COMPATIBILITY DETERMINATION

USE: Vehicular Travel to Facilitate Priority Public Uses

REFUGE NAME: Canaan Valley National Fish and Wildlife Refuge

DATE ESTABLISHED: August 11, 1994

ESTABLISHING AUTHORITY: Fish and Wildlife Act of 1956, as amended, 16 U.S.C §§ 742a *et seq.* (70 Stat. 1119, Aug. 8, 1956)
Emergency Wetlands Resources Act of 1986, *esp.* 16 U.S.C. § 3901 (100 Stat 3582, Nov. 10, 1986).

PURPOSE(S) FOR WHICH ESTABLISHED:

(1) For the development, advancement, management, conservation, and protection of fish and wildlife resources. 16 U.S.C. § 742(f)(a)(4).

(2) For the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill the international obligations contained in various migratory bird treaties and conventions….16 U.S.C. § 3901(b).

MISSION OF THE NATIONAL WILDLIFE REFUGE SYSTEM:

To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans. National Wildlife Refuge System Improvement Act, 16 U.S.C § 668dd(a)(2).

DESCRIPTION OF USE:

(a) What is the use? Is the use a priority public use?

The use is vehicular access to facilitate priority public uses on the Canaan Valley National Wildlife Refuge (Refuge). Priority public uses of the National Wildlife Refuge System are defined as statute regulation as: hunting, fishing, wildlife observation and photography, environmental education, and interpretation. 16 U.S.C. § 668 ee(2); 50 C.F.R. § 25.12. "Vehicles" mean legally licensed cars, trucks, and motorcycles. This term does not include all-terrain vehicles and snowmobiles, which are prohibited on the refuge.

(b) Where would the use be conducted?

Since the establishment of the Refuge in 1994, the public has been allowed to operate vehicles on Forest Road 80 (FR 80) (1.91 miles). This road provides vehicular access from Route 32 to US Forest Service lands, including the Dolly Sods Wilderness Area. Vehicle travel is also allowed on Idleman's Run Road (0.22 mi). Two roads provide vehicular access to the recent 11,541 acre Refuge addition (Main Tract): A-frame Road (4.79 miles on Refuge) and Camp 70 Road (1.00 miles on Refuge). A-frame Road is accessed from Highway 93 and Camp 70 Road is accessed from Route 32. Vehicle travel is allowed on these four maintained roads to points where they are closed to protect refuge resources, totaling 7 miles.

Vehicular access on these designated roads provides the public with an opportunity to experience Refuge wildlife and plant communities in a diversity of habitats. The roads have existing hard-packed surfaces and meet refuge criteria for route compatibility as shown in Appendix 2: Checklist for Route Compatibility. Roads open for vehicular access are shown in Figures 1 and 2. Each road is described in Appendix 3: Routes Found to Be Compatible.

Refuge roads traverse spruce-fir, mixed conifer/hardwood and northern hardwood forest habitats. Wildlife species occurring in the vicinity of roads include various migratory birds, turkey, white-tailed deer, ruffed grouse, various furbearers, reptiles, and amphibians (Appendix 5). The threatened Cheat Mountain salamander (*Plethodon nettingi*) has been found within the forest that is traversed by FR 80. Refuge inventories have not found this species in the vicinity of the road. The endangered West Virginia northern flying squirrel (*Glaucomys sabrinus fuscus*) has been documented on refuge property near the end of FR 80. Many plant species of special concern occur or are likely to occur on the Refuge and are listed in Appendix 1.

Many unique and rare plant species occur, or are likely to occur, on the Refuge. At least 26 species of plants found in Canaan Valley have been documented five times or less in the state of West Virginia. Plants tracked by the West Virginia Division of Natural Resources as state Species of Concern and have documented occurrences in Canaan Valley are listed in Appendix 1. Inventories have shown that some rare plants do grow near or directly adjacent to existing roads and trails.

(c) When would the use be conducted?

Designated roads are open year-round to vehicular access. An average of 120 inches of snow falls annually in Canaan Valley. No snow removal is conducted; therefore, some refuge roads become inaccessible to vehicles during heavy snowfall. Daily use hours are between one-hour before sunrise through one-hour after sunset when the Refuge is open to the public. The general pattern of vehicle travel shows visitation is higher on weekends than weekdays. Most vehicular access occurs during the peak of fall colors starting in mid-September through the deer bucks only rifle season (beginning the Monday prior to Thanksgiving and continuing for two consecutive weeks). Travel at night for raccoon hunting on the Refuge requires a Special Use Permit. Wildlife observation and

photography occur year-round but observation of returning neo-tropical migrant birds peaks in May and June. Raptors are most common in summer and fall. Opportunities exist year-round for environmental education and interpretation.

(d) How would the use be conducted?

Vehicular access on the Refuge is conducted according to applicable provisions of *50 CFR 27.31* ("General Provisions Regarding Vehicles") and West Virginia State law. To promote safe vehicle operation, to reduce the risk of vehicular collisions with other users and wildlife, and to enhance opportunities for wildlife observation, vehicle travel is subject to a maximum speed of 25 miles per hour. The roadway will be shared with other users. Vehicles must be properly licensed and registered, properly equipped, and legal for street travel by West Virginia law. Parking is available along Refuge road shoulders on A-frame and Camp 70 roads, in turnouts, and at designated Refuge parking lots. At the current level of use, these facilities are adequate to handle parking in an efficient and safe manner. Any need for additional parking areas or vehicular routes can be considered during the preparation of the Comprehensive Conservation Plan (CCP), currently scheduled to begin by 2004. Overnight parking and camping will not be allowed.

Vehicular use on the Refuge has not been thoroughly documented. Assessments of current conditions and use were made through observations by refuge staff and discussions with hunters and West Virginia Division of Natural Resource Conservation Officers. The level of vehicle use on refuge property has been monitored by refuge staff since the fall of 2002. Out of 44 monitoring days (mostly weekends) between September 2002 and July 2003, a total of 212 vehicles have been documented in refuge parking areas. This number excludes the deer rifle hunting season, which would likely triple the number of total vehicles (based on number of hunters on refuge property) for the monitoring period. Vehicle use is heaviest on south end parking lots during most of the year. During deer season vehicle use to access the refuge increases considerably on Camp 70 road and A Frame road.

Traffic counters were recently installed at FR 80, Freeland Road, A-frame, Camp 70 Roads, and near the Beall Tract parking lot. Additional traffic counters may be installed on vehicular roads as needed. The Refuge checks the number of recorded vehicles at least weekly to assess frequency and periods of use. Parking lots have been constructed at the trailheads of the Freeland and Beall Tracts trails and at A-frame Road and Camp 70 Road. FR 80 is estimated at 16 acres, mostly consisting of northern hardwood forest. These existing roads were created for logging or other purposes prior to Refuge acquisition. Maintenance on FR 80 is scheduled to begin in 2004 by the Federal Highway Administration. In the event that roads are closed by snow, winter visitors would have to park vehicles further from pedestrian routes and gain access by snow shoeing and cross-country skiing.

A Refuge Officer is recording number of vehicles seen during patrols, types of access, user interactions, and potential safety concerns. Safety and information signs will be installed and maintained as necessary. Roads are and will be maintained in such a

manner as is practical to minimize environmental effects such as erosion and sedimentation and to provide safe conditions for public access. Maintenance activities include roadside brushing, grading, cleaning ditches and culverts and adding gravel to road surfaces. Routes are monitored annually to determine if they remain compatible subject to the route compatibility determination shown in Appendix 2.

Roads will be maintained in such a manner as is practical to: minimize environmental effects such as flooding, erosion, and sedimentation, and to provide safe conditions for vehicular travel and other modes of access. Safety and information signs will be installed and maintained as necessary. If signage does not prevent unauthorized vehicle travel, gates will be installed near parking lots to protect Refuge resources from such use.

(e) Why is this use being proposed?

Vehicular use of designated roads on the Refuge enhances public access and provides increased opportunity to participate in priority public uses. Vehicular use of Refuge roads also allows enhanced opportunities for mobility-impaired persons to engage in priority public uses as recognized in the 1994 Station Management Plan. Public vehicular access has been allowed on designated roads since Refuge establishment. At the time of Refuge acquisition, the former landowner of the Main Tract allowed vehicular access on A-frame and Camp 70 Roads for public "foot travel, hunting, fishing, and other recreational use" (Monongahela Power Company 1994). Designated roads for vehicular travel provide the public with an opportunity to experience the diversity of habitats and wildlife that characterize the Refuge without significant environmental consequences at the current level of use.

Opportunities for vehicular travel exist in upland communities on adjacent lands of the Monongahela National Forest and Canaan Valley Resort State Park. These public lands however, do not provide for panoramic views of the refuge landscape and no opportunities to observe the wildlife and plant communities associated with the Refuge's wetland.

AVAILABILITY OF RESOURCES:

The resources necessary to provide and administer this use are available within current and anticipated Refuge budgets. Staff time associated with administration of this use is related to assessing the need for road maintenance and repair, conducting such repairs or overseeing such repairs by contracted work, maintaining associated road infrastructure, maintaining traffic counters and recording related data, analyzing use patterns, monitoring potential impacts of the use on Refuge resources and visitors, and providing information to the public about the use.

The program is administered by the Deputy Refuge Manager, resource impacts are monitored by the Wildlife Biologist, visitor use is monitored by a term Refuge Officer and Outdoor Recreation Planner, and maintenance and repair is performed by a Heavy

Equipment Operator. Law enforcement is also provided by a Refuge Officer and Deputy Refuge Manager.

Refuge vehicles are needed to effectively administer the use. The Heavy Equipment Operator performs the maintenance and repair of Refuge roads and associated structures. The refuge has heavy equipment including a motor grader, dump truck, bulldozer, backhoe, 4x4 farm tractor, bobcat, and front-end loader. The construction of a maintenance facility is currently funded and planned for construction in 2004. The maintenance facility is needed to repair refuge vehicles and equipment and to construct necessary signs, kiosks, gates, and other maintenance operations.

The above listed Main Tract roads can be significantly improved to restore wetland hydrology. Needed operations include the installation and relocation of culverts and the installation of water bars to properly drain roads. Several segments of the designated routes need gravel to bring the route up to grade. The Refuge staff will perform repairs. The Refuge currently has one equipment operator on staff. The staffing plan for the Refuge includes two additional maintenance positions. The two maintenance positions are in the Refuge Operating Needs System to be filled in the future. The Refuge currently plans to have the US Department of Transportation, Federal Highways perform road maintenance on FR 80 in 2004. The Refuge may also contract additional repair work as needed to keep roads in safe condition.

Annual costs associated with the administration of vehicular access on the Refuge are estimated below:

Road maintenance and repair (filling significant potholes, maintaining water bars, cleaning culverts, installing culverts, brush clearing) sign installation and kiosk construction and repair, cleaning and maintaining parking areas
WG-10 Equipment Operator for 10 work days = $1,698.80

Planning and monitoring road conditions and supervising staff to monitor vehicle travel and its effects on environment and other visitors
GS-12 Deputy Refuge Manager for 3 work days = $624.24

Law enforcement, monitoring vehicle travel and interactions with other users, visitor services, traffic counter maintenance/data collection, sign maintenance
GS-9 Park Ranger for 14 work days = $2,156

Monitoring environmental effects of vehicle travel
GS-11 Wildlife Biologist for 2 work days (training & inspection) = $370.40
GS-9 Wildlife Biologist for 5 work days (monitoring) = $717.20
GS-6 Biological Science Technician for 5 work days (monitoring) = $527.60

Providing information to the public and analyzing traffic counter and user data
GS-11 Outdoor Recreation Planner for 10 work days = $2,024.48

Motor vehicle fuel / law enforcement patrols = $210
Heavy equipment fuel = $250
Gravel and culverts for repairing wash outs = $5,200
Kiosk construction, signs, printing maps and information = $550
Grand Total Estimated Costs = $14328.72

FY 2003 Budget Allocations:
Employee Salaries and benefits = $531,981
Fixed costs (utilities, fuel, administrative) = $26,090
Base maintenance = $50,000
MMS Project = $42,250
MMS Road Project = $30,000
Discretionary Funds (maps, printing, etc.) = $171,354
Total Available Funds for FY 2003 = $851,675

Based on a review of the budget allocated for recreational use management, funding is adequate to ensure compatibility and to administer and manage the recreational use listed.

ANTICIPATED IMPACTS OF THE USE:

To evaluate the effects of proposed uses and develop anticipated impacts refuge biologists began by gathering baseline information. Color infra-red aerial photography and field surveys identified existing trails. Locations of "problem areas" (erosion, vegetation loss, etc.) were marked in the field with a GPS and photographs were taken to document problems. All trails marked in the field were integrated into a GIS base map.

Existing information on Canaan Valley wetlands, streams, dominant plant communities and soils were overlaid onto the base map. All soils associated with trails were evaluated for their compaction and erosion potential from information received from an NRCS soil scientist and the Tucker County soil survey. Information from West Virginia Division of Natural Resources (WVDNR) Species of Special Concern database was added to the map. Trails that fragmented habitat and crossed wetland soils were identified.

A comprehensive literature review was conducted of published scientific journal articles detailing impacts to plants, soils, and wildlife through public use activities. Additional information was gathered from biologists, land managers and scientists who had experience with wildlife disturbance and trail management issues.

A contract hydrologist and soil scientist were hired to conduct field investigations of routes proposed for public use. Recommendations were given on limiting factors of these trails and restoration required to make existing trails suitable for continued public use.

Potential long-term direct impacts of vehicle access include habitat loss, alterations to hydrology, pollution, soil compaction and erosion, sedimentation, wildlife disturbance due to vehicular traffic, and wildlife mortality (road kills) and injuries. Potential short-term direct impacts include noise and minor downstream sedimentation from dust and erosion. Indirect impacts include wildlife disturbance resulting from increasing human activities facilitated by vehicular access into wildlife habitat. A summary of potential and anticipated impacts to refuge resources follows:

Debrushing will be performed on an as needed basis depending on vegetative conditions along the road. Debrushing will be performed after August 1 to avoid disturbance to nesting birds along roadsides. Likewise, roadside ditches that support breeding amphibians earlier in the year typically are dry and are devoid of amphibians by early August. This treatment is necessary to properly maintain roads for automobile travel, to increase vision around curves, prevent contact of vehicles with roadside brush, allow proper grading and crowning of road surfaces, and enable maintenance of drainage ditches that aid in preventing road washouts. It is anticipated that debrushing activities will be required irregularly based on existing vegetative conditions along roads.

Anticipated impacts of vehicle travel on habitat includes the permanent loss of vegetation as a result of the road itself, loss of road side vegetation from debrushing activities and potential fragmentation of wildlife habitat. Because these roads have been in existence for many years and habitat loss is confined to a narrow corridor, impacts to wildlife and plant species are not expected to be significant. Refuge staff will conduct surveys for rare plant species to ensure that no impacts will result from vehicle traffic and maintenance operations.

Soil Impacts: Roads promote soil erosion, primarily from sediment runoff following rains and during snowmelt. The potential for erosion increases with grade and slope on which the roads are constructed. A-frame Road has an approximate slope of 2.7%, which is not likely to contribute significantly to erosion. The road does not run parallel to waterways, so potential for direct runoff and sedimentation into streams is minor. Narrowing the road to decrease total surface area available for runoff will help prevent future erosion and ease maintenance operations. FR 80 is scheduled for maintenance during 2004 that will improve water flow and reduce soil erosion from the road surface. Idleman's Run road is relatively flat and short therefore erosion from this road is not considered significant.

It is anticipated that some soil erosion will occur as a result of the continued use of the designated vehicle routes. Maintenance operations to reduce soil erosion and sedimentation will be performed by the refuge as necessary. Based on current conditions and use, the designated vehicle routes are not likely to cause significant increases in erosion and sedimentation.

Hydrologic Impacts: Roads can affect the hydrology of an area, primarily through alteration of drainage patterns. An unknown number of culverts exist on A-frame Road. However A-frame Road does cross at least 15 intermittent and year round streams within

the Main Tract. FR 80 crosses several drainages and channels water long distances down the road surface. Planned maintenance on FR 80 will improve hydrologic impacts of this road. New culverts will be required for both roads and trails. The size and location of culverts that provide drainage underneath roads for feeder streams or drainage gullies generally prevent stream or drainage impediment. However, occasional heavy storm flows may exceed culvert capacity and road over wash or breaches may result.

Bill Zeedyk (2002), a contract hydrologist, evaluated the hydrological effects of A-frame Road and FR 80 and the ramifications for plant communities on the Refuge. Drainage issues were some of the biggest problems with both roads and trails where water was being channeled down the road surface for long distances. Other problems included improper culvert placement and design and lack of regular maintenance. Road modifications to mitigate negative hydrological and other ecological effects of A-frame road on refuge resources will be considered in the CCP. Corrective actions in some areas will be taken prior to the CCP to restore hydrologic flows, protect plant communities and prevent erosion.

Invasive Species Impacts: Roads can facilitate the introduction and spread of invasive and exotic plant species. These invasions result from the use of foreign material to construct and maintain roads, and from transport via motor vehicles traveling on roads. Exposed soil and abundance of sunlight along roads provide ideal conditions for the establishment of many invasive species. Currently the known incidence of invasive plant species is low on the Refuge, however a preliminary survey was conducted during the 2002 field season. Reed canary grass (*Phalaris arundinacea*) has been seen with greater frequency in the Valley's wet meadows and a small colony of Japanese knotweed (*Polygonum cuspidatum*) has been observed by Refuge staff on Route 32. Multiflora rose (*Rosa multiflora*) is often found along roads and power lines. Yellow iris (*Iris pseudacorus*) is a management concern in wetlands at the Canaan Valley State Park and has been found on the refuge, but not associated with the subject roads.

Areas disturbed by vehicle access in Canaan Valley are susceptible to colonization with exotic plant species. Stout (1992) found that trails created through emergent wetlands were being colonized by barnyard grass (*Echinochloa crusgalli*). This species is on the State list of invasive exotic plant species and has the ability to displace native plants. However, designated routes will not create any new routes through previously undisturbed plant communities and will only occur on existing upland roads.

Based on the current level of use it is anticipated that no significant increases in invasive plant species will result from this use. Routes designated for vehicle travel are old logging roads that were planted with exotic grasses by logging companies therefore increases as a result of vehicle travel are anticipated to be relatively low. Routes designated for vehicle travel will be monitored for invasive plant species. Refuge staff will implement routine surveys and control measures if significant increases in the abundance of invasive plants are found along vehicle routes.

Pollution and Noise Impacts: Motor vehicles emit pollutants, create noise, and their use

can disturb wildlife and humans. Pollutants from vehicle exhausts include hydrocarbons, nitrous oxide, and carbon monoxide. Such pollutants can negatively impact air and water quality that can have negative effects on plants, wildlife, and aquatic resources. The emission level of pollutants from automobiles on the Main Tract is unknown. According to the National Oceanic and Atmospheric Administration, Canaan Valley is impaired by high concentrations of ozone and acid deposition from sulfur and nitrogen emissions (Vogel 2001). However, the pollutants from vehicles on refuge roads are likely to be more local and less significant compared to emissions from power plants in the Ohio Valley region.

Noise levels from motor vehicles on the refuge have not been documented. The experience of visiting the refuge could be impacted by vehicle noise through the continued use of Refuge roads. Wildlife may also be affected by vehicle noise causing animals to avoid roads or run from approaching vehicles. Noise from motor vehicles primarily results from the sound of tires on the gravel road surface and from metallic sounds of body and chassis vibration. Generally, vehicular noise is infrequently heard on the refuge roads and hiking trails. Depending on conditions and location, vehicles generally are audible from an estimated several hundred yards to perhaps a half-mile distant from the listener. Other sources of noise include vehicle traffic along Route 93, chainsaws from neighboring lands and occasional military and civilian aircraft over flights. It is anticipated that pollution and noise impacts from vehicle travel under the current use level will not significantly impact refuge resources or visitor experiences.

Wildlife Impacts: Roads facilitate human access into wildlife habitat. Vehicular traffic and associated human activity can cause disturbances to wildlife. Those disturbances vary with the wildlife species involved and the type, level, frequency, duration and the time of year those activities occur. For example, black bears may be affected by areas of high road densities but will readily cross lower traffic volume roads (Brody and Pelton 1989). Van der Zande (1980) found that roads could cause disturbance to bird species up to 600 meters from “quiet rural roads”. Birds and mammals are commonly observed within sight of refuge roads. This is particularly true for Wild turkey, ruffed grouse, black bear and white-tailed deer that may use roads for brood habitat and movement corridors.

Some portions of A-frame Road and FR 80 may have more importance as natural corridors for wildlife species. For example, the gap between Cabin knob and the unnamed knob to the north that FR 80 traverses, and a gap located on A-frame Road near the Grant County line, may serve as natural corridors for mammals linking the Canaan Valley to the higher plateau habitats associated with the Dolly Sods Wilderness Area. The road segments in these gap areas may create greater disturbances to mammal species as a result. Animals traveling within or directly adjacent to roads generally flee from vehicles although they sometimes kill vertebrate and invertebrate species. For instance, snakes might be killed while basking on sun-warmed road surfaces, and amphibians may be killed when crossing roads during spring migrations in April and May. Wildlife mortality numbers on A-frame Road are undocumented, but presumed to be insignificant.

Night vehicle travel is limited to refuge public hours that minimize evening disturbance when mammals are most active. No known significant concentrations of wildlife occur near designated refuge vehicle routes. Overall, traffic patterns are considered relatively sporadic although there may be greater use during the hunting season.

Threatened and Endangered Species Impacts: The Refuge provides habitat for threatened and endangered species. The threatened Cheat Mountain salamander (*Plethodon nettingi*) uses the litter on the forest floor as cover and foraging areas. They are also sensitive to any habitat changes that removes forest canopy or reduces soil moisture and relative humidity (Pauley 1991). Because of this species reliance on high soil moisture and relative humidity, they are not likely to be found on or crossing a road or trail that is exposed to the heating and drying effects of the sun and wind. Cheat Mountain salamander populations have been confirmed at higher elevations in the southern end of the refuge and within 150 feet of FR 80. Because this use will occur on pre-existing roads, no new habitat will be disturbed where the salamander is found.

The endangered West Virginia northern flying squirrel (*Glaucomys sabrinus fuscus*) has been documented on refuge property near FR 80. There is little information available that discusses the effects of trails/roads on populations of this endangered species. However, some research has found northern flying squirrels occupying den sites near logging roads, skid trails, and on hiking trails (Ford 2002). No evidence of potentially occupied habitat has been found near other access roads.

It is anticipated that vehicle use of the designated roads will not cause significant impacts to threatened or endangered species. The use will be confined to existing roads and no new construction or vegetation clearing will be permitted. Because FR 80 is a historic road used for vehicle access to the refuge and the Dolly Sods Wilderness area, vehicle use will not cause additional significant impacts to these species. Concurrence with the U.S. Fish and Wildlife Service Ecological Services Office in Elkins, WV is necessary to ensure this designated use would not impact threatened or endangered species.

User Conflicts and Safety: Roads designated for vehicle access are also designated for bicycle, horseback and pedestrian travel. Conflicts between trail users are commonly reported in the literature (Knight and Gutzwiller1995, Ramthun 1995, Watson et. al 1994, Chavez et al 1993). Conflicts range from concerns over personal safety to certain user groups feeling that they should be given priority over other groups based on a past history or other reasons. Based on interviews with individuals and user groups, conflicts between groups are not significant in Canaan Valley. This is likely due to the relatively low number of users in the area, as compared with heavy use and conflict sites reported in the literature. Providing safe routes for wildlife-oriented activities is an important consideration for Refuge roads. Safety considerations include ability of multiple modes of access to use a road without creating dangerous conditions, ability to maintain a road to allow safe use and timing of various uses such as wildlife observation and hunting activities. Under the current level of use, routes open to vehicles are wide enough to allow multiple modes of access to occur without anticipated conflicts or safety concerns.

The 16 acres of direct habitat loss, and any negative impacts of roads resulting from the existence and maintenance of A-frame road, FR 80 or Idleman's Run road (erosion, sedimentation, hydrological alteration, pollution, or wildlife disturbance) are not considered to constitute a significant long-term impact. These roads have been in existence for many years and wildlife has likely adapted to their presence. The current use is an effective and justifiable method of access to the subject land, particularly the more remote northern end of the refuge via A-frame Road. These roads enable the public to discover, experience, and enjoy the Refuge and participate in priority public uses. Continued monitoring of the impacts of vehicular access, and associated human activities is necessary to better understand how this use impacts Refuge habitat and wildlife resources. Monitoring helps identify and implement necessary measures to correct problems that may arise in the future (i.e., practice adaptive management).

Cultural Resources: This use, as described, will not impact cultural resources.

PUBLIC REVIEW AND COMMENT: A draft was sent out for public review and comment on November 6, 2002 for 30 days. Due to public response, the deadline for public review and comment on this draft compatibility determination was extended an additional 30 days to January 6, 2003. The Refuge also hosted two open houses to address public concerns on November 22, 2002 and December 12, 2002. A determination was made following the comment period.

DETERMINATION: THIS USE IS COMPATIBLE ____
THIS USE IS NOT COMPATIBLE ____ (Check one)

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

-Vehicular travel to facilitate priority public uses is only compatible on the roads designated and described in Appendix 3 and shown in Figures 1 and 2. Evaluation criteria to assess route compatibility are shown in Appendix 2.

-Vehicle travel is restricted to Refuge public use hours: one hour before sunrise and one hour after sunset.

-Signs necessary for visitor information, safety, and traffic control will be installed and maintained as necessary. If signage does not prevent unauthorized vehicle travel, gates will be installed as needed to protect Refuge resources.

-The Refuge will conduct an outreach program to promote public awareness and compliance with Refuge public use regulations.

-In order to provide for visitor safety and maintain a high-quality setting for wildlife observation, a speed limit of 25 miles per hour will be imposed. This speed limit will

also allow the shared use of the roadway with other users. Regulations for road use will be posted at kiosks at major vehicle access points.

-The provisions for vehicle travel on National Wildlife Refuges as contained in Title 50 *Code of Federal Regulations*, section 27.31, will be implemented including: establishing designated routes of travel that are conveyed to the public through signs and/or maps, assimilation of state laws and regulations governing the operation and use of vehicles, no operation of vehicles while under the influence of intoxicating beverages or controlled substances, reasonable and prudent operation, maximum speed limit, prohibition of vehicles producing excessive noise or visible pollutants, requirements for properly operating muffler, brakes, brake lights, headlight and tail lights, vehicle operators must be properly licensed, vehicles must be properly registered, licensed, and inspected, and vehicle operators must not obstruct the free movement of other vehicles.

-A comprehensive inventory of the effects that existing road infrastructure has on wetland hydrology will be completed as funding permits. Of priority concern is A-frame Road and its associated trail network that encroach into wetland areas. This information would identify CCP management opportunities for restoring surface hydrology.

-The current inventory of roads on the refuge will be completed before the start of the Refuge CCP. This information will guide future decisions in the planning, locating, and managing of Refuge road and trail systems.

-All routes designated for public access are annually inspected for maintenance needs. Prompt action is taken to correct any conditions that risk public safety. Roads will be maintained at a level that reasonably accounts for safe vehicular travel.

-Routes designated for public access are monitored annually to determine if they continue to meet the compatibility criteria presented in Appendix 2. Monitoring for biological and physical resources is listed in Appendix 4 but the methodology may change to reflect new information. Biological inventories continue to provide baseline information to measure change against. Should monitoring and evaluation of the use indicate that the compatibility criteria are or will be exceeded, appropriate action will be taken to ensure continued compatibility, including modifying or discontinuing the use.

-Refuge Officer patrols include recording visitor numbers, vehicle numbers, visitor activities, and activity locations to document current and future levels of Refuge use. Patrols also include the routine assessment of safety conditions and visitor interactions on Refuge Routes. Conditions that are or will risk public safety will be identified and

appropriate action will be promptly taken to correct such conditions.

-The Refuge conducts annual assessments of visitor perceptions of Refuge uses and the management of access routes. A visitor survey will be developed and executed upon approval. Providing for safe public use through proper administration and regulation, public education, and law enforcement will be essential.

JUSTIFICATION: Pending public review and comment.

Signature: Refuge Manager: _____
(Signature and Date)

Concurrence: Regional Chief: _____
(Signature and Date)

Mandatory 10-year re-evaluation date: August 1, 2013

ATTACHMENTS:

Appendix 1: List of state species of special concern
Appendix 2: Checklist for route compatibility
Appendix 3: Routes found to be compatible
Appendix 4: Trail monitoring plan
Appendix 5: Responses to public comments
Appendix 6: Dominant habitat types viewed from roads and trails
Appendix 7: Wildlife species that may be encountered along roads and trails

Figure 1: Maps showing routes designated for public access – North End
Figure 2: Maps showing routes designated for public access – South End.

Citations

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Appendix 1 List of State Species Of Special Concern

State Species of Concern Known or Expected to Occur in Canaan Valley, WV
West Virginia Division of Natural Resources Natural Heritage Program

Plants		Ranks	
Scientific Name	**Common Name**	**State**	**Global**
Abies balsamea	Balsam fir	S3	G5
Amelanchier bartramiana	Oblong-fruited serviceberry	S1	G5
Betula papyrifera	Paper birch	S2	G5
Carex aestivalis	Summer Sedge	S2	G4
Carex atherodes	Awned sedge	S1	G5
Carex atlantica ssp. capillacea	Howe sedge	SH	G5
Carex bromoides	Brome-like sedge	S2	G5
Carex buxbaumii	Brown bog sedge	S2	G5
Carex canescens	Hoary sedge	S3	G5
Carex comosa	Bearded sedge	S2	G5
Carex lacustris	Lake sedge	S2	G5
Carex leptonervia	Finely-nerved sedge	S1	G4
Carex pauciflora	Few-flowered sedge	S1	G5
Carex pellita	Wooly sedge	S1	G5
Carex project	Necklace sedge	S1	G5
Coptis trifolia ssp. groenlandica	Goldthread	S2	G5
Cuscuta rostrata	Beaked dodder	S2	G4
Cypripedium reginae	Showy lady's-slipper	S1	G4

Dalibarda repens	Star violet	S3	G5
Drosera rotundifolia	Roundleaf sundew	S3	G5
Equisetum sylvaticum	Woodland horsetail	S1	G5
Euphorbia purpurea	Glade spurge	S2	G3
Geum aleppicum	Yellow avens	S1	G5
Geum rivale	Purple avens	S1	G5
Glyceria grandis	American manna-grass	S2	G5
Glyceria laxa	Northern manna-grass	S1	G5
Juncus articulatus	Jointed rush	S2	G5
Juncus filiformis	Thread rush	S2	G5
Listera smallii	Kidney-leaf twayblade	S2	G4
Lonicera canadensis	American fly-honeysuckle	S2	G5
Oenothera pilosella	Evening-primrose	S2	G5
Pogonia ophioglossoides	Rose pogonia	S2	G5
Polemonium vanbruntiae	Jacob's ladder	S2	G3
Ranunculus pusillus	Low spearwort	S1	G5
Rhamnus alnifolia	Alder-leaved buckthorn	S1	G5
Salix discolor	Glaucous willow	S2	G5
Saxifraga pensylvanica	Swamp saxifrage	S2	G5
Scirpus atrocinctus	Black-girdle bulrush	S3	G5
Scirpus microcarpus	Small-fruit bulrush	S3	G5
Scutellaria galericulata	Hooded skullcap	S1	G5
Stachys tenuifolia var. tenuifolia	Smooth hedge-nettle	S2	G5
Stellaria borealis ssp. borealis	Northern stitchwort	S1	G5
Synosma suaveolens	Sweet-scented Indian-plantain	S2	G3G4
Thelypteris simulata	Bog fern	S1	G4G5
Torreyochloa pallida var. fernaldii	Manna-grass	S2	G5?
Torreyochloa pallida var. pallida	Pale manna-grass	S2	G5?
Vaccinium macrocarpon	Large cranberry	S2	G4
Vaccinium oxycoccos	Small cranberry	S2	G5
Veronica scutellata	Marsh speedwell	S1	G5

Viola appalachiensis	Appalachian blue violet	S2	G3
Vittaria appalachiana	Appalachian gametophyte	S1	G4
Zigadenus leimanthoides	Oceanorus	S2	G42

Animals		**Rank**	
Scientific Name	**Common Name**	**State**	**Global**
Accipiter gentilis	Northern goshawk	S1B,S1N	G5
Aegolius acadicus	Northern saw-whet owl	S2B,S3N	G5
Carphophis ameonus	Worm snake	S3	G5
Chlosyne harrisii	Harris' checkerspot	S2	G4
Circus cyaneus	Northern harrier	S1B,S3N	G5
Clinostomus elongatus	Redside dace	S1S2	G4
Colias interior	Pink-edged sulphur	S1	
Empidonax alnorum	Alder flycatcher	S3B,S3N	G5
Euphyes bimacula	Two-spotted skipper	S1	G4
Glaucomys sabrinus fuscus	West Virginia northern flying squirrel	S2	G5
Neotoma magister	Allegheny woodrat	S3	G3G4
Microtus chrotorrhinus carolinensis	Rock vole	S2	G4
Plethodon nettingi	Cheat Mountain salamander	S2	G2
Sorex palustris punctulatus	Water shrew	S1	G5
Sylvilagus obscurus	Appalachian cottontail	S3	G4
Zapus hudsonius	Meadow jumping mouse	S3	G5

West Virginia Division of Natural Resources 2001 Ranking Descriptions

S1 Five or fewer documented occurrences, or very few remaining individuals within the state. Extremely rare and critically imperiled.

S2 Six to 20 documented occurrences, or few remaining individuals within the state. Very rare and imperiled.

S3 Twenty-one to 100 documented occurrences.

S4 Common and apparently secure with more than 100 occurrences.

S5 Very common and demonstrably secure.

SH Historical. Species which have not been relocated within the last 20 years. May be rediscovered.

G1 Five or fewer documented occurrences, or very few remaining individuals globally. Extremely rare and critically imperiled.
G2 Six to 20 documented occurrences, or few remaining individuals globally. Very rare and imperiled.
G3 Twenty-one to 100 documented occurrences. Either very rare and local throughout it's range or found locally in a restricted range; vulnerable to extinction.
G4 Common and apparently secure globally, though it may be rare in parts of it's range, especially at it's periphery.
G5 Very common and demonstrably secure, though it may be rare in parts of its range, especially at the periphery.
G? Unranked, or, if following a number, rank uncertain (ex. G2?)
G_Q Species of questionable taxonomy (ex. G4Q).

Appendix 2 Checklist For Route Compatibility

Checklist For Existing Routes To Be Eligible For Interim Compatibility Consideration
(Routes must meet all criteria)

1) Route provides an opportunity to view a variety of habitats and wildlife.
2) Route is an existing road or trail that provided access or is in close proximity to access that supported priority public uses.
3) Route is safe for the access proposed at current use levels.
4) Any refuge entry route was open to public access based on historic use.
5) Route requires minimal annual maintenance (i.e, waterbars, stepping stones, etc.) to ensure safe access and to prevent further habitat degradation.
6) Route has a low potential for fragmenting habitat or disturbing wildlife populations.
7) Based on existing soils information, less than 50% of the route's length occupies soil types rated as "high" or "very high" for compaction and/or erosiveness. The route is not rated as "severely limited" for hiking trails based on the Tucker County Soil Survey.
8) Any route crossing of sensitive soils occupies the shortest possible distance. Organic soil crossings are minimized or eliminated.
9) Continued use of the existing route is not likely to cause further wetland alteration or degradation. There is low risk that hydrology, soil stability, sensitive plant communities, riparian zones, and wildlife habitats would be adversely affected.
10) Route predominately occupies modified substrate (graveled, compacted, or filled) like logging roads and rail grades.
11) Route is not incised greater than 1 foot deep over 10% of its total length.

Appendix 3 Routes Found To Be Compatible

Forest Road 80 (1.91 miles): This road has been in existence for decades and provides popular access to the Dolly Sods Wilderness Area and adjoining US Forest Service land. It has been minimally maintained and is signed that motor vehicle access is at the driver's risk. The road has been used continuously since refuge establishment and is scheduled for complete maintenance in 2004. The road surface is highly modified, packed and graveled in sections. Planned maintenance operations will improve drainage and stabilize the road surface. This road was found acceptable for vehicle access because it is highly modified and not causing unacceptable erosion and sedimentation. Continued use of this road will not cause significant trail widening, increase erosion or trail incision, trampling of vegetation, or create unacceptable disturbance to wildlife populations. A West Virginia Northern flying squirrel was found near the end of this road, confirming their presence on refuge property. However, no impact is expected to occur by continuing to allow vehicles access along FR 80. This road does not cross wetland soils on the refuge. There is no evidence that this road in its current condition, or the use of this road threatens rare plant or animal species.

Idleman's Run Road (0.21mi): This is a highly modified road branching north from FR 80. It has been in existence for many years and was compacted, graded, and graveled. Use of this road on the refuge will terminate at the Idleman's Run crossing, the refuge boundary. This road is acceptable vehicle travel because it does not cause unacceptable erosion and sedimentation and is in stable condition. Continued use, at the current use level, will not increase width, incision, soil erosion, stream sedimentation, or trampling of vegetation. It does not cross organic wetland soils. This road is not likely to cause significant wildlife disturbance.

A-frame Road (4.79 miles): A-frame road joins state route 93 at the north end of the Canaan Valley. It crosses through private land from route 93 until it meets the refuge boundary. The refuge segment is 4.9 miles long from the Main Tract boundary at the north, to the intersection with the Glade Run wetland complex. This road is well developed and has been graded and graveled in the past. Soils are compacted and the continued use of this road will not significantly damage soils and plant communities. Although minimally maintained, it remains serviceable and provides access throughout the year. A-frame Road is relatively level and does not reflect the erosion patterns of steeper tracks and secondary roads that branch from it. Vehicle travel of this road will not cause any significant changes in soil erosion, compaction, downstream sedimentation or vegetation trampling.

Camp 70 Road (0.1 miles): This county road originates from Camp 70 Road at the western refuge border and continues for 0.1 miles until it reaches a vehicle parking area. The county road continues for 1 mile past the parking area, however it is very rough and not suitable for most vehicles. Vehicles are prohibited from entering beyond this point to avoid wetland soils and associated rare and sensitive plants.

Appendix 4 Route Monitoring Plan

Physical Condition Monitoring:
A baseline inventory of the physical condition of proposed public access routes was conducted during the 2002 field season. This information will be used to compare how continued public use affects associated plants and soils. Management interventions required to protect refuge resources will be identified if significant changes occur. Interventions are necessary where surveys document increases in the frequency and lineal extent of "problem areas". Current trail conditions on much of the refuge were primarily influenced by the use of motorized vehicles prior to acquisition by the USFWS. The standard that will be set for refuge trails is a non-degradation policy such that existing "problem areas" will not increase in size, number or frequency. It is intended that access limitations will improve degraded vegetation and soil conditions. Improvement will be defined as reducing "problem areas" by : narrowing trail width, decreasing numbers of "bootleg" trails through revegetation, fewer mud holes, less soil erosion, and fewer areas of exposed roots. Information generated from this survey will include the following products:

-A description of the frequency of "problem areas" on targeted trails
-A description of the average physical characteristics of trail features
-A description of the lineal extent of "problem areas"
-A repeatable monitoring protocol that will track the trend of physical condition of refuge trails.
-Trail management recommendations to halt continued trail degradation and vegetation trampling and promote revegetation.

Biological Monitoring:
Wildlife associated with public access routes will be monitored to detect any impacts from public use. Monitoring will occur seasonally to document how species use of associated habitat is affected throughout yearly life cycles. Point counts during early summer will be used to inventory nesting bird species and to compare results with areas not influenced by public access. Transects will be established and monitored to determine how different species are influenced by the presence of a particular trail or road (i.e. for brood habitat, nesting, movement corridors etc.). Amphibian and avian surveys will be conducted during early spring for breeding and late summer for movements. Monitoring during winter will evaluate the importance of routes to mammals for winter movements and feeding areas. Vegetation surveys will be conducted to detect the presence of rare, unique or exotic invasive plant species located on proposed public access routes.

Inventory results will be reviewed annually to ensure that proposed routes continue to meet compatibility requirements. Management intervention to correct significant problems will occur if monitoring indicates that public use is impacting wildlife or plant species and/or populations. Remedies will be based on the significance of impacts and practical options for reducing or eliminating them. Intervention may include investigative research projects.

Figure 1: Map showing routes designated for public access by vehicle on the Refuge's north end.

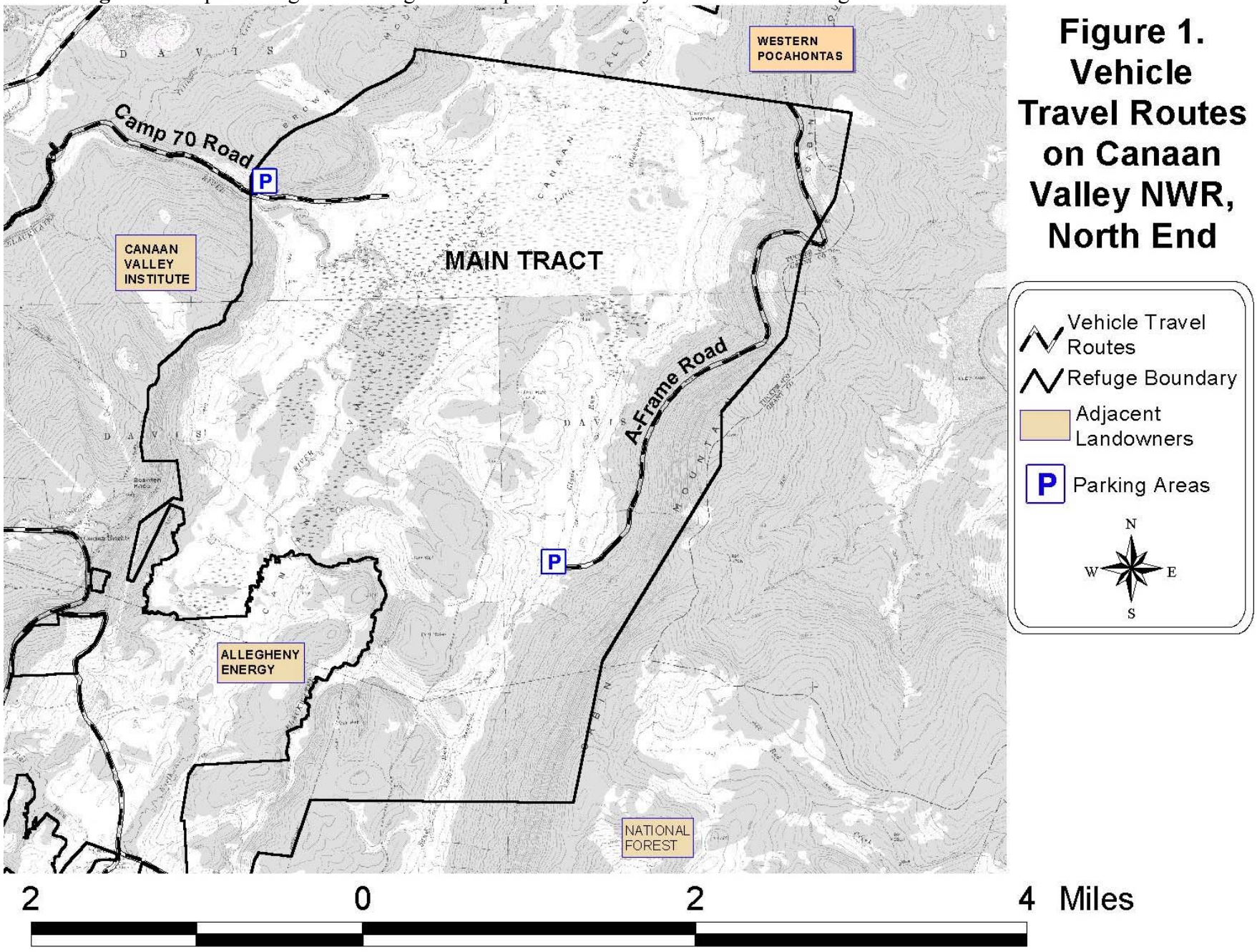

Figure 2: Map showing routes designated for public access by vehicle on the Refuge's south end.