Strategies for Public Awareness and Education Concerning Unexploded Ordnance Risk in the West Virginia Maneuver Area

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Overview

Unique challenges are faced when unexploded ordnance (UXO) exists on land used by the public. With the increasing interest in outdoor activities like hiking and camping on land having risk due to UXO presence, we are challenged with properly informing the public of the risk while at the same time not scaring them to the point that they are afraid to enjoy the land for its intended uses. This presentation uses the Dolly Sods Region (DSR) of the former West Virginia Maneuver Area (WVMA) as a case study. Its purposes are to provide examples of some of the tools being developed and used by the project team, and to promote an exchange of ideas regarding traditional and innovative ways to educate the public about UXO-related risk without alarming them.

Site Description and History

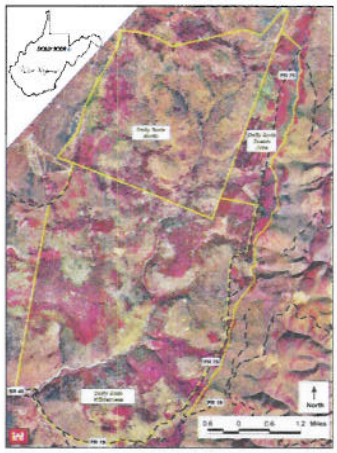

Fig. 1. Dolly Sods Region overlaid on USGS (1996-99) Digital Orthophoto Quarter Quads.

- **The 18,652 acre DSR of the former WVMA is located in the Monongahela National Forest of West Virginia (Fig. 1).**
- **During 1943-44, WWII military maneuver exercises and artillery/mortar practice were conducted in the DSR by the U.S. Department of the Army.**
- **Ordnance-related risk has been illustrated by a sporadic but continuous discovery of UXO in the DSR (Fig. 2).**
- **The DSR, with elevations between 2600 and 4100 feet, is well known for its rocky plains, upland bogs and sweeping vistas (Fig. 3). Between 45,000 and 76,000 people visit the DSR for recreation purposes annually.**

Fig. 2. Typical shapes and sizes of UXO used and found in the DSR. Lengths of UXO in the DSR vary up to 23 inches.

Fig. 3. Typical scenic views at Dolly Sods: Red Creek (top) and Bear Rocks (bottom).

Recent USACE Response Action and Recurring Review

Fig. 4. 1997-98 UXO location in DSR using magnetometry (top), and demolition of found 4.2" mortar (middle, bottom).

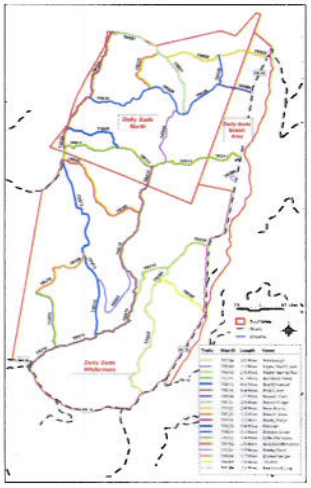

Fig. 5. Designated and maintained trails in the DSR cleared for ordnance during 1997-98.

- **An ordnance removal action, focused on significant reduction of public risk was completed in 1997-98 (Fig. 4).**
- **Designated trails (55.8 miles, 270.5 acres) and 178 inventoried campsites were cleared in the DSR (Fig. 5). 22 live and 19 inert mortars, and 1151.5 pounds of ordnance-related scrap were found and removed (Fig. 4).**
- **A complete removal of ordnance was not possible due to environmental damage, cost, and technology limitations. Therefore, periodic reviews of the site (Fig. 6) and education of individuals who use the DSR are necessary.**
- **The 2003-04 review (Fig. 6) concluded that the 1997-98 removal action is still protective of human health, safety, and the environment. Recommendations for improving institutional controls, increasing public awareness, and educating the community were made; such programs are being implemented to ensure continued public safety.**

Fig. 6. Recurring review field assessment (top), and GPS and GIS application (middle, bottom).

Ensuring Continued Public Safety: Risk Management and Stakeholder Communication

- Programs focused on carrying out recurring review recommendations, by improving institutional controls, increasing public awareness, and educating the DSR community are currently being implemented.

- Risk to public safety from UXO hazards in the DSR is managed using a Public Awareness and Organizational Plan (PAP). Public education activities are implemented through a Public Involvement Plan (PIP).

Management Strategies Development:

- Developed through partnering (see the list of partners below), the DSR PAP provides processes to educate the public on both the hazards of UXO and the organizational procedures associated with their management.

- The plan defines site impacts on stakeholders, lists lines of communication, and provides paths of dissemination for safety-related messages and educational materials (Fig. 7).

- The PAP also supports Federal and State fire suppression objectives in the DSR, and maintains notification and reporting processes for ordnance-related incidents. The PAP is reviewed annually and updated as necessary.

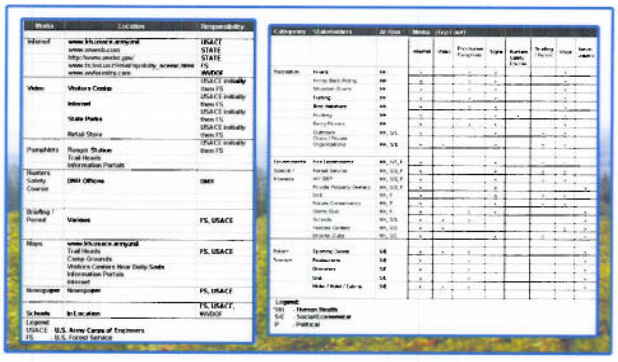

Fig. 7. Communications (left) and stakeholders (right) charts developed as part of the PAP.

Fig. 8. UXO Warning signs placed at locations with high visitor traffic (e.g. designated trailheads) in the DSR.

Fig. 9. Brochure and map of DSR trails cleared for UXO which was developed for public distribution.

Communication Program Development:

- The DSR PIP was developed based on recurring review recommendations, partners' input, and data obtained from interviews with a broad cross-section of the community.

- The plan, which is reviewed annually and updated as necessary, identifies and evaluates community concerns, and outlines specific communication and education strategies. Examples of tools developed for improving public awareness of UXO are:

  - Highly visible warning signs (Fig. 8) containing notification information - for placement at high visitor traffic DSR locations.

  - A GPS/GIS-developed map of designated DSR trails that were cleared for ordnance (Fig. 9), and items with a UXO warning message (Fig. 10) - for distribution to hikers.

  - The WVMA website (Fig. 11) containing the project administrative record, historical information, brochures, maps, and safety and notification procedures - for public download.

  - The annual FUDS newsletter (Fig. 12) with articles regarding DSR project events and progress - for public distribution.

  - Flash animations, videos, and slideshows (Fig. 13) regarding UXO - for distribution to teachers, firefighters, and the public.

Fig. 10. Items with a UXO warning message for DSR visitors.

Fig. 11. Project and notification information on the Huntington District WVMA website.

Fig. 12. "DSR news" in the annual FUDS newsletter.

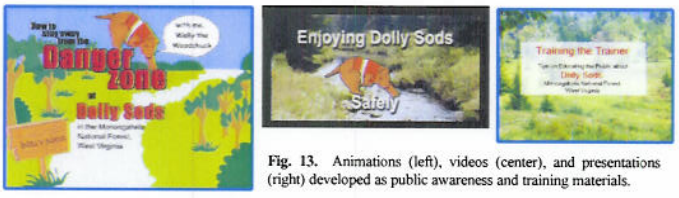

Fig. 13. Animations (left), videos (center), and presentations (right) developed as public awareness and training materials.

The "Dolly Sods Team"

- Partners committed to promoting public awareness of UXO in the DSR include: U.S. Army Corps of Engineers Huntington District, U.S. Army Engineering and Support Center (Huntsville), U.S. Forest Service, U.S. Fish and Wildlife Service, West Virginia Department of Environmental Protection, West Virginia Division of Natural Resources, Support Contractors, and the Public.

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