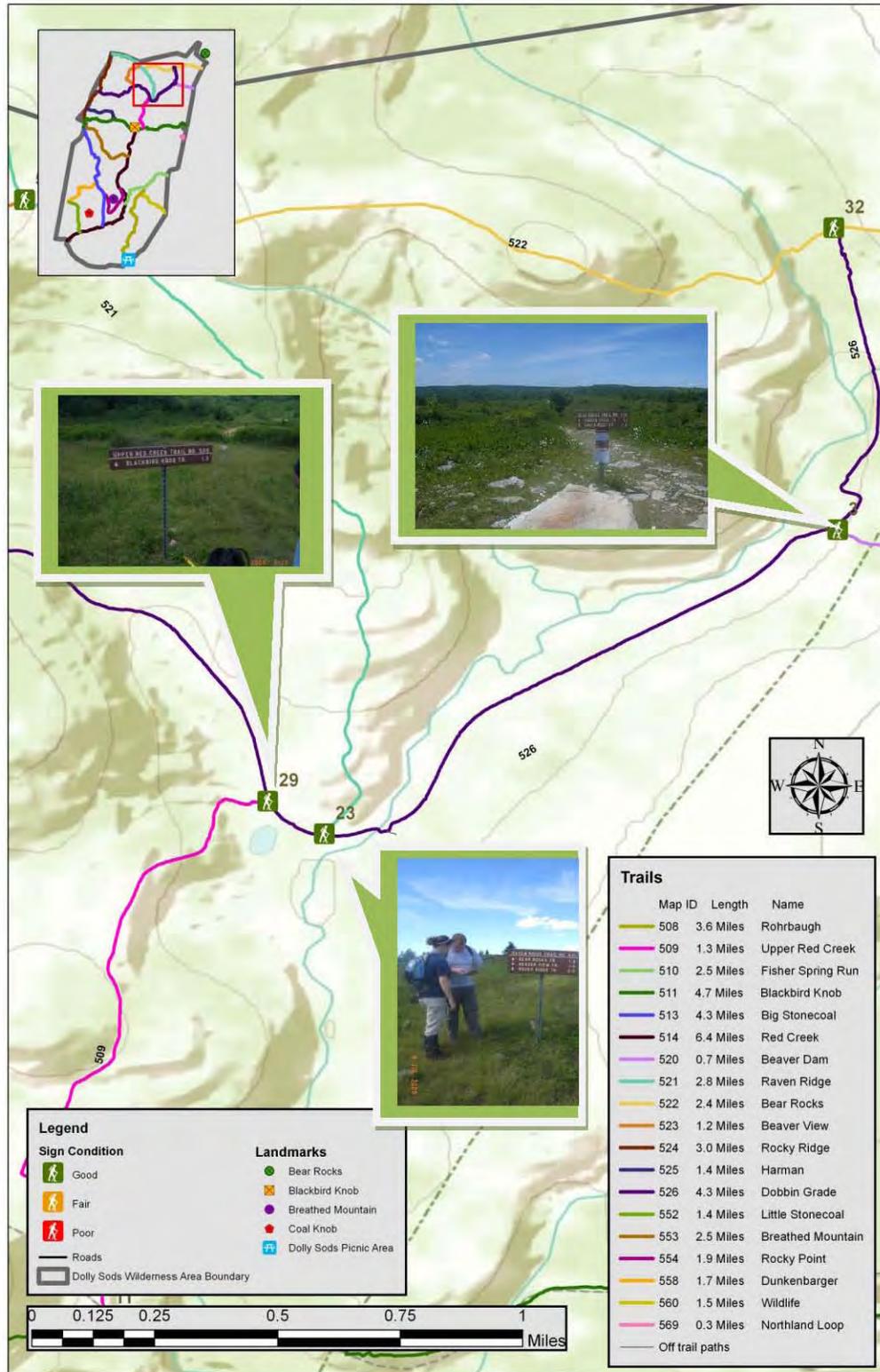


Figure 32. Detailed map of the Dobbin Grade Trail area depicting Trail Head Markings identified by WVU and USACE during 2009 field survey.

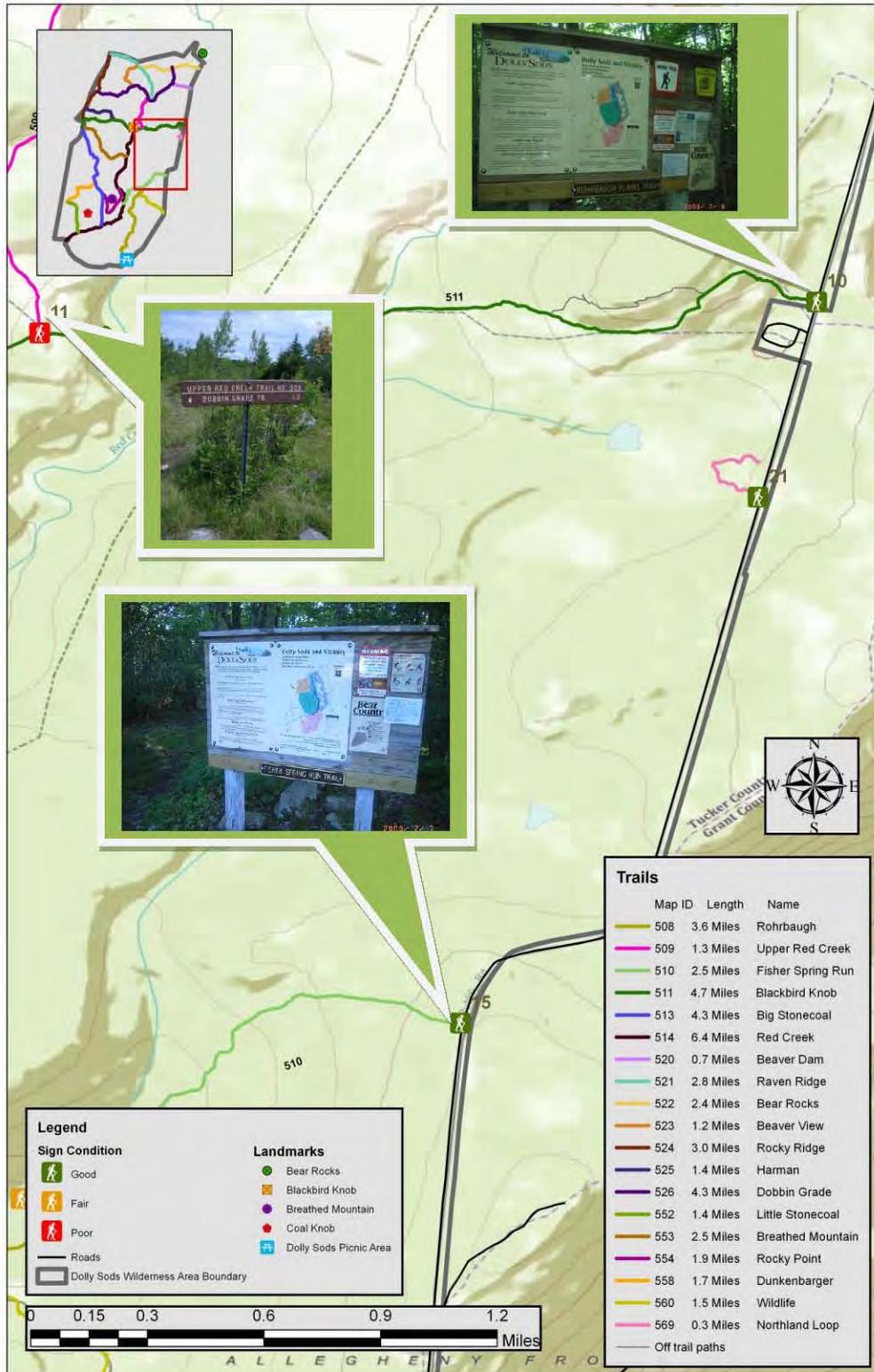


Figure 33. Detailed map of the Blackbird Knob Trail area depicting Trail Head Markings identified by WVU and USACE during 2009 field survey.

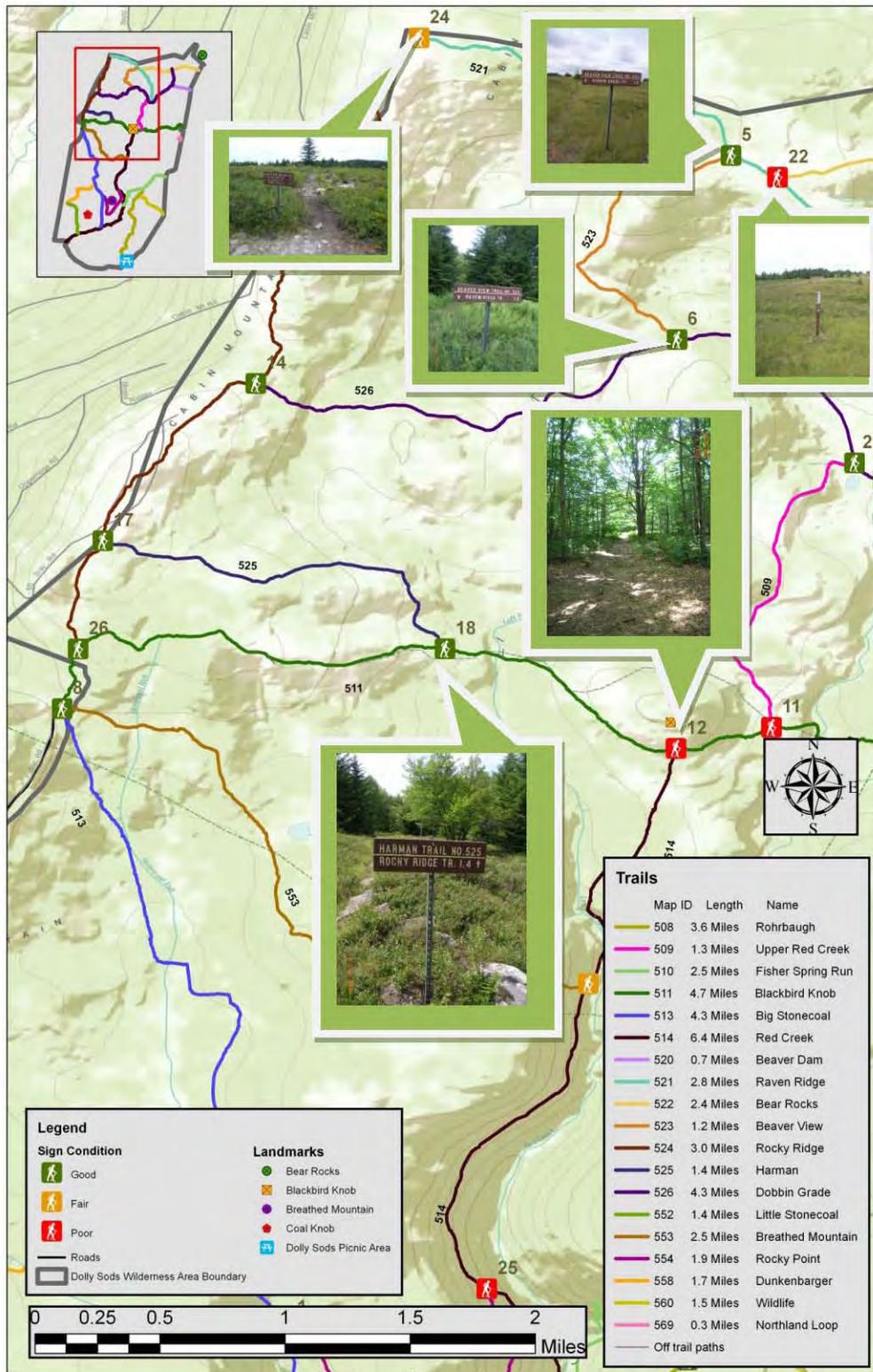


Figure 34. Detailed map of the Harman Trail area depicting Trail Head Markings identified by WVU and USACE during 2009 field survey.

Table 3. Off trail paths identified during WVU and USACE 2009 field survey.

ID	Erosion	Hiking Difficulty	Trail Condition	Trail Use	Comments	Mapping Date
1	None	Easy	B	Slight	off trail to camp area	7/6/2009
2	Moderate	Intermediate	B	Slight	trail to meadow	7/6/2009
3	Moderate	Intermediate	B	Moderate	small trail	7/6/2009
4	None	Easy	A	Moderate	off trail camping	7/7/2009
5	None	Easy	A	Moderate	long trail off blackbird to cam	7/7/2009
6	None	Easy	A	Moderate		7/7/2009
7	Moderate	Easy	B	Moderate	side trail	7/7/2009
8	Moderate	Intermediate	B	Moderate	off trail site	7/7/2009
9	Moderate	Easy	B	Frequent	off trail campsite	7/7/2009
10	Moderate	Easy	B	Moderate	off trail campsite	7/7/2009
11	None	Easy	B	Moderate	off trail to camp site	7/7/2009
12	None	Easy	A	Moderate	campsite trail	7/7/2009
13	None	Easy	A	Moderate	trail to campsite	7/9/2009
14	None	Easy	A	Moderate	new trail	7/9/2009
15	Moderate	Intermediate	B	Moderate	test	7/10/2009
16	Moderate	Difficult	C	Slight	off trail	7/10/2009
17	None	Easy	B	Slight	off trail	7/10/2009
18	None	Easy	A	Slight	trail continues	7/12/2009
19	None	Easy	A	Slight	off trail to camp area	7/12/2009
20	None	Easy	A	Slight	off trail through camp	7/12/2009
21	None	Easy	B	Slight		7/10/2009
22	None	Easy	B	Slight		7/10/2009
23	None	Easy	B	Slight		7/10/2009
24	None	Easy	B	Slight		7/10/2009
25	None	Easy	B	Slight		7/10/2009
26	None	Easy	B	Slight		7/10/2009



Figure 35. Detailed map of the Rohrbaugh Trail area depicting social trails identified by WVU and USACE during 2009 field survey.

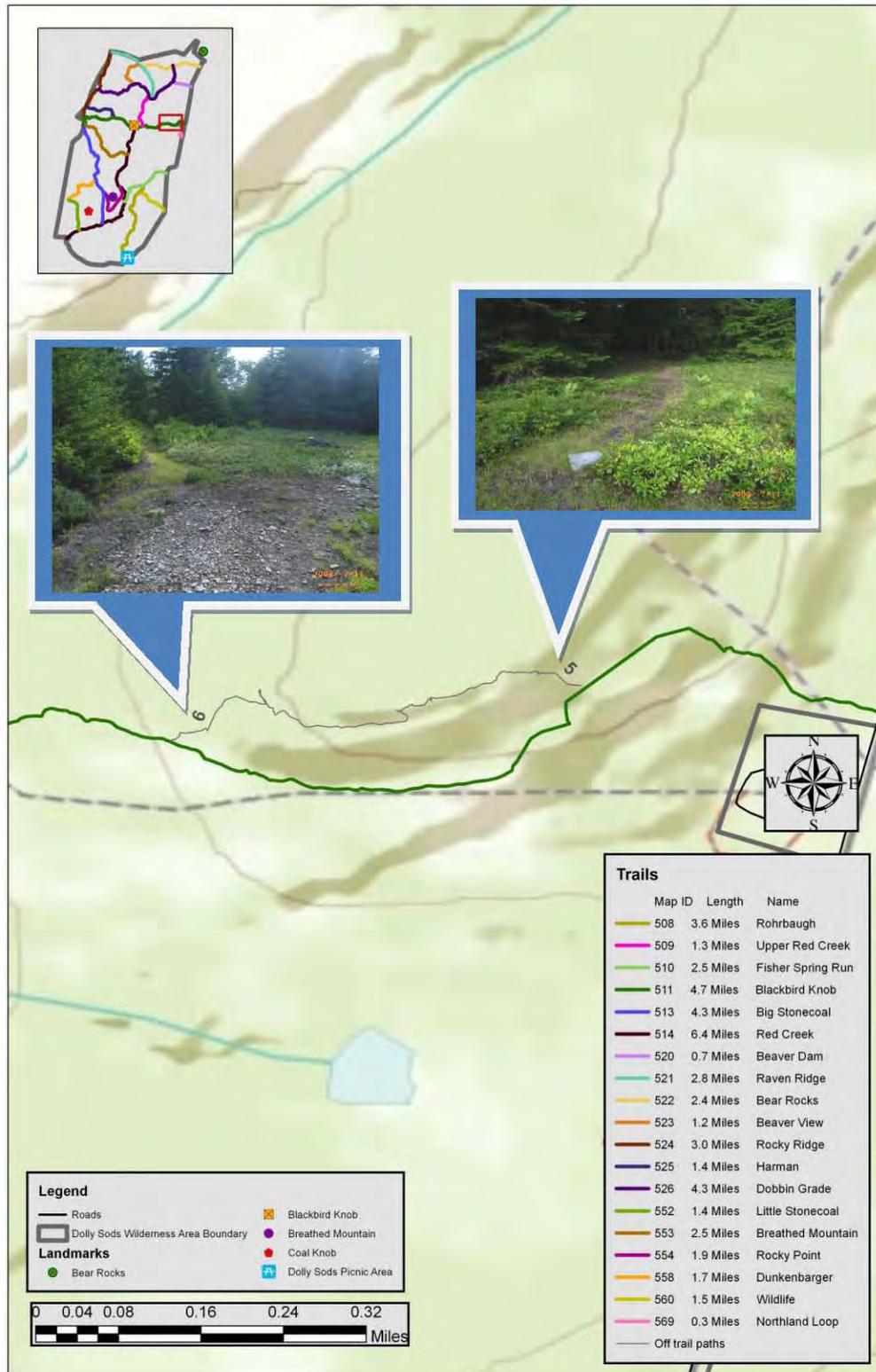


Figure 36. Detailed map of the Blackbird Knob Trail area depicting social trails identified by WVU and USACE during 2009 field survey.

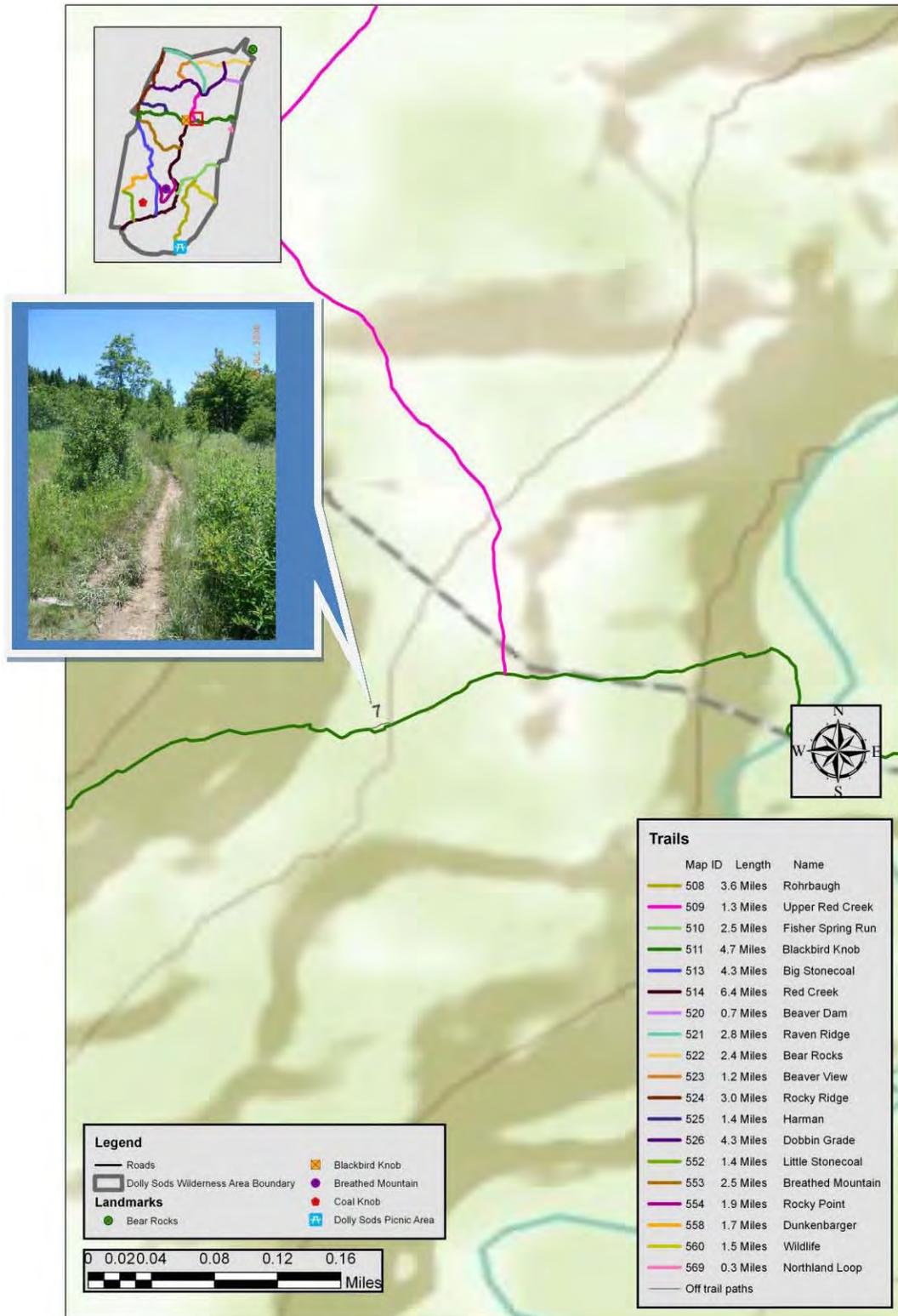


Figure 37. Detailed map of the Upper Red Creek Trail area depicting social trails identified by WVU and USACE during 2009 field survey.

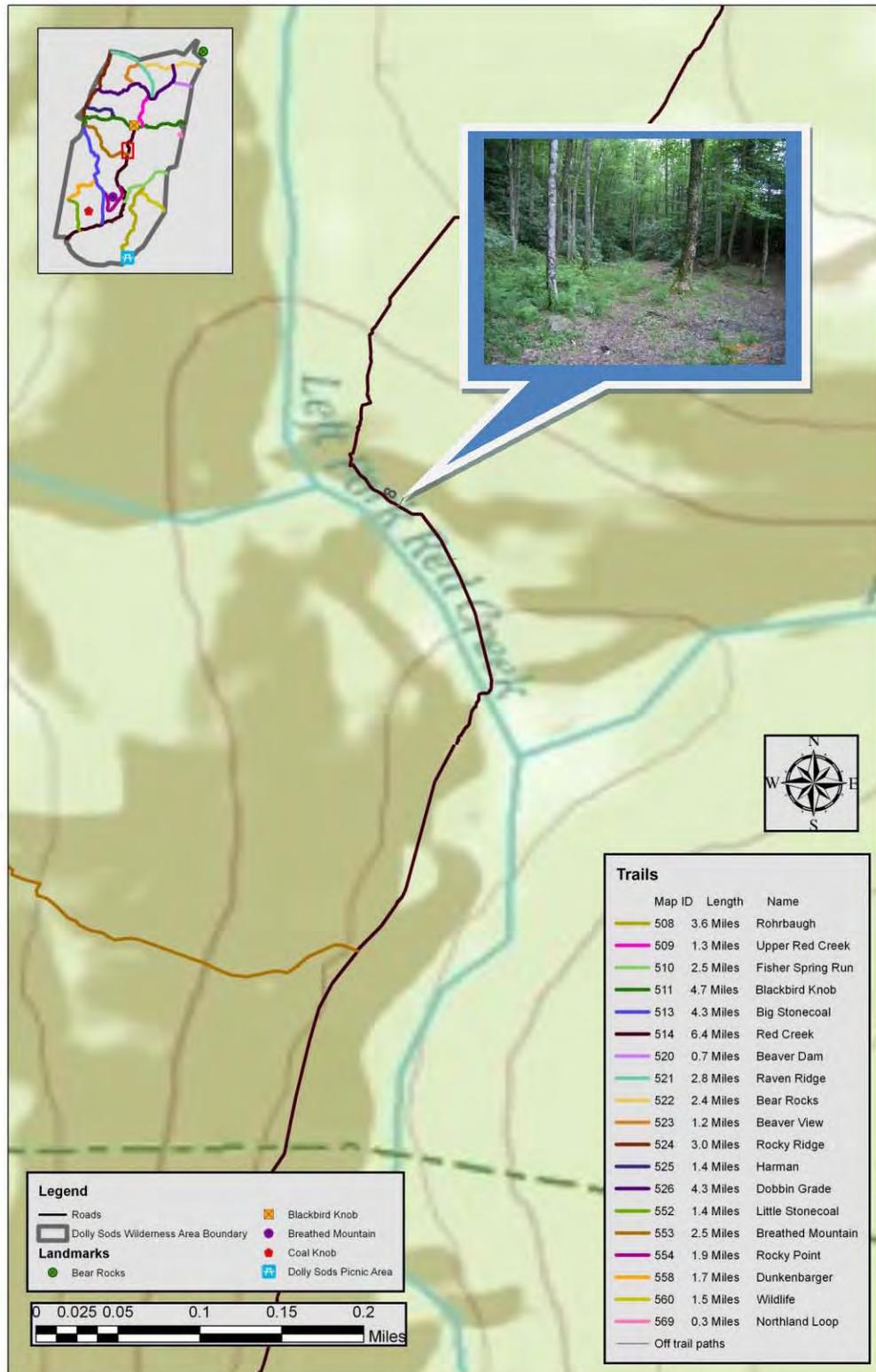


Figure 38. Detailed map of the Red Creek Trail area depicting social trails identified by WVU and USACE during 2009 field survey.

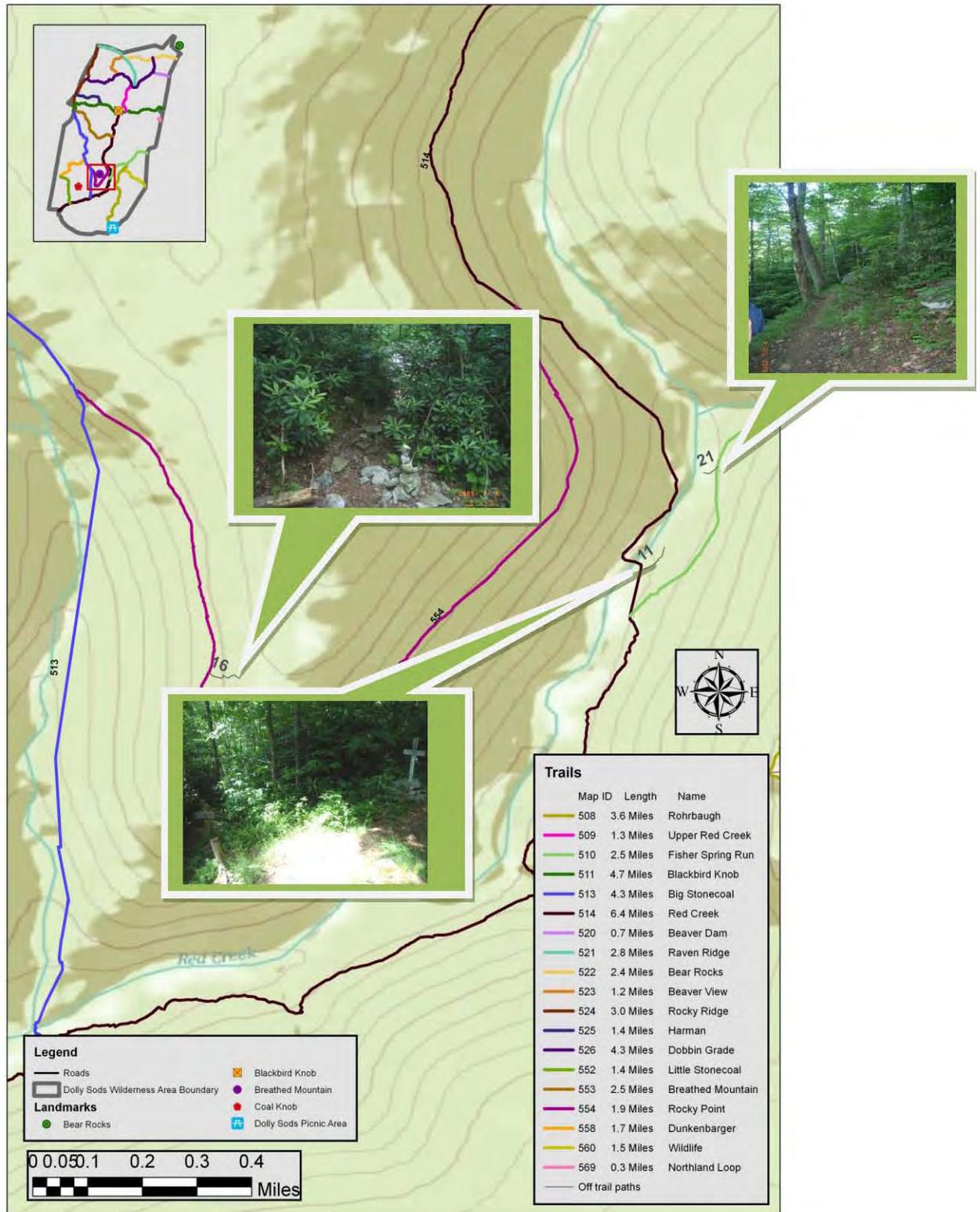


Figure 39. Detailed map of the Rocky Point Trail area depicting social trails identified by WVU and USACE during 2009 field survey.

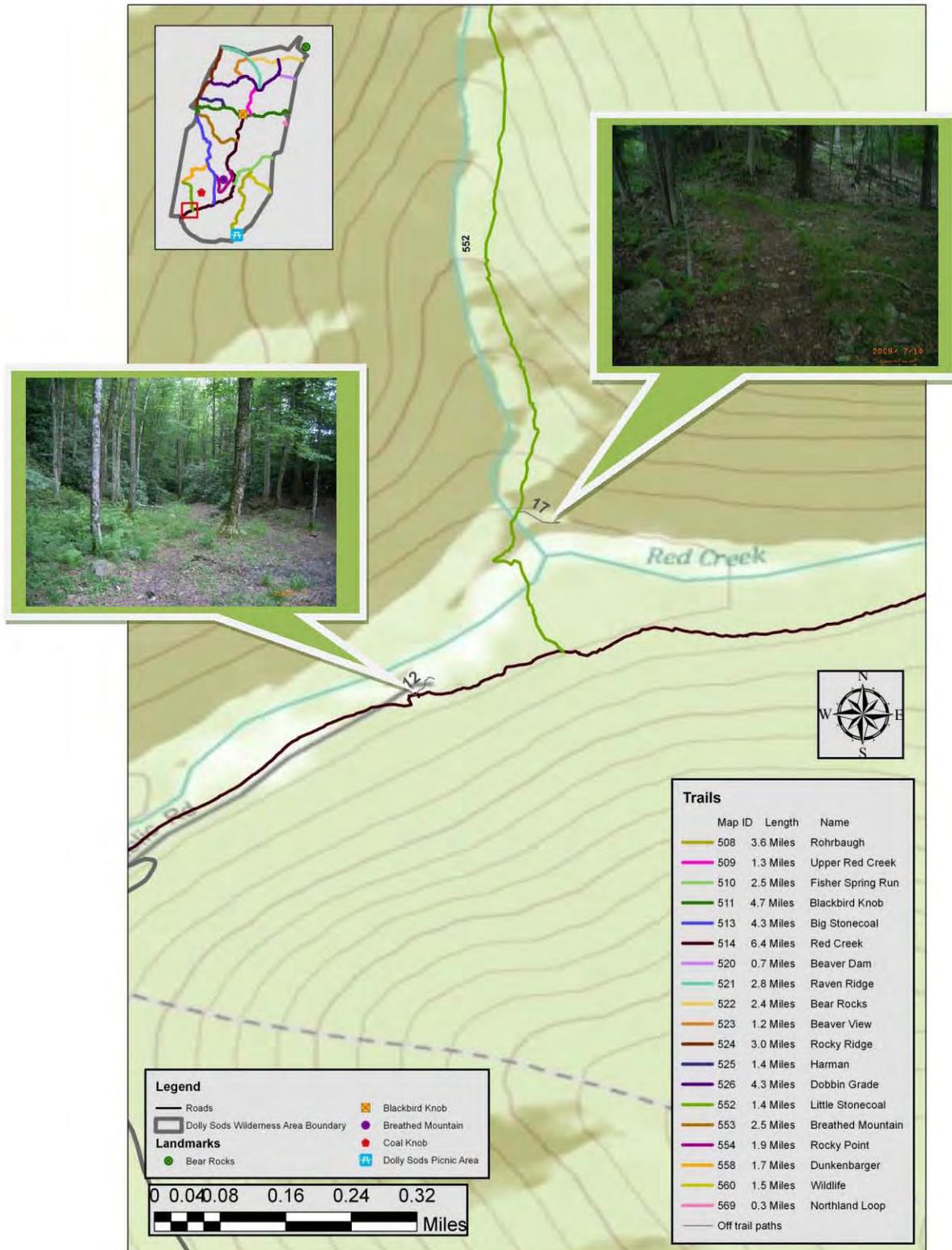


Figure 40. Detailed map of the Little Stonecoal Trail area depicting social trails identified by WVU and USACE during 2009 field survey.

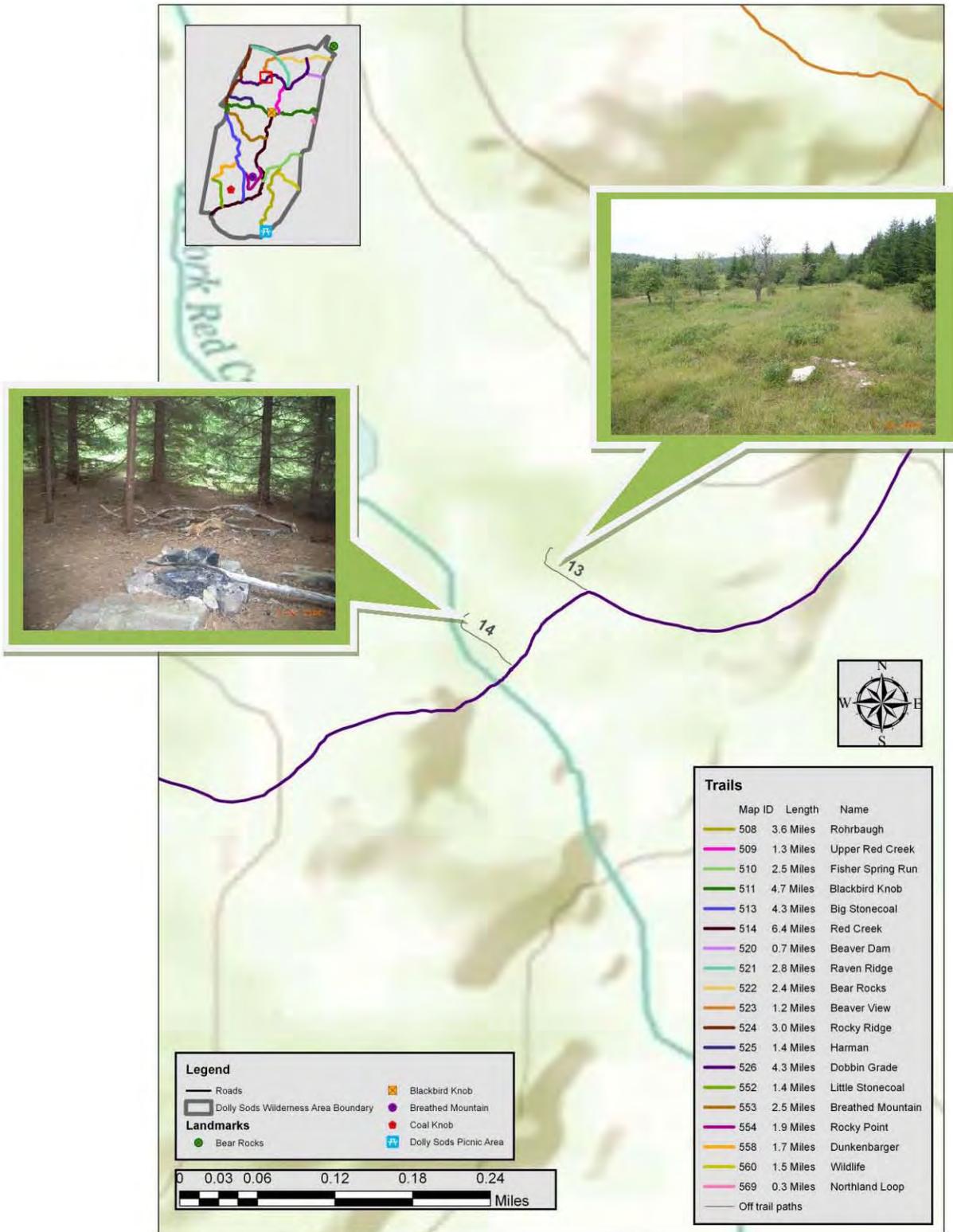


Figure 41. Detailed map of the Dobbin Grade Trail area depicting social trails identified by WVU and USACE during 2009 field survey.



Figure 42. Detailed map of the Harman Trail area depicting social trails identified by WVU and USACE during 2009 field survey.



Figure 43. Detailed map of the Blackbird Knob Trail area depicting social trails identified by WVU and USACE during 2009 field survey.

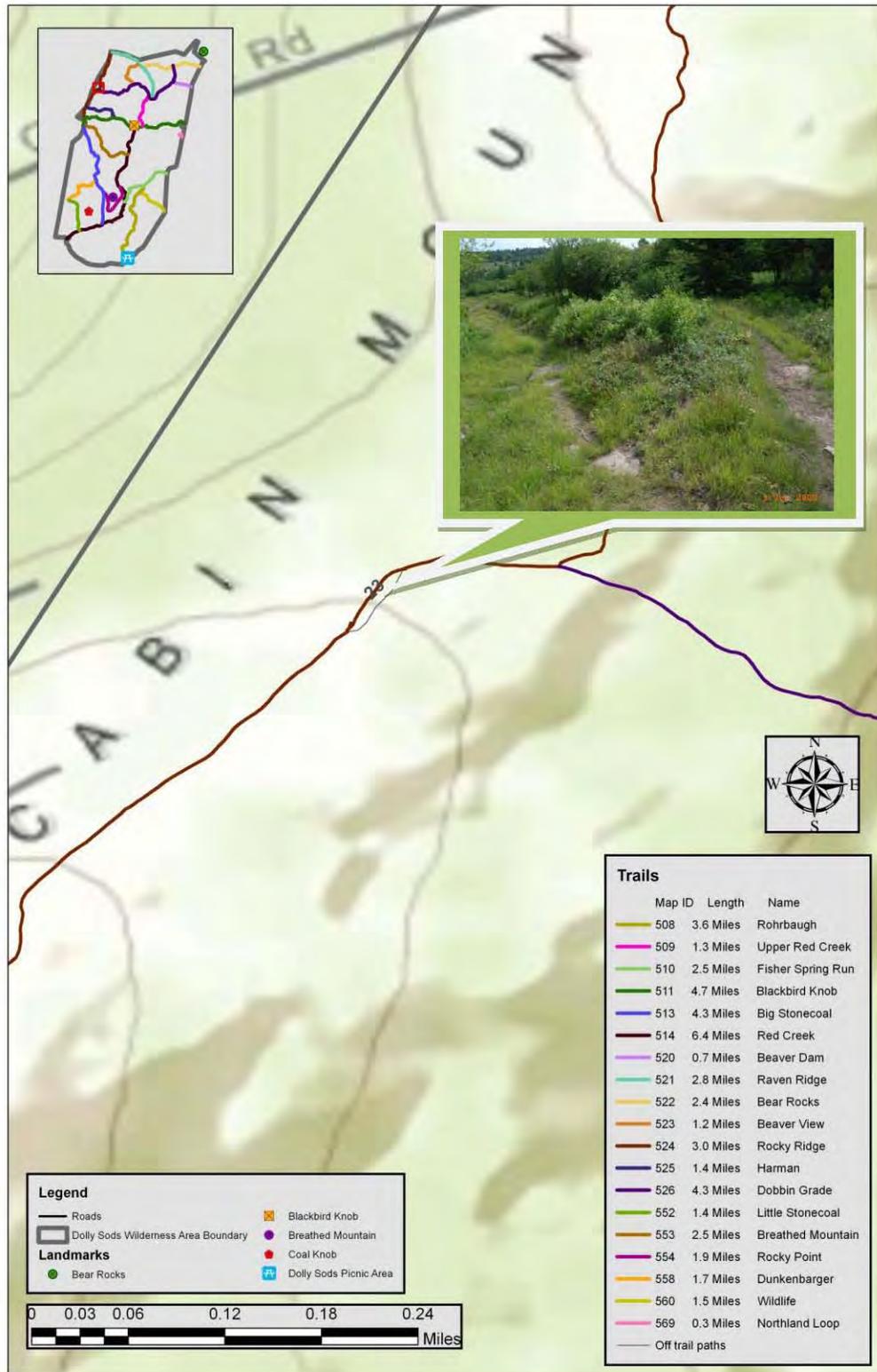


Figure 44. Detailed map of the Rocky Ridge Trail area depicting social trails identified by WVU and USACE during 2009 field survey.

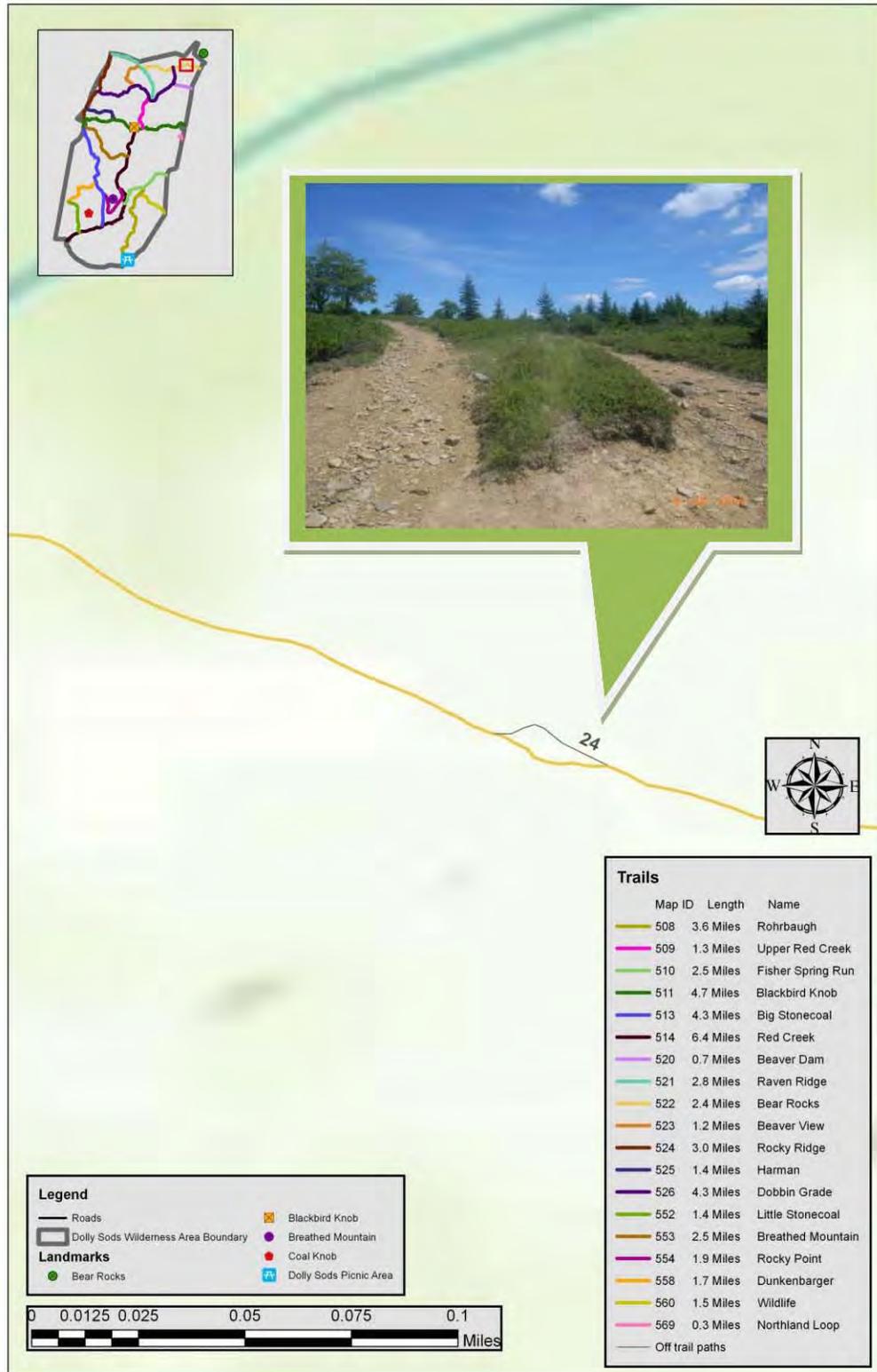


Figure 45. Detailed map of the Bear Rocks Trail area depicting social trails identified by WVU and USACE during 2009 field survey.

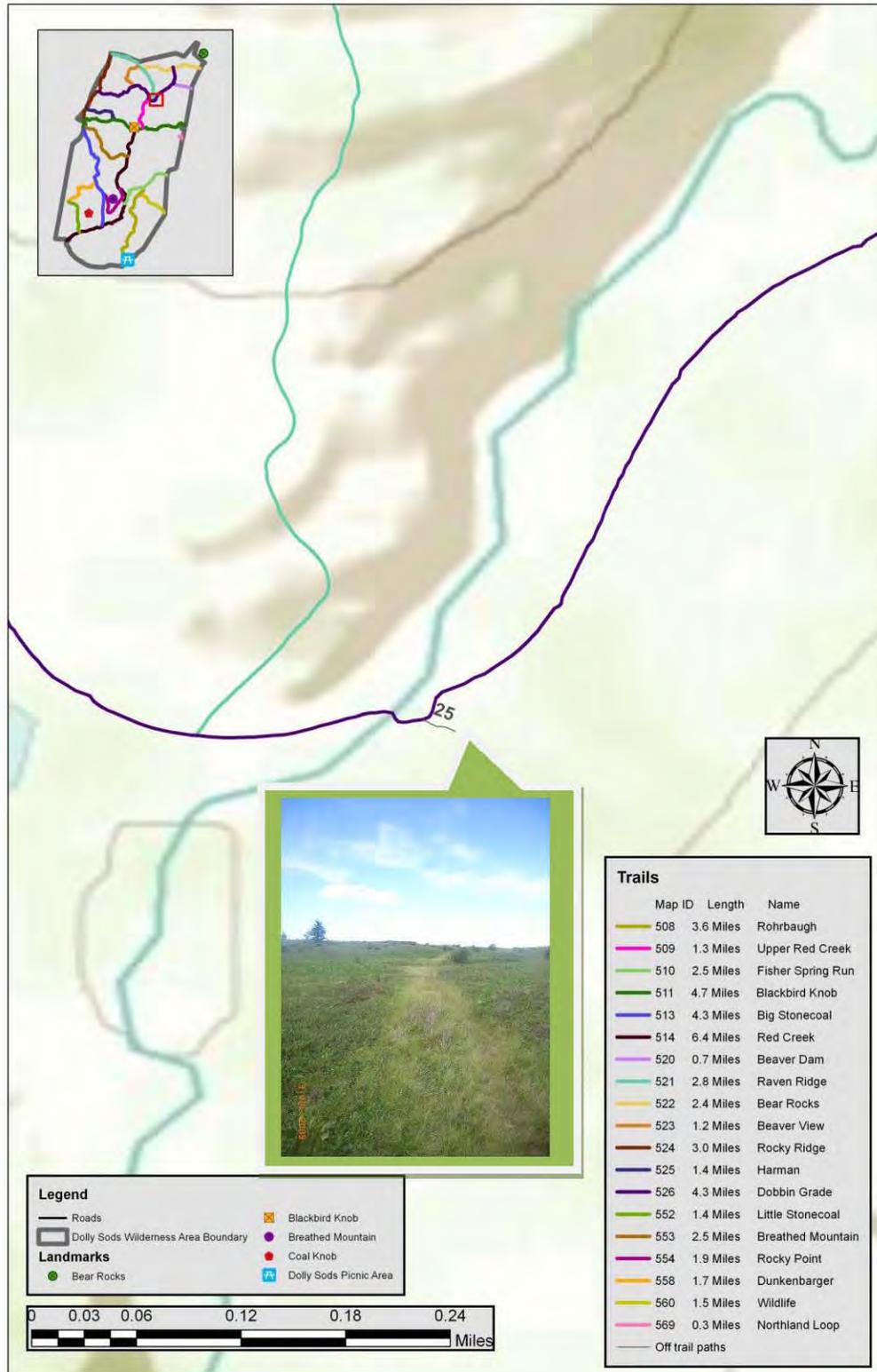


Figure 46. Detailed map of the Dobbin Grade Trail area depicting social trails identified by WVU and USACE during 2009 field survey.

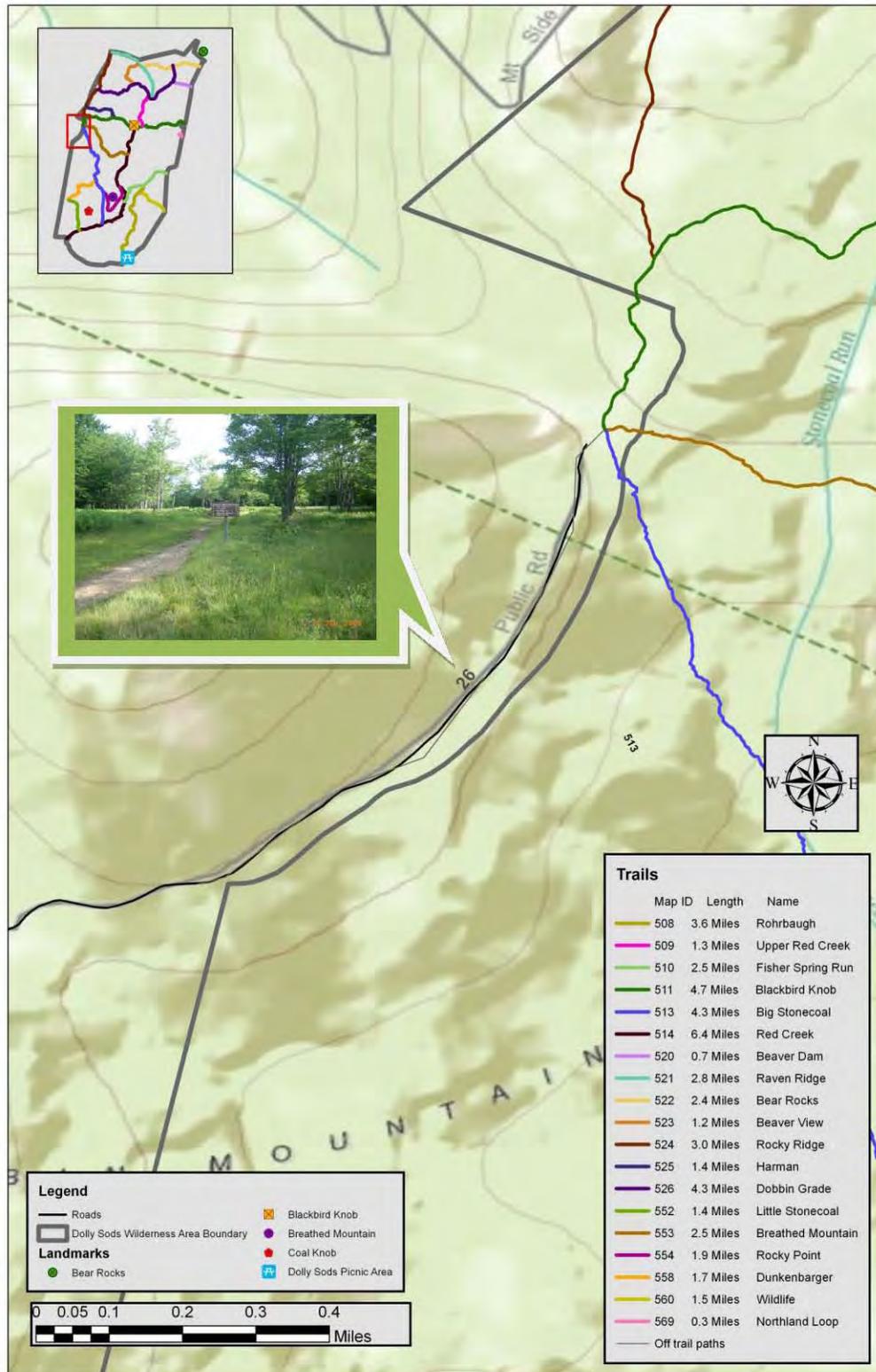


Figure 47. Detailed map of the Big Stonecoal Trail area depicting social trails identified by WVU and USACE during 2009 field survey.

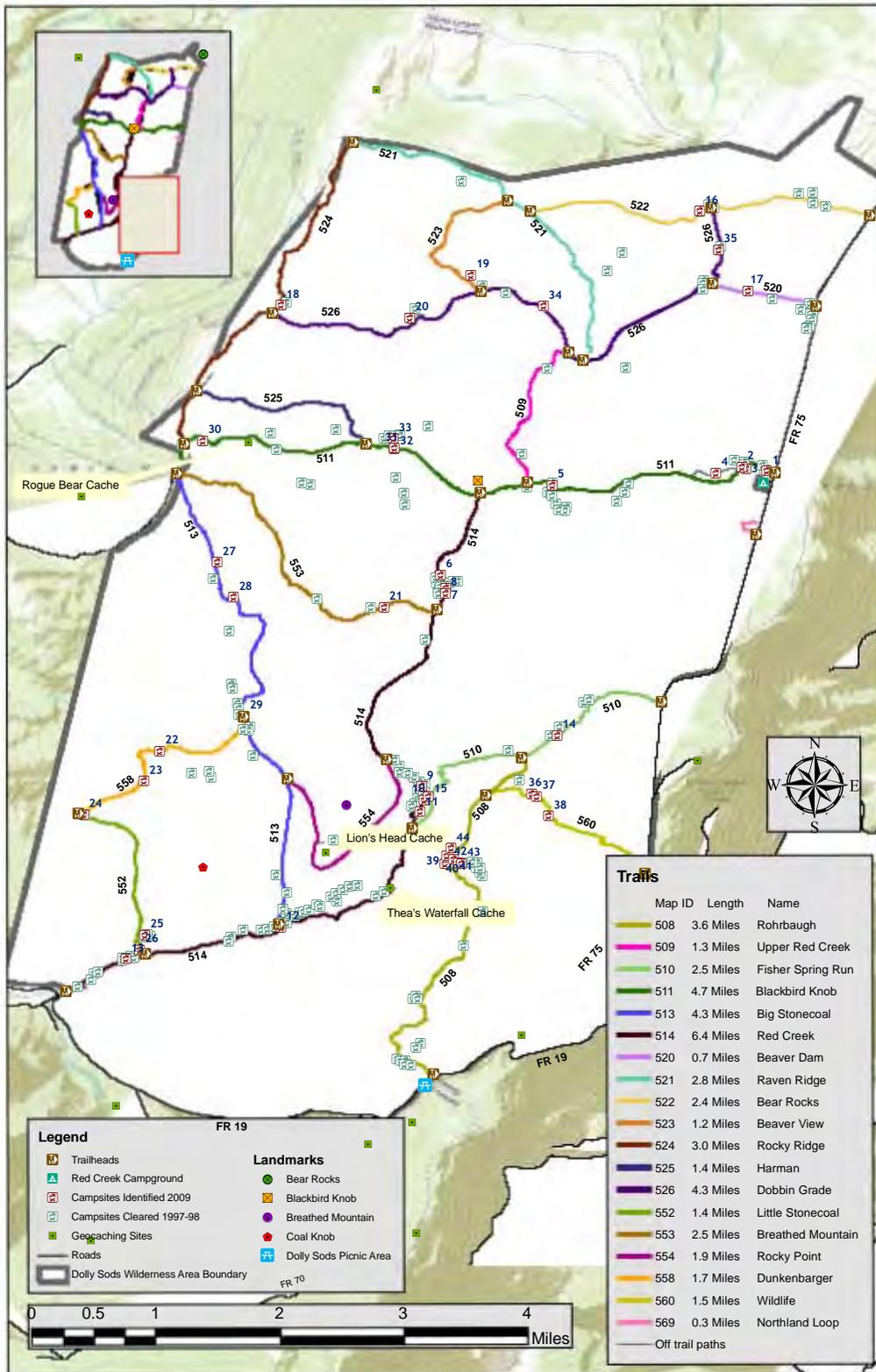


Figure 48. Dolly Sods Wilderness Area geocaching sites as identified by www.geocaching.com

Table 4. Dolly Sods Wilderness Area trail information collect by WVU and USACE during 2009 field survey.

Trail Number	Trail Name	Trail Rating	Trail Use	Hiking Difficulty	Mapping Date
560	Wildlife	A	Moderate	Easy	7/6/2009
560	Wildlife	B	Frequent	Easy	7/6/2009
560	Wildlife	B	Frequent	Easy	7/6/2009
560	Wildlife	B	Frequent	Easy	7/6/2009
560	Wildlife	B	Frequent	Easy	7/6/2009
560	Wildlife	B	Moderate	Easy	7/6/2009
560	Wildlife	B	Moderate	Easy	7/6/2009
560	Wildlife	B	Moderate	Easy	7/6/2009
560	Wildlife	B	Moderate	Easy	7/6/2009
560	Wildlife	B	Moderate	Easy	7/6/2009
560	Wildlife	B	Moderate	Easy	7/6/2009
560	Wildlife	B	Moderate	Easy	7/6/2009
560	Wildlife	B	Moderate	Easy	7/6/2009
560	Wildlife	B	Moderate	Easy	7/6/2009
560	Wildlife	B	Moderate	Easy	7/6/2009
560	Wildlife	B	Moderate	Easy	7/6/2009
560	Wildlife	B	Moderate	Easy	7/6/2009
508	Rohrbaugh	A	Moderate	Difficult	7/6/2009
508	Rohrbaugh	B	Moderate	Difficult	7/6/2009
508	Rohrbaugh	B	Moderate	Difficult	7/6/2009
508	Rohrbaugh	B	Moderate	Intermediate	7/6/2009
508	Rohrbaugh	B	Moderate	Intermediate	7/6/2009
508	Rohrbaugh	B	Moderate	Intermediate	7/6/2009
508	Rohrbaugh	B	Moderate	Intermediate	7/6/2009
508	Rohrbaugh	B	Moderate	Easy	7/6/2009
508	Rohrbaugh	B	Moderate	Intermediate	7/6/2009
508	Rohrbaugh	B	Moderate	Intermediate	7/6/2009
508	Rohrbaugh	B	Moderate	Intermediate	7/6/2009
508	Rohrbaugh	A	Moderate	Intermediate	7/6/2009
508	Rohrbaugh	B	Moderate	Intermediate	7/6/2009
508	Rohrbaugh	B	Moderate	Difficult	7/6/2009
508	Rohrbaugh	B	Moderate	Difficult	7/6/2009
511	Blackbird Knob	A	Moderate	Easy	7/7/2009
511	Blackbird Knob	A	Moderate	Easy	7/7/2009
511	Blackbird Knob	A	Moderate	Easy	7/7/2009
511	Blackbird Knob	C	Moderate	Difficult	7/7/2009
511	Blackbird Knob	B	Moderate	Difficult	7/7/2009
511	Blackbird Knob	C	Moderate	Intermediate	7/7/2009
511	Blackbird Knob	B	Moderate	Intermediate	7/7/2009

Trail Number	Trail Name	Trail Rating	Trail Use	Hiking Difficulty	Mapping Date
511	Blackbird Knob	B	Moderate	Difficult	7/7/2009
514	Red Creek	C	Moderate	Intermediate	7/7/2009
514	Red Creek	A	Moderate	Easy	7/7/2009
514	Red Creek	B	Frequent	Difficult	7/7/2009
514	Red Creek	C	Frequent	Difficult	7/7/2009
514	Red Creek	B	Frequent	Easy	7/7/2009
514	Red Creek	A	Moderate	Easy	7/7/2009
514	Red Creek	B	Moderate	Difficult	7/7/2009
514	Red Creek	B	Frequent	Intermediate	7/7/2009
514	Red Creek	B	Frequent	Difficult	7/7/2009
514	Red Creek	A	Frequent	Difficult	7/7/2009
514	Red Creek	A	Frequent	Intermediate	7/7/2009
514	Red Creek	A	Moderate	Difficult	7/7/2009
514	Red Creek	B	Frequent	Intermediate	7/7/2009
514	Red Creek	B	Frequent	Difficult	7/7/2009
514	Red Creek	B	Frequent	Difficult	7/7/2009
514	Red Creek	B	Frequent	Easy	7/7/2009
514	Red Creek	A	Moderate	Easy	7/7/2009
514	Red Creek	A	Moderate	Easy	7/7/2009
514	Red Creek	A	Frequent	Easy	7/7/2009
510	Fisher Spring Run	B	Moderate	Easy	7/8/2009
510	Fisher Spring Run	B	Moderate	Intermediate	7/8/2009
510	Fisher Spring Run	B	Moderate	Intermediate	7/8/2009
510	Fisher Spring Run	B	Moderate	Difficult	7/8/2009
510	Fisher Spring Run	C	Moderate	Difficult	7/8/2009
510	Fisher Spring Run	B	Moderate	Difficult	7/8/2009
569	Northland Loop	A	Moderate	Easy	7/8/2009
511	Blackbird Knob	B	Frequent	Easy	7/8/2009
522	Bear Rocks	A	Frequent	Easy	7/8/2009
522	Bear Rocks	A	Frequent	Easy	7/8/2009
522	Bear Rocks	A	Moderate	Easy	7/8/2009
521	Raven Ridge	A	Moderate	Intermediate	7/8/2009
521	Raven Ridge	B	Moderate	Easy	7/8/2009
526	Dobbin Grade	C	Moderate	Difficult	7/8/2009
520	Beaver Dam	B	Moderate	Intermediate	7/8/2009
520	Beaver Dam	A	Moderate	Intermediate	7/8/2009
524	Rocky Ridge	B	Moderate	Intermediate	7/9/2009
524	Rocky Ridge	B	Moderate	Intermediate	7/9/2009

Trail Number	Trail Name	Trail Rating	Trail Use	Hiking Difficulty	Mapping Date
524	Rocky Ridge	A	Moderate	Easy	7/9/2009
524	Rocky Ridge	B	Frequent	Easy	7/9/2009
524	Rocky Ridge	B	Moderate	Intermediate	7/9/2009
524	Rocky Ridge	A	Moderate	Easy	7/9/2009
521	Raven Ridge	B	Moderate	Intermediate	7/9/2009
521	Raven Ridge	A	Moderate	Easy	7/9/2009
523	Beaver View	A	Moderate	Intermediate	7/9/2009
523	Beaver View	A	Moderate	Intermediate	7/9/2009
526	Dobbin Grade	A	Slight	Intermediate	7/9/2009
526	Dobbin Grade	A	Moderate	Intermediate	7/9/2009
526	Dobbin Grade	B	Moderate	Intermediate	7/9/2009
525	Harman	A	Moderate	Intermediate	7/9/2009
525	Harman	B	Moderate	Intermediate	7/9/2009
525	Harman	A	Slight	Easy	7/9/2009
553	Breathed Mountain	B	Moderate	Easy	7/10/2009
553	Breathed Mountain	B	Moderate	Difficult	7/10/2009
553	Breathed Mountain	B	Moderate	Intermediate	7/10/2009
553	Breathed Mountain	C	Moderate	Intermediate	7/10/2009
553	Breathed Mountain	B	Moderate	Intermediate	7/10/2009
553	Breathed Mountain	B	Frequent	Difficult	7/10/2009
554	Rocky Point	B	Moderate	Intermediate	7/10/2009
554	Rocky Point	B	Moderate	Difficult	7/10/2009
554	Rocky Point	B	Moderate	Difficult	7/10/2009
554	Rocky Point	B	Moderate	Intermediate	7/10/2009
554	Rocky Point	C	Moderate	Difficult	7/10/2009
558	Dunkenbarger	B	Moderate	Intermediate	7/10/2009
558	Dunkenbarger	B	Moderate	Intermediate	7/10/2009
558	Dunkenbarger	B	Frequent	Intermediate	7/10/2009
552	Little Stonecoal	A	Moderate	Easy	7/10/2009
552	Little Stonecoal	A	Moderate	Difficult	7/10/2009
552	Little Stonecoal	B	Moderate	Difficult	7/10/2009
552	Little Stonecoal	B	Moderate	Difficult	7/10/2009
552	Little Stonecoal	B	Moderate	Easy	7/10/2009
513	Big Stonecoal	A	Moderate	Intermediate	7/11/2009

Trail Number	Trail Name	Trail Rating	Trail Use	Hiking Difficulty	Mapping Date
513	Big Stonecoal	A	Moderate	Easy	7/11/2009
513	Big Stonecoal	C	Moderate	Easy	7/11/2009
513	Big Stonecoal	A	Moderate	Easy	7/11/2009
513	Big Stonecoal	B	Moderate	Difficult	7/11/2009
513	Big Stonecoal	C	Moderate	Difficult	7/11/2009
513	Big Stonecoal	B	Moderate	Difficult	7/11/2009
511	Blackbird Knob	A	Moderate	Easy	7/12/2009
511	Blackbird Knob	A	Moderate	Easy	7/12/2009
511	Blackbird Knob	A	Moderate	Easy	7/12/2009
511	Blackbird Knob	A	Moderate	Easy	7/12/2009
511	Blackbird Knob	A	Frequent	Easy	7/12/2009
511	Blackbird Knob	A	Moderate	Easy	7/12/2009
509	Upper Red Creek	A	Moderate	Easy	7/12/2009
509	Upper Red Creek	B	Moderate	Easy	7/12/2009
509	Upper Red Creek	B	Moderate	Intermediate	7/12/2009
526	Dobbin Grade	C	Moderate	Intermediate	7/12/2009
526	Dobbin Grade	A	Moderate	Easy	7/12/2009
526	Dobbin Grade	C	Moderate	Intermediate	7/12/2009

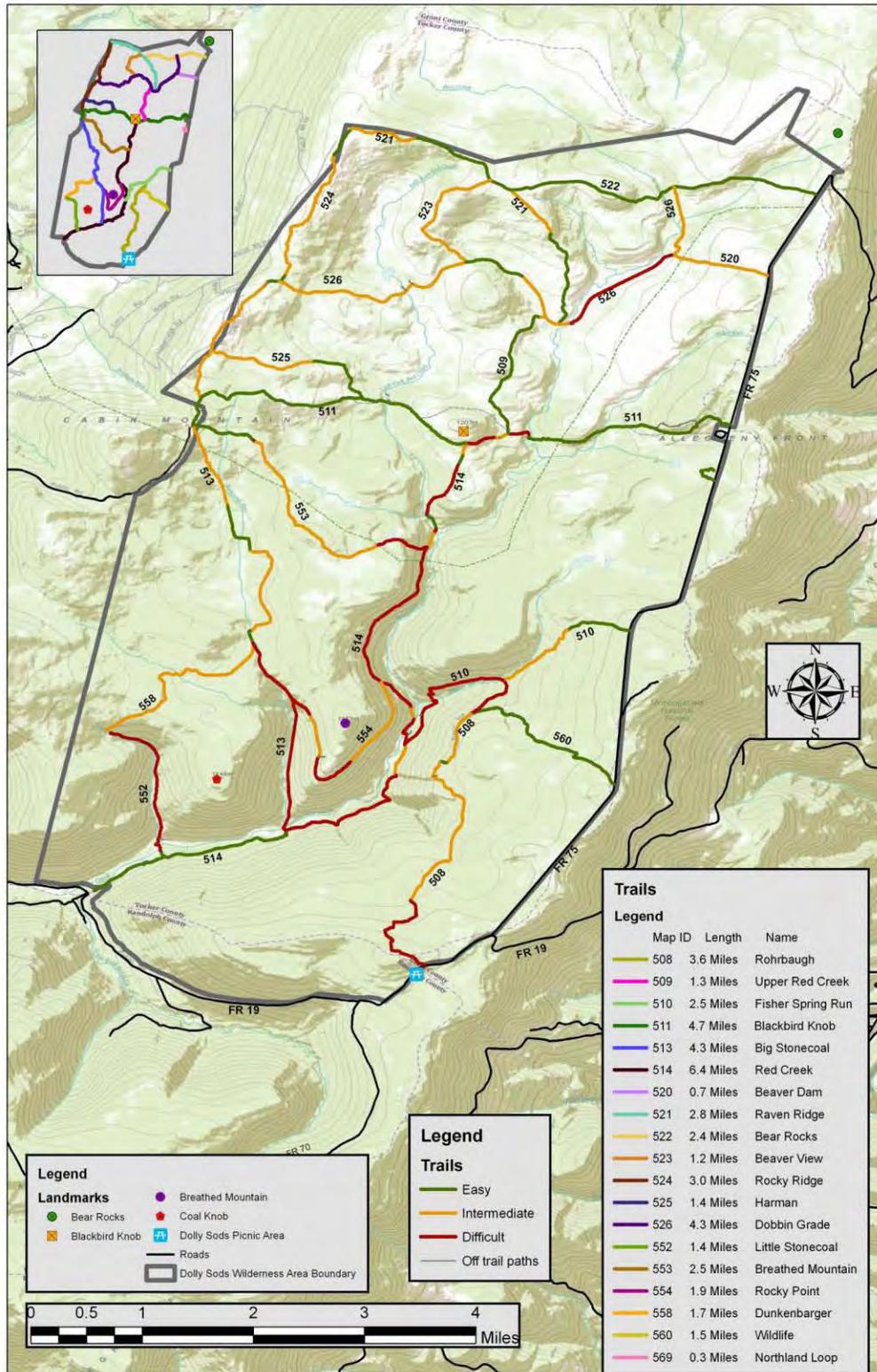


Figure 49. Map of Dolly Sods Wilderness Area hiking trail intensity as designated by WVU and USACE during 2009 field survey.

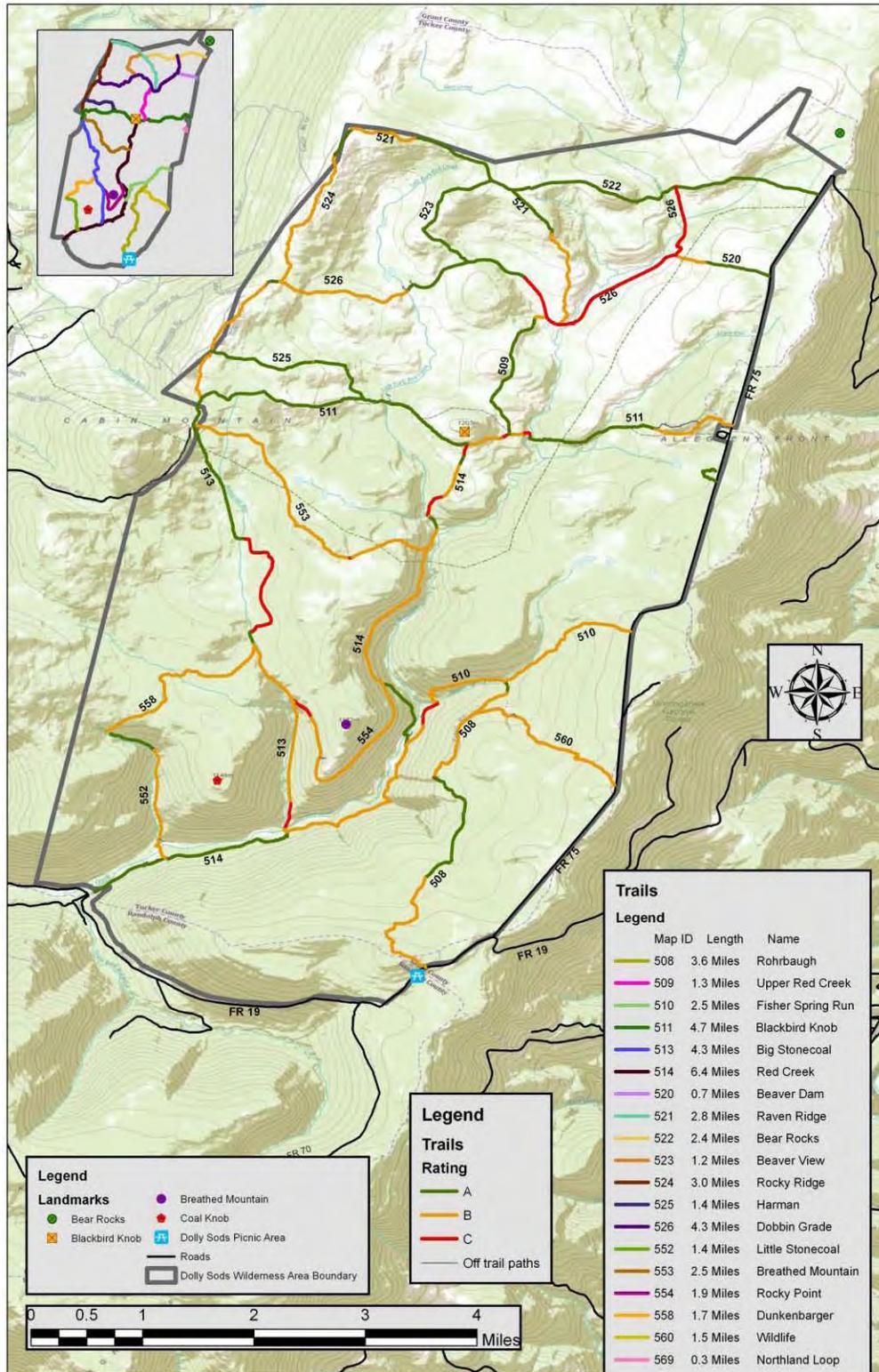


Figure 50. Map of Dolly Sods Wilderness Area trail conditions as designated by WVU and USACE during 2009 field survey.

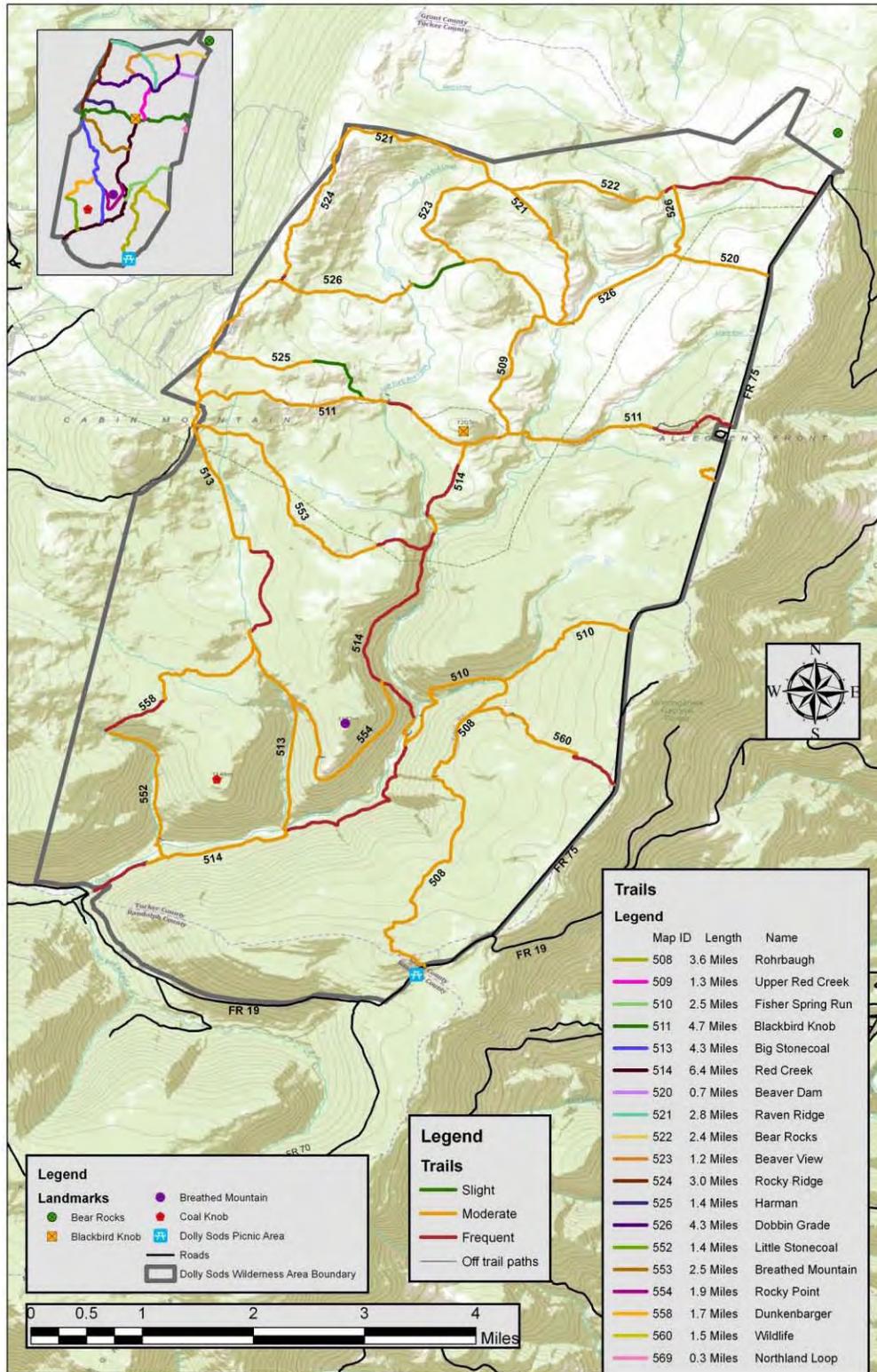


Figure 51. Map of Dolly Sods Wilderness Area hiking trail usage as designated by WVU and USACE during 2009 field survey.

Appendix I

QA Comments on the Draft GIS Summary Report, dated November 18, 2009

Geoenvironmental Assessment of Dolly Sods Trail Network for CERCLA Review

West Virginia Maneuver Area Formerly Used Defense Site (FUDS) Project

Contract No. W91237-09-P-0089

Prepared by:

United States Army Corps of Engineers

Huntington District

Environmental and Remediation Section

December 14, 2009

The subject GIS Summary Report has been reviewed and the following comments are provided for inclusion in the subject report:

1. General Comment. It does not appear as though the subject document has undergone an internal, independent peer QC review prior to submittal. This needs to occur and be documented in an appendix to the report.

RESPONSE: QC REVIEW HAS BEEN CONDUCTED AND HAS BEEN INCLUDED IN THIS FINAL REPORT.

2. Executive Summary, Page 1, 1st Paragraph, 1st Sentence. Revise the paragraph to read the following "In a sense, this project is a continuation of an investigation...." This is because in reality, these are two separate projects. One is a WVU project funded by SERDP funds to assess MC and multi-incremental sampling in mountainous terrain and the other is a USACE funded project to assist with the assessment of site conditions for inclusion in the project's five year recurring review.

RESPONSE: COMMENT INCORPORATED.

3. Executive Summary, Page 1, 2nd Paragraph, 1st Sentence. Add the following sentence to the beginning of this paragraph: "The U.S. Army Corps of Engineers (USACE) Huntington District, Environmental and Remediation Section (CELRH-EC-CE) has contracted West Virginia University to conduct an update of the West Virginia Maneuver Area/Dolly Sods Formerly Used Defense Site (FUDS) Project GIS database. This GIS database update is necessary for inclusion in the project's second five year recurring review, currently being conducted on the site. Internally within West Virginia University, this project is a collaborative effort involving....." I would also flip paragraphs 1 and 2, so that 2 comes before 1.

RESPONSE: COMMENT INCORPORATED.

4. Executive Summary, Page 1, 2nd Paragraph, 2nd Sentence. Add the following to the end of this sentence to specify location: "...the West Virginia Maneuver Area (WVMA) FUDS Property, specifically the Dolly Sods Region.

RESPONSE: COMMENT INCORPORATED.

5. Section 1.0, Page 1, 1st Paragraph, General Comment. At the time of the investigation I believe that Dolly Sods North Area had officially become a part of the Dolly Sods Wilderness Area, therefore there is only the Dolly Sods Wilderness Area and the Dolly Sods Scenic Area. Please delete mention of the DSNA.

RESPONSE: COMMENT INCORPORATED.

6. Section 1.0, Page 1, 1st Paragraph, 2nd Sentence. Reference is made in this sentence to "Figure 1" when referencing the location of Dolly Sods. Figure 1 is a photo of the field crew who conducted the GPS' of the trails. Add a map that accomplishes this reference as intended.

RESPONSE: COMMENT INCORPORATED.

7. Section 2.0 and Points Thereafter, General Comment. There are a lot of references to "we" in Section 2.0 and the subsequent sections. It is recommended that sentences referencing work that "we" (meaning WVU) did be reorganized so that the word "we" isn't necessary. For example, the first sentence in Section 2.0 is "We have provided GIS support to the USACE for the development of the second five year recurring review of the WVMA/DS FUDS Property." This sentence can be revised to read "West Virginia University has provided GIS support to the USACE....." This happens several times throughout the document. It is requested that a word search for "we" be done and those sentences restructured.

RESPONSE: COMMENT INCORPORATED.

8. Collection of GIS Information and Development of a GIS database, Page 3, 2nd Paragraph, 2nd Sentence. Figure 5 shows trail markings so revise "hazard sign placement" to "trail marking signs".

RESPONSE: COMMENT INCORPORATED.

9. Figure 3 and photos throughout the remainder of the document, General Comment. There appears to be several photos throughout the document that need to be lightened because it's hard to determine what is going on in the photo. (Examples I saw were Figures 4, 15, 16, 17, 18, 19, 21, 22, 24, 26, 30)

RESPONSE: COMMENT INCORPORATED.

10. Figure 7, Page 11, Title of Figure. Revise the Title of this figure to read "Historic Potomac Ranger District map with hand drawn firing range notations."

RESPONSE: COMMENT INCORPORATED.

11. Figure 8, Page 12, Title of Figure. Revise the title of this figure to read "Historic Impact Area mapping with notations."

RESPONSE: COMMENT INCORPORATED.

12. Figure 9, Page 13, Title of Figure. Revise the title of this figure to read “Historic lease map of Impact Area.”

RESPONSE: COMMENT INCORPORATED.

13. Figure 10, Page 16, Title of Figure. Slightly revise the title of this figure to read “Map of campsites identified during WVU and USACE 2009 field survey and campsites cleared during 1997-98 clearance.”

RESPONSE: COMMENT INCORPORATED.

14. Figure 11, Page 17. 1) Photo locations. It doesn’t appear that the arrows are pointing to the right locations in these two photos. Adjust the call out boxes so that the photos point to the campsite location. 2) Figure title. Delete the extra space between “map of” and “Upper Red Creek”.

RESPONSE: COMMENT INCORPORATED.

15. Figure 34 and subsequent figures, Page 42, Title of Figure. Revise “off-trail paths” to “social trails” as noted by Eric Sandeno, USFS.

RESPONSE: COMMENT INCORPORATED.

16. Figure 47, General Comment. Weren’t there Geocash locations in the former Dolly Sods North Area? If there was include those as well, even though they were not visited by the field crew.

RESPONSE: COMMENT INCORPORATED.

Appendix II



West Virginia University

College of Engineering and Mineral Resources

Internal WVU QC Review of Responses to USACE Quality Assurance Review Comments, Dated 14 December 2009

This section of the Appendix addresses the WVU Quality Control review of the Final Report. This QC review is specific to the responses noted for the USACE review comments dated 14 December 2010.

The following checklist was used for performing the internal WVU QC review:

1. Were all USACE comments addressed by either an acknowledgement of incorporation or rejection?
 - a. Yes yes
 - b. No, which comments were missed (insert list below). _____

2. Were comment responses to USACE clear and complete?
 - a. Yes yes
 - b. No, which comments were missed (insert list below). _____

3. Is the WVU QA document consistent in quality for USACE:
 - a. Yes yes
 - b. No, which comments were missed (insert list below). _____

4. Are there any internal QC review comments by the reviewer?
 - a. No no
 - b. Yes, please list comments below. _____

5. Please list below in numerical order any questions or comments to the QA plan which need to be addressed prior to this document being issued to the USACE POC as a Final version.

CERTIFICATION OF INDEPENDENT TECHNICAL REVIEW

The outcome of this review indicates that the deliverable was compiled consistent with the WVU QA Plan and customer's needs.

John D. Quaranta, Ph.D., P.E.
Independent QC Reviewer

3 Feb 2010

Date

Civil & Environmental Engineering

Phone: 304-293-3031
Fax: 304-293-7100

PO Box 6103
Morgantown, WV 26506-6103

Equal Opportunity/Affirmative Action Institution

Appendix B: SITE SAFETY AND HEALTH PLANS

A. SITE DESCRIPTION:

- o Size: Approximately 500 acres
- o Present usage: (Check all that apply)

<input type="checkbox"/> Military	<input checked="" type="checkbox"/> Recreational	<input type="checkbox"/> Agricultural
<input type="checkbox"/> Residential	<input type="checkbox"/> Commercial	<input type="checkbox"/> Landfill
<input checked="" type="checkbox"/> Natural Area	<input type="checkbox"/> Industrial	
<input type="checkbox"/> Other Specify		

<input type="checkbox"/> Secured	<input type="checkbox"/> Active	<input checked="" type="checkbox"/> Unknown
<input checked="" type="checkbox"/> Unsecured	<input checked="" type="checkbox"/> Inactive	

PAST USES: FUDS property

C. SURROUNDING POPULATION:

<input checked="" type="checkbox"/> Rural	<input checked="" type="checkbox"/> Residential	<input type="checkbox"/> Commercial
<input checked="" type="checkbox"/> Urban	<input type="checkbox"/> Industrial	
<input type="checkbox"/> Other specify		

D. PREVIOUS SAMPLING/INVESTIGATION RESULTS: Unknown; MEC possible in Area of Concern.

(1) MEC ENCOUNTERED: unknown

Location:	Description:

(2) SAMPLES: (Air, Water, Soil, Vegetation)

Chemical	Concentration	Media	Location

Chemical	Concentration	Media	Location

II. DESCRIPTION OF ON-SITE ACTIVITIES:

<input checked="" type="checkbox"/> Walk-through	Drive-through	<input type="checkbox"/> Fly over
<input checked="" type="checkbox"/> On road	<input checked="" type="checkbox"/> Off road	<input checked="" type="checkbox"/> On path
<input checked="" type="checkbox"/> Off path		
<input type="checkbox"/> Other Specify		

Activities/Tasks to be Performed (Summarize):

MEC surveying of site

III. SITE PERSONNEL AND RESPONSIBILITIES:

A. USACE PROJECT MANAGER:

NAME: Nickolas McHenry	
OFFICE: CELRH-EC-CE	
ADDRESS: 502 8th Street Huntington, WV 25701	
PHONE: (304) 399-5909	

RESPONSIBILITIES:

Project Management

B. TEAM LEADER:

NAME: Jeffrey Brewer	
OFFICE: EN-EE/SS	
ADDRESS: 10 S Howard St	
PHONE: 410-962-4840	

RESPONSIBILITIES:

Conduct MEC avoidance and survey

C. UXOSO/OE SAFETY SPECIALIST:

NAME: Jeffrey Brewer	
OFFICE: CENAB-ENEES	
ADDRESS: 10 S Howard St	
PHONE: 410-320-9495	

RESPONSIBILITIES: Brief this ASSHP. Ensure the ASSHP guidelines are followed. Provide MEC escort duties.

D. FIRST AID/CPR Certified:

NAME: Same as C Above	
OFFICE:	
ADDRESS:	
PHONE:	

RESPONSIBILITIES: Administer First Aid in the event of an emergency.

E. TEAM MEMBERS: (other than those listed above)

NAME: See Attached List	
OFFICE:	
ADDRESS:	
PHONE:	

RESPONSIBILITIES:

--

IV. HAZARD ANALYSIS:

A. Safety and health hazards anticipated:

- Chemical
- Ordnance (specify): MEC

--

<input checked="" type="checkbox"/> Heat Stress	<input type="checkbox"/> Cold Stress	<input checked="" type="checkbox"/> Tripping Hazard
<input type="checkbox"/> Noise	<input type="checkbox"/> Electrical	<input type="checkbox"/> Falling Object
<input type="checkbox"/> Foot hazard	<input checked="" type="checkbox"/> Biological	<input type="checkbox"/> Overhead Hazard
<input type="checkbox"/> Radiological	<input type="checkbox"/> Confined Space	<input checked="" type="checkbox"/> Water
<input checked="" type="checkbox"/> Explosive	<input type="checkbox"/> Climbing	<input type="checkbox"/> Flammable
<input type="checkbox"/> Other specify:		

B. Overall Hazard Evaluation:

<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input checked="" type="checkbox"/> Low	<input type="checkbox"/> Unknown
-------------------------------	-----------------------------------	---	----------------------------------

JUSTIFICATION: (Provide a brief justification supporting the overall rating.)

Presence of MEC items in area is low due to location.

V. ACCIDENT PREVENTION:

A. General Precautions:

Prior to the on-site visit, all team members are required to read this ASSHP and sign the form acknowledging that they have read and will comply with it. In addition, the OE Safety Specialist will hold a brief tailgate meeting in which site specific topics regarding the day's activities will be discussed. The buddy system will be enforced at all times. If unanticipated hazardous conditions arise, team members are to stop work, evacuate the area and notify the OE Safety Specialist.

VI. STANDARD OPERATION SAFETY PROCEDURES, ENGINEERING CONTROLS AND WORK PRACTICES:

A. SITE RULES/PROHIBITIONS: At any sign of hazardous conditions, stop tasks, evacuate area and notify the OE Safety Specialist. Smoking, eating and drinking allowed in designated areas only.

B. MATERIAL HANDLING PROCEDURES: Do not handle.

C. DRUM HANDLING PROCEDURES: Do not handle.

D. CONFINED SPACE ENTRY: Do not enter.

E. IGNITION SOURCE AND ELECTRICAL PROTECTION: Do not smoke.

F. SPILL CONTAINMENT: N/A

G. EXCAVATION SAFETY: Do not enter trenches/excavations.

H. ILLUMINATION: Work during daylight hours only.

I. SANITATION: Use existing sanitary facilities.

J. BUDDY SYSTEM: Two persons on-site maintaining constant contact with each other. To be adhered to at all times.

K. ENGINEERING CONTROLS: N/A

K. HEAT/COLD STRESS: Dress appropriately. Take sufficient breaks and drink plenty of fluids. Watch for signs/symptoms of cold/heat stress. Monitoring may be applicable depending on the site weather conditions and type of personal protection equipment (PPE) worn.

M. ORDNANCE:

(1) General Information:

a. The cardinal principle to be observed involving explosives, ammunition, severe fire hazards or toxic materials is to limit the exposure to a minimum of personnel, for the minimum amount of time, to a minimum amount of hazardous material consistent with a safe and efficient operation.

b. Old, damaged, and possibly deteriorated explosive-loaded ordnance requires extreme caution. Some explosives may react with metals, other explosives, air, or chemicals in the earth to produce extremely sensitive explosive compounds.

c. When chemical agents may be present, further precautions are necessary. If the munition item has green markings leave the area immediately, since it may contain a chemical filler.

d. Consider ordnance that has been exposed to fire as extremely hazardous. Chemical and physical changes may have occurred to the contents that render it more sensitive than it was in its original state.

(2) On-Site Instructions:

- a. **DO NOT** touch or move any ordnance items regardless of the marking or apparent condition.
- b. **DO NOT** visit an ordnance site if an electrical storm is occurring or approaching. If a storm approaches during a site visit leave the site immediately and seek shelter.
- c. **DO NOT** use radio or cellular phones in the vicinity of suspect ordnance items.
- d. **DO NOT** walk across an area where the ground cannot be seen. If dead vegetation or dead animals are observed, leave the area immediately due to potential chemical agent contamination.
- e. **DO NOT** drive vehicles into suspected MEC areas; use clearly marked lanes.
- f. **DO NOT** carry matches, lighted cigarettes, lighters or other flame producing devices into a MEC site.
- g. **DO NOT** rely on color codes for positive identification of ordnance items or their contents.
- h. **DO NOT** Approach ordnance items.
- i. Always assume ordnance items contain a live charge.

(3) Specific Action Upon Locating Ordnance:

- a. **DO NOT** touch, move or jar any ordnance item, regardless of its apparent condition.
- b. Notify the OE Safety Specialist immediately if suspicious item is encountered.
- c. **DO NOT** be misled by markings on the ordnance item stating "practice", "dummy", or "inert". Even practice Bombs have explosive charges that are used to mark/spot the point of impact; or the item could be mismarked.
- d. **DO NOT** roll an ordnance item over or scrape the item to identify the markings.
- e. The location of any ordnance items found during the site investigation should be clearly marked so it can be easily located and avoided.

- f. The USACE Baltimore District Environmental and Munitions Design Center (410)962-2714), will be notified upon location of any UXO.

N. POISONOUS SNAKES OR INSECTS:

- a. DO NOT handle any snake even those that appear to be dead.
- b. Avoid areas of limited visibility such as tall grass or heavy vegetation.
- c. Roll sleeves down and use insect repellent.

O. POISONOUS PLANTS:

- a. Avoid areas of limited visibility such as tall grass or heavy vegetation.
- b. Roll sleeves down and use barrier cream and wear gloves.

P. OTHER (specify):

--

VII. SITE CONTROL AND COMMUNICATIONS:

- A. SITE MAP: OE Safety Specialist will act as guide.
- B. SITE WORK ZONES: Team members must stay together at all times.
- C. BUDDY SYSTEM: To be adhered to at all times.
- D. COMMUNICATIONS: Cell Phone, (410) 320-9495

(1) ON-SITE: Verbal communications will be used among team members to communicate to each other on-site. If this communication is not possible, the following hand signals will be used.

GRIP PARTNER'S WRIST OR BOTH HANDS AROUND WAIST

Leave the area immediately.

HAND GRIPPING NOSE - Unusual smell detected

THUMBS UP - OK, I am alright or I understand

THUMBS DOWN - No, negative

(2) OFF-SITE: Off-site communications will be established on every site. Communications may be established by using an on-site cellular phone or by locating the nearest public phone or private phone, that may be readily accessed.

Cellular Phone: (410) 320-9495

Public/Private phone ()

Other.

(3) EMERGENCY SIGNALS: In the case of small groups, a verbal signal for emergencies shall suffice. The emergency signal for large groups should be incorporated at the discretion of the OE Safety Specialist.

Verbal

Nonverbal (Specify)

VIII. EMERGENCY RESPONSE:

a. Team members are to be alert to the dangers associated with the site at all times. If a hazardous condition arises, stop work, evacuate the immediate area and notify the OE Safety Specialist.

b. **FIRST AID.** A first aid kit and emergency eye wash (as applicable) will be located in the OE Safety Specialist's field car. If qualified persons (i.e. a fire department, medical facility or physician) is not accessible within five minutes of the site at least one team member will be qualified to administer first aid and CPR.

c. EMERGENCY TELEPHONE NUMBERS:

1.MEDICAL FACILITY:	Hospital 911
2.FIRE DEPARTMENT:	FD 911
3.POLICE DEPARTMENT:	911
4.POISON CONTROL CENTER:	1-800-732-6985
5.CENAB OE SAFETY OFFICE:	(410) 962-2714
6.Local or FORSCOM EOD:	(703) 805-5006
7.Tech Escort Unit:	
8.PROJECT MANAGER:	(304) 399-5909
9.Other (list):	

d. DIRECTIONS TO THE NEAREST HOSPITAL/MEDICAL FACILITY:

.Directions and Map attached.

IX. MONITORING EQUIPMENT AND PROCEDURES:

a. Exposure Monitoring: For non-intrusive on-site activities such as site visits, air monitoring is normally not required. However, if the site situation dictates the need for monitoring, complete the following information on a separate page and attach the page to the ASSHP.

- Monitoring equipment to be used.
- Documentation of equipment calibration and results.
- Action Levels.

b. Heat/Cold Stress Monitoring: Include an enclosure with the condition to be monitored and the procedures. If heat stress monitoring is necessary, the monitoring criteria published in Chapter 8 of the NIOSH/OSHA/USCG/EPA "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities" (Oct '85) will be followed. If cold stress monitoring is necessary, it will be conducted IAW the most current published American Conference of Governmental Industrial Hygienist (ACGIH) cold stress standards.

X. PERSONAL PROTECTIVE EQUIPMENT:

a. GENERAL:

Typically, for non-intrusive site visits, Level D is required. Team members should avoid wearing outer or undergarments made of wool, silk or synthetic textiles such as rayon or nylon. These materials can generate sufficient static charge to ignite explosives. Hard hats will be worn if an overhead hazard exists, safety glasses if an eye hazard is present, and safety shoes will be worn if a foot hazard exists.

b. NON-INTRUSIVE SITE VISIT:

Level of Protection:

Initial: Level D Modified (specify)

--

Contingency: Evacuate site if higher level of protection is needed.

XI. DECONTAMINATION PROCEDURES:

Decontamination procedures are not anticipated for this site investigation. Team members are cautioned not to walk, kneel or sit on any surface with potential for leaks, spills or contamination.

XII. TRAINING:

All site personnel will have reviewed this plan and completed appropriate training deemed necessary for site activities normally a tailgate safety briefing prior to site entry. Additionally, the OE Safety Specialist will inform personnel before entering, of any potential site specific hazards and procedures.

XIII. LOGS, REPORTS AND RECORDKEEPING:

The Project Manager maintains site logs. This is to include historical data, personnel authorized to visit the site, all records, standard operating procedures and the ASSHP submitted. Any air monitoring logs, SOPs, and attachments to plans.

XV. GENERAL:

The number of persons visiting the site will be held to a minimum. No more than 8 persons per OE Safety Specialist will be allowed on site. The more persons on-site, the greater potential for an accident. The OE Safety Specialist may modify this ASSHP, if site conditions warrant it, and without risking the safety and health of the team members. This modification will be coordinated with the team members and the OE Safety Specialist will notify the approval authority of the change as the situation allows.

SAFETY BRIEFING CHECKLIST

(Check subjects discussed)

SITE NAME: Dolly Sods Wilderness Area	DATE/TIME: July 5-18
--	-----------------------------

GENERAL INFORMATION

- PURPOSE OF VISIT
- IDENTIFY KEY SITE PERSONNEL
- TRAINING AND MEDICAL REQUIREMENTS

SPECIFIC INFORMATION

- Site description/past uses
- Results of previous studies
- Potential site hazards
- MEC safety procedures
- Site SOPs
- Site control and communications
- Emergency hand signals
- Emergency response
 - Location of first aid kit
 - Emergency phone numbers & location
 - Location of nearest medical facility and location of map to facility
- PPE and decontamination

Stress the following during the briefing: If hazardous conditions arise, stop work, evacuate the area and notify the OE Safety Specialist.

PLAN ACCEPTANCE FORM

ABBREVIATED SAFETY AND HEALTH PLAN

FOR
Dolly Sods, WV

Directions

Petersburg, WV

Search nearby | Zoom to Street | Send to Cell | Send to Desktop
Online Office | Hotels in Petersburg | Petersburg Restaurants | Local Virginia auto insurance

Local Information
See local events,
movies, news & more.

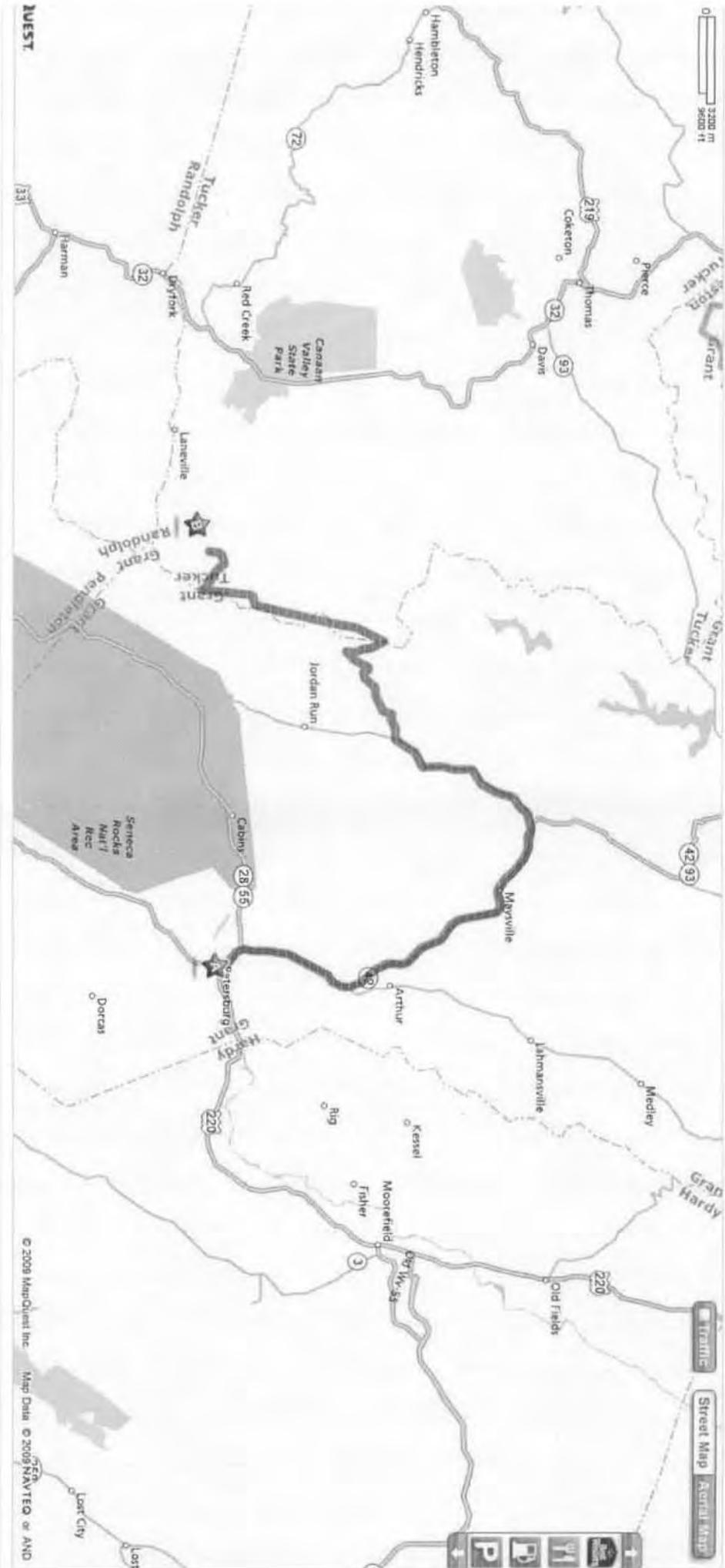
Edit Remove X
Move Down

▼ Directions from A to B:

- 1:** Start out going NORTH on US-220/MAIN ST toward VIRGINIA AVENUE-28WV-55. Continue to follow MAIN ST. 0.3 mi [Map](#)
- 2:** MAIN ST becomes WV-28WV-55/KEYSER AVE. 0.5 mi [Map](#) [Avoid](#)
- 3:** Turn RIGHT onto WV-42. 12.0 mi [Map](#) [Avoid](#)
- 4:** Turn LEFT onto JORDON RUN/CR-28/7. 5.3 mi [Map](#) [Avoid](#)
- 5:** Turn RIGHT onto PUBLIC RD 75. 4.7 mi [Map](#) [Avoid](#)
- 6:** PUBLIC RD 75 becomes PUBLIC ROAD 75. 5.9 mi [Map](#) [Avoid](#)
- 7:** Turn SHARP RIGHT onto PUBLIC ROAD 314. 1.8 mi [Map](#) [Avoid](#)
- 8:** End at Dolly Soda Wilderness, WV. [Map](#)

There are 1.5 miles between your ending location and the end of your driving directions. Use local maps to get from the end of your route to your ending location.

Estimated Time: 58 minutes Estimated Distance: 30.45 miles



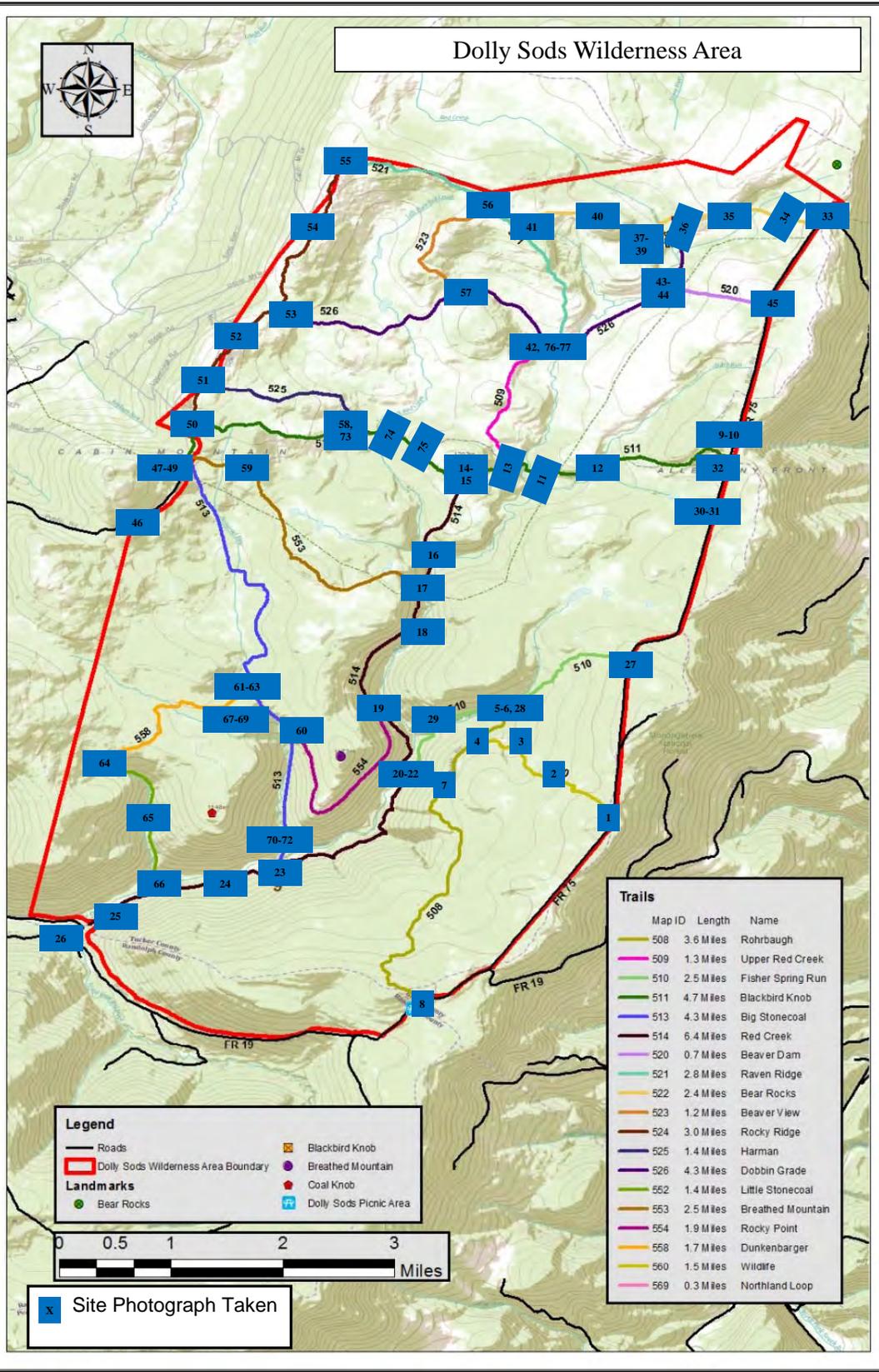
© 2008 MapQuest Inc. Map Data © 2008 NAVTEQ or AND

Appendix C: SITE ASSESSMENT PHOTOGRAPHS

Appendix C: 2009 SITE ASSESSMENT PHOTOGRAPHS



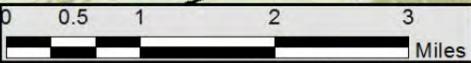
Dolly Sods Wilderness Area



Map ID	Length	Name
508	3.6 Miles	Rohrbaugh
509	1.3 Miles	Upper Red Creek
510	2.5 Miles	Fisher Spring Run
511	4.7 Miles	Blackbird Knob
513	4.3 Miles	Big Stonecoal
514	6.4 Miles	Red Creek
520	0.7 Miles	Beaver Dam
521	2.8 Miles	Raven Ridge
522	2.4 Miles	Bear Rocks
523	1.2 Miles	Beaver View
524	3.0 Miles	Rocky Ridge
525	1.4 Miles	Harman
526	4.3 Miles	Dobbin Grade
552	1.4 Miles	Little Stonecoal
553	2.5 Miles	Breathed Mountain
554	1.9 Miles	Rocky Point
558	1.7 Miles	Dunkenbarger
560	1.5 Miles	Wildlife
569	0.3 Miles	Northland Loop

Legend

- Roads
- Dolly Sods Wilderness Area Boundary
- Blackbird Knob
- Breathed Mountain
- Coal Knob
- Dolly Sods Picnic Area
- Bear Rocks



Site Photograph Taken



US Army Corps of Engineers

U. S. ARMY CORPS OF ENGINEERS
 HUNTINGTON DISTRICT
 ENVIRONMENTAL & REMEDIATION SECTION

2009 SITE ASSESSMENT PHOTOS PHOTO LOCATIONS

Former WVMA/Dolly Sods FUDS Project
 Second Recurring Review

SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 6, 2009

Photo Number:
1

Photo Location:
Wildlife Trail

Photo Description:
Photo of the trailhead information sign located at the Wildlife Trail. Note the UXO Warning Sign located on the top right hand side of the sign.



Date of Photo:
July 6, 2009

Photo Number:
2

Photo Location:
Wildlife Trail

Photo Description:
Photo of a stone diversion located on the Wildlife Trail. The diversion structure is used to transport water away from the trail and help ease erosion issues.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 6, 2009

Photo Number:
3

Photo Location:
Wildlife Trail

Photo Description:
This photo shows
a general view of
the Wildlife Trail.



Date of Photo:
July 6, 2009

Photo Number:
4

Photo Location:
Intersection of
Wildlife and
Rohrbaugh Plains
Trails

Photo Description:
This photo shows
the sign located at
the intersection of
Rohrbaugh Plains
and Wildlife
Trails.



SITE ASSESSMENT PHOTOGRAPHS

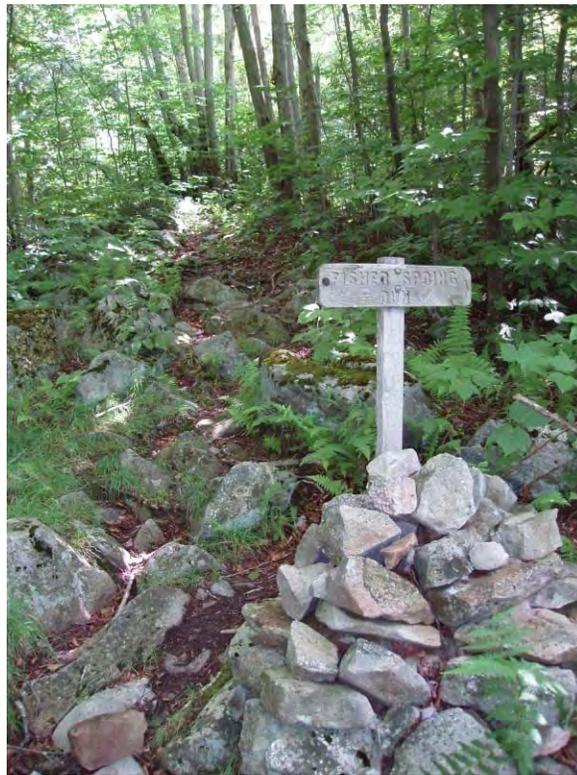
Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 6, 2009

Photo Number:
5

Photo Location:
Intersection of
Rohrbaugh Plains
and Fisher Spring
Run Trails

Photo Description:
This photo shows
the trail marker
for Fisher Spring
Run Trail located
at the intersection
of Rohrbaugh
Plains and Fisher
Spring Run Trails.



Date of Photo:
July 6, 2009

Photo Number:
6

Photo Location:
Intersection of
Rohrbaugh Plains
and Fisher Spring
Run Trails

Photo Description:
This photo shows
the signs marking
the intersection of
Rohrbaugh Plains
and Fisher Spring
Run Trails.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 6, 2009

Photo Number:
7

Photo Location:
Rohrbaugh Plains
Trail

Photo Description:
General view of
scenery along
Rohrbaugh Plains
Trail.



Date of Photo:
July 6, 2009

Photo Number:
8

Photo Location:
Rohrbaugh Plains
Trail

Photo Description:
This photo shows
the trailhead sign
located at the
Rohrbaugh Plains
Trailhead. Note
the UXO Warning
Sign present in the
middle of the sign.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 7, 2009

Photo Number:
9

Photo Location:
Blackbird Knob
Trailhead

Photo Description:
This photo shows
the trailhead sign
located at the
Blackbird Knob
Trailhead. Note the
UXO Warning Sign
present on the
upper right hand
corner of the
sign.



Date of Photo:
July 7, 2009

Photo Number:
10

Photo Location:
Blackbird Knob
Trail

Photo Description:
View of the trail
sign at the
beginning of the
Blackbird Knob
Trail.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 7, 2009

Photo Number:
11

Photo Location:
Blackbird Knob
Trail

Photo Description:
Area along
Blackbird Knob
Trail, where the
trail crosses Red
Creek.



Date of Photo:
July 7, 2009

Photo Number:
12

Photo Location:
Blackbird Knob
Trail

Photo Description:
Area of trail
erosion >1 ft.
along the
Blackbird Knob
Trail.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 7, 2009

Photo Number:
13

Photo Location:
Intersection of
Upper Red Creek
Trail and
Blackbird Knob
Trail

Photo Description:
Upper Red Creek
Trailhead sign at
the intersection of
Upper Red Creek
Trail and
Blackbird Knob
Trail.

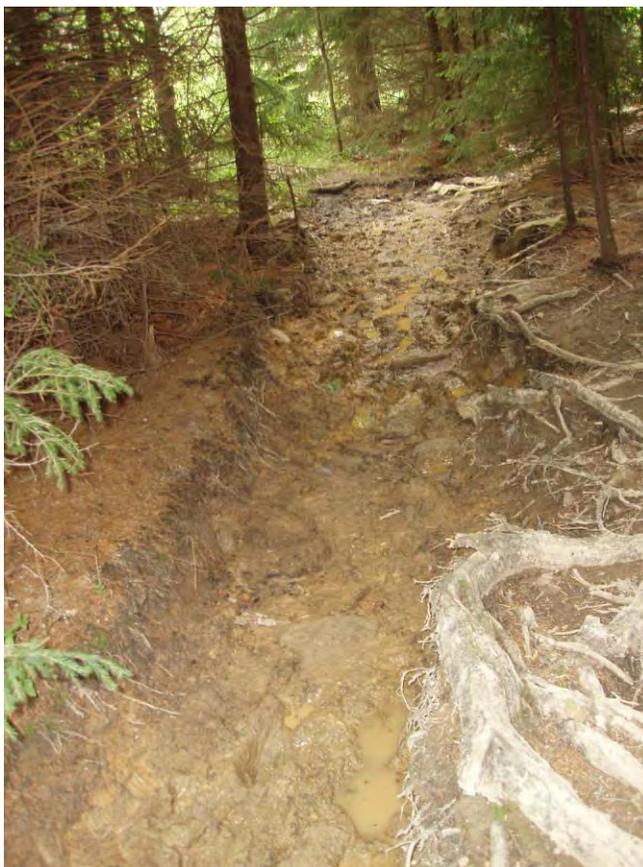


Date of Photo:
July 7, 2009

Photo Number:
14

Photo Location:
Blackbird Knob
Trail

Photo Description:
Area of significant
erosion located
along Blackbird
Knob Trail.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 7, 2009

Photo Number:
15

Photo Location:
Intersection of
Red Creek and
Blackbird Knob
Trails

Photo Description:
Photo looking
south at Red
Creek Trail, at the
intersection of
Red Creek and
Blackbird Knob
Trails.

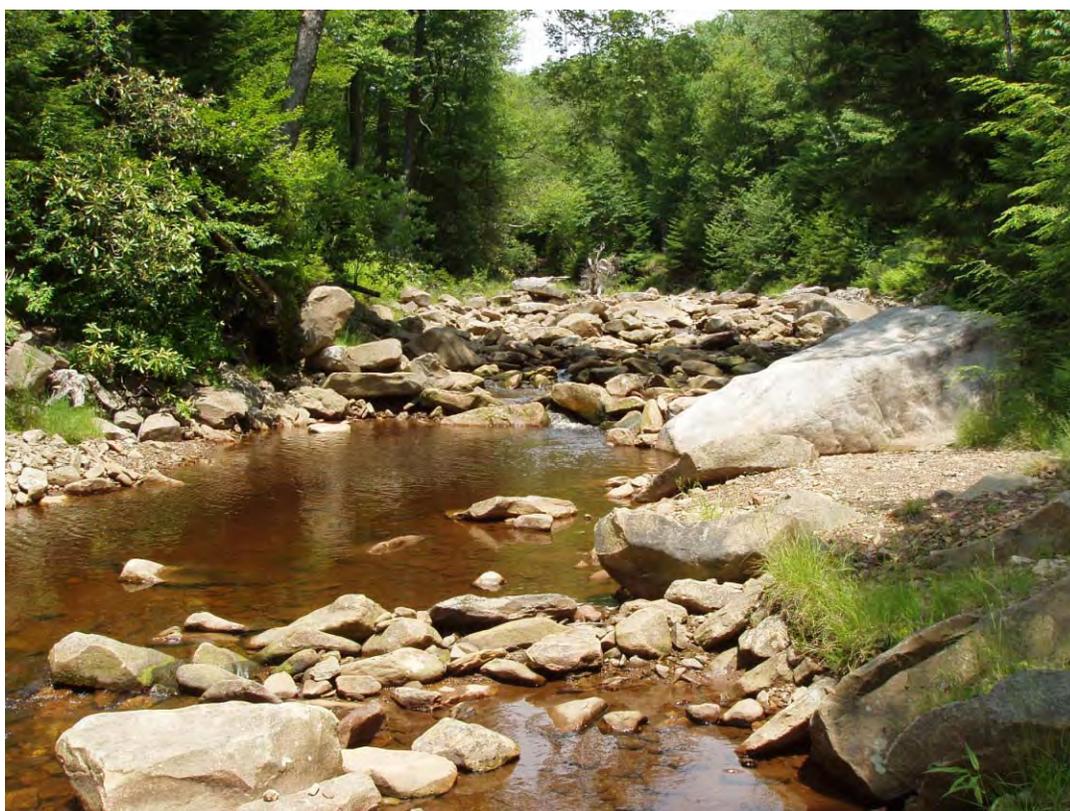


Date of Photo:
July 7, 2009

Photo Number:
16

Photo Location:
Red Creek Trail

Photo Description:
View of the area
where the Red
Creek Trail
crosses the Left
Fork of Red
Creek.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 7, 2009

Photo Number:
17

Photo Location:
Intersection of Red
Creek Trail and
Breathed Mountain
Trail

Photo Description:
View of the sign
marking the
intersection of Red
Creek and Breathed
Mountain Trails.
Note that the sign
had been knocked
down and was on
the ground.



Date of Photo:
July 7, 2009

Photo Number:
18

Photo Location:
Red Creek Trail

Photo Description:
Area along Red
Creek Trail where
water had ponded
on the trail.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 7, 2009

Photo Number:
19

Photo Location:
Intersection of
Red Creek and
Rocky Point Trail

Photo Description:
Photo of the
intersection of
Red Creek and
Rocky Point Trail.
Note the sign had
been knocked
down and had to
be replaced at the
top of the cairn.



Date of Photo:
July 7, 2009

Photo Number:
20

Photo Location:
Red Creek Trail
crossing Red
Creek

Photo Description:
Photo of the point
where Red Creek
Trail crosses Red
Creek.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 7, 2009

Photo Number:
21

Photo Location:
Intersection of
Fisher Spring Run
and Red Creek
Trails

Photo Description:
View of the Fisher
Spring Run
Trailhead sign at
the intersection of
Red Creek and
Fisher Spring Run
Trails.

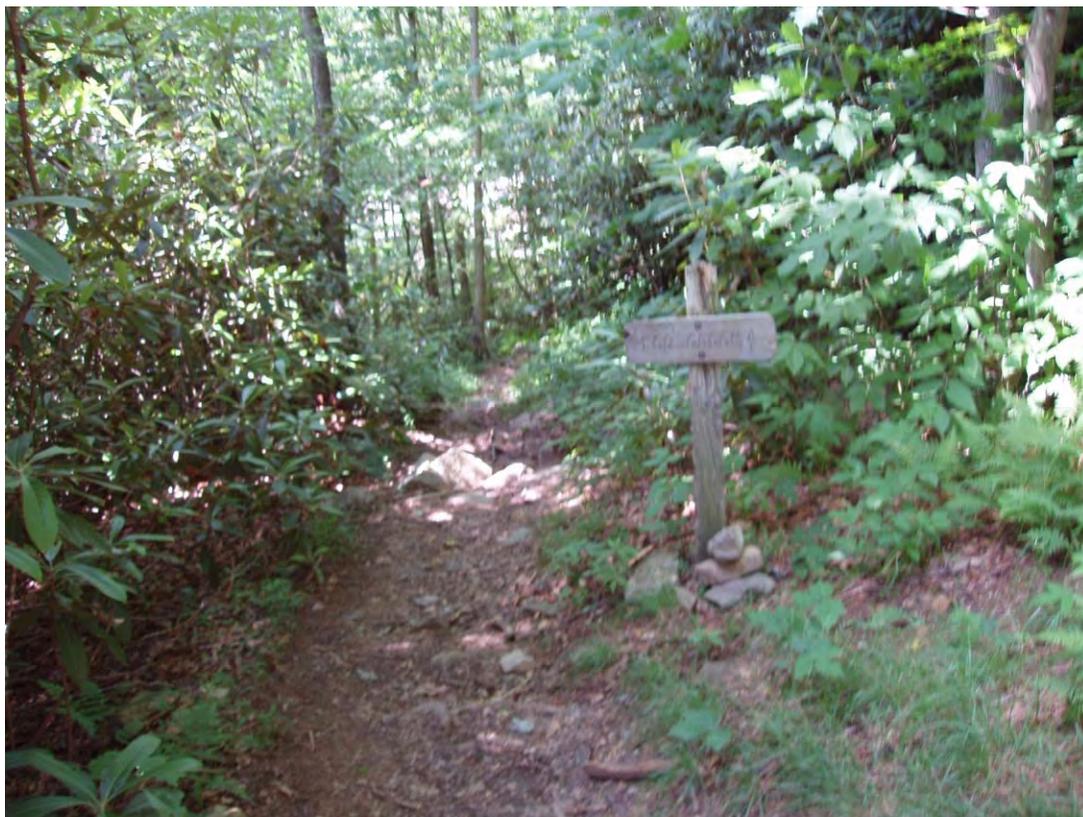


Date of Photo:
July 7, 2009

Photo Number:
22

Photo Location:
Intersection of
Fisher Spring Run
and Red Creek
Trail

Photo Description:
View of the Red
Creek Trailhead
sign at the
intersection of
Red Creek and
Fisher Spring Run
Trails.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 7, 2009

Photo Number:
23

Photo Location:
Intersection of Big
Stonecoal and Red
Creek Trails

Photo Description:
Marker noting the
intersection of Big
Stonecoal and Red
Creek Trails.
Note that the trail
sign is no longer
present.



Date of Photo:
July 7, 2009

Photo Number:
24

Photo Location:
Red Creek Trail

Photo Description:
View of a washout
between Red
Creek and Red
Creek Trail.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 9, 2009

Photo Number:
25

Photo Location:
Red Creek
Trailhead Sign

Photo Description:
View of the
information sign
at the entrance of
the Red Creek
Trail. Note the
UXO Warning
Sign located at the
upper right hand
corner of the kiosk.



Date of Photo:
July 7, 2009

Photo Number:
26

Photo Location:
Dolly Sods
Wilderness
Entrance Sign

Photo Description:
Entry sign into the
Dolly Sods
Wilderness Area.
Note the UXO
Warning Sign
located at the
upper right hand
corner of the
kiosk.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 8, 2009

Photo Number:
27

Photo Location:
Fisher Spring Run
Trail

Photo Description:
View of the
information sign
at the entrance of
the Fisher Spring
Run Trail. Note
the UXO Warning
Sign located at the
upper right hand
corner of the kiosk.



Date of Photo:
July 8, 2009

Photo Number:
28

Photo Location:
Intersection of
Rohrbaugh Plains
and Fisher Spring
Run Trails.

Photo Description:
View of the
signage located at
the intersection of
Rohrbaugh Plains
and Fisher Spring
Run Trails.



SITE ASSESSMENT PHOTOGRAPHS

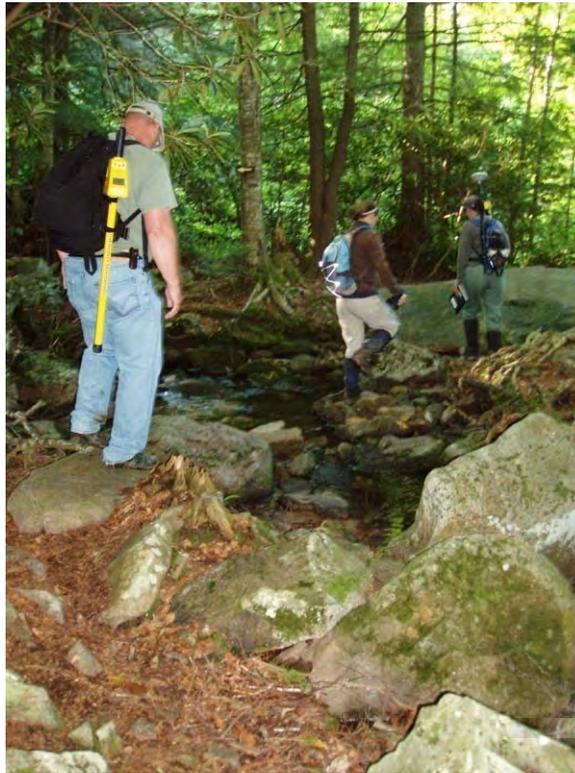
Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 8, 2009

Photo Number:
29

Photo Location:
Fisher Spring Run
Trail

Photo Description:
View of team
members crossing
Fisher Spring Run
along the Fisher
Spring Run Trail.



Date of Photo:
July 8, 2009

Photo Number:
30

Photo Location:
Northland Loop
Trail

Photo Description:
View of the
trailhead marker
located at the
Northland Loop
Trail. Note the
presence of the
UXO Warning
Sign.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 8, 2009

Photo Number:
31

Photo Location:
Northland Loop
Trail

Photo Description:
View of the sign
marking the
southern end of
the Northland
Loop Trail.



Date of Photo:
July 8, 2009

Photo Number:
32

Photo Location:
Red Creek
Campground

Photo Description:
View of the
informational sign
located at the Red
Creek
Campground.
Note the UXO
Warning Sign
located in the
upper right hand
corner of the
kiosk.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 8, 2009

Photo Number:
33

Photo Location:
Bear Rocks Trail

Photo Description:
View of the Bear
Rocks Trailhead
Sign. Note the
presence of the
UXO Warning
Sign.



Date of Photo:
July 8, 2009

Photo Number:
34

Photo Location:
Bear Rocks Trail

Photo Description:
View of
significant erosion
located along Bear
Rocks Trail.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 8, 2009

Photo Number:
35

Photo Location:
Bear Rocks Trail

Photo Description:
View of diverging
paths along Bear
Rocks Trail.



Date of Photo:
July 8, 2009

Photo Number:
36

Photo Location:
Intersection of
Dobbin Grade and
Bear Rocks Trails

Photo Description:
View of the
Dobbin Grade
Trail sign located
at the intersection
of Dobbin Grande
and Bear Rocks
Trails.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 8, 2009

Photo Number:
37

Photo Location:
Bear Rocks Trail

Photo Description:
View of "newer"
trail markers
along Bear Rocks
Trail. These trail
markers are
predominately
found in the
northern portion
of the Dolly Sods
Wilderness Area.

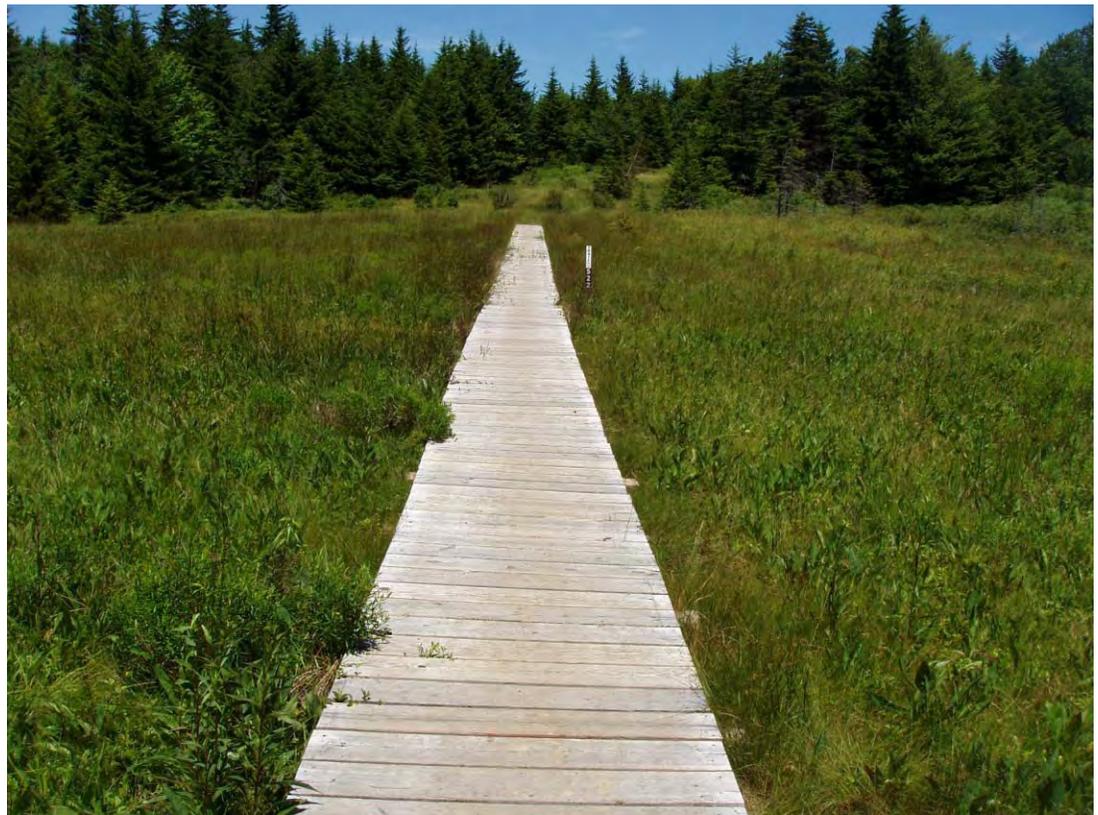


Date of Photo:
July 8, 2009

Photo Number:
38

Photo Location:
Bear Rocks Trail

Photo Description:
View of a wooden
bridge that had
been built over a
portion of the
Bear Rocks Trail.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 8, 2009

Photo Number:
39

Photo Location:
Bear Rocks Trail

Photo Description:
View of area
where Bear Rocks
Trail crosses
headwaters of Red
Creek.



Date of Photo:
July 8, 2009

Photo Number:
40

Photo Location:
Bear Rocks Trail

Photo Description:
General view of
Bear Rocks Trail.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 8, 2009

Photo Number:
41

Photo Location:
Intersection of
Bear Rocks and
Raven Ridge
Trails

Photo Description:
View of Bear
Rocks trailhead
sign located at the
intersection of
Bear Rocks and
Raven Ridge
Trails.



Date of Photo:
July 8, 2009

Photo Number:
42

Photo Location:
Intersection of
Raven Ridge and
Dobbin Grade
Trails

Photo Description:
View of Raven
Ridge trailhead
sign located at the
intersection of
Dobbin Grade and
Raven Ridge
Trails.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 8, 2009

Photo Number:
43

Photo Location:
Intersection of
Dobbin Grade and
Beaver Dam
Trails

Photo Description:
View of the
stream crossing
near the
intersection of
Dobbin Grade and
Beaver Dam
Trails.



Date of Photo:
July 8, 2009

Photo Number:
44

Photo Location:
Intersection of
Dobbin Grade and
Beaver Dam
Trails

Photo Description:
View of the
Beaver Dam Trail
sign located at the
intersection of
Dobbin Grade and
Beaver Dam
Trails.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 8, 2009

Photo Number:
45

Photo Location:
Beaver Dam Trail

Photo Description:
View of the
Beaver Dam
Trailhead Marker.
Note the UXO
Warning sign
present on the
trailhead marker.



Date of Photo:
July 9, 2009

Photo Number:
46

Photo Location:
Forest Road 80,
entry to Dolly
Sods Wilderness
Area

Photo Description:
View of the path
leading from FR
80 to the Dolly
Sods Wilderness
Area.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 9, 2009

Photo Number:
47

Photo Location:
Intersection of Big
Stonecoal and
Breathed
Mountain Trails

Photo Description:
View of
informational
kiosk located at
the Dolly Sods
Wilderness Area
entrance. Note
the UXO Warning
Sign was missing.



Date of Photo:
July 9, 2009

Photo Number:
48

Photo Location:
Intersection of Big
Stonecoal and
Breathed
Mountain Trails

Photo Description:
Trailhead markers
located at the
intersection of the
Big Stonecoal and
Breathed
Mountain Trails.
Note the UXO
Warning sign at
this location had
been removed.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 9, 2009

Photo Number:
49

Photo Location:
Blackbird Knob
Trailhead
(western entrance)

Photo Description:
View of the
Blackbird Knob
Trailhead sign
located on the
western side of the
Dolly Sods
Wilderness Area.



Date of Photo:
July 9, 2009

Photo Number:
50

Photo Location:
Intersection of
Blackbird Knob
and Rocky Ridge
Trails

Photo Description:
View of the
Rocky Ridge
Trailhead sign
located at the
intersection of
Rocky Ridge and
Blackbird Knob
Trails.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 9, 2009

Photo Number:
51

Photo Location:
Intersection of
Harman and
Rocky Ridge
Trails

Photo Description:
View of the
Harman Trailhead
sign located at the
intersection of
Harman and
Rocky Ridge
Trails.



Date of Photo:
July 9, 2009

Photo Number:
52

Photo Location:
Rocky Ridge Trail

Photo Description:
View of area of
severe erosion
located along the
Rocky Ridge
Trail. The erosion
was over 3 ft.
deep in some
locations. Since
the erosion has
taken place, a new
trail has been
created to the
south of the old
trail.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 9, 2009

Photo Number:
53

Photo Location:
Intersection of
Dobbin Grade and
Rocky Ridge
Trails

Photo Description:
View of the
Dobbin Grade
Trailhead sign
located at the
intersection of
Dobbin Grade and
Rocky Ridge
Trails.



Date of Photo:
July 9, 2009

Photo Number:
54

Photo Location:
Rocky Ridge Trail

Photo Description:
View of a
manmade stone
structure located
just to the west of
the Rocky Ridge
Trail.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 9, 2009

Photo Number:
55

Photo Location:
Intersection of
Raven Ridge and
Rocky Ridge
Trails

Photo Description:
View of the Raven
Ridge Trailhead
sign located at the
intersection of
Rocky Ridge and
Raven Ridge
Trails.



Date of Photo:
July 9, 2009

Photo Number:
56

Photo Location:
Intersection of
Beaver View and
Raven Ridge
Trails

Photo Description:
View of the
Beaver View
Trailhead sign
located at the
intersection of
Beaver View and
Raven Ridge
Trails.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 9, 2009

Photo Number:
57

Photo Location:
Intersection of
Beaver View and
Dobbin Grade
Trails

Photo Description:
View of the
Beaver View
Trailhead sign
located at the
intersection of
Beaver View and
Dobbin Grade
Trails.



Date of Photo:
July 9, 2009

Photo Number:
58

Photo Location:
Intersection of
Harman and
Blackbird Knob
Trails

Photo Description:
View of the
Harman Trailhead
sign located at the
intersection of
Harman and
Blackbird Knob
Trails.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 10, 2009

Photo Number:
59

Photo Location:
Breathed
Mountain Trail

Photo Description:
Area along
Breathed
Mountain Trail
where water had
ponded on the
trail.



Date of Photo:
July 10, 2009

Photo Number:
60

Photo Location:
Intersection of
Rocky Point and
Big Stonecoal
Trails

Photo Description:
View of sign post
located at the
intersection of the
Rocky Point and
Bog Stonecoal
Trails. Note that
the signage had
been removed.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 10, 2009

Photo Number:
61

Photo Location:
Intersection of
Dunkenbarger and
Big Stonecoal
Trails

Photo Description:
View of the sign
located at the
intersection of Big
Stonecoal and
Dunkenbarger
Trails.



Date of Photo:
July 10, 2009

Photo Number:
62

Photo Location:
Intersection of
Dunkenbarger and
Big Stonecoal
Trails

Photo Description:
View of the Big
Stonecoal Trail
sign at the
intersection of
Dunkenbarger and
Big Stonecoal
Trails.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 10, 2009

Photo Number:
63

Photo Location:
Intersection of
Dunkenbarger and
Little Stonecoal
Trails

Photo Description:
View of the cairn
located at the
intersection of
Dunkenbarger and
Little Stonecoal
Trails.



Date of Photo:
July 10, 2009

Photo Number:
64

Photo Location:
Intersection of
Dunkenbarger and
Little Stonecoal
Trails

Photo Description:
View of the trail
sign located at the
intersection of
Dunkenbarger and
Little Stonecoal
Trails.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 10, 2009

Photo Number:
65

Photo Location:
Little Stonecoal
Trail

Photo Description:
View of downed
tree crossing the
Little Stonecoal
Trail.



Date of Photo:
July 10, 2009

Photo Number:
66

Photo Location:
Intersection of
Little Stonecoal
and Red Creek
Trails

Photo Description:
View of cairn
located at the
intersection of
Little Stonecoal
and Red Creek
Trails. Note there
was no trail sign
present.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 11, 2009

Photo Number:
67

Photo Location:
Big Stonecoal
Trail

Photo Description:
View of confusing
section of Big
Stonecoal Trail
where visitors
have taken several
different paths
through the pine
grove.



Date of Photo:
July 11, 2009

Photo Number:
68

Photo Location:
Big Stonecoal
Trail

Photo Description:
View of cairns
placed to direct
visitors through
the confusing
section of pine
grove along the
Big Stonecoal
Trail.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 11, 2009

Photo Number:
69

Photo Location:
Big Stonecoal Trail

Photo Description:
View of area
where Big
Stonecoal Trail
crosses Big
Stonecoal Creek.



Date of Photo:
July 11, 2009

Photo Number:
70

Photo Location:
Big Stonecoal Trail

Photo Description:
View of a cairn
located along Big
Stonecoal Trail
just before the
trail crosses Red
Creek.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 11, 2009

Photo Number:
71

Photo Location:
Big Stonecoal
Trail

Photo Description:
View of area
where Big
Stonecoal Trail
crosses Red
Creek.



Date of Photo:
July 11, 2009

Photo Number:
72

Photo Location:
Big Stonecoal
Trail

Photo Description:
View of cairn
located on the east
side of Red Creek
where Big
Stonecoal Trail
crosses Red
Creek.



SITE ASSESSMENT PHOTOGRAPHS

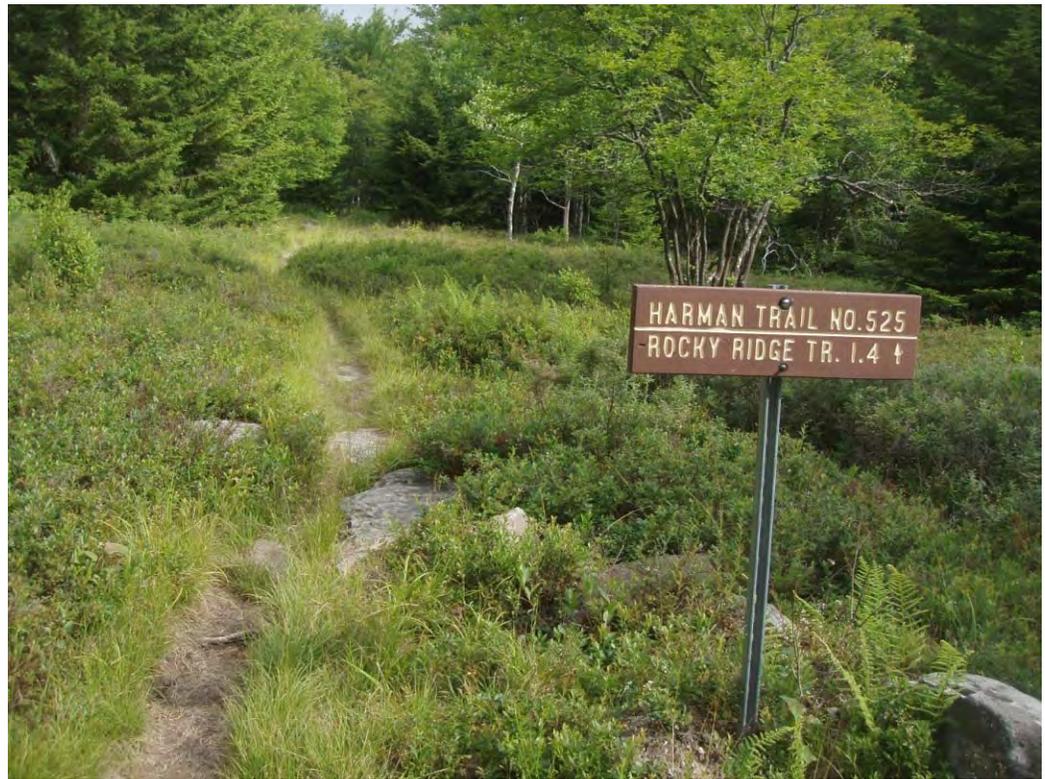
Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 12, 2009

Photo Number:
73

Photo Location:
Intersection of
Blackbird Knob
and Harman Trails

Photo Description:
View of Harman
Trailhead sign
located at the
intersection of
Blackbird Knob
and Harman
Trails.



Date of Photo:
July 12, 2009

Photo Number:
74

Photo Location:
Blackbird Knob
Trail

Photo Description:
View of Blackbird
Knob Trail
crossing the Left
Fork of Red
Creek.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 12, 2009

Photo Number:
75

Photo Location:
Blackbird Knob
Trail

Photo Description:
View of trail
erosion located on
Blackbird Knob
Trail just east of
the Left Fork of
Red Creek.



Date of Photo:
July 12, 2009

Photo Number:
76

Photo Location:
Upper Red Creek
Trail near the
intersection with
Dobbin Grade
Trail

Photo Description:
View of Upper
Red Creek Trail
crossing a stream
near the
intersection with
Dobbin Grade
Trail.



SITE ASSESSMENT PHOTOGRAPHS

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Date of Photo:
July 12, 2009

Photo Number:
77

Photo Location:
Intersection of
Upper Red Creek
and Dobbin Grade
Trails

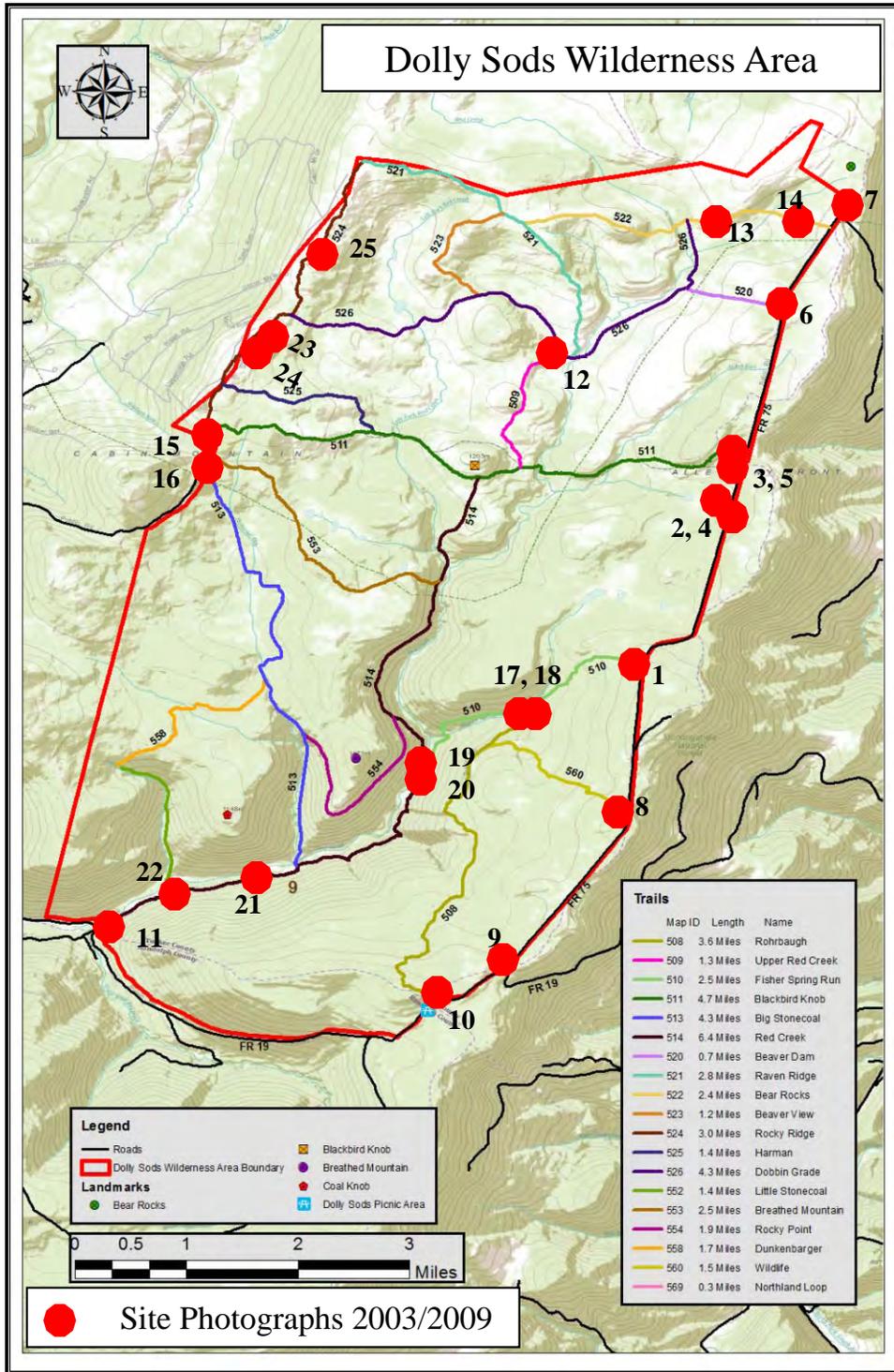
Photo Description:
View of the Upper
Red Creek
Trailhead sign at
the intersection of
Upper Red Creek
and Dobbin Grade
Trails.



**Appendix C: PHOTOGRAPHIC COMPARISON: 2003 RECURRING REVIEW VS. 2009
RECURRING REVIEW**

PHOTOGRAPHIC COMPARISON CURRENT VS. PREVIOUS RECURRING REVIEW

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section



Map D1: Locations of photographs taken during the 2003 site assessment compared to the 2009 site assessment. The number next to each location corresponds to the photograph number in this appendix. The trails shown on this map are designated and maintained trails that were cleared for ordnance for ordnance during the 1997-98 removal action.

PHOTOGRAPHIC COMPARISON CURRENT VS. PREVIOUS RECURRING REVIEW

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Year of Photo:
2003

Photo Number:
1

Photo Location:
Fisher Spring Run
Trail

Description of
Photo:
Fischer Spring
Run Trailhead
sign



Year of Photo:
2009

Photo Number:
1-Revisit

Comments on
Differences
Between the Two
Photos:
The sign at the
trailhead of the
Fisher Spring Run
Trail has been
replaced since the
2003 site visit.
The new trailhead
sign still contains
the UXO warning
sign.



PHOTOGRAPHIC COMPARISON

CURRENT VS. PREVIOUS RECURRING REVIEW

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Year of Photo:
2003

Photo Number:
2

Photo Location:
Northland Loop Nature
Trail

Description of Photo:
Northland Loop Nature
Trailhead sign



Year of Photo:
2009

Photo Number:
2-Revisit

Comments on
Differences Between the
Two Photos:
The UXO warning sign
in the most recent photo
has been replaced and
contains the proper
UXO reporting
properties. It should be
noted that this is the
southern end entrance to
the trail. The northern
end of the trail (Photo 4)
does not contain a
warning sign.



PHOTOGRAPHIC COMPARISON CURRENT VS. PREVIOUS RECURRING REVIEW

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Year of Photo:
2003

Photo Number:
3

Photo Location: Red
Creek Campground

Description of Photo:
Red Creek Campground
sign



Year of Photo:
2009

Photo Number:
3-Revisit

Comments on
Differences Between the
Two Photos:

The original Red Creek
Campground sign has
been replaced since the
2003/04 five-year
recurring review. The
UXO warning sign is
still visible on this new
campground sign.



PHOTOGRAPHIC COMPARISON

CURRENT VS. PREVIOUS RECURRING REVIEW

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Year of Photo:
2003

Photo Number:
4

Photo Location:
Northland Loop Nature
Trail

Description of Photo:
Entrance to the
Northland Loop Nature
Trail.



Year of Photo:
2009

Photo Number:
4-Revisit

Comments on
Differences Between the
Two Photos:
A Northland Loop
Nature Trail sign has
been added to the
entrance of this trail. A
UXO warning sign is
not present, however.



PHOTOGRAPHIC COMPARISON CURRENT VS. PREVIOUS RECURRING REVIEW

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Year of Photo:
2003

Photo Number:
5

Photo Location:
Blackbird Knob Trail

Description of Photo:
Blackbird Knob
trailhead sign.



Year of Photo:
2009

Photo Number:
5-Revisit

Comments on Differences Between the Two Photos:
It appears as though a majority of the information presented at the trailhead sign has been replaced since the 2003/04 recurring review, but the UXO warning sign is still present.



PHOTOGRAPHIC COMPARISON

CURRENT VS. PREVIOUS RECURRING REVIEW

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Year of Photo:
2003

Photo Number:
6

Photo Location:
Beaver Dam Trail

Description of Photo:
View of the Beaver Dam Trailhead. Note that the UXO warning sign had been previously removed from the post marking the entrance to this trail.



Year of Photo:
2009

Photo Number:
6-Revisit

Comments on Differences Between the Two Photos:
Note that the trailhead sign had been replaced since the 2003/04 recurring review site visit. The UXO warning sign was present at the trailhead sign.



PHOTOGRAPHIC COMPARISON CURRENT VS. PREVIOUS RECURRING REVIEW

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Year of Photo:
2003

Photo Number:
7

Photo Location:
Bear Rocks Trail

Description of Photo:
Bear Rocks Trailhead sign.



Year of Photo:
2009

Photo Number:
7-Revisit

Comments on
Differences Between the
Two Photos:

The trailhead sign
located at this location
has been replaced with a
new sign. The previous
UXO warning sign was
replaced with a new,
brighter UXO warning
sign.



PHOTOGRAPHIC COMPARISON CURRENT VS. PREVIOUS RECURRING REVIEW

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Year of Photo:
2003

Photo Number:
8

Photo Location:
Wildlife Trail

Description of Photo:
Wildlife Trail trailhead sign.



Year of Photo:
2009

Photo Number:
8-Revisit

Comments on Differences Between the Two Photos:
It appears as though the information contained on this trailhead sign has been updated since the 2003/04 five-year recurring review. The UXO warning sign that was on the previous sign has been replaced.



PHOTOGRAPHIC COMPARISON CURRENT VS. PREVIOUS RECURRING REVIEW

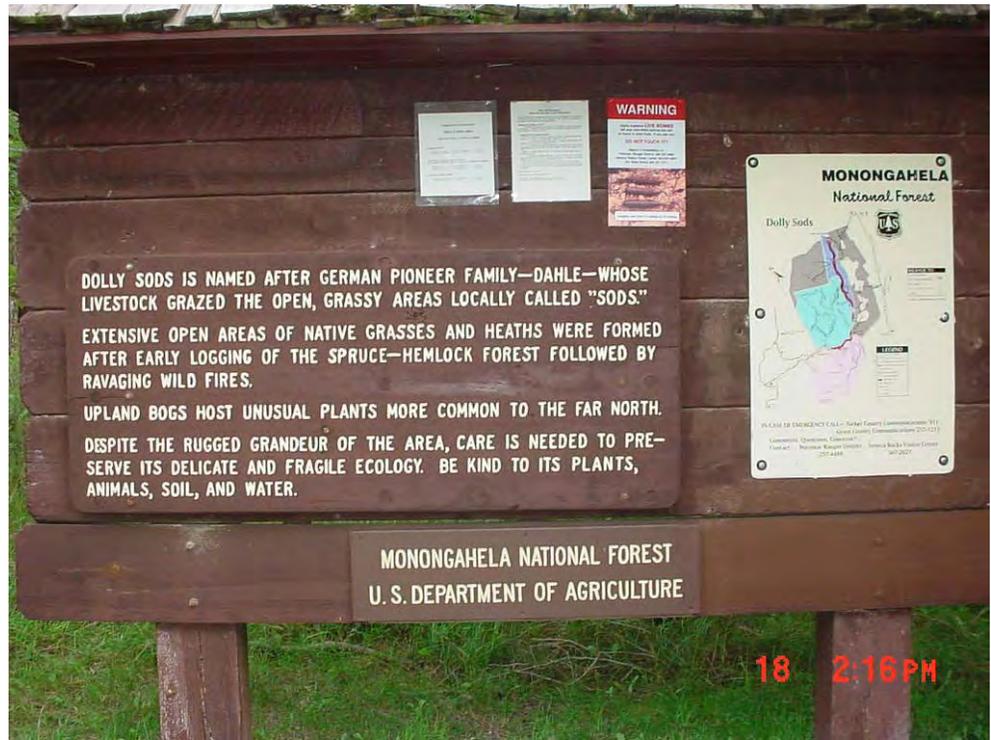
Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Year of Photo:
2003

Photo Number:
9

Photo Location:
Just north of Junction
between Forest Road 75
and Forest Road 19

Description of Photo:
An information sign
located at a pulloff area
located just north of the
intersection between FR
75 and FR19.



Year of Photo:
2009

Photo Number:
9-Revisit

Comments on
Differences Between the
Two Photos:
It appears as though the
information presented at
this sign has been
updated since the
2003/04 five-year
recurring review. The
update included a new
UXO warning sign,
which is still present at
the information sign.



PHOTOGRAPHIC COMPARISON CURRENT VS. PREVIOUS RECURRING REVIEW

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Year of Photo:
2003

Photo Number:
10

Photo Location:
Rohrbaugh Plains Trail

Description of Photo:
Trailhead sign located at
the entrance to the
Rohrbaugh Plains Trail.



Year of Photo:
2009

Photo Number:
10- Revisit

Comments on
Differences Between the
Two Photos:
It appears as though the
sign and the information
on the sign, have been
replaced since the
2003/04 five-year
recurring review. Note
that a new UXO
warning sign has been
placed on the trailhead
sign.



PHOTOGRAPHIC COMPARISON CURRENT VS. PREVIOUS RECURRING REVIEW

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Year of Photo:
2003

Photo Number:
11

Photo Location:
Red Creek Trail

Description of Photo:
Red Creek trailhead sign.



Year of Photo:
2009

Photo Number:
11-Revisit

Comments on Differences Between the Two Photos:
Note that the signs, as well as the information contained on the signs, have been revised since the 2003/04 five-year recurring review. Note that the UXO warning sign is present on this trailhead sign.



PHOTOGRAPHIC COMPARISON

CURRENT VS. PREVIOUS RECURRING REVIEW

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Year of Photo:
2003

Photo Number:
12

Photo Location:
Intersection of Dobbin
Grade and Upper Red
Creek Trails

Description of Photo:
Intersection of Dobbin
Grade and Upper Red
Creek Trails. View
shows no noticeable
erosion evident and
abundant vegetation.



Year of Photo:
2009

Photo Number:
12-Revisit

Comments on
Differences Between the
Two Photos:

This view shows the
same area from a
slightly different angle.
Much as the previous
photo, there is minimal
erosion and abundant
vegetation noted in this
area.



PHOTOGRAPHIC COMPARISON

CURRENT VS. PREVIOUS RECURRING REVIEW

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Year of Photo:
2003

Photo Number:
13

Photo Location:
Bear Rocks Trail

Description of Photo:
General view of Bear
Rocks Trail.



Year of Photo:
2009

Photo Number:
13-Revisit

Comments on
Differences Between the
Two Photos:
General view of Bear
Rocks Trail in the
general vicinity of the
original photo.



PHOTOGRAPHIC COMPARISON

CURRENT VS. PREVIOUS RECURRING REVIEW

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Year of Photo:
2003

Photo Number:
14

Photo Location:
Bear Rocks Trail

Description of Photo:
Isolated area of erosion.



Year of Photo:
2009

Photo Number:
14-Revisit

Comments on
Differences Between the
Two Photos:
This photo clearly
shows the same area of
erosion. There is no
noticeable differences
between the two photos.



PHOTOGRAPHIC COMPARISON

CURRENT VS. PREVIOUS RECURRING REVIEW

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Year of Photo:
2003

Photo Number:
15

Photo Location:
Intersection of Big
Stone Coal and
Breathed Mountain
Trailheads

Description of Photo:
This photo shows the
information kiosk and
trailhead signs at the
intersection of Big
Stone Coal and
Breathed Mountain
Trails.



Year of Photo:
2009

Photo Number:
15-Revisit

Comments on
Differences Between the
Two Photos:
The signs located at the
information kiosk and
trailhead markers appear
to have remained the
same since the initial
site visit. It was noted
to USFS officials at the
time that there were no
UXO Warning Signs
located at this position.



PHOTOGRAPHIC COMPARISON

CURRENT VS. PREVIOUS RECURRING REVIEW

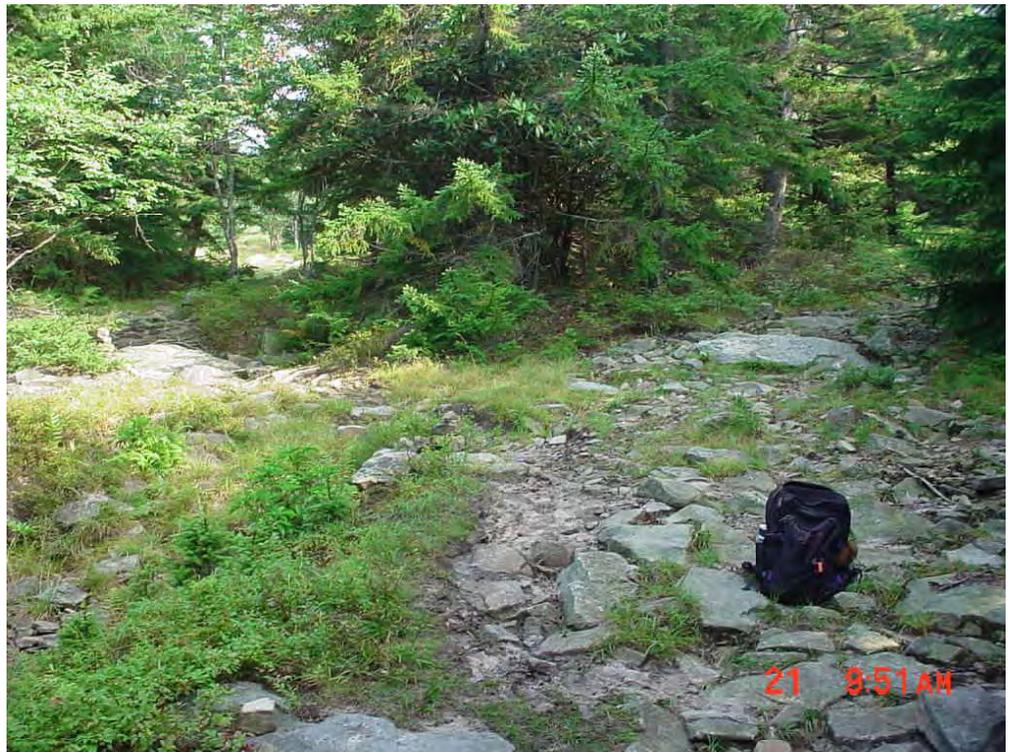
Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Year of Photo:
2003

Photo Number:
16

Photo Location:
Intersection of
Blackbird Knob and
Rocky Ridge trails

Description of Photo:
General photo of the
intersection of
Blackbird Knob and
Rocky Ridge trailheads.



Year of Photo:
2009

Photo Number:
16-Revisit

Comments on
Differences Between the
Two Photos:

This photo shows the
intersection of Rocky
Ridge and Blackbird
Knob Trails, which is
just off to the right of
the original photo from
2003. The photos show
that the area was in
generally the same
shape in 2003 and 2009.



PHOTOGRAPHIC COMPARISON

CURRENT VS. PREVIOUS RECURRING REVIEW

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Year of Photo:
2003

Photo Number:
17

Photo Location:
Fischer Spring Run and
Rohrbaugh Plains Trails
Intersection

Description of Photo:
This photo shows the
point where the Fischer
Spring Run and
Rohrbaugh Plains Trails
intersect.



Year of Photo:
2009

Photo Number:
17-Revisit

Comments on
Differences Between the
Two Photos:
The photos show that
the trail conditions at
this location appear to
be in the same condition
in 2003 and 2009.



PHOTOGRAPHIC COMPARISON CURRENT VS. PREVIOUS RECURRING REVIEW

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Year of Photo:
2003

Photo Number:
18

Photo Location:
Fischer Spring Run and
Rohrbaugh Plains Trails
Intersection

Description of Photo:
This photo shows the
point where the Fischer
Spring Run and
Rohrbaugh Plains Trails
intersect.



Year of Photo:
2009

Photo Number:
18-Revisit

Comments on
Differences Between the
Two Photos:
The photos show that
the trail conditions at
this location appear to
be in the same condition
in 2003 and 2009.



PHOTOGRAPHIC COMPARISON

CURRENT VS. PREVIOUS RECURRING REVIEW

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Year of Photo:
2003

Photo Number:
19

Photo Location:
Fischer Spring Run and
Red Creek Trails

Description of Photo:
This photo shows the
point where the Fischer
Spring Run and Red
Creek Trails intersect.



Year of Photo:
2009

Photo Number:
19-Revisit

Comments on
Differences Between the
Two Photos:
The photos show that
the trail conditions at
this location appear to
be in the same condition
in 2003 and 2009.



PHOTOGRAPHIC COMPARISON

CURRENT VS. PREVIOUS RECURRING REVIEW

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Year of Photo:
2003

Photo Number:
20

Photo Location:
Fischer Spring Run and
Red Creek Trails

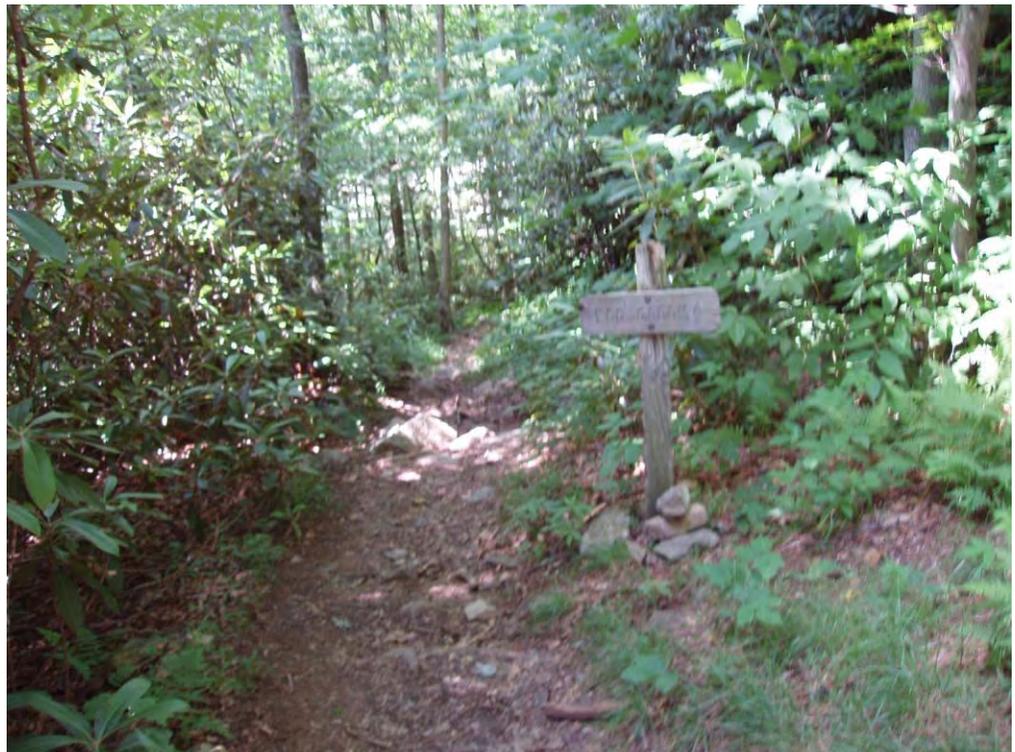
Description of Photo:
This photo shows the
point where the Fischer
Spring Run and Red
Creek Trails intersect.



Year of Photo:
2009

Photo Number:
20-Revisit

Comments on
Differences Between the
Two Photos:
The photos show that
the trail conditions at
this location appear to
be in the same condition
in 2003 and 2009.



PHOTOGRAPHIC COMPARISON

CURRENT VS. PREVIOUS RECURRING REVIEW

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Year of Photo:
2003

Photo Number:
21

Photo Location:
Red Creek Trail

Description of Photo:
This photo shows the
typical type of trail
markers (cairns)
located on boulders
along Red Creek Trail.



Year of Photo:
2009

Photo Number:
21-Revisit

Comments on
Differences Between the
Two Photos:

This is the same general
area as the photo that
was taken above. Note
that another cairn can be
seen on the large
boulder in the
background. This area
appeared to have little
change from 2003 to
2009.



PHOTOGRAPHIC COMPARISON

CURRENT VS. PREVIOUS RECURRING REVIEW

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Year of Photo:
2003

Photo Number:
22

Photo Location:
Little Stone Coal Trail,
near Red Creek

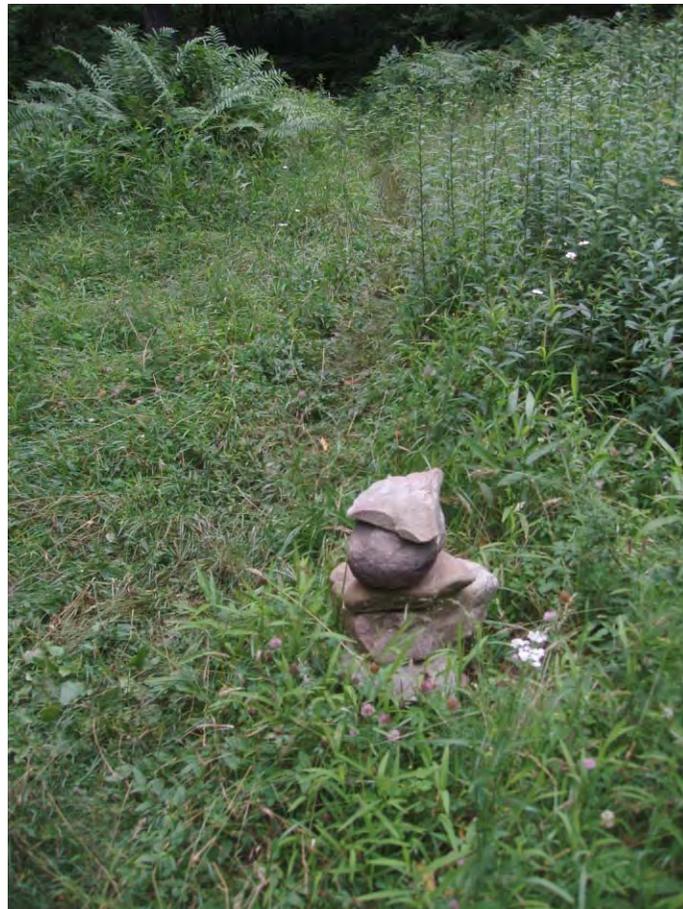
Description of Photo:
Photo of a trail marker
on Little Stone Coal
Trail near Red Creek.



Year of Photo:
2009

Photo Number:
22-Revisit

Comments on
Differences Between the
Two Photos:
The stone structure
shown in the 2003 photo
(above) was not present,
replaced by a rock cairn.



PHOTOGRAPHIC COMPARISON

CURRENT VS. PREVIOUS RECURRING REVIEW

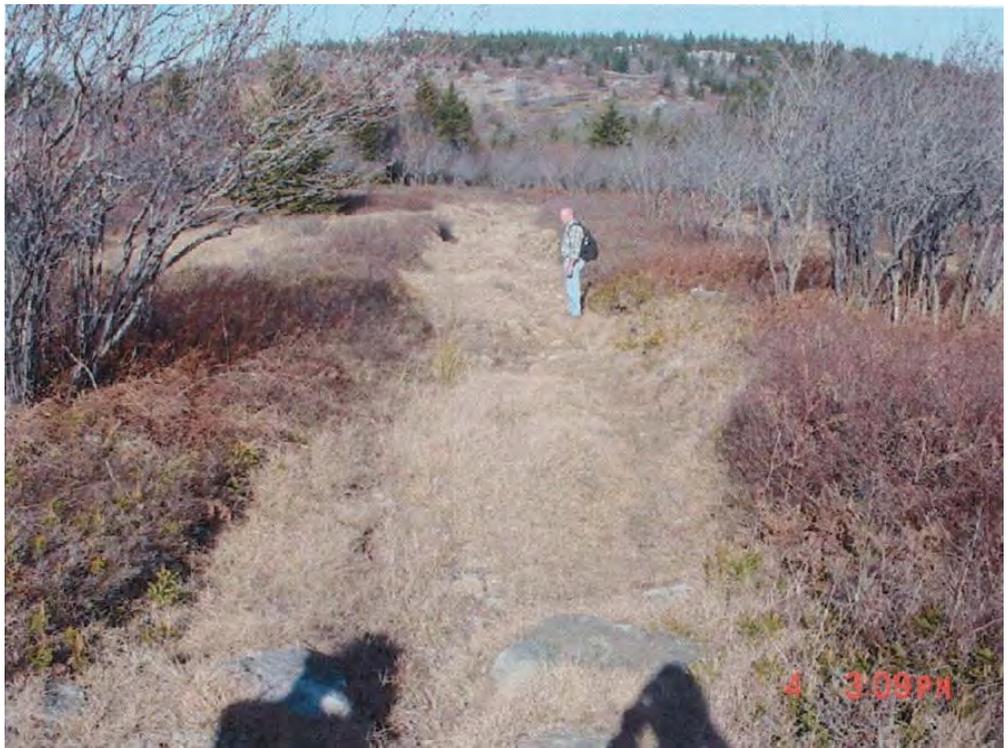
Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Year of Photo:
2003

Photo Number:
23

Photo Location:
Intersection of Rocky
Ridge and Harman
Trails

Description of Photo:
General view of the
intersection of Rocky
Ridge and Harman
Trails. There is
noticeable erosion on
the right hand side of
the trail.



Year of Photo:
2009

Photo Number:
23-Revisit

Comments on
Differences Between the
Two Photos:

The photo shown is the
same area shown in the
2003 photo (above).
This photo shows an
alternate trail that had
been created to the right
of the photo, which
circumvents the erosion
area (trail on the left
hand side). There is an
abundance of vegetation
in this area.



PHOTOGRAPHIC COMPARISON

CURRENT VS. PREVIOUS RECURRING REVIEW

Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Year of Photo:
2003

Photo Number:
24

Photo Location:
Rocky Ridge Trail
(Close-up view of Area
Shown in Photo 23)

Description of Photo:
This photo shows a
close up view of the
erosion shown in the
previous photo.



Year of Photo:
2009

Photo Number:
24-Revisit

Comments on
Differences Between the
Two Photos:
This photo shows the
same area as shown in
the 2003 photo above.
This view shows that
very little has changed
on the site in the past six
years, and that the site
has an abundance of
vegetation.



PHOTOGRAPHIC COMPARISON

CURRENT VS. PREVIOUS RECURRING REVIEW

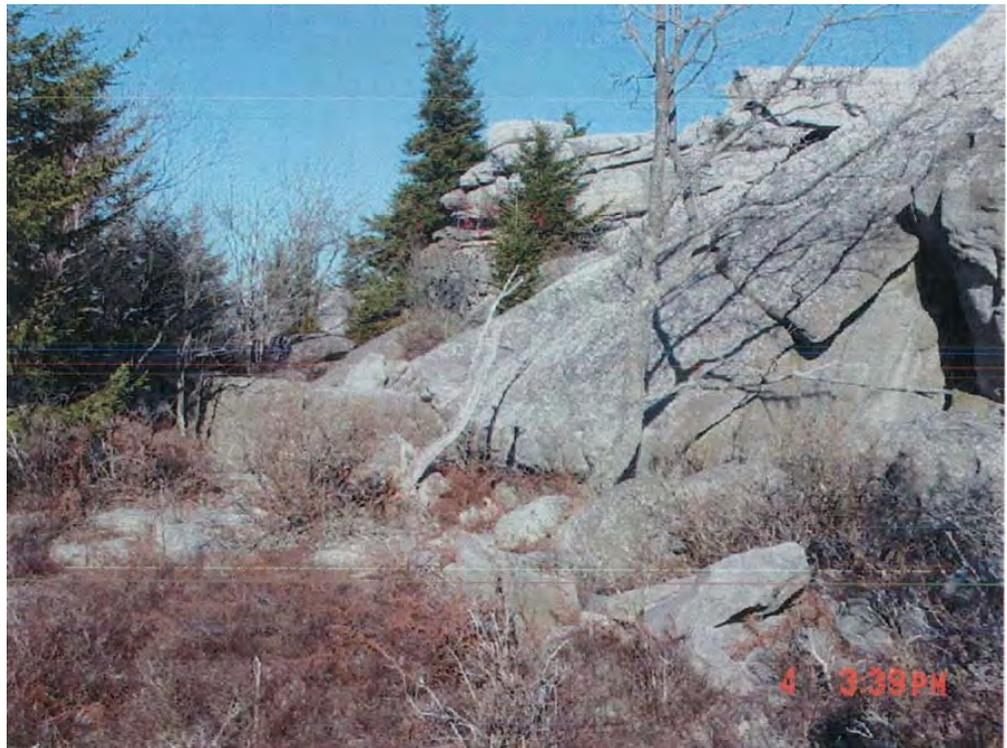
Former West Virginia Maneuver Area/Dolly Sods FUDS Property (G03WV0013) Second Recurring Review
US Army Corps of Engineers, Huntington District, Environmental and Remediation Section

Year of Photo:
2003

Photo Number:
25

Photo Location:
Rocky Ridge Trail

Description of Photo:
View of general rock
formations located
along Rocky Ridge
Trail.



Year of Photo:
2009

Photo Number:
25-Revisit

Comments on
Differences Between the
Two Photos:
Close-up photo of rock
features located along
Rocky Ridge Trail.
There is no noticeable
change in this area
along the trail.



Appendix D: QUALITY CONTROL REVIEW

Reviewer Name: Lewis, Kyle
Responder's Name: McHenry, Nick
Discipline: Counsel
Date: 11 June 2011
Project Location: Davis, Grant, Tucker, Randolph Counties, West Virginia
Document Name: Response to Comments:
Draft - Dolly Sods Project Second Recurring Review, dated November 2010.

The following comments were copied from a marked up version of the report that Mr. Lewis provided following his review of the report. This document is intended to document those comments, as well as provide a forum to respond to the comments.

1. Executive Summary, General Comment. On the Title Page provide: a) FUDS Number and Site Number and b) State in the title that this is the second recurring review.
Res. Concur. Information requested has been added to the report.

2. Executive Summary, 1st Paragraph. In reference to distinction between former WVMA and Dolly Sods: Terminology is not consistent throughout the document.
Res. Concur/Disagree. References to either the West Virginia Maneuver Area (WVMA) or Dolly Sods change throughout the document depending on what is being described within the specific section or paragraph.

Reference to either "the former WVMA" or simply "WVMA" describes the 2-million plus acre property that the Army acquired and utilized to train soldiers on mountainous conditions. "Dolly Sods" is a reference the name of a National Forest Wilderness Area, which was a portion of the aforementioned WVMA. At the time of the WVMA's operation, the Dolly Sods region was a portion of the WVMA's artillery and mortar practice ranges (~18,000 of the 50,000 acre Impact Area). Dolly Sods was also the original FUDS project for this property.

The official property title in FUDSMIS is West Virginia Maneuver Area (WVMA)/Dolly Sods. This is because at one time they were separate properties and within the past couple of years they were combined under one property number (G03WV0013).

3. Executive Summary, 1st Paragraph, Last sentence. In reference to the use of the phrase "employed review" in the sentence: "This report documents employed review process methodologies, and presents the findings, conclusions, and recommendations attained." Comment is "Employed review?"
Res. Concur. The sentence has been revised to simply read: "This report documents review process methodologies, and presents the findings, conclusions, and recommendations attained."
4. Executive Summary, 2nd Paragraph, in reference to the use of "UXO" in a sentence. The comment is: "OE is also known as MEC, which includes UXO. Change throughout document."
Res. Concur/Disagree. Reference was made by MMRP-CX personnel to send the document to the Baltimore District OE Safety personnel who assisted us with the site visit to have them review the UXO/OE terminology used throughout the report. I will comply with their request and change the terminology throughout the report once the safety specialist has had a chance to review and comment.

5. Executive Summary, 3rd Paragraph, in reference to use of the phrase “not be promoted”. Comment is: “How about discourage?”.
Res. Concur. Change was made to “discourage” as suggested.
6. Executive Summary, 4th Paragraph, in reference to the use of the phrase “initial report”. Comment is: “What initial report? The first 5 year review?”
Res. Concur. Yes the initial comment in the text was in reference to the initial Recurring Review. Text was revised so that the sentence reads: “...first five-year review.”
7. Section 1.0, Page 3, 1st Paragraph, in reference to the phrase “WVMA/Dolly Sods”. Comment is: “If this is the preferred abbreviation for the project, make changes accordingly throughout the document. Why is it referred to both WVMA and Dolly Sods?”
Res. See response to Comment 2 above for differences between the two distinctions.
8. Section 1.0, Page 3, 3rd Paragraph, in reference to the phrase “Second Five-Year Recurring Review”. Comment is: “Be consistent with terminology”.
Res. Concur. Reference to “five-year review” was searched throughout the document and revised to read “recurring-year”.
9. Section 1.0, Page 3, 3rd Paragraph, in reference to the phrase “Dolly Sods”. Comment is: “WVMA?”
Res. Disagree. Reference was in fact intended to read “Dolly Sods” since the field work was specifically done at Dolly Sods, rather than the over-arching WVMA.
10. Section 1.1, Page 3, 1st Paragraph, in reference to the phrase “ordnance removal”. Comment is: “OE response Action is likely more specific.”
Res. Concur. Change made to “Ordnance and Explosives (OE) response action” as suggested.
11. Section 1.1, Page 3, 1st Paragraph, in reference to reference to “Appendix B” in the report. Comment is: “Why is this being cited?”
Res. Concur. Reference was removed as suggested.
12. Section 1.1, Page 3, 1st Paragraph. Comment is: “Revise.” In reference to the following: “To assure sustained functional effectiveness, and in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the [Superfund Amendments and Reauthorization Act](#) (SARA) the review of a previous response action, the identification of any issues of concern, and the recommendation of remedies to address any issues of concern should occur at least every five years (USACE, 2003a).”
Res. Concur. Section was revised to read: “This Second Recurring Review Report is to assure sustained functional effectiveness of the removal action, and, in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), to note the identification of any issues of concern, and to recommend remedies to address issues of concern noted.”
13. Section 2.3, Page 5, Last Paragraph, in reference to the use of the acronym “DSW”. Comment is: “DSWA?”
Res. Concur. Sentence was revised to read: “A map contained in a recent USACE memorandum

(USACE, 2004b) indicates that guns may have also been positioned in the southeast, western and northeast regions of the DSWA.”

14. Section 2.4, Page 6, 3rd Sentence, in reference to the acronym “DSW”. Comment is “DSWA? Res. Concur. Sentence was revised to read: *“The DSWA was created by an act of Congress in 1975 to preserve and protect the area for special opportunities of solitude, recreation, and other scientific, educational, scenic and historical values (NBE, 1997).”*
15. Section 2.4, Page 6, 3rd Sentence, in reference to the word “primitive”. Comment is “Primitive recreation?”
Res. Concur. The word primitive was removed. See copy of the revised sentence in the response to comment #14 above.
16. Section 2.4, Page 6, 4th Sentence. Comment is: “Make a separate sentence with this information.”
Res. Concur. The sentence was revised to read: “Management efforts within the 10,215 acres DSW focus on allowing the forces of nature to reclaim the land, returning it to a natural state.”
17. Section 3.1, Page 6, 1st Paragraph, In Reference to the acronyms “DSN” and “DSSA”. Comment is: “What are these? They have not previously been abbreviated.”
Res. Disagree. “DSN” is defined in Section 2.4, prior to its use in Section 3.1. “DSSA” is defined in Section 2.4, prior to its use in Section 3.1.
18. Section 3.1, Page 6, 3rd Paragraph, in reference to the documentation of a 1951 purported injury as a result of UXO in Dolly Sods. Comment is: “Is this the only known injury?”
Res. Yes, this is the only known injury as a result of UXO found at Dolly Sods, or in conjunction with UXO as a result of the West Virginia Maneuver Area.
19. Section 3.1, Page 7, 4th Paragraph, in reference to use of the phrase “Dolly Sods region”. Comment is “Broad? What were the bounds of the response action?”
Res. Concur. The sentence was revised to read: “To address ordnance-related concerns in the DSWA region.....”
20. Section 3.1, Page 7, 4th Paragraph, in reference to use of the acronym “DERP”. Comment is: “Previously abbreviated?”
Res. Concur. Acronym was not previously defined. The acronym has now been defined in this location.
21. Section 3.1, Page 7, 4th paragraph, in reference to sentence that reads “Such projects are authorized for sites that were contaminated while under the control of the Department of Defense (DoD), but were transferred out of DoD control prior to 1986.” Comment is: “Quote actual statutory language and cite.”
Res. Concur. This sentence has been replaced by the following: “This response action project was funded under the Defense Environmental Restoration Program (DERP), of which the Formerly Used Defense Sites (FUDS) is a part of this program (DERP-FUDS). DERP was established to evaluate and remediate contamination at both active and FUDS.”
22. Section 3.1, Page 7, 4th paragraph, in reference to two sentences “The USACE Louisville District is the Geographic District with Dolly Sods project management responsibilities, and project technical support is provided by the USACE, Baltimore District. USACE Louisville District utilizes USACE Huntington

District for project management and technical support on this project.” Comment is: “Revise”.
Res. Concur. The sentences were revised to read: “The USACE Louisville District is the Geographic District with program and project management responsibilities over the former WVMA/Dolly Sods FUDS Project, with technical support provided by the USACE, Baltimore District for UXO safety personnel. USACE Louisville District utilizes USACE Huntington District for project management and technical support on this project.”

23. Section 3.1, Page 7, 5th Paragraph, in reference to reference “(Vandeveld, 1990)”. Comment is: “What are we citing? Why not cite our own documents?”

Res. Concur. Reference was deleted.

24. Section 3.1, Page 7, 5th Paragraph, in reference to phrase “provide a distribution of investigation”.
Comment is: “Areas were selected to provide a distribution of investigation?”

Res. Concur. The sentences within this paragraph were revised and now read: “The sixteen investigation areas were selected to provide an even distribution across the site and because they were suspected of containing UXO (based on topography and information obtained during a records search and site investigation). The areas included hilltops (e.g., Breathed Mountain and Cabin Mountain) because they were considered likely targets, as well as locations which were considered to likely contain undershots from firing at Blackbird Knob (which is located in DSN and just north of DSW).”

25. Section 4.3, Page 11, 7th Bulleted Item. Comment is: “How were they found? Located on trails?”

Res. Concur. The bulleted item was revised to read: “It should also be noted that several UXO and UXO-related finds have occurred since the previous Recurring Review on areas outside, but adjacent to, the Dolly Sods Wilderness Area. There have been one 105-mm HE howitzer round find and multiple 3.25-inch rocket finds in the area to the west of the Dolly Sods Wilderness Area. In the instance of the 105-mm HE howitzer find, it was located on an adjacent property by a hunter in the forest. In the instances of the 3.25-inch rockets, these were located on private property northwest of the DSWA and were found by hikers.”

26. Section 4.4, Page 12, 2nd Paragraph, in reference to the use of the word “inferred”. Comment is “Why do we need to infer the areas covered by the site assessment. This information should be documented.”

Res. Concur. This sentence was deleted as suggested. Agree that this information is documented throughout the remainder of the report.

27. Section 4.4, Page 13, 8 July 2009, 4th Paragraph under this date, in reference to phrase “(>3’ in depth)”.
Comment is “Less than 3 inches is extreme?”

Res. Disagree. The reference is to “3’” which is “3 feet” not “3 inches”.

28. Section 6.0, Page 24/25, General Comment. Comment is: “See comments on Page 1 and 2 for edits”.

Res. Concur. Edits from Pages 1 and 2 were incorporated as recommended.

29. Section 7.1, Page 25, 1st Paragraph, in reference to use of the phrase “project information”. Comment is: “What is project information? Be specific. What about the project record?”

Res. Concur. Paragraph was revised to read:

“To ensure that the most up-to-date project information is present for the public, project stakeholders, and project team members, a concerted effort must be made to continually share and update project information. Project information, as it is suggested here, can include project related reports,

information on new presentations given concerning the project, the continual update and sharing of the USACE GIS database, the continual update and sharing of the USACE UXO finds database amongst project stakeholders, updating the project website as new information becomes available, and other informational items as they become available.”

30. Section 7.3, Pages 25/26. Comment is: “This recommendation is basically performing a recurring review every year instead of every 5 years, minus the report. This defeats the point of the 5 year review and is unnecessary. Additionally, there are already procedures in place for replacing missing signs and other recommendations should resolve risk related new campsites.”

Res. Concur. Upon consideration of the comment, it is agreed upon that this section is duplicating the efforts of the 5-Year Review, and this recommendation/section, has been deleted.

31. Section 7.4, Page 26, 2nd Paragraph, in reference to the following paragraph:

“This recommendation is for the USACE to conduct a UXO sweep of these campsites and social trails, using a USACE UXO safety specialist from a design center or the Munitions Center of Expertise, to ensure that there are no UXO present. As noted in the recommendation in Section 7.3, annual or semi-annual verifications could be incorporated to verify the existence of new campsites or social trails.”

Comment is: “Why not block the trails to prevent their continued use? Some social trails were already blocked during the site visit.”

Res. Concur. A recommendation to block social trails from use has been included. However the clearing of social trails and campsites where prolonged use is evident has been kept in the report. The project team believes this is a relatively inexpensive action to help reduce risk of a visitor/hiker encountering UXO.

The paragraph now reads: “This recommendation is for the USACE to conduct a UXO sweep of these campsites and social trails, using a USACE UXO safety specialist from a design center or the Munitions Center of Expertise, to ensure that there are no UXO present and ensure visitor safety. It is also recommended that the USFS place logs or other such obstructions at the entrance of the social trails so as to discourage their use by visitors.”

32. Section 7.5, Page 26, 1st Sentence, in reference to the use of the word “increased” when referencing the number of UXO finds in the areas around Dolly Sods. Comment is: “Increased? Is this accurate or is information just not available from earlier periods? This information must be discussed with more specificity earlier in the document.”

Res. Concur. The sentence has been revised to more accurately read “As noted in Section 4.3.1, while there has been a steady decline in the number of UXO finds within the DSWA, the number of reported UXO related finds in areas surrounding the DSWA has increased since the previous Recurring Review.”

33. Section 7.5, Page 26, 3rd Sentence, in reference to the following sentence: “These standards can include the USDoA’s 3Rs of UXO Safety message, notification that in the event that a suspected UXO is found to contact your local 911 emergency number or the West Virginia State Police, whose effort in this matter will also require coordination.” The comment is: “Is this one or the other or both? Perhaps revise sentence.”

Res. Reference to the “USDoA’s 3Rs of UXO safety message” is a public awareness campaign that the Department of Army has been instituting on areas with potential UXO present. The inclusion of this information is to make the public or land owners aware of the UXO issues on neighboring properties. The notification procedures would include either “notification that in the event that a suspected UXO is found to contact your local 911 emergency number or the West Virginia State Police” directly. The

neighboring properties have previously called the WV State Police to report potential UXOs, so it would be beneficial to set up a standard operating procedure and get either entity involved so that they have a protocol to follow in the event that a UXO is encountered. That is what this section is detailing, so it's an "either/or" statement.

34. Section 7.6, Page 25, 1st Sentence, In Reference to "In order to ensure adequate communication amongst the project stakeholders..." Comment is: "I believe stakeholder interest waned. Why hold a meeting if there is no interest?"

Res. Disagree. Stakeholder interest in the project has never waned. Stakeholder participation in all project related events is well attended and participation by other stakeholder organizations is strong. The public's interest in the project has never been overly strong. The recommendation to hold regular meetings amongst project stakeholders is to ensure that the lines of communication are strong amongst the individual organizations, and that all organizations are aware of the latest project updates and that all of the organizations are "on the same page".

35. Section 7.6, Page 25, 1st Sentence, In Reference to the use of the phrase "lines of communication are open". Comment is: "What lines of communication? What is the specific risk related concern?"

Res. This phrase is in reference to the lines of communication between the USACE and other government agencies (federal, state, local) and other organizations as it pertains to the project, and how they communicate for the betterment of the WVMA/Dolly Sods FUDS Project. It is imperative there is cooperation and open/frank dialogue amongst all of these entities for the project to succeed. If there are no communications there could be severe project breakdowns and risks. Just for example, if the USFS determines it necessary to conduct trail re-routes within the DSWA, and doesn't contact the USACE to determine associated UXO risk associated with this re-route. See response to Comment #34 above for additional information.

36. Section 7.7, Page 26, 1st Sentence, In reference to the number of search and rescue efforts that have occurred within the DSWA. Comment is: "This is good information, but it needs to be discussed earlier in the document in detail. The risk related concerns are clear."

*Res. Concur. The following paragraph has been created and placed in section 7.6:
"Due to the rugged terrain and areas of confusing trail patterns, it is possible for hikers to become lost within the DSWA. If these hikers are lost for a considerable period of time, officials or family members may deem it become necessary for search and rescue teams, or volunteers, to be called into the Wilderness Area to locate the lost individuals. An example of one such incident occurred in 2007, when a teenager who was hiking with his parents became separated and lost along a trail within in the DSWA. It took four days, and approximately 300 volunteer and professional rescuers to locate the missing hiker. This is not the only occurrence, and has happened several times throughout the history of the DSWA. When this occurs, many rescuers are in the Wilderness Area on foot, ATV or other method, and may not adhere to the proper protocol of following designated trails/campsites, as that may not be the most effective way to locate the lost individual."*

37. Section 7.7, Page 26, Last Sentence, In Reference to the phrase: "the State of West Virginia..." The comment is: "To the State of WV?"

Res. Concur. The phrase was deleted as suggested.

38. Section 7.7, Page 26, Last Sentence, In Reference to the Phrase "This training should also be offered to local Office of Emergency Services, the USFS at their annual Fire Presentation workshop, project

stakeholders who are interested, and other emergency response officials to increase their knowledge and safety.” The comment is: “This is very broad. Is there any way to make this more specific? What is the specific risk related concern?”

Res. Concur. The risk related concern is to get information to individuals who may encounter the DSWA in the event of an emergency (i.e. USFS Fire Fighters, OES personnel responding to a missing person, project stakeholders who manage areas in and around the DSWA) so they know what UXO is and what to do in the event they encounter it while doing their duties. Based on this comment, the paragraph has been revised to read:

“It is recommended that the USACE invite and present on UXO safety to local search and rescue teams, as was done for the local fire departments following the previous Recurring Review. This same UXO-related safety training should also be offered to local Office of Emergency Services, the USFS at their annual Fire Presentation workshop, project stakeholders, and other emergency response officials. This effort would be to ensure UXO safety related information gets to individuals who use the DSWA or surrounding areas regularly, or use the DSWA in the event of an emergency response, so they know what UXO is and what to do in the event they encounter it.”

39. Section 7.8, Page 27, 4th Sentence, in reference to discussions between USFS and USACE. The comment is “Are these discussions documented? They were not discussed earlier in the document.”

Res. Concur. These informal discussions at which the two agencies discussed potential recommendations were not formally documented. Reference to these discussions has been deleted, and only the recommendation remains.

40. Section 7.10, Page 27, 2nd Paragraph, in reference to the phrase “...cleared this area for construction...”. The comment is: “Clarify this statement. I suspect the specialist surveyed the area for OE.”

Res. Concur. You are correct. The sentence has been revised to read: “So the USFS flagged the proposed route of the new portion of trail and a USACE safety specialist cleared this area of UXO so the new portion of the trail could be constructed.”

41. Section 7.11, Page 27, In reference to the Phrase “continue to be upheld and accomplished, in the event the task is ongoing and has yet to be achieved.” The comment is: “Why not discontinue those that have waned or not needed anymore?”

Res. Based on Section 5 of the report you can see that most, if not all, of the recommendations of the first five-year review have help achieve the goal of making the Dolly Sods as safe as possible, and informing the public of the UXO dangers within the DSWA. Therefore, since there are minimal amounts of recommendations that were made in the first Recurring Review that haven’t resulted in a positive change in the project, no change will be made to the language based on this comment.

Reviewer Name: Stark, Bradley
Discipline: Counsel
Date: 4 April 2011
Project Location: Point Pleasant, Mason County, West Virginia
Document Name: Draft –Dolly Sods Project 5-Year Review, Ordnance and Explosive Recurring Review, dated November 2010.

I used EP 75-1-4 as guidance on this review. I recognize that this is done under the authorization of CERCLA and the NCP, but this does not fit into the standard items I have reviewed.

Comment 1: It has been determined that the reviews will be every 5 years. Why was five years chosen? We could have them more often than five years. Are we going to do this for 30 years? (EP 75-1-4, 1-5(a) (3), How is this funded will we be continuing this for 30 years or are we done after 10 years?

Comment 2: The purpose of the recurring review is to make a determination that the response action continues to minimize risks and still protects human health safety and the environment. Does our action do that? We did a removal action in a limited area. There is no way to know where the ordnances are located, are the posted signs protective enough, along with what removal we did?

Comment 3: EP 75-1-4 Table 2.1 has the sample format for recurring review plans did you follow that? If not why did you not?

Comment 4: You state on page 2 *et al* that removal of ordnance could not be accomplished due to environmental damage, what does that mean? I don't care about the environment unless we are endangering an area that has a protected species or habitat.

Comment 5: Did we comply with the CERCLA requirements?

Comment 6: We used an Action Memorandum and not a ROD at this site correct?

Comment 7: Page 18 Section 5.1 Isn't a RAB required if the community wants a RAB established?

Comment 8: Page 18 Section 5.1 the second paragraph, what do you mean the FUDS project was mistakenly discarded?

Comment 9: Social trials you use over and over and define it each time. You may consider defining it just once.

Comment 10: Very little reference to CECLA, NCP or authority or how we are in compliance with the legal requirements. This is much more informal than most other 5 year reviews I have read. It maybe because of the nature of the item but I would comply with what EP 75-14 outlines.

Reviewer Name: Bradley Stark
Responder's Name: Nick McHenry, Rick Meadows
Discipline Civil Engineer/Cost Estimating Specialist, Walla Walla District, USACE & Project Manager, Huntington, WV District, USACE
Date: 11 June 2011
Project Location Davis, Grant, Randolph, Tucker Counties, West Virginia
Document Name: Draft – Former West Virginia Maneuver Area/Dolly Sods FUDS Project, Second Recurring Review, dated November 2010.

Comment 1: It has been determined that the reviews will be ever 5 years. Why was five years chosen? We could have them more often than five years. Are we going to do this for 30 years? (EP 75-1-4, 1-5(a) (3), How is this funded will we be continuing this for 30 years or are we done after 10 years?

Res. Yes, it was determined that the Recurring Reviews will occur every five years until a time in which they are deemed no longer necessary. This is because the remedy that was chosen, a UXO removal action, was not intended to remove all UXO present on the property, but rather to do removal actions on the areas that were most visited by visitors to the Dolly Sods Wilderness Area (trails, campsites, hunting cabins, etc). Since the removal action at the site did not clear the entire area of UXO, a requirement was that Five-Year Recurring Reviews would be conducted to determine whether the response action that was conducted is still functioning as intended and is still protective of human health and the environment. At this time, the FUDS Cost-to-Complete estimate for the WVMA/Dolly Sods FUDS Project is assuming that Recurring Reviews will be conducted for the next 30 years and will be funded exclusively by the DERP-FUDS program. In the event that a removal action is conducted on the entire WVMA, or that it is deemed that there is no longer a risk of encountering a UXO on the property, then at that time the need for additional Recurring Reviews may no longer be warranted.

Comment 2: The purpose of the recurring review is to make a determination that the response action continues to minimize risks and still protects human health safety and the environment. Does our action do that? We did a remove action in a limited area. There is no way to know where the ordnances are located, are the posted signs protective enough, along with what removal we did?

Res. At the time of the USACE's removal action in 1997-98 there were several factors that played into the project team not pursuing removing UXO from the entire property. A) That remedy was not cost effective due to the rugged nature of the land and technology used at that time. The ability to achieve 100% certainty that all UXO were found at the site could never have been met. B) Also, to clear an area the site of the Dolly Sods Wilderness Area would have been severely environmentally damaging. There were other factors which played into the decision to only clear the known trails that were being used, as well as campsites and hunting cabins that were being used in the area. What the USACE's removal action did do was decrease the risk that visitors, who stayed on the cleared trails and stayed in the cleared campsites, would encounter UXO. It was then the intention of the project to also utilize the public awareness components of the project to try to make people aware of the UXO situation at Dolly Sods and to have them utilize the areas that have been cleared, rather than going "off trail". The thought being that if you clear the most widely used areas of UXO, then have a public awareness campaign that informed people of the dangers of going away from those cleared locations (this includes signs, trail maps highlighting the cleared areas, etc), you'd be decreasing the risk that visitors would encounter any UXO. So, in that regard, the effort that the initial removal action provided is still as protective as it was intended to be.

Comment 3: EP 75-1-4 Table 2.1 has the sample format for recurring review plans did you follow that? If not why did you not?

*Res. Yes, Table 2.1 on Page 2-2 was followed to the extent possible in the development of this report. A combination of the sample format presented on Table 2.1, and the format followed under the First Recurring Review Report for Dolly Sods was used for this review report, so that for comparison purposes the first and second reports could be compared relatively easily. Since Table 2.1 labels this as a **Sample Format**, it was not believed that the format had to be strictly adhered to.*

Comment 4: You state on page 2 *et al* that removal of ordnance could not be accomplished due to environmental damage, what does that mean? I don't care about the environment unless we are endangering an area that has a protected species or habitat.

Res. "Environmental damage" refers to the amount of damage that finding and detonating UXO would do to an already labeled sensitive environment. The Dolly Sods area is a congressionally designated Wilderness Area located within a National Forest, so by the very definition it is itself a sensitive environment. The "environmental damage" was only one of the factors that limited the removal action to just official trails, campsites, etc. though. The effort to completely clear the Dolly Sods Wilderness Area was also cost prohibitive, and technologically difficult.

Comment 5: Did we comply with the CERCLA requirements?

Res. At the time of the removal action, UXO-related projects were not required to follow the CERCLA process. At the time of the removal action, a minimum of a Five-Year Review, was to be conducted on a site that conducted a removal action, but still left UXO in place. To that extent the CERCLA, or whichever overarching environmental law that governed the UXO removal action at that time was followed. Since that time the USACE has undergone an effort to bring MMRPs under the CERCLA response format. There is an ongoing effort by USACE officials to determine where/how the WVMA/Dolly Sods FUDS Project will be brought under that CERCLA process.

Comment 6: We used an Action Memorandum and not a ROD at this site correct?

Res. Yes, that is correct, an Action Memorandum was used for this project, rather than a ROD.

Comment 7: Page 18 Section 5.1 Isn't a RAB required if the community wants a RAB established?

Res. As noted in the report, a RAB was briefly considered for this project, but due to lack of interest/waning interest from those who were surveyed for the First Fiver-Year Review, a RAB was put on hold. A RAB interest survey, via newspaper solicitation, was conducted earlier in 2011 to determine if public interest had increased to a point where a RAB would warrant consideration. At the time of the responses to these comments (6-11-11) no interested participants had responded to the solicitation, therefore it still appears as though there will not be a RAB created for this project.

Comment 8: Page 18 Section 5.1 the second paragraph, what do you mean the FUDS project was mistakenly discarded?

*Res. The paragraph states that the "**PR (public repository)** for the WVMA/Dolly Sods FUDS Project was mistakenly discarded" not the project itself.*

Comment 9: Social trials you use over and over and define it each time. You may consider defining it just once.

Res. Concur. The term “social trail” was searched and the first use of the word was defined and all subsequent definitions were deleted.

Comment 10: Very little reference to CECLA, NCP or authority or how we are in compliance with the legal requirements. This is much more informal than most other 5 year reviews I have read. It maybe because of the nature of the item but I would comply with what EP 75-1-4 out lines.

Res. Concur. As noted in the response to Comment #3 above, adherence to the outline provided was taken into consideration when preparing this report. Section 1.1 notes the purpose of the Recurring Review and notes conformance to CERCLA/SARA requirements. The following sentence was also added to Section 1.1: “This report is also conducted in compliance with USACE Engineering Pamphlet 75-1-4, Recurring Reviews on Ordnance and Explosives (OE) Response Actions, 31 October 2003.”

USACE, Environmental and Munitions Center of Expertise Review

EMCX COMMENT TRANSMITTAL

02/15/2011

Comments Transmitted to	Wyatt Kmen, Huntington District Richard Meadows, Huntington District Nickolas McHenry, Dept. of Energy
Submittal #	6993 73406
Location	GRANT, RANDOLPH & TUCKER COUNTIES
Site	WV MANEUVER AREA/DOLLY SODS
Project	Site Wide
Doc Title	Draft - Five-Year (Ordnance and Explosives) Recurring Review Report, West Virginia Maneuver Area/Dolly Sods, FUDS Property No. G03WV0013, Dolly Sods Wilderness Area, Monongahela National Forest, Town of Davis, Grant, Randolph and Tucker Counties, WV.
Phase	DRAFT
Designed by	In House

Discipline	Action	SIGNIFICANT OR UNRESOLVED TECHNICAL COMMENTS
MEC Hazard Assessment Kevin Oates	RCA	
MMRP Policy John Sikes	NC	
MMRP Safety William Veith	RCA	
Compliance Sandra Frye	RCA	

REQUESTED ACTION	Transmittal of comments approved by:
<p>Environmental and Munitions Center of Expertise (EMCX) comments are attached. Annotated responses to all comments on this document are requested. They can be sent to the following e-mail addresses.</p> <p>If FUDS MMRP SI related: please send to both:</p> <p>EMCX_Huntsville.FUDS_MMRP_SI_DOCS@usace.army.mil EMCX_Omaha.FUDS_MMRP_SI_DOCS@usace.army.mil</p> <p>All others please send to:</p> <p>EMCX.Documentation@usace.army.mil</p>	<p>Heidi Novotny</p> <p>EMCX LEAD</p> <p>(402) 697-2626</p>

NC=Reviewed;No Comments **NT=No tech Involment** **RCA=Reviewed Comments Attached**
SCA=Reviewed w/Significant Comments attached **CT=Conferred/Deferred to District Counterpart**

Reviewer Name: Frye, Sandra L.
Discipline Environmental Compliance
CX Project Review No. 73406
Date: 02 February 2011
Project Location Town of Davis, Grant, Randolph and Tucker Counties, WV.
Document Name: Draft - Five-Year (Ordnance and Explosives) Recurring Review Report, West Virginia
Maneuver Area/Dolly Sods, FUDS Property No. G03WV0013, Dolly Sods Wilderness Area, Monongahela
National Forest, Town of Davis, Grant, Randolph and Tucker Counties, WV.

Comment # 1: Title Page and throughout document: This should be titled as a five year review and not a recurring review or recurring five-year review. ER 200-3-1 has changed how USACE terms recurring reviews at MMRP projects from “recurring reviews” to “five-year reviews” in order to remain consistent with CERCLA and the NCP.

Comment # 2: General Comment: While the report is well written and includes good discussion to support the protectiveness statements made, it is missing a key component of a five-year review. Three questions to be answered in any five-year review are; A) Is the remedy functioning as intended, B) Have any changes been made to cleanup standards, toxicity data, exposure assumptions, etc, and C) Has any other information come to light that might bring into question the protectiveness of the remedy? The report has not adequately addressed question B. A section needs to be added to indicate if any changes to ARARs, toxicity data or other standards used in the remedy have occurred, and if the remedial action objectives (RAOs) for the site are still valid. Granted, there probably were not any ARARs identified for the cleanup, and unless MC was addressed, there will be no toxicity data to review. However, the document should at least state this to be the case (i.e., there were no ARARs identified for the action, RAOs are still valid, etc.). This will ensure a report that would satisfy EPA should they review it and be looking for a review that more closely matches their Five-Year Review Guidance.

Responder's Name: Nickolas McHenry
Reviewer Name: Frye, Sandra L.
Discipline: Environmental Compliance
CX Project Review No. 73406
Date: 31 July 2011
Project Location: Town of Davis, Grant, Randolph and Tucker Counties, WV.
Document Name: Draft - Five-Year (Ordnance and Explosives) Recurring Review Report, West Virginia Maneuver Area/Dolly Sods, FUDS Property No. G03WV0013, Dolly Sods Wilderness Area, Monongahela National Forest, Town of Davis, Grant, Randolph and Tucker Counties, WV.

Comment # 1: Title Page and throughout document: This should be titled as a five year review and not a recurring review or recurring five-year review. ER 200-3-1 has changed how USACE terms recurring reviews at MMRP projects from “recurring reviews” to “five-year reviews” in order to remain consistent with CERCLA and the NCP.

CELRH-CE-CE RESPONSE: Concur, the document was thoroughly searched and all text referring to “recurring reviews” has been revised to read “five-year reviews”. The only instance where this is not the case is in the “References” section of the report where the original “Five-Year Recurring Review” was cited.

Comment # 2: General Comment: While the report is well written and includes good discussion to support the protectiveness statements made, it is missing a key component of a five-year review. Three questions to be answered in any five-year review are; A) Is the remedy functioning as intended, B) Have any changes been made to cleanup standards, toxicity data, exposure assumptions, etc, and C) Has any other information come to light that might bring into question the protectiveness of the remedy? The report has not adequately addressed question B. A section needs to be added to indicate if any changes to ARARs, toxicity data or other standards used in the remedy have occurred, and if the remedial action objectives (RAOs) for the site are still valid. Granted, there probably were not any ARARs identified for the cleanup, and unless MC was addressed, there will be no toxicity data to review. However, the document should at least state this to be the case (i.e., there were no ARARs identified for the action, RAOs are still valid, etc.). This will ensure a report that would satisfy EPA should they review it and be looking for a review that more closely matches their Five-Year Review Guidance.

CELRH-EC-CE RESPONSE: Concur. As noted in the comment, the Five Year Review was missing a centralized location within the report that cohesively detailed responses to the three questions essential to a five-year review. It was believed that the report did generally address each question (with the exception of the cleanup standards which will be discussed in the next paragraph), just not in a centralized, summarized fashion. In response to this comment, and a comment made by Mr. Kevin Oates, EM-CX, a table was created which discusses and answers each of these three questions. This table was placed in the Executive Summary and Conclusions portions of the report. A copy of this table is provided for your review and approval.

Concerning the discussion of the original ARRAs identified for cleanup standards, the original response action did not take MCs into account, it was strictly a UXO removal response action. The fact that there were no ARARs or other cleanup goals established during the removal action has now been documented in Section 3.3 of this report, which was added as a result of this comment.

Reviewer Name: Oates, Kevin
Discipline MEC Hazard
CX Project Review No. 73406
Date: 14 February 2011
Project Location Town of Davis, Grant, Randolph and Tucker Counties, WV.
Document Name: Draft - Five-Year (Ordnance and Explosives) Recurring Review Report, West Virginia Maneuver Area/Dolly Sods, FUDS Property No. G03WV0013, Dolly Sods Wilderness Area, Monongahela National Forest, Town of Davis, Grant, Randolph and Tucker Counties, WV.

Comment # 1. The text indicates that the trail clearance activities were undertaken pursuant to a NEPA Environmental Assessment and Finding of No Significant Impact (Section 3.2, page 7). This reviewer was not able to find the NEPA documents to determine the extent of trail clearance activities, and post clearance requirements, including recurring reviews. The application of LUCs appears to be based on the first five year review. It is not clear if the LUCs were also part of a subsequent decision document.

Comment #2. The decision documents need to be reviewed in the context of the extent of required removal of MEC. If the documents indicate that MEC removal and LUCs were limited to existing trails at the time of the decision, then it is likely the remedy remains protective for those areas. However, other areas within the FUDS property appear to contain explosive safety hazards due to ongoing MEC finds.

Comment # 3. The document does not present information to address the basic 5 year review questions (A, B, and C) per the CERCLA 5 Year Review Guidance. Recommend providing information in a tabular format to address the three 5 year review questions, as well as any recommendations and timeframes to accomplish them.

Comment # 4. Public notification and site inspection activities are very well documented, as are activities since the last recurring review.

Comment #5. Appendix B Protectiveness Assessment presents general considerations for evaluation of protectiveness, but does not present any site-specific information.

Responder's Name: Nickolas McHenry
Reviewer Name: Oates, Kevin
Discipline: MEC Hazard
CX Project Review No. 73406
Date: 31 July 2011
Project Location: Town of Davis, Grant, Randolph and Tucker Counties, WV.
Document Name: Draft - Five-Year (Ordnance and Explosives) Recurring Review Report, West Virginia Maneuver Area/Dolly Sods, FUDS Property No. G03WV0013, Dolly Sods Wilderness Area, Monongahela National Forest, Town of Davis, Grant, Randolph and Tucker Counties, WV.

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CELRH-EC-CE RESPONSE: Concur with additional details provided. The following Project website was used extensively in the creation of this report and contains project related documentation, including documents noted in this comment: <http://www.lrh.usace.army.mil/projects/current/derp-fuds/wvma/documents/>

It should be noted that removal action work at the site commenced based upon Action Memorandums and no Decision Documents beyond that were created. Refer to the response to Comment #2 below for additional details concerning the extent of trail clearance activities.

With regards to the Land Use Controls, a majority of the public awareness items that came to be implemented to increase the public's awareness of the UXO issue at Dolly Sods (warning signs, maps, brochures, presentations, etc) specifically came from the development of the first Five-Year Review on this project, as noted in the comment above, and the subsequent Public Involvement Plan and Public Awareness Plan. The site is a Congressionally Designated National Forest Wilderness Area, so additional Land Use Controls derive specifically with that designation (i.e. camping restrictions, trail restrictions, etc).

Comment #2. The decision documents need to be reviewed in the context of the extent of required removal of MEC. If the documents indicate that MEC removal and LUCs were limited to existing trails at the time of the decision, then it is likely the remedy remains protective for those areas. However, other areas within the FUDS property appear to contain explosive safety hazards due to ongoing MEC finds.

CELRH-EC-CE RESPONSE: Concur. The decision documents for this project (specifically the Action Memorandums authorizing the work for the removal action) were re-reviewed and it is noted that they uniformly state that the selected areas to be cleared mainly specify official hiking trails and campsite areas within the various portions of the Dolly Sods Wilderness (at the time it was the Dolly Sods Wilderness, Dolly Sods North, and Dolly Sods Scenic Areas). There are some other areas called out for clearance, namely hunting cabins, a trailer dump site and Blackbird Knob, but the greatest overall intent was to clear those areas that visitors to Dolly Sods would access the most, namely the official trails and campsites. The Action Memorandums go on to state that hiking trails will be cleared to a depth of one foot with 20 feet on each side of the trail and that camping areas will be cleared to a depth of four feet. Therefore it is clear that the intent of the original removal actions

was to clear these areas specifically, and not the entire site. Given that the initial response was only intended to focus on trails and campsites, the areas that were covered under that removal action are technically functioning as intended due to lack of finds, safety of visitors, etc. With that being said the new items noted in this Five-Year Review (unofficial campsites and social trails) do not appear to fall under the area of clearance for the initial removal action, but are areas of concern proceeding forward with this project and are noted as such within the report. See the table developed in response to your Comment #3 for the wording that the project team created to weave these two issues together.

Comment # 3. The document does not present information to address the basic 5 year review questions (A, B, and C) per the CERCLA 5 Year Review Guidance. Recommend providing information in a tabular format to address the three 5 year review questions, as well as any recommendations and timeframes to accomplish them.

CELRH-EC-CE RESPONSE: Concur. As noted, the Five Year Review was missing a location within the report that cohesively detailed responses to the three questions essential to a five-year review. It was believed that the report did generally address each question, with the exception of the reference to changes in ARRAs, toxicity date, etc due to the fact that the original removal action did not address MC, but that the information was just not in a centralized, summarized fashion. In response to this comment, and a comment by Mrs. Sandra Frye, a table was created to discuss and answer these essential questions. A copy of this table is provided for your review and approval.

Comment # 4. Public notification and site inspection activities are very well documented, as are activities since the last recurring review.

CELRH-EC-CE RESPONSE: Concur. Thank you for the positive comment, it is appreciated.

Comment # 5. Appendix B Protectiveness Assessment presents general considerations for evaluation of protectiveness, but does not present any site-specific information.

CELRH-EC-CE RESPONSE: Concur. Based on the comment, this Appendix has been removed. Since the specific Protectiveness Assessment is generally presented as part of the tabular formatted response to the three questions a Five-Year Review should answer, it is believed that this appendix is no longer necessary.

Reviewer Name: William Veith
Discipline MM Safety
CX Project Review No. 73406
Date: 14 February 2011
Project Location Grant, Randolph & Tucker Counties, WV.
Document Name: Draft - Five-Year (Ordnance and Explosives) Recurring Review Report, West Virginia
Maneuver Area/Dolly Sods, FUDS Property No. G03WV0013, Dolly Sods Wilderness Area, Monongahela
National Forest, Town of Davis, Grant, Randolph and Tucker Counties, WV.

Comment # 1: General – This is a policy question. Louisville District is the PM District for this effort but this document makes it seem like Huntington District is the responsible District. It says the effort was done for Huntington and not Louisville. I understand that Louisville hired the former Dolly Sods PM for the historical knowledge but will that continue in the future? This effort is the responsibility of Louisville, not Huntington. Correct this document.

Comment # 2: General – In the executive summary and in the body of the document it states the removal action completed in 1997 and 1998 is still protective. It also states that if there is a change in land use the action would have to be reassessed to determine if it is still protective. Then later in the document it states that there are new trails and camp sites that have not been cleared. These statements seem to me to indicate that the new areas should be looked at to see if they contain UXO that needs to be removed. That tells me the original response is not still protective. The project team needs to look at this.

Comment # 3: General – This effort has taken way too long to document. The field work was completed in 2009 and the report is still in draft. This is a recurring problem with 5 year reviews.

Comment # 4: General – This document uses the old terms. The term “OE related scrap” needs to be changed to “munitions debris.” The term OE items needs to be changed to UXO. The entire document needs to be reviewed by the PDT OE Safety Specialist to get the correct terminology into it.

Responder's Name: Nick McHenry
Original Reviewer Name: William Veith
Discipline: MM Safety
CX Project Review No. 73406
Date: 31 July 2011
Project Location: Grant, Randolph & Tucker Counties, WV.
Document Name: Draft - Five-Year (Ordnance and Explosives) Recurring Review Report, West Virginia Maneuver Area/Dolly Sods, FUDS Property No. G03WV0013, Dolly Sods Wilderness Area, Monongahela National Forest, Town of Davis, Grant, Randolph and Tucker Counties, WV.

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CELRH-EC-CE RESPONSE: Concur. Louisville District is ultimately the PM District for this effort, with PM and technical services being “purchased” or “utilized” from the Huntington District. It is understood that this will remain the case for the foreseeable future, unless something in the agreement changes. There were two sections within the existing copy of the report that clarify the relationship: Section 3.1 of the report does note that “The USACE Louisville District is the Geographic District with Dolly Sods project management responsibilities, and project technical support is provided by the USACE, Baltimore District. USACE Louisville District utilizes USACE Huntington District for project management and technical support on this project.” Section 4.1 also noted “This review was led by the USACE, Huntington District, Environmental and Remediation Section (CELRH-EC-CE) on behalf of the Louisville District, USACE, who is the Program Management District. “

To clarify the relationship between the two Districts even further, the following textual changes were made:

- 1) Executive Summary. Text changed to read “The U.S. Army Corps of Engineers (USACE), Huntington District, Environmental and Remediation Section (EC-CE), conducted an Ordnance and Explosives (OE) Five Year Review of the Dolly Sods region of the former West Virginia Maneuver Area (WVMA). This report was conducted on behalf of the USACE Louisville District, who is the Formerly Used Defense Site (FUDS) Project Management (PM) District for the WVMA property. ”
- 2) Section 1.0. Text revised to read “The review was performed by the U.S. Army Corps of Engineers (USACE), Huntington District, with UXO safety field support provided by the USACE, Baltimore District. For individuals involved with the preparation of this report, please refer to Table 1.1 and Section 4.1. This report was conducted on behalf of the USACE Louisville District, who is the Formerly Used Defense Site (FUDS) Project Management (PM) District for the WVMA property.”

Comment # 2: General – In the executive summary and in the body of the document it states the removal action completed in 1997 and 1998 is still protective. It also states that if there is a change in land use the action would have to be reassessed to determine if it is still protective. Then later in the document it states that there are new trails and camp sites that have not been cleared. These statements seem to me to indicate that the new areas should be looked at to see if they contain UXO that needs to be removed. That tells me the original response is not still protective. The project team needs to look at this.

CELRH-EC-CE RESPONSE: Concur. The change was made to the report so that it now reads that the removal action is functioning in the areas that were originally cleared under the initial removal action, but that there were new areas that were discovered that had not been cleared and appeared to have been heavily used. The recommendation was therefore made that those areas should be cleared by a UXO safety professional to ensure they are clear of UXO. These statements (or similar) were particularly made on the tables that were created as a result of Kevin Oates Comment #2 and Sandra Frye's Comment #2, as well as in other sections of the report. Also see the response to Mr. Oates Comment #2 for further information on this topic.

Comment # 3: General – This effort has taken way too long to document. The field work was completed in 2009 and the report is still in draft. This is a recurring problem with 5 year reviews.

CELRH-EC-CE RESPONSE: Concur. There were extenuating circumstances with the staff members associated with the development of this report, but it is agreed that the overall product has taken too long to produce. A more focused effort will take place in subsequent five year reviews to ensure they are done in a timely manner within the five year timeframe.

Comment # 4: General – This document uses the old terms. The term “OE related scrap” needs to be changed to “munitions debris.” The term OE items needs to be changed to UXO. The entire document needs to be reviewed by the PDT OE Safety Specialist to get the correct terminology into it.

CELRH-EC-CE RESPONSE: Concur. A copy of this report will be sent to Baltimore District for review from the OE Specialist that assisted with the site visit. In advance of that review, the report was reviewed for instances of obvious old terminology being used. Any instance of old language in use was revised.

USACE, Baltimore District, MMRP Design Center Review

PROJECT: ORDNANCE AND EXPLOSIVES SECOND FIVE-YEAR REVIEW DOLLY SODS PROJECT WEST VIRGINIA MANEUVER AREA/DOLLY SODS FORMERLY USED DEFENSE SITE (FUDS) PROPERTY FUDS PROPERTY NUMBER G03WV0013 DOLLY SODS WILDERNESS AREA, MONONGAHELA NATIONAL FOREST, WEST VIRGINIA JULY 2011 - *DRAFT REPORT*

U. S. Army Corps of Engineers Design Center – Baltimore District

REVIEW: Explosive Safety
 DATE: August 17, 2011
 NAME: Caraballo/Greene

ITEM	REFERENCE	COMMENT	ACTION
1	Pg 20, Para 5.9	Misspelling “dUXOsn’t”	
2	General	Recommend Document search for “UXO Safety Specialists” and change to “OE Safety Specialists”.	
3	General	Recommend Document search for “OE related Scrap” , “Munitions related Scrap” and “UXO related Scrap” and change all these terms to “Munitions Debris”.	
4	General	Although the term Munitions and Explosives of Concern (MEC) is current terminology the use of Military Munitions and/or UXO is not completely incorrect and most likely what the regulator/reviewer is used to seeing. No change is recommended..	
5			

PROJECT: ORDNANCE AND EXPLOSIVES SECOND FIVE-YEAR REVIEW DOLLY SODS PROJECT WEST VIRGINIA MANEUVER AREA/DOLLY SODS FORMERLY USED DEFENSE SITE (FUDS) PROPERTY FUDS PROPERTY NUMBER G03WV0013 DOLLY SODS WILDERNESS AREA, MONONGAHELA NATIONAL FOREST, WEST VIRGINIA JULY 2011 - *DRAFT REPORT*

U. S. Army Corps of Engineers Design Center – Baltimore District

REVIEW: Explosive Safety
 DATE: August 17, 2011
 REVIEWER NAME(S): Caraballo/Greene
 RESPONDER'S NAME: McHenry

ITEM	REFERENCE	COMMENT	ACTION
1	Pg 20, Para 5.9	Misspelling “dUXOsn’t”	CELRH-EC-CE RE: Concur. Misspelled word was corrected to read “doesn’t”.
2	General	Recommend Document search for “UXO Safety Specialists” and change to “OE Safety Specialists”.	CELRH-EC-CE RE: Concur. All instances of “UXO Safety Specialists” were searched within the document, and replaced with “OE Safety Specialists”.
3	General	Recommend Document search for “OE related Scrap” , “Munitions related Scrap” and “UXO related Scrap” and change all these terms to “Munitions Debris”.	CELRH-EC-CE RE: Concur. All instances of “OE related scrap”, “munitions related scrap” and “UXO related scrap” were searched within the document, and replaced with “munitions debris”.
4	General	Although the term Munitions and Explosives of Concern (MEC) is current terminology the use of Military Munitions and/or UXO is not completely incorrect and most likely what the regulator/reviewer is used to seeing. No change is recommended..	CELRH-EC-CE RE: Concur.

Appendix E: RESPONSIVENESS SUMMARY

Subsequent to the 30-day public review and comment period for the draft final report, a responsiveness summary will be prepared to discuss any significant public comments received on the report and the actions taken to address any such comments. The responsiveness summary will be included in this appendix.

Appendix E: RESPONSIVENESS SUMMARY

No comments were received from the public during the 30-day public review and comment period.

No comments were received from the following project stakeholders during the Stakeholder Review and comment period:

- United States Forest Service, Monongahela National Forest
- West Virginia Department of Environmental Protection