Appendix B

Ken Sturm/USFWS

Pink lady's slipper

Findings of Appropriateness and Compatibility Determinations

Appropriate Use and Compatibility Determinations

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FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Canaan Valley National Wildlife Refuge

Use: Bicycling to Facilitate Priority Public Uses

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision criteria:	**YES**	**NO**
(a) Do we have jurisdiction over the use?	✔	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	✔	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✔	
(d) Is the use consistent with public safety?	✔	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	✔	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	✔	
(g) Is the use manageable within available budget and staff?	✔	
(h) Will this be manageable in the future within existing resources?	✔	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	✔	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	✔	

Where we do not have jurisdiction over the use ("no" to [a]), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ("no" to [b], [c], or [d]) may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes ✔ No _____

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate _____ **Appropriate** ✔

Refuge Manager:_____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

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JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: *Canaan Valley National Wildlife Refuge*

Use: *Bicycling to Facilitate Priority Public Uses*

NARRATIVE

Bicycling is an historical recreational use in Canaan Valley that occurred long before the refuge was created, and it has occurred on the refuge since its establishment. Many of the refuge's trails measure at least four miles round trip, making them accessible only to experienced hikers. Because bicycling provides easier and quicker access for many visitors who may not otherwise visit the refuge's habitats and other resources, bicycling therefore contributes to the public's understanding and appreciation of the refuge's natural and cultural resources.

Bicycling offers an opportunity to participate in wildlife-dependent recreation, thus contributing to Goal 4 of the draft Comprehensive Conservation Plan (CCP)/Environmental Assessment (EA). By permitting bicycling, the refuge gives visitors an opportunity to get a closer view of the refuge's important wetlands and the wildlife that depend on these wetlands, thus contributing to the public's appreciation, understanding, and enjoyment of refuge habitats and wildlife, which also directly contributes to Goal 4 of the draft CCP/EA. Refuge staff have often observed bicyclists with binoculars, cameras, and fishing poles. One refuge staff member even observed a hunter hauling out a deer with a bicycle during hunt season. This directly contributes to Objective 4.1 of the draft CCP/EA, which strives to provide a high-quality hunting experience by facilitating deer removal from remote areas of the refuge.

Bicycling also contributes to the mission of the National Wildlife Refuge System because it enables visitors to enjoy wildlife-dependent recreation in remote areas of the refuge, thus enhancing understanding and appreciation of conservation, and benefitting present and future generations of Americans. As stated above, bicycling also contributes to the public's understanding of wetlands, thus contributing to the refuge's purpose of conserving wetlands.

Bicycle travel is limited to designated roads and trails, where road width can accommodate the safe passage of other users. Designated roads and trails also have sufficient viewing distance for bicyclists to detect the approach of other users and maneuver to accommodate them. Because of these accommodations, bicycling occurs concurrently and without conflict with other public uses including priority public uses. No complaints have been received.

Bicycling has therefore been found appropriate because it is consistent with the goals and objectives of the draft CCP/EA and because it contributes to the public's understanding and appreciation of the refuge's natural resources.

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Exhibit 1

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Canaan Valley National Wildlife Refuge

Use: Cross-Country Skiing and Snowshoeing to Facilitate Priority Public Uses

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision criteria:	**YES**	**NO**
(a) Do we have jurisdiction over the use?	✔	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	✔	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✔	
(d) Is the use consistent with public safety?	✔	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	✔	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	✔	
(g) Is the use manageable within available budget and staff?	✔	
(h) Will this be manageable in the future within existing resources?	✔	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	✔	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	✔	

Where we do not have jurisdiction over the use ("no" to [a]), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ("no" to [b], [c], or [d]) may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes ✔ No _____

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate _____ **Appropriate** ✔

Refuge Manager:_____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

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JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: *Canaan Valley National Wildlife Refuge*

Use: *Cross-Country Skiing and Snowshoeing to Facilitate Priority Public Use*s

NARRATIVE

During much of the winter season when the ground is covered with snow, cross-country skiing and snowshoeing are often the only methods available for visitors to engage in priority public uses on the refuge, such as wildlife observation and photography. Because cross-country skiing and snowshoeing enable visitors to view the refuge's wildlife and habitat during a time of year when many visitors would not otherwise be able to use refuge trails, this use therefore contributes to the public's understanding and appreciation of the refuge's natural and cultural resources.

Cross-country skiing and snowshoeing also offer opportunities to participate in wildlife-dependent recreation, thus contributing to Goal 4 of the draft Comprehensive Conservation Plan (CCP)/Environmental Assessment (EA). These uses gives visitors an opportunity to get a closer view of the refuge's many habitats during a time of year when visitors would not otherwise be able to do so. Therefore, this use also contributes to the public appreciation, understanding, and enjoyment of refuge habitats and wildlife, which also directly contributes to Goal 4 of the draft CCP/EA. Refuge staff have often observed visitors skiing and snowshoeing with binoculars and cameras.

Cross-country skiing and snowshoeing also contribute to the mission of the National Wildlife Refuge System (Refuge System) because they enable visitors to enjoy wildlife-dependent recreation in remote areas of the refuge, thus enhancing understanding and appreciation of conservation, and benefitting present and future generations of Americans. As stated above, cross-country skiing and snowshoeing also contribute to the public's understanding of the refuge's role in wetland protection and wildlife management, thus contributing to the public's understanding of the Emergency Wetlands Resources Act (1986) and the Fish and Wildlife Act (1956), two purposes of the refuge.

One of the secondary goals of the Refuge System is to provide opportunities for the public to develop an appreciation for wildlife wherever those opportunities are compatible. Cross-country skiing and snowshoeing facilitate opportunities for viewing wildlife and habitats with relatively low levels of disturbance. Visitors participating in these activities are directly engaged in wildlife observation, education, and photography, all of which are identified in the National Wildlife Refuge System Improvement Act of 1997 as priority public uses of the Refuge System.

The very conditions that make cross-country skiing and snowshoeing possible (winter and snow cover) make most other public uses impractical. For this reason, cross-country skiing and snowshoeing occur concurrently and without conflict with other public uses. No complaints have been received.

Cross-country skiing and snowshoeing have therefore been found appropriate because they are consistent with the goals and objectives of the draft CCP/EA and because they contribute to the public's understanding and appreciation of the refuge's natural resources.

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FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Canaan Valley National Wildlife Refuge

Use: Commercial Cross-Country Skiing and Snowshoeing to Facilitate Priority Public Uses

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision criteria:	**YES**	**NO**
(a) Do we have jurisdiction over the use?	✔	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	✔	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✔	
(d) Is the use consistent with public safety?	✔	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	✔	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	✔	
(g) Is the use manageable within available budget and staff?	✔	
(h) Will this be manageable in the future within existing resources?	✔	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	✔	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	✔	

Where we do not have jurisdiction over the use ("no" to [a]), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ("no" to [b], [c], or [d]) may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes ✔ No _____

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate _____ **Appropriate** ✔

Refuge Manager:_____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

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JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: *Canaan Valley National Wildlife Refuge*

Use: *Commercial Cross-Country Skiing and Snowshoeing to Facilitate Priority Public Uses*

NARRATIVE

White Grass Touring Center (White Grass) has operated a commercial cross-country skiing and snowshoeing operation in Canaan Valley since 1979. In 1999 the Service acquired the land on which this commercial operation exists. Since then, the refuge has been issuing a special use permit to White Grass so it can continue its operation on 10 miles of trails located on refuge lands. This activity was found to be compatible under a previous compatibility determination dated 1999.

During much of the winter season when the ground is covered with snow, cross-country skiing and snowshoeing are often the only methods available for visitors to engage in priority public uses on the refuge, such as wildlife observation and photography. Although non-commercial cross-country skiing and snowshoeing are available in other parts of the refuge, only the commercial-use trails are groomed for these activities. Since many visitors will only use groomed trails for these activities, this commercial use facilitates priority public uses for a large number of people who would otherwise be unable to view the refuge and its habitats in the wintertime. White Grass also facilitates trail access by plowing entrance roads and parking lots. Because commercial cross-country skiing and snowshoeing enable visitors to view the refuge's wildlife and habitat during a time of year when many visitors would not otherwise be able to use refuge trails, this use therefore contributes to the public's understanding and appreciation of the refuge's natural resources.

Cross-country skiing and snowshoeing gives visitors an opportunity to get a closer view of the refuge's many habitats during a time of year when visitors would not otherwise be able to do so. Therefore, these uses also contribute to the public appreciation, understanding, and enjoyment of Refuge habitats and wildlife, which directly contributes to Goal 4 of the draft Comprehensive Conservation Plan (CCP)/Environmental Assessment (EA). Specifically, these uses contribute to Objective 4.3 of alternative B in the draft CCP/EA, which says the refuge will provide high-quality wildlife observation and nature photography experiences for visitors.

Furthermore, the majority of wildlife observation, education and interpretation activities that occur during the wintertime (outside the visitor's center) take place at White Grass. In fact, the refuge requires White Grass to provide environmental education programs regularly throughout the winter, thus reaching large numbers of a unique demographic during otherwise low visitation periods. The White Grass programs require minimal oversight from refuge staff and are always well received with typically 40 or more participants. This directly contributes to Objective 4.4 of alternative B in the draft CCP/EA, which says the refuge will provide environmental education and interpretation opportunities that foster stewardship of the environment. It also contributes to Goal 5 of the draft CCP/EA, which encourages the refuge to collaborate with the local community and other partners on educational programs on the refuge and the surrounding landscape.

Cross-country skiing and snowshoeing also contribute to the mission of the National Wildlife Refuge System because they enable visitors to enjoy wildlife-dependent recreation in remote areas of the refuge, thus enhancing understanding and appreciation of conservation, and benefitting present and future generations of Americans.

Because of the limitations established for these activities, the seasonal timing, the level of use, and the additional stipulations identified in the special use permit, disturbance from allowing commercial cross-country skiing and snowshoeing would not have a major impact on wildlife or habitats.

Commercial cross-country skiing and snowshoeing occur on 10 miles of trails on the refuge. Concentrating this use all but eliminates conflicts with visitors who use trails elsewhere on the refuge for cross-country skiing, snowshoeing or other permitted public uses. No complaints have been received.

Cross-country skiing and snowshoeing have therefore been found appropriate because they are consistent with the goals and objectives of the draft CCP/EA and because they contribute to the public's understanding and appreciation of the refuge's natural resources.

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Exhibit 1

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Canaan Valley National Wildlife Refuge

Use: Horseback Riding to Facilitate Priority Public Uses

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision criteria:	**YES**	**NO**
(a) Do we have jurisdiction over the use?	✔	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	✔	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✔	
(d) Is the use consistent with public safety?	✔	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	✔	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	✔	
(g) Is the use manageable within available budget and staff?	✔	
(h) Will this be manageable in the future within existing resources?	✔	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	✔	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	✔	

Where we do not have jurisdiction over the use ("no" to [a]), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ("no" to [b], [c], or [d]) may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes ✔ No _____

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate _____ **Appropriate** ✔

Refuge Manager:_____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

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JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: *Canaan Valley National Wildlife Refuge*

Use: *Horseback Riding to Facilitate Priority Public Uses*

NARRATIVE

Horseback riding is an historical, recreational use in Canaan Valley that occurred long before the refuge was created, and it has occurred on the refuge since its establishment. Many of the refuge's trails measure at least four miles round trip, making them accessible only to experienced hikers. Because horseback riding provides easier and quicker access for many visitors who may not otherwise visit the refuge's habitats and other resources due to the length of some refuge trails, this use therefore contributes to the public's understanding and appreciation of the refuge's natural and cultural resources.

Horseback riding also offers an opportunity to participate in wildlife-dependent recreation, thus contributing to Goal 4 of the draft Comprehensive Conservation Plan (CCP)/Environmental Assessment (EA). By permitting horseback riding, the refuge gives visitors an opportunity to get a closer view of the refuge's important wetlands and the wildlife that depend on these wetlands, thus contributing to the public appreciation, understanding, and enjoyment of refuge habitats and wildlife, which directly contributes to Goal 4 of the draft CCP/EA. Refuge staff have often observed horseback riders with binoculars and cameras. This use directly contributes to Objectives 4.3 and 4.4 of the draft CCP/EA, which proposes to enhance opportunities for wildlife observation and photography, environmental education and interpretation.

Horseback riding also contributes to the mission of the National Wildlife Refuge System because it enables visitors to enjoy wildlife-dependent recreation in remote areas of the refuge, thus enhancing understanding and appreciation of conservation, and benefitting present and future generations of Americans. As stated above, horseback riding also contributes to the public's understanding of wetlands, thus building support for the refuge's purpose of conserving wetlands.

Horseback riding is limited to designated roads and trails, where the width can accommodate the safe passage of other users. Designated roads and trails also have sufficient viewing distance for horseback riders to detect the approach of other users and maneuver to accommodate them. Because of these accommodations, horseback riding occurs concurrently and without conflict with other public uses including priority public uses. No complaints have been received.

Horseback riding has therefore been found appropriate because it is consistent with the goals and objectives of the draft CCP/EA and because it contributes to the public's understanding and appreciation of the refuge's natural resources.

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FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Canaan Valley National Wildlife Refuge

Use: Vehicular Travel to Facilitate Priority Public Uses

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision criteria:	**YES**	**NO**
(a) Do we have jurisdiction over the use?	✔	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	✔	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✔	
(d) Is the use consistent with public safety?	✔	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	✔	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	✔	
(g) Is the use manageable within available budget and staff?	✔	
(h) Will this be manageable in the future within existing resources?	✔	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	✔	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	✔	

Where we do not have jurisdiction over the use ("no" to [a]), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ("no" to [b], [c], or [d]) may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes ✔ No _____

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate _____ **Appropriate** ✔

Refuge Manager:_____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

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JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: *Canaan Valley National Wildlife Refuge*

Use: *Vehicular Travel to Facilitate Priority Public Uses*

NARRATIVE

Since the establishment of the refuge in 1994, the public has been allowed to operate vehicles on two roads within the refuge boundary. Forest Road (FR) 80 (1.91 miles) provides vehicular access from Route 32 to U.S. Forest Service lands, including the Dolly Sods Wilderness Area. A-Frame Road, which is 4.79 miles, provides vehicular access to the northern portion of the refuge (Main Tract). This road is accessed from Highway 93. Public access is permitted to points where the roads are closed to protect refuge resources. Total vehicular access for these two roads is seven miles. Roads designated for vehicle use permit access to remote parts of the refuge and connect the refuge to neighboring public lands. These roads are necessary to facilitate permitted public uses and to meet other management objectives.

The majority of visitors access refuge trails by driving their personal vehicles to refuge trailheads, parking in a lot and then hiking, walking, bicycling, horseback riding, skiing, or otherwise using the designated trail for any of its permitted uses. Because vehicle access allows visitors to access trails for these public uses, and these trails allow visitors to view the refuge's habitats and other resources, vehicle access therefore contributes to the public's understanding and appreciation of the refuge's natural and cultural resources.

Furthermore, because vehicle access facilitates opportunities for participating in public uses, it contributes to Goal 4 of the draft Comprehensive Conservation Plan (CCP)/Environmental Assessment (EA), which states that visitors of all abilities will enjoy opportunities for wildlife-dependent recreation. Providing access to wildlife-dependent recreation will enhance public appreciation, understanding, and enjoyment of refuge habitats and wildlife, also stated in Goal 4. Vehicle access plays a particularly important role in facilitating deer hunting. Many animals that are hunted are small enough to be carried out of the refuge, but deer are often too heavy to be carried or dragged for long distances. Therefore, deer hunters rely on vehicle access for hauling out deer. Vehicle access therefore contributes to all the objectives under Goal 4 of the draft CCP because it facilitates hunting, fishing, wildlife observation and photography, and environmental education and interpretation. Vehicle access also contributes to Goal 1 of the draft CCP/EA, which states that the refuge will maintain and perpetuate the ecological integrity of the wetland complex by, for example, controlling the deer population. Without vehicle access, it would be almost impossible for deer hunters to be successful.

Permitting vehicle access also allows visitors to access neighboring public lands that permit wildlife-dependent uses. Vehicle access therefore also contributes to Goal 5 of the draft CCP/EA because it provides connectivity for public use between the refuge and other public lands, a link that will be needed to work with partners on management and educational programs on the Refuge and on the surrounding landscapes.

Vehicle use also contributes to the mission of the National Wildlife Refuge System because it enables visitors to enjoy wildlife-dependent recreation throughout the refuge, thus enhancing understanding and appreciation of conservation, and benefitting present and future generations of Americans. By providing access to the refuge's unique resources, such as its wetlands, vehicle use also contributes to the public's understanding of wetlands, thus contributing to building support for the refuge's purpose of conserving wetlands.

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. Roads designated for vehicle access are also designated for bicycle, horseback, and pedestrian travel.

Conflicts between trail users are commonly reported in the literature (Chavez et al. 1993, Watson et al. 1994, Knight and Gutzwiller1995, Ramthun 1995). 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 conflicts 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 conflicts or safety concerns. Parking is available along refuge road shoulders on A-frame road, 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. Because of such stipulations as signage for traffic control, speed limits, and designated parking, vehicle use occurs concurrently and without conflict with other public uses including priority public uses. No complaints have been received.

Vehicle Use has therefore been found appropriate because it is consistent with the goals and objectives of the draft CCP/EA and because it contributes to the public's understanding and appreciation of the refuge's natural resources.

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Exhibit 1

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Canaan Valley National Wildlife Refuge

Use: Public Beaver Trapping for Habitat Management Purposes

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision criteria:	**YES**	**NO**
(a) Do we have jurisdiction over the use?	✔	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	✔	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✔	
(d) Is the use consistent with public safety?	✔	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	✔	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	✔	
(g) Is the use manageable within available budget and staff?	✔	
(h) Will this be manageable in the future within existing resources?	✔	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	✔	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	✔	

Where we do not have jurisdiction over the use ("no" to [a]), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ("no" to [b], [c], or [d]) may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes ✔ No _____

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate _____ **Appropriate** ✔

Refuge Manager:_____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

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Exhibit 1
Page 2

JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: *Canaan Valley National Wildlife Refuge*

Use: *Public Beaver Trapping for Habitat Management Purposes*

NARRATIVE

The primary areas targeted for beaver trapping would be locations where beaver flooding has caused or threatens to cause damage to refuge resources such as flooding of riparian forest habitat (or other sensitive plant communities) or refuge roads and trails. Seasonal inventory of beaver activity would be conducted by refuge biologists to determine locations for regulated beaver trapping. A majority of the use would occur on refuge tracts 50 and 100, also known as the Main Tract. Trapping would focus on the beaver ponds and corridors of the Blackwater River and its tributaries. Some trapping may also occur on wetland areas on or near Tract 200 (Freeland Tract) on the refuge's south end. The removal of surplus wildlife such as beaver for resource protection is authorized under 50 Code of Federal Regulations (CFR) 31.2(f), 31.14, and 31.16. Beaver trapping at Canaan Valley refuge is also a refuge management economic activity as described by 50 CFR 25.12.

Trapping addresses the need to preserve and protect plant communities of special interest on the refuge, such as the relict boreal vegetation in the Valley. These are the only plant communities on the Valley floor that resemble the original red spruce forests, and the refuge has a goal to protect these plant communities. Since beaver trapping on the refuge will aid in the protection of selected plant species and plant communities of concern, this use will contribute to Goal 1 of the draft Cooperative Conservation Plan (CCP)/Environmental Assessment (EA). Goal 1 states that the refuge will maintain and perpetuate the ecological integrity of the wetland complex to ensure a healthy and diverse wetland ecosystem providing a full range of natural processes, community types, and native floral and faunal diversity. Specifically, beaver trapping contributes to the draft CCP/EA's forested wetlands objective under Goal 1 (Objective 1.2), which states that beaver trapping will be used to prevent prolonged flooding of high priority community types. Protecting wetlands also contributes to one of the legislative purposes of the refuge, the Emergency Wetlands Resources Act of 1986; 16 U.S.C. 3901(b), and to the purpose stated in the 1979 Environmental Impact Statement for the creation of the refuge, which said creating the refuge was necessary for protecting the integrity of Canaan Valley's ecosystem and wetlands.

Flooding is also a concern where beaver activity exists adjacent to refuge public use trails. Therefore beaver trapping also contributes to Goal 4 of the draft CCP/EA, which ensures that visitors will have the ability to enjoy opportunities for wildlife dependent recreation. Since most wildlife dependent uses, such as wildlife observation, photography, environmental education, and interpretation, take place on refuge trails, beaver trapping will contribute to ensuring that refuge trails remain safe and open for these uses.

Implementation of a regulated trapping program on the refuge also affords a potential mechanism to collect survey and monitoring information, or contribute to research on beaver (and other wildlife) occurrence, activity, movement, population status, and ecology. Therefore beaver trapping further contributes to Objective 1.2 in the draft CCP/EA, which states that the refuge will monitor beaver pond use and develop surveys focused on high priority locations to determine potential community loss through beaver activity.

A group of experienced trappers trained by the U.S. Fish and Wildlife Service can be used for their skills and local knowledge to perform or assist with valuable management or research functions. Trappers that participate in the refuge program would provide assistance with the implementation of structured management objectives, such as alleviation or reduction of wildlife damage to habitats and negative species interactions. Refuge trappers typically have a stake in proper habitat and wildlife conservation, and protection of the ecological integrity of the refuge so that their activity can continue. Accordingly, trappers are valuable

assets to the refuge manager in terms of providing on-site reports concerning the fundamental status of habitat, wildlife, and refuge conditions. In this way, public beaver trapping is beneficial to the refuge's natural resources.

A regulated trapping program on the refuge also fosters the trappers' appreciation of wildlife interpretation, wildlife observation, environmental education, a greater understanding of ecological relationships, stewardship of natural resources, and inter-generational passage of the methodologies of renewable resource use. Trapping is an activity in which family members and friends often participate together and share joint experiences that broaden the sense of appreciation for natural resources and ecological awareness (Daigle et al. 1998).

This use is a self-limiting activity on the refuge because of the lack of public demand for trapping. Over the past six years, an average of only three trappers has participated in the public trapping program annually. We do not plan to significantly change the level of this use in the future. This low level of use ensures that trapping remains a low-impact tool for achieving the refuge's habitat management goals.

Public beaver trapping has therefore been found appropriate because it is a low-impact use, it is consistent with the goals and objectives of the draft CCP/EA, and it is beneficial to the refuge's natural resources.

LITERATURE CITED

Daigle, J.J., R.M. Muth, R.R. Zwick, and R.J. Glass. 1998. Socio-cultural dimensions of trapping: a factor analytical study of trappers in six northeastern states. Wildlife Society Bulletin 26:614-625.

603 FW 1
Exhibit 1

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Canaan Valley National Wildlife Refuge

Use: Commercial Haying to Manage Grassland Habitat

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision criteria:	**YES**	**NO**
(a) Do we have jurisdiction over the use?	✔	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	✔	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✔	
(d) Is the use consistent with public safety?	✔	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	✔	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	✔	
(g) Is the use manageable within available budget and staff?	✔	
(h) Will this be manageable in the future within existing resources?	✔	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	✔	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	✔	

Where we do not have jurisdiction over the use ("no" to [a]), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ("no" to [b], [c], or [d]) may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes ✔ No _____

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate _____ **Appropriate** ✔

Refuge Manager:_____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

603 FW 1
Exhibit 1
Page 2

JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: *Canaan Valley National Wildlife Refuge*

Use: *Commercial Haying to Manage Grassland Habitat*

NARRATIVE

Commercial Haying at Canaan Valley National Wildlife Refuge is a refuge management economic activity as described by 50 Code of Federal Regulations (CFR) 25.12. Commercial haying would be permitted in designated grassland management units of the refuge. The configuration of the units and the number of acres managed by haying may change from year to year. These units are currently:

Freeland Tract: 40 acres
Beall Tract: 113 acres
Harper Tract: 52 acres
Cortland Tract: 14 acres
Bonner Tract: 9 acres
Cooper Tract: 74 acres
Orders Tract: 30 acres

Because of the commercial viability of the hay crop from refuge lands, operators would be solicited through open advertisement. If more than one individual responds to the request, the refuge will select the individual randomly. The Service will charge the permit holder the fair market value of the standing hay crop as authorized by 50 CFR 29.5. The funds received would contribute to the U.S. Fish and Wildlife Service revenue sharing program with county government as described by 50 CFR 34.3(d).

Commercial haying removes vegetation from the field which is otherwise left using refuge brush hog mowing equipment. This rank cut vegetation builds a duff layer in the "understory" of the grassland which, over time, can make the grassland less suitable for target grassland nesting bird species. Periodic removal of the vegetation from the field helps reduce dense duff layer development and can be beneficial for nesting grassland bird species such as bobolinks and grasshopper sparrows. In this way, commercial haying contributes to Goal 3 of the draft Cooperative Conservation Plan (CCP)/Environmental Assessment (EA), which states that the refuge will provide and promote through active management a diversity of successional habitats, including grasslands, to sustain early successional and shrubland species. Additionally, commercial haying frees up staff equipment operators to conduct required management activities elsewhere on the refuge. This saves the refuge time and money which may be allocated to different projects. In that sense, this use benefits the refuge's natural and cultural resources.

Commercial haying has been found to be an appropriate use for helping to manage refuge grassland habitat. This use facilitates the management of refuge grassland habitat and is not only a reasonable method, but sometimes is a preferred method of cutting grasslands for nesting bird species. Therefore, commercial haying contributes directly to the achievement of the National Wildlife Refuge System mission and the specific refuge purposes, namely the management of wildlife resources (Fish and Wildlife Act of 1956; 16 U.S.C. §742f(a)(4)), and other management purposes for migratory birds (Migratory Bird Conservation Act,16 U.S.C. §715d). Commercial haying has therefore been found appropriate because it is consistent with the goals and objectives of the draft CCP/EA and because it benefits the refuge's natural and cultural resources.

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Exhibit 1

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Canaan Valley National Wildlife Refuge

Use: Maintenance and Use of NOAA Weather Station

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision criteria:	**YES**	**NO**
(a) Do we have jurisdiction over the use?	✔	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	✔	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✔	
(d) Is the use consistent with public safety?	✔	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	✔	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	✔	
(g) Is the use manageable within available budget and staff?	✔	
(h) Will this be manageable in the future within existing resources?	✔	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	✔	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	✔	

Where we do not have jurisdiction over the use ("no" to [a]), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ("no" to [b], [c], or [d]) may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes ✔ No _____

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate _____ **Appropriate** ✔

Refuge Manager:_____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

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Exhibit 1
Page 2

JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: *Canaan Valley National Wildlife Refuge*

Use: *Maintenance and Use of NOAA Weather Station*

NARRATIVE

The National Oceanic and Atmospheric Administration (NOAA) weather station was installed in 2000 on the Beall Tract. The purpose was to establish and use an air quality monitoring and research site by the National Oceanic and Atmospheric Administration (NOAA). NOAA will be using this site for climate research and monitoring. The use of climate data for research purposes fits into the description of 603 FW1 1.10(D), Specialized Uses. Specifically under 1.10 (D)(4) research is actively encouraged with partners. The establishment of a NOAA air quality monitoring and research site will result in negligible impacts to wildlife and will provide important climatological data. This information will be useful in determining the impacts of air and waterborne pollutants on the ecological communities in Canaan Valley and the mid-Atlantic Highlands.

Information generated by the NOAA research station has been useful for reports generated by the refuge and other research partners requiring comprehensive atmospheric data. Although the collection of climate data may not be used regularly at this time, a record of specific data related to climate, atmospheric deposition and levels of other pollutants will likely provide valuable data for evaluating the impacts of atmospheric pollution and climate change on the resources the refuge is charged to protect. This use is therefore beneficial to the refuge's natural resources. The collection of this data will also enable the refuge to better achieve the habitat management goals and objectives (goals 1, 2, and 3 and all their objectives) in alternative B of the draft CCP/EA, because this data will help the refuge staff make informed decisions. Furthermore, because this use could aid in the protection of fish and wildlife resources, it promotes the fulfillment of the refuge purpose of protecting fish and wildlife resources (Fish and Wildlife Act of 1956; 16 U.S.C. 742f (a) (4)).

Because of the limited access and restrictions on maintenance operations this use will not affect the refuge's ability to protect, conserve, and manage wildlife and their habitats (grassland species), nor will it impair existing wildlife-dependent recreational uses or reduce the potential to provide quality, compatible, wildlife-dependent recreation uses into the future.

The maintenance of the weather station has therefore been found appropriate because it is beneficial to the refuge's natural resources and it is consistent with the goals and objectives of the draft Cooperative Conservation Plan/Environmental Assessment.

603 FW 1
Exhibit 1

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Canaan Valley National Wildlife Refuge

Use: Research Conducted by Non-Service Personnel

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision criteria:	**YES**	**NO**
(a) Do we have jurisdiction over the use?	✔	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	✔	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✔	
(d) Is the use consistent with public safety?	✔	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	✔	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	✔	
(g) Is the use manageable within available budget and staff?	✔	
(h) Will this be manageable in the future within existing resources?	✔	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	✔	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	✔	

Where we do not have jurisdiction over the use ("no" to [a]), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ("no" to [b], [c], or [d]) may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes ✔ No _____

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate _____ **Appropriate** ✔

Refuge Manager:_____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: *Canaan Valley National Wildlife Refuge*

Use: *Research Conducted by Non-Service Personnel*

NARRATIVE

Research by non-U.S. Fish and Wildlife Service (Service) personnel is conducted by colleges, universities, federal, state, and local agencies, non-governmental organizations, and qualified members of the general public to further the understanding of the natural environment and to improve the management of the refuge's natural resources. Much of the information generated by the research is applicable to management on and near the refuge. In many cases research by non-Service personnel ensures the perception of unbiased and objective information gathering which can be important when using the research to develop management recommendations for politically sensitive issues. Additionally, universities and other federal partners can access equipment and facilities unavailable to refuge staff for analysis of data or biological samples. This use is therefore beneficial to the refuge's natural and cultural resources. Research conducted by non-Service personnel will also enable the refuge to better achieve the habitat management goals and objectives (goals 1, 2, and 3 and all their objectives) in the draft Cooperative Conservation Plan (CCP)/Environmental Assessment (EA) because this data will help the refuge staff make informed decisions. In addition, because this use could aid in the protection of fish and wildlife resources, it promotes the fulfillment of the refuge purpose of protecting fish and wildlife resources (Fish and Wildlife Act of 1956; 16 U.S.C. 742f (a) (4)). Research purposes fits into the description of 603 FW1 1.10(D), Specialized Uses. Specifically, research with partners is actively encouraged under 1.10 (D)(4).

The Service will encourage and support research and management studies on refuge lands that will improve and strengthen natural resource management decisions. The refuge manager will encourage and seek research relative to approved refuge objectives that clearly improves land management and promotes adaptive management. Priority research addresses information that will better manage the nation's biological resources and is generally considered important to: agencies of the Department of Interior; the Service; the National Wildlife Refuge System; and state fish and game agencies, and that addresses important management issues or demonstrates techniques for management of species and/or habitats.

The refuge will also consider research for other purposes which may not be directly related to refuge-specific objectives, but contributes to the broader enhancement, protection, use, preservation, and management of native populations of fish, wildlife, and plants, and their natural diversity within the region or flyway. These proposals must comply with the Service's compatibility policy.

If a research project occurs during the refuge hunting season, special precautions will be required and enforced to ensure the researchers' health and safety. If conducted according to refuge-specific stipulations (see compatibility determination for this use), this use will not affect the refuge's ability to protect, conserve and manage wildlife and their habitats, nor will it impair existing wildlife-dependent recreational uses or reduce the potential to provide quality, compatible, wildlife-dependent recreation uses into the future. Research therefore has been found appropriate because it is beneficial to the refuge's natural and cultural resources and it is consistent with the goals and objectives of the draft CCP/EA.

COMPATIBILITY DETERMINATION

USE

Public Hunting

REFUGE NAME

Canaan Valley National Wildlife Refuge

DATE ESTABLISHED

August 11, 1994

ESTABLISHING AND ACQUISITION AUTHORITY

The establishment of Canaan Valley National Wildlife Refuge (refuge) was first approved in an Environmental Impact Statement (EIS) released on May 30, 1979. However, the U.S. Fish and Wildlife Service (Service) decided to await the outcome of litigation surrounding a proposed storage hydroelectric facility before pursuing any further action. The approval of the refuge was affirmed by the Service in a 1994 Final Environmental Assessment and Finding of No Significant Impact on July 11, 1994, which confirmed the adequacy of the previously-approved 1979 EIS. The refuge was officially established when the first tract of land was acquired on August 11, 1994. The Service has acquired lands for the Canaan Valley refuge under the following authorities:

1. Fish and Wildlife Act of 1956 [16 U.S.C. 742f(a)(4)]

2. Emergency Wetlands Resources Act of 1986 [16 U.S.C. 3901b]

3. Migratory Bird Conservation Act of 1929 [16 U.S.C. 715d]

REFUGE PURPOSES

The refuge was established to ensure the ecological integrity of Canaan Valley and the continued availability of its wetland, botanical, and wildlife resources to the citizens of West Virginia and the United States (USFWS 1979, 1994). Additional refuge purposes as derived from the legislative authorities are as follows:

(1) "... for the development, advancement, management, conservation, and protection of fish and wildlife resources..." (Fish and Wildlife Act of 1956; 16 U.S.C. 742f (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 international obligations contained in various migratory bird treaties and conventions." (Emergency Wetlands Resources Act of 1986; 16 U.S.C. 3901(b)); and,

(3) "... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." (Migratory Bird Conservation Act of 1929; 16 U.S.C. 715d).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION

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 PROPOSED USE

(a) What is the use? Is the use a priority public use?
The use is hunting according to state seasons and refuge regulations, including white-tailed deer, black bear, wild turkey, ruffed grouse, mourning dove, waterfowl, coot, rail, gallinule, coyote, Wilson's snipe, American woodcock, rabbit, hare, squirrel, red fox, grey fox, raccoon, bobcat, woodchuck, opossum, and striped skunk.

Hunting is a priority public use of the National Wildlife Refuge System (Refuge System). Under Service policy, hunting is an acceptable and traditional form of recreation, particularly in areas where it has been historically practiced.

(b) Where would the use be conducted?
Hunting would occur in designated areas on Service-owned lands. Map B-1 illustrates which areas are open for hunting. We will decide on a case-by-case basis whether to open newly acquired tracts for hunting.

In the draft Cooperative Conservation Plan (CCP)/Environmental Assessment (EA) we propose changes in rifle zones for deer hunting which would permit rifle hunting from tree stands in certain areas where it is not currently permitted. The draft CCP/EA also proposes to close the Freeland Tract to hunting, except for special hunts as designated by the refuge manager.

(c) When would the use be conducted?
Hunting would occur according to West Virginia state seasons and refuge-specific regulations. Refuge regulations state that the refuge is closed to hunting between March 1st and August 31st of each year, except for the spring turkey season (50 Code of Federal Regulations (CFR) 32.68).

(d) How would the use be conducted?
Hunting would be conducted within the framework of West Virginia state regulations, and would be subject to refuge-specific regulations, according to the federal regulations published in Title 50 of the CFR §32. A full description of the refuge hunt program can be found in the refuge Hunting Management Plan (USFWS 2007a) and the full National Environmental Policy Act analysis can be found in the hunting EA (USFWS 2007b). These documents are available in electronic from the Region 5 Northeast Planning website (http://www.fws.gov/northeast/planning/), and in hard copy from the refuge.

In alternative B, the Service's preferred alternative of the draft CCP/EA, we propose some modifications to the deer hunting program to increase the harvest of deer on the refuge. For example, the refuge would provide a shuttle service to facilitate the removal of white-tailed deer along the Middle Valley trail during the first week of deer gun season. This action would be taken only to increase deer harvest and to decrease density and reduce deer browse pressure on native plants and managed early successional habitat. All-terrain vehicles (ATV) would be operated only by refuge staff or ATV-trained refuge volunteers. The number of trips per day is anticipated to be three trips with two ATV's. Therefore a total maximum number of trips for a five day period (first week of deer gun season) would be 30. The route will be along only the Middle Valley Trail between Sand Run and A-Frame road. This section of trail is an old logging road which has been used as a public trail for bicycles, horse and pedestrian use since the acquisition of the Main Tract in 2002. Also in alternative B, the refuge proposes to increase the amount of area open for the deer rifle season on the refuge.

Also new to the hunt program in alternative B would be the closing of the Freeland Tract to regular public hunting, with the exception of refuge-authorized special public hunts such as youth or accessible hunts, consistent with state regulations. This tract consists of 86 acres of which 32 acres are managed grassland bound on two sides by a public road. A small stand of mixed fir, spruce, and hemlock consisting of approximately 9.4 acres is the main hunted area within this tract.

The Freeland Tract also contains a series of small beaver ponds fed by a bubbling spring which resists freezing during winter months. This spring provides waterfowl resting and feeding habitat when other areas on the refuge are frozen. Refuge outreach and education has focused on the Freeland Tract and an accessible board walk is being constructed for observation, education, interpretation, and photography purposes. Additionally, the Freeland Tract is the most popular public access to the refuge and currently provides handicapped access via a boardwalk to the spring for priority public uses other than hunting. Closing this small area to waterfowl

hunting would provide visitors with important viewing areas for waterfowl and other waterbirds, especially during winter months when other areas on the refuge are either frozen or inaccessible due to snow. Closing this area would also reduce the impact of waterfowl hunting on other priority public uses. Allowing refuge-authorized special hunts on this tract would create a unique and quality hunting experience for youth or disabled hunters.

(e) Why is this use being proposed?
Hunting is one of the six priority public uses as define by the National Wildlife Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997. If compatible, hunting is to receive enhanced consideration over other general public uses in refuge planning and management. Hunting can also be a valuable management tool to help keep wildlife populations in check and to protect refuge habitats from, for example, over-browsing by deer.

The Service encourages the development of hunting programs on national wildlife refuges when they are compatible with the refuge's legal purposes, biologically sound, affordable, properly coordinated with other refuge programs, and fit the Service description of a quality hunt. "Quality hunts" are defined as those which are planned, supervised, conducted, and evaluated to promote positive hunting values and ethics such as fair chase and sportsmanship. The Service strives to provide hunting opportunities on refuges which are superior to those available on other public or private lands, and to provide participants with reasonable harvest opportunities, un-crowded conditions, fewer conflicts among hunters, relatively undisturbed wildlife, and limited interference from, or dependence on, mechanized aspects of the sport (USFWS 1996).

AVAILABILITY OF RESOURCES

The hunt program is administered by the deputy refuge manager, resource impacts are monitored by the wildlife biologist, visitor use is monitored by a park ranger and outdoor recreation planner, and maintenance and repair is performed by a heavy equipment operator. Additional resource protection is provided by a refuge law enforcement 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, parking lots, and associated structures. The refuge has heavy equipment including a motor grader, dump truck, bulldozer, backhoe, 4x4 farm tractor, bobcat, and front-end loader.

Annual costs associated with the administration of public hunting on the refuge are estimated below:

Review of program, administration and consultation with staff:

- Refuge Manager GS-13 for 5 days = $1,360.00

Road maintenance and repair, sign installation and kiosk construction and repair, maintaining parking areas, picking up and removing litter associated with hunting activities, and providing deer shuttle to Middle Ridge.

- WG-10 Equipment Operator for 10 work days = $2,725.6

Planning and supervising staff to monitor the use and its effects on environment and other visitors

- GS-11/12 Deputy Refuge Manager for 3 work days = $836.16

Resource protection, monitoring hunting activities and interactions with other users, visitor services, sign maintenance, litter removal

- GS-9 Law Enforcement Officer for 40 work days = $9,830.40

Monitoring habitat impacts from hunting activities, providing deer shuttle to Middle Ridge.

- GS-12 Wildlife Biologist for 15 work days (deer shuttle, data analysis and interagency coordination) = $5,512.80
- GS-11 Wildlife Biologist for 10 work days (deer shuttle, data analysis, reporting) = $2,972.80
- GS-7 Biological Sciences Technician for 5 work days =$1,004.40

Providing information to the public about public hunting on the refuge

- GS-11 Outdoor Recreation Planner for 10 work days = $3,530.40

Issuing hunting permits and maintaining database

- GS-4 Administrative Assistant for 130 work days = $18,844.80

Motor vehicle fuel/law enforcement patrols = $1,000.00

Heavy equipment fuel = $250.00

Kiosk construction, signs, printing maps and information = $2,500.00

Grand Total Estimated Costs = $50,367.36

FY 2009 Budget Allocations:
Employee Salaries and benefits = $624,039.53
Fixed costs (utilities, fuel, administrative) = $211,415.23
Base maintenance = $50,000
Discretionary Funds (maps, printing, etc.) = $62,243.32
Total Available Funds for FY 2009 = $947,698.08

The resources necessary to provide and administer this use at its current level and at the level described in alternative B of the draft CCP/EA are now available and we expect them to continue in the future subject to the availability of appropriated funds. Staff time associated with administration of this use is spent maintaining associated road infrastructure, collecting visitor use data, analyzing use patterns, monitoring potential impacts of the use on refuge resources, and providing information to the public about the use.

ANTICIPATED IMPACTS OF THE USE

Effects on Air and Water Quality:
Air quality and water quality impacts would be minimal and only due to refuge visitors' automobile emissions and run-off on roads and trails. These effects would not only come from hunters but from a majority of users of wildlife-dependent recreation on the refuge. The effects of these refuge-related activities, as well as other management activities, on overall air and water quality in the region would be negligible, compared to the effects from power plants, industrial centers, and non-refuge vehicle traffic. Therefore implementation of the proposed action would not impact adjacent landowners or uses beyond the constraints already implemented under existing state standards and laws.

Effects on Vegetation:
The physical effects on vegetation from hunting various game species on the refuge are expected to be minimal. The most destructive effects would result from vehicular traffic. ATVs would not be allowed on the refuge. Other vehicles are restricted to designated roadways. Hunter use is generally dispersed over large areas. Hunters would have little to no impact on the vegetation.

Positive, indirect effects on the vegetation would result from a reduction in the white-tailed deer population. The impacts of dense deer populations on forest regeneration and the composition and diversity of the herbaceous understory have been well documented (Tierson, et al., 1966; Behrend, et al., 1970; Tilghman, 1989) and observed in Canaan Valley. Opening the refuge to deer hunting would at least maintain the habitat as it is now and prevent further degradation due to overbrowsing. Well-managed hunting can effectively control deer and produce dramatic changes in the forest vegetation (Behrend, et al., 1970). The impact of deer hunting on the vegetation would be positive and result in better regeneration of forest canopy species and an increase in the diversity of the herbaceous understory. In summary, there would be few if any negative impacts from this use on the refuge's vegetation, but there would be beneficial impacts from the decrease of deer browse on the refuge's vegetation due to the decrease in the number of deer on refuge lands.

Possible negative cumulative impacts of the proposed activity include temporary trampling of vegetation and light soil erosion. Spring turkey season, lasting four weeks from mid-April to mid-May, could cause some trampling effects to growing plants especially in wet areas. There are few turkey hunters on the refuge. Most are hunting during the fall while other game species are in season. Other hunt seasons occur when the ground is either frozen, covered in snow or when plants are dormant. For these reasons, cumulative impacts to plant communities and soils are not likely to be significant during either the fall or spring hunting seasons.

Effects on Soils:
Soils can be compacted and eroded as a result of continued foot traffic. All soils associated with wetland habitats were rated as either high or very high in their potential for compaction (Bell 2002). Impacts to soils would likely be greater during the growing season due to the greater soil moisture content at that time of year. The Mauch Chunk-derived soil in Canaan Valley is particularly vulnerable to mechanical erosion when the vegetation has been removed (Rizzo 2002). If compacted, Mauch Chunk soils can facilitate rapid water runoff that accelerates erosion down slope (Rizzo 2002). Field investigations of trails in Canaan Valley have documented extensive damage displaying classic examples of the erosive nature of Mauch Chunk-derived soils after years of unregulated use. Although foot travel did not create highly erosive conditions in this soil type, lug soles of hiking boots could perpetuate the problem.

It is anticipated that minor impacts to soils would occur as a result of allowing hunting access on the refuge. Erosion potential will likely vary during the season based on soil moisture and temperatures. During much of the hunting season, soils may be frozen or covered in snow, thereby reducing the impacts greatly. At the current use level, impacts to soils (erosion, compaction) are not likely to be significant.

Effects on Hydrology:
Trails can affect the hydrology of an area, primarily through alteration of drainage patterns. Bartgis and Berdine (1991) note that roads and trails can divert water from their original drainage patterns in Canaan Valley. This can result in some drainages becoming dry while others accelerate erosion by being forced to carrying more water. Zeedyk (2002) documented many instances in Canaan Valley where existing trails were channeling water away from historic wetlands and, in some cases, causing erosion and sedimentation of bog and other wetland communities. These problems have profoundly if not irreversibly altered the extent, depths, characteristics and function of the wetlands on the Main Tract (Zeedyk 2002).The effects of these trails and roads were a direct result of vehicle use and road construction prior to the refuge's acquisition of the property. Since then measures have been taken to remediate erosion and sedimentation issues, particularly on trails that are open to public access. Furthermore, since the refuge has now acquired lands within the acquisition boundary, it can prohibit vehicle use and road construction in certain areas so as to minimize these types of impacts.

Because hunters are not restricted to utilizing only trails designed for other public use activities they may encounter areas which have not yet been restored to prevent continued erosion and subsequent sedimentation. However, these effects are considered minimal due to the fact that hunters are generally dispersed, which reduces repeated erosive actions on soils. Also, hunters are not permitted to use vehicles off designated refuge roads, and soils will be frozen during much of the hunt season, thus reducing the potential for erosion and downstream sedimentation.

Maintenance will be required to create adequate and proper drainage so that existing routes do not impact local hydrology. These impacts are not likely to be significant in relation to other public uses permitted on

refuge trails. Off-trail foot traffic, if concentrated, could remove vegetation, compact soil and cause water channeling and pooling. Areas would be monitored for these effects and if impacts are noticed, designated areas would be temporarily closed for restoration.

Effects on Wildlife: Game Species:
Ruffed Grouse Historical population trends are not well documented, but the consensus is that most regional trends have been downward, and that the current levels may be a temporary plateau. Results from the West Virginia Division of Natural Resources (WVDNR) bow hunter survey show that the average number of grouse seen per 100 hours was 5.52 in Tucker County over the ten year period from 1995 - 2005. This exceeded the statewide average of 3.82 grouse flushed per 100 hours. The ten year trend of grouse flushes in Tucker County indicates a slight downward trend. The decrease in amount of early successional habitat favored by grouse is the major factor affecting grouse populations. Population increases are most likely tied to early successional habitat management (Norman et al 2004).

A six year study was begun in 1996 in five States (West Virginia, Virginia, Maryland, Kentucky and Ohio). The Appalachian Cooperative Grouse Research Project was completed with a final report issued in 2004. The results concluded that hunting mortality was compensatory. Based on these results and since the grouse population has traditionally supported hunting in the valley, little impact on the grouse population from hunting on the refuge is expected.

Rabbits and Hare. Population status of the three species of lagomorphs occurring in the valley is varied. The eastern cottontail population is secure, but the Appalachian cottontail population is less well known, and the snowshoe hare is at the southern end of its range. Michael's (1974) study of hunter use in the valley showed very few rabbit or hare hunters, but his study did not extend into January and February, the prime rabbit-hunting period in West Virginia. Based on hunter information from 2002 to 2005, only 16 rabbits and one hare were harvested on the refuge. The apparent low harvest from refuge land indicates that despite low populations of Appalachian cottontail and snowshoe hare, it is highly unlikely that the harvest of these species will have any direct significant impact to local or regional populations.

Squirrels. Gray and fox squirrels prefer oak and hickory forests, neither of which exists in Canaan Valley. Squirrel populations and reproductive success have been found to be very dependent upon the annual mast crop (Nixon, et al., 1975; Weigl, et al., 1989). The occurrence of these squirrels on the refuge is uncommon; therefore, any take of squirrels is expected to be incidental to hunting other upland game species, and as such, would have little impact on the population of gray or fox squirrels.

Raccoon, Foxes (Red and Gray), and Bobcat. The refuge follows the state's regulations for raccoon, red and gray fox, and bobcat. Though no county-specific data are available, except for bobcat, healthy populations of these four species exist in the State (Brown, unpublished data, Foster pers.com. 2007). In West Virginia, raccoon populations from 1992-2005 were considered stable to slightly increasing (Rogers 2004). Hunter survey information from the refuge indicate that from 2002 to 2005 a total of only 10 people hunted raccoon on the refuge with an annual average harvest of approximately 16 animals. Following state regulations and based on county and statewide data indicating at least stable populations, the Service concludes that it is highly unlikely that the harvest of these species will have any direct significant impact to local or regional populations.

The populations of these four species are stable and healthy, and the harvest on the refuge has been and is expected to remain small. Most fox and bobcat hunters are hunting other species as well, so there would be little additional disturbance to vegetation or non-target wildlife. Canaan Valley is not a prime raccoon hunting area, so raccoon hunting is expected to be minimal. Because raccoon hunters use dogs and hunt at night, raccoon hunting will be closely monitored by being managed under a special use permit (SUP). Stipulations of the SUP include restricting dog numbers to minimize potential impacts to other wildlife.

Coyote. Coyote hunting in West Virginia has increased and a variety of methods are used because of their increasing numbers and their reputation as livestock predators (Bonwell, 1996). Coyote harvest in the Valley is expected to be small, and their take likely incidental to deer hunting. Since coyote hunting would generally be opportunistic, little to no additional disturbance to vegetation or non-target wildlife is anticipated. Under current state regulations the Service concludes that it is highly unlikely that the harvest of these species will have any direct significant impact to local or regional populations.

Opossum, Skunk, and Woodchuck. Hunting for opossum, skunk, and woodchuck in West Virginia is most often incidental to hunting other species. Some wildlife species compensate for decreased number (harvest) by increasing reproductive output. Davis, et al. (1964), found that removal of large numbers of woodchucks from a population resulted in a decrease of other mortality factors on the population, increased birth rate, and increases in immigration. Thus, the population size remained stable even though three times as many woodchucks were removed from the treatment as from the control area. The populations of striped skunk, opossum and woodchuck are stable and healthy, and the harvest on the refuge is expected to be very small, and primarily incidental. Therefore little disturbance to vegetation or non-target wildlife is anticipated. Hunting of spotted skunks, a rare species in the state, and all weasels would be prohibited.

White-tailed Deer. Deer are one of the few species on the refuge that breed during hunt season. Deer are in rut in October and November.Hunting activities occur when deer are courting and mating. However, population estimates received by the state indicate that the deer population is not at risk and, if anything, there is an abundance of deer in Canaan Valley.
The refuge would follow the state's regulations and have a hunt in various forms for about two and one-half months from mid-October through the end of December. Deer in Canaan Valley are abundant and are harming other components of the ecosystem. The Service has concluded that a deer management program maximizing the take of antlerless deer would benefit both white-tailed deer through reduction of overpopulation and the habitat through reduction of over-browsing, thus benefitting both vegetation and other wildlife species.

Overabundance of deer can produce long-term negative effects such as potential disease epizootics (Demarais et al. 2000), increase in automobile accident rates, browsing pressure on landscapes, vegetation, and crops, and severe habitat degradation (Cypher and Cypher 1988). Overbrowsing by high deer populations is a major concern of the refuge. Overbrowsing affects the abundance and distribution of vegetative species and has continued effects on the composition of forest canopy for a long time after the deer herd is reduced. This is not a concern for grasslands, as cover would quickly regenerate (Porter 1991), though species composition may be permanently altered. The effects on vegetation composition and forest regeneration are of great concern as we seek to maintain and restore spruce and balsam fir ecosystems and understory forest communities for refuge focal species and rare or sensitive plant communities. Pastures and old fields are vulnerable to overgrazing when deer densities are high because they contain more and higher quality forage, especially in spring and summer (Johnson et al.1995). Cumulative effects of grazing over successive years may result in reduced plant reproduction and growth (Augustine and Frelich 1998) and height (Anderson 1994), which exposes sensitive plants and places them at risk of extirpation (Augustine and Frelich 1998). The refuge is concerned about the impacts this phenomenon may have on migratory birds and on the existing rare plant communities found on the refuge.

Safety is a major consideration related to deer hunting on the refuge. The southern end of the refuge has numerous homes, businesses, and housing developments either within or immediately adjacent to the refuge acquisition boundary. Many area residents have expressed concern over deer hunting with rifles on the refuge. To address these concerns, "no rifle zones" will be delineated, within which only archery, shotgun, and muzzle loader hunting would be allowed, and safety zones will be delineated within which hunting will not be permitted.

The refuge proposes to promote increased deer harvest through a refuge-run shuttle system to help with deer removal. Impacts of this proposal are associated with the ATV activity and include increased soil erosion along the Middle Valley trail especially during wet conditions which are typical during the deer gun season. The proposed route is a partially- vegetated and annually-maintained public use trail. The use of ATV's during the week of deer gun season will likely increase the amount of trail maintenance required to ensure that soil erosion is minimized.

Additionally, the route will have to cross a section of Glade Run along the Middle Valley Trail. Crossing this section of stream with ATV's can cause stream bank erosion, siltation, and oil and gas pollution within Glade Run. There is also the potential of causing the stream bed itself to erode, thereby lowering the gradient of the stream across this section and increasing velocity of flow. This can cause erosion up and downstream from the crossing site. The refuge will minimize the effect of ATV use by hardening the banks and stream bottom of Glade Run with native stone to permit limited access for deer removal. Middle Valley Trail will also have sections hardened and/or re-graded to reduce the effects of ATV use during the removal operations. Initial

work on placing rock for stream bank and bed hardening will be time and labor intensive, however it should require only minimal annual maintenance once complete. Hardening of stream banks and crossings will be complete prior to conducting the shuttle operation. refuge staff will monitor stream crossings and sensitive areas along the Middle Valley Trail to ensure that preventive maintenance operations are completed prior to each fall's deer gun season.

It is anticipated that the short duration of ATV use along the Middle Valley Trail and through the Glade Run crossing along with limited number of trips per day will not cause significant impacts to soil erosion, siltation, or pollution of refuge resources. The expected increase in deer harvested will improve conditions within the interior of the refuge through reduced browse damage. This positive impact will likely offset potential negative effects of the use of ATV's for deer removal. In order for this use to be compatible there are several stipulations listed below which must be met. However, if deer harvest numbers do not increase significantly or if there are significant impacts to refuge resources through the use of ATV's (to remove deer along Middle Valley Trail), this use may be terminated.

It is anticipated that allowing rifle use on Reichle and Orders tracts and allowing rifle use from tree stands on Herz, Cooper, Cortland, and Schaffer tracts would increase deer harvest and therefore have a positive impact on the refuge's plant communities. The refuge consulted with the WVDNR and other law enforcement officials on the safety considerations of these actions. According to the WVDNR, state safety codes adequately protect hunters and other refuge visitors during hunt seasons. Rifle hunting was permitted on these tracts prior to refuge acquisition and hunting was managed only under state guidelines with no known reported incidents. The smaller tracts being opened for rifle use are being permitted only from elevated stands which will further reduce the risk of hunting activities to the general public and other hunters. The areas in which these zones are proposed are in the southern end of the valley and this may help reduce high deer densities in that part of the refuge. This would also increase the available areas on the refuge that are open for hunting, would provide more hunting opportunities, could increase hunter satisfaction, and could encourage hunters who might not otherwise participate. Working with our state partners and other surrounding landowners to help reduce the deer herd could provide additional opportunities for hunting, and may be effective in reducing deer populations.

The refuge will close the Freeland Tract to general public hunting to prevent conflicts with other user groups during the hunt season. The Freeland Tract is the refuge's most visited area and is also the only site which provides accessible trails. At only 86 acres, the closure of this tract will not affect the quality of the refuge hunting program and accounts for less than 1% of the total land area open for hunting on the refuge. However, due to the refuge's concern with deer impacts to plant communities, particularly the rare conifer wetland community on the Freeland Tract, we will permit special hunts. These hunts may include youth hunts and a special hunt for the physically disabled. We may also permit limited open hunts during the regular season should browse damage indicate that closure of this tract has exacerbated deer damage. Decisions on types of hunts permitted on the Freeland Tract will be made annually.

Black Bear. Black bear hunting on the refuge follows the state's regulations with the exceptions that on designated "no rifle zones," only archery would be allowed, and the gun season would be approximately one week shorter than the state season. The start of the gun season would be delayed until the close of antlerless deer season, so as not to impede the take of deer in order to reduce the deer herd. This would also give more opportunity for pregnant female bears to den before the start of the refuge hunting season.

Annual bear harvest in the state has been increasing dramatically since the mid 1980s. However, Tucker County only comprised an average of 11% of the total number of bear taken from 1966 to 2000. Out of that, an average of only 1.25 bear per year were reported taken in Canaan Valley, Cabin Mountain and Canaan Mountain combined from 1974 to 2000 (Michael 2002). It is likely that the large wetland habitat within the Valley and lack of road access make hunting bears less popular on the refuge than in surrounding areas of Tucker County. Refuge hunter harvest information indicates that only 1 bear has been reported taken from the refuge from 2002 to2005.

Bear hunting with hounds would be permitted on the less accessible portions of the refuge. A study in Virginia focused on the effects of hunting with hounds on the bear population. The researchers compared litter size, cub survival rates, and den weights in two populations: one that is hunted with dogs and one that is not hunted.

Results indicate that there are no significant differences in cub production or body condition between hunted and non-hunted populations of bear in Virginia (Higgins 1997).

The impact on the refuge population of black bear will not be significant due to the low number of bear taken each year. Similarly, the cumulative impact of bear hunting on the refuge will not be significant when combined with bear hunting impacts throughout the county or state. Less than 1.5% of all bear harvests in the state were taken from Canaan Valley habitats and an average of 8.2% of bear harvests from the County were from Canaan Valley from 1974 to 2000 (Michael 2002). These low harvest rates indicate that by continuing bear harvest on the refuge (approximately 50% of the Valley's area) it is highly unlikely that the harvest of these species will have any significant impact to local or regional populations.

Wild Turkey. Wild turkey hunting follows the state's regulations. West Virginia has two turkey seasons: a spring season when only gobblers (males) are harvested, and a fall season when either sex may be legal game. Since turkeys are polygamous, spring gobbler seasons have little impact on breeding success and size of turkey populations. Fall hunting is allowed when a population is sufficiently large to withstand increased mortality. Through extensive research and management efforts, the state has restored the turkey population throughout its historical range. The state also closely monitors fall hunting impacts on population levels. Therefore, hunting on the refuge should not impact the turkey population. Both spring gobbler and fall either-sex seasons will be allowed on the refuge.

Migratory Birds, Including Waterfowl (Ducks and Geese). Fall is the season for bird migration, and hunting may disturb their resting and foraging during this critical time. The impacts from hunting are not known, but related to the frequency, type, and duration of the disturbance. For example, a woodcock hunter with a dog is more likely to flush woodcock (and other migratory bird species), than a woodcock hunter without a dog. If one area is hunted more than another, woodcock using cover in that area will be disrupted more frequently. Also, if an area is hunted in the morning and again in the evening, the duration and effect of disturbance is increased. Migrating and wintering raptors such as ruffed legged hawks may be hunting and roosting in upland and wetland habitats. Hunting activity may cause these birds to unnecessarily take flight, expending energy resources when food resources are limited. Nesting of some species of owls and raptors begins in late winter. The effects on the breeding success of these nesting birds caused by hunters passing in the vicinity of the nest is unknown. Because this use is not concentrated in space or time (it occurs all over the refuge throughout the hunting season), the disturbance effects on wildlife that are using the refuge during fall and winter are not expected to be significant.

Migratory birds, especially landbirds, are in the peak of migration during the spring turkey open season. Hunters using upland habitats may temporarily disrupt the migrating birds' feeding and resting. Between 2002 and 2005, an average of 20 hunters reported hunting during the spring turkey season. Because turkey is an upland species, hunters are less likely to enter wetland habitats. Their disturbance to other wildlife species and vegetation is concentrated on upland habitats. Due to the low number of spring hunters using the refuge and the dispersed nature of the activity, disturbance to wildlife during the spring hunting season is not expected to be significant.

Waterfowl seasons on the refuge follow state regulations, including the early September resident goose season. The refuge has small numbers of breeding waterfowl including American black duck, mallard, wood duck, and Canada goose. Studies conducted from 1980 through 1993 found Canada geese, mallards, wood ducks, and black ducks to be the most abundant waterfowl in Canaan Valley (Michael 2002). Of the species present on the refuge, black ducks are the only species of management concern listed by the Service. Black ducks are one of three species of waterfowl identified with population management objectives that are also showing long term population declines between 1970 and 2003 (North American Waterfowl Management Plan 2004). Black ducks are also listed by the WVDNR as a species of special concern (S2B: very rare or imperiled) due to the restricted habitat available for this species in the state.

Waterfowl are managed by "flyways," which follow the major migratory routes. Their population trends are monitored by the Service through the collection of data including band recoveries, hunter questionnaires, wing returns, breeding population and habitat surveys and mid-winter waterfowl surveys (Caithhamer and Dobovsky, 1995). The migratory waterfowl in Canaan Valley are a very small part of a large population of birds that are managed by the Service on a flyway basis under the Migratory Bird Treaty Act, 16 USC 703-712. The

Service designs the bag limits and season lengths to maintain healthy populations of these species. Therefore, the effect of waterfowl hunting in Canaan Valley would be negligible on refuge, state, regional, local, or flyway populations.

Rails, Gallinule, and Coot. Hunting for rails, gallinules and coots on Canaan Valley refuge follows state regulations. These species are also migratory game birds managed by the Service on a flyway basis, with state regulations established within the framework of the Service's directives. Rails are occasionally heard on the refuge. Breeding records exist only for Virginia rail which has been documented in the upper Glade Run marshes and in isolated cattail stands throughout the refuge. During migration, sora rails are seen in some wetland areas around beaver ponds. King rails may also migrate through the valley; however, no recent records exist for this species on the refuge. The harvest of these species is likely coincidental with waterfowl hunting and the numbers harvested (if any) on the refuge would not be significant to the overall flyway populations of these species.

Mourning Doves. Hunting for mourning doves follows state regulations. Like other migratory game birds, mourning doves are managed by the Service on a flyway-wide basis. The occurrence of mourning doves on the refuge is dependent upon weather conditions, habitat availability, and factors affecting their migratory behavior. They are uncommon in the state and in Canaan Valley and the lack of a "huntable population" makes the quality of such a hunt questionable. Hunting doves in Canaan Valley would have no impact on the population as a whole.

American Woodcock. The Service proposes to hunt woodcock on the Canaan Valley refuge in accordance state regulations. The American woodcock is a trust species managed by the Service, and has been categorized as a "species in decline." The loss and degradation of early successional habitat is considered to be the most important factor for these population declines (USFWS 1990). The American Woodcock Management Plan, developed by the Service, focuses on habitat management, but acknowledges that managed recreational harvest of woodcock is desirable and consistent with conservation, and that recreational hunting will continue to be managed under existing regulatory processes in the United States. According to refuge hunter information, the number of woodcock taken on the refuge between 2002 and 2005 averaged 318 birds, with a high of 426 reported taken in the 2004 season. The average refuge harvest for 2002-2005 seasons represents approximately 55% of the state total woodcock harvested in those years.

McAuley et al (2005) note that, hunting mortality was not a significant impact relative to other sources and that habitat loss was still considered to be critical in the decline of woodcock populations. Pennsylvania implemented very restrictive season lengths in 1984 (21 days) and further restricted the seasons in 1992 (14 days) in an attempt to protect the "Pennsylvania breeding population" of woodcock. The study indicated that the restrictive season lengths had little to no effect on woodcock in Pennsylvania or that other factors contribute to the state population decline. This finding supports the theory that habitat deterioration is the major problem affecting woodcock in the eastern United States. Therefore hunting woodcock on the refuge is not expected to have an impact on the local, regional, or the flyway population.

Wilson's snipe. The refuge follows state regulations to hunt snipe. Declining populations in the eastern United States may lead to more restrictive bags and seasons in the future. Currently snipe population surveys show a stable trend from 1966 to 2005 (Sauer et al, 2005). These decisions on season length and bag limits are made on a flyway basis, and the State's regulations would reflect any adjustments made by the Service on a national scope.

Weather and habitat conditions, rather than hunting, are likely the predominant factors influencing snipe occurrence and population size at Canaan Valley. According to refuge hunt information, an average of one snipe per year has been harvested during the years 2002 to 2005. Snipe harvested in West Virginia are likely incidental take by sportsmen engaged in hunting other species; therefore, hunting is expected to have little impact on the local, state, or flyway snipe population.

Endangered, Threatened, and other Non-game species. Anticipated direct, indirect, and cumulative impacts to endangered species, threatened species, and non-game species of the refuge are described below. The refuge requested Section 7 informal consultation with the Service's West Virginia Field Office under the Endangered Species Act (16 U.S.C. 1536) on all the actions in alternative B of this draft CCP/EA, including hunting, that

could potentially impact listed species. This process resulted in a finding that our proposed actions are not likely to adversely affect the listed species or their associated habitats on the refuge. The full Intra-Service Section 7 Biological Evaluation form can be found in appendix I of this draft CCP/EA. Other, non-game species that require a more open understory, such as has resulted from deer over browsing, could be adversely affected if a reduction in the deer herd produces changes in the understory vegetation. However, as the vegetation returns to its more natural state, the associated fauna should also reflect the more natural diversity. The overall species diversity of the refuge is not expected to be diminished by this hunting alternative.

Disturbance to non-hunted migratory birds could have regional, local, and flyway effects. Regional and flyway effects would not be applicable to species that do not migrate such as most woodpeckers, and some songbirds such as cardinals, titmice, wrens, chickadees, etc. Disturbance by hunting to non-hunted migratory birds should not have cumulative negative impacts for the following reasons. Hunting seasons do not coincide with the nesting season. Long-term future impacts that could occur if reproduction was reduced by hunting are not relevant for this reason. Disturbance to the daily wintering activities, such as feeding and resting, of birds may occur. Disturbance to birds by hunters is probably commensurate with that caused by non-consumptive users.

Disturbance by hunting to non-hunted wildlife would be the most likely negative cumulative impact. However, disturbance would be unlikely for the following reasons. Small mammals, including bats, are generally inactive during winter when hunting season occurs. Both of these qualities make hunter interactions with small mammals extremely rare. Hibernation or torpor by cold-blood reptiles and amphibians also limits their activity during the hunting season when temperatures are low. Hunters will rarely encounter reptiles and amphibians during most of the hunting season. Encounters with reptiles and amphibians in the early fall are few and should not have cumulative negative effects on reptile and amphibian populations. Invertebrates are also not active during cold weather and will have few interactions with hunters during the hunting season.

User Conflict

Increasing the number of rifle hunting areas may result in additional user conflicts between hunters and non-hunters. Some perspectives include opposition to increasing access for hunters on the basis of unfairness of unequal access. Other enhancements that favor hunters may cause adverse impacts. For example, assisting hunters with game retrieval would provide special access for a specific group (hunters) and may cause damage to refuge resources. In more general terms, providing shuttles, improving roads, and investing in other improvements for hunting access would use budget dollars that could support other refuge activities and users. It is anticipated that these issues could be resolved with outreach and education by, for example, explaining that managing the white-tailed deer population helps to prevent over-browsing of refuge habitats. Furthermore, user conflicts are minimized because, according to state regulations, it is illegal to shoot a firearm within 400 feet of a school or church, or within 500 feet of a dwelling, or on or near a park or other place where people are gathered for pleasure. Also, hunting occurs during the winter, when fewer people visit the refuge.

The overall impacts of this use were fully reviewed and discussed in the "Amended Environmental Assessment, Hunt Program Proposal, Canaan Valley National Wildlife Refuge" (USFWS 2007b). Please refer to this document for a full discussion of direct, indirect and cumulative impacts for this use.
Hunter disturbance to non-hunted resident wildlife may be a negative cumulative impact; however, such an impact is unlikely because of the timing of the hunt. The hunts will occur during a time of the year when small mammals, reptiles, amphibians, and invertebrates are inactive and thus the likelihood of hunter interaction is rare. Isolated encounters with small mammals, reptiles, amphibians, and invertebrates should not have cumulative negative effects on populations.

PUBLIC REVIEW AND COMMENT

This compatibility determination will be released concurrent with the draft CCP/EA for a 45-day public review and comment period.

DETERMINATION

_____ Use is Not Compatible

__X__ Use is Compatible With the Following Stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY

1. The use of private ATVs or other off-road vehicles on refuge lands is prohibited.

2. The use of nails, wire, screws, or bolts, to attach a stand to a tree is prohibited, as is the use of a tree with existing nails, wire, screws, or bolts.

3. Hunting over bait is prohibited.

4. The use or possession of alcoholic beverages while hunting is prohibited.

Hunting on the refuge would also be contingent on the following refuge-specific stipulations:

1. While participating in hunts on the refuge, hunters must have in their possession a current, signed Canaan Valley National Wildlife Refuge Hunting Permit and the appropriate state hunting license(s) and federal waterfowl stamps.

2. Only the following game species may be taken on the refuge: white-tailed deer, black bear, wild turkey, waterfowl, mourning dove, rails, gallinule, coot, American woodcock, snipe, squirrel, ruffed grouse, rabbit, hare, red and gray foxes, raccoon, bobcat, woodchuck, coyote, opossum and striped skunk.

3. State regulations stipulate that it is illegal to shoot a firearm within 400 feet of a school or church, or within 500 feet of a dwelling, or on or near a park or other place where people are gathered for pleasure.

4. The refuge will be closed to hunting between March 1st and August 31st of each year, except for the spring turkey season.

5. All game that is killed or crippled shall be retrieved, if possible, and retained in the custody of the hunter in the field.

6. In the no-rifle zone of the refuge, the following stipulations are in place:

   - The take of big game will be restricted to archery, muzzleloader, and shotgun. The take of upland/small game will be restricted to shotgun only.

   - Handguns will not be used to take game.

   - Muzzleloaders will be restricted to the type defined by state regulations; telescopic sights will be permitted during buck, antlerless, and muzzleloader seasons.

   - Shotguns firing slugs will be permitted for deer hunting.

7. Hunting birds with pointing and/or retrieving dogs will be permitted, but no more than two dogs per hunter will be allowed in the field. Extra dogs remaining in a hunter's vehicle will not count as dogs in the field.

8. The take of wild turkeys with rifles will be prohibited throughout the refuge, and shot larger than #4 will be prohibited.

9. A minimum of 400 square inches of blaze orange must be worn by all hunters, except for waterfowl, turkey, and archery hunters. For waterfowl, turkey, and archery hunters, 400 square inches of blaze orange must be worn while traveling between stands and/or blinds.

10. Portable tree stands are the only type permitted on the refuge.

11. Trimming or cutting branches is prohibited. Hunting from blinds made from cut conifer tree branches (balsam fir, red spruce, hemlock) is prohibited.

12. All tree stands must have the name and address of the owner clearly printed on the stand. All stands must be removed by the last day of deer season.

13. The refuge bear gun season will be the same as the state seasons.

14. Bear gun hunters will be limited to six dogs each. Releasing and picking up dogs on Cortland Road and Old Timberline Road will be prohibited.

15. All dogs are required to wear a collar displaying the owner's name, address, and telephone number.

16. Hunters who lose dogs will be required to search for them for three days, and will not be allowed to hunt during the search period.

17. Dog training is prohibited except during legal hunting seasons.

18. Hunting rabbits and raccoons with pursuit dogs will be permitted, but no more than four dogs per hunter will be allowed in the field. Extra dogs remaining in a hunter's vehicle will not count as dogs in the field.

19. Raccoon dog training and/or "night hunts" will be prohibited except during raccoon hunting season.

20. Night hunting on the refuge will be by special use permit only. Hunters will have to apply for the permit in person or by mail or telephone.

21. Hunting will be prohibited on refuge lands west of Highway 32 and adjacent to Canaan Valley Resort State Park.

22. No camping is allowed on refuge lands.

23. All accidents and injuries must be reported to the refuge office as soon as possible.

24. Trail maintenance will be emphasized to harden wet areas along Middle Valley Trail and immediately repair areas damaged by the use of ATV's during the first week of deer gun season.

25. Stream banks and stream bottom of Glade Run will be hardened using native stone to reduce the potential impact of erosion by ATV use to remove deer during the first week of deer gun season.

26. Persons possessing, transporting, or carrying firearms on national wildlife refuges must comply with all provisions of state and local law. Persons may only use (discharge) firearms in accordance with refuge regulations (50 CFR 27.42 and specific refuge regulations in 50 CFR Part 32).

JUSTIFICATION

Hunting, when compatible, is defined as one of the priority public uses of the Refuge System by the National Wildlife Refuge System Improvement Act of 1997. Permitted regulated hunting on the Canaan Valley refuge would not have any significant impacts on the refuge environment, populations of hunted species, adjacent lands, or nearby residents. The refuge environment includes soils, vegetation, air quality, water quality, and solitude. Some disturbance to the soils and vegetation is expected in areas open to hunting, but impacts would be minimal due to the dispersed nature of the activity and the fact that soils are typically frozen and vegetation is mostly dormant during state hunting seasons. Hunting would benefit vegetation by keeping resident herbivore wildlife populations in balance with the carrying capacity of the habitat. Impacts on physical resources resulting from trampling of vegetation would be minimal and temporary as vegetation would recover. Wildlife and vegetation surveys, data, and personal communications with other scientists, state biologists, and universities, have led the staff of Canaan Valley refuge to conclude that the high density of deer causes much more damage to vegetation than allowing hunting. For these reasons, permitting this use would not impair the refuge's ability to conserve wetland vegetation, plant resources and habitats as directed by the Emergency Wetland Resources Act (1986) and the mission of the refuge system.

Disturbance to other wildlife will occur, however the impact will be lessened because of the time of year hunting is permitted. Off-trail access is necessary to permit this priority public use. Because the use is necessarily spatially dispersed and it occurs over the duration of the various state hunting seasons, the disturbance impacts will be less intense. Restricting night time raccoon hunting through the issuance of a special use permit provides the refuge with greater control to prevent disturbance during evening hours. These disturbance impacts will not materially affect the refuge's ability to fulfill its overall obligations to protect, conserve and manage fish, wildlife or plant species as directed by the mission of the Refuge System.

Hunting would not have any affect on threatened or endangered species utilizing the refuge. The Cheat Mountain salamander is restricted to one tract on the refuge in higher elevations. This species is active when surface temperatures are above 550F which typically does not occur during the state hunt seasons. Additionally, the majority of hunting activity occurs outside of the spruce forest habitat occupied by this salamander. The endangered Indiana bat is known to occur only during summer and early fall on the refuge, which is mostly outside the refuge hunt seasons. The most sensitive locations for this species are hibernacula and maternity colonies. To date these have not been documented on refuge lands.

Allowing hunting would provide recreational opportunities at Canaan Valley refuge to hunters from all over the country. Data collected between 2002 and 2005 indicate that an average of 891 people hunt on the refuge every year. These hunters come from approximately 18 different states. This activity and program produces a positive impact on refuge management, visitor attitudes, and the local economy. The local purchases of gas, food, lodging, hunting licenses, equipment, and supplies, from mostly out-of-state hunters contributes significantly to the local economy. In 2004, total hunting visitor expenditures in a tri-county area (Tucker, Marion, Monongalia) was 54,800 (USFWS 2005). Hunters spread the word to their friends, encouraging them to come to the area to take advantage of the high quality recreation and, thus, positively affect the economy of the area. Deer hunting would also contribute to the reduction of vehicle damage and human injury from collision between deer and vehicles. In 2004, 14,739 deer were reported killed by collision with vehicles in West Virginia (WVDNR 2009).

Increased hunting opportunities would increase the number of licenses and duck stamps sold, as well as the amount of locally purchased hunting supplies. An increase in hunting opportunities on the refuge would not affect the refuge's non-consumptive users; therefore, there would be no negative impacts on the contributions already made to the local economy by non-consumptive users.

Based on wildlife surveys and population estimates conducted by the state as well as the Service (in regards to migratory birds), wildlife which are harvested on the refuge have surplus populations and are able to sustain regulated harvest without impacting local or regional populations. Both the state and Service review harvest information annually to assess impacts on population levels and adjust, if necessary take limits and season lengths. These regulations ensure the continued well-being of overall populations of game animals. Hunting does result in the taking of many individuals within the overall population, but restrictions are designed to safeguard an adequate breeding population from year to year. Hunting under state and federal guidelines, as well as refuge specific regulations, will not impact the populations of resident wildlife or migratory birds that

the refuge protects and will not have adverse effects on the overall conservation of wildlife or their habitats on the refuge. Based upon state and federal regulations, the hunting program will operate under sound wildlife management principles and is in the public interest as directed under 50 CFR 32.1.

Specific refuge regulations address equity and quality of opportunity for hunters, and help safeguard refuge habitat. Disturbance to other wildlife does occur, but this disturbance is generally short-term and adequate habitat occurs in adjacent areas. Apart from the refuge's deliberate efforts to reduce the deer population to a balanced level, hunting of other species as described will not significantly affect the local or regional population of any of these species. For these reasons, public hunting will not prevent the refuge from fulfilling the purposes of the Fish and Wildlife Act (1956) or the mission of the Refuge System for conserving, managing, restoring, and protecting wildlife resources. In addition, deer hunting would help control the refuge's deer population and reduce over browsing. This directly supports the refuge purpose (Emergency Wetland Resources Act 1986) by conserving refuge wetland communities, and it supports the founding purpose to ensure the ecological integrity of Canaan Valley as stated in the 1979 EIS. If operated under federal regulations for migratory birds, and in concert with state regulations, the hunt program would not affect the refuges' responsibility to ensure the protection and management of migratory birds as directed for the tracts purchased under the authority of the Migratory Bird Conservation Act (1929).

In summary, the hunt program on the refuge would not have any significant impacts to hunted species, to the local or regional populations of these species, to the refuge environment, to adjacent lands, or to nearby residents. By permitting public hunting the refuge is fulfilling the mission of the Refuge System by administering refuge resources for the benefit of present and future generations. For these reasons, we have determined that hunting will not materially interfere with or detract from fulfilling refuge purposes and mission of the Refuge System.

Refuge Manager _____ _____
(Signature) (Date)

Concurrence

Regional Chief _____ _____
(Signature) (Date)

MANDATORY 15 YEAR RE-EVALUATION DATE

_____
(Date)

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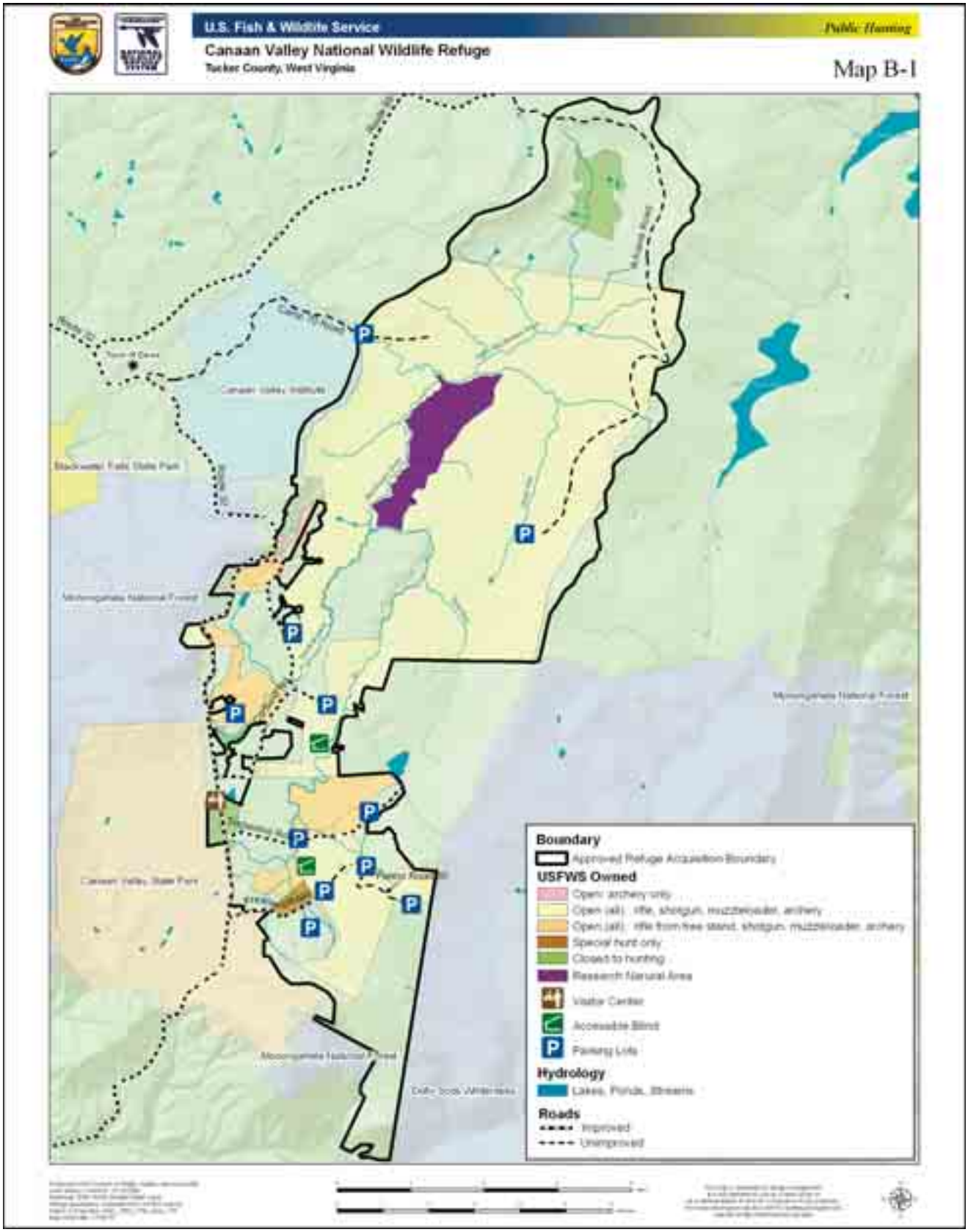
Attachment: Map B-1 Public Hunting


U.S. Fish & Wildlife Service
Public Hunting
Canaan Valley National Wildlife Refuge
Tucker County, West Virginia
Map B-1
Boundary
Approved Refuge Acquisition Boundary
USFWS Owned
Open: archery only
Open (all): rifle, shotgun, muzzleloader, archery
Open (all): rifle from free stand, shotgun, muzzleloader, archery
Special hunt only
Closed to hunting
Research Natural Area
Visitor Center
Accessible Blind
Parking Lots
Hydrology
Lakes, Ponds, Streams
Roads
Improved
Unimproved

COMPATIBILITY DETERMINATION

USE

Public Fishing

REFUGE NAME

Canaan Valley National Wildlife Refuge

DATE ESTABLISHED

August 11, 1994

ESTABLISHING AND ACQUISITION AUTHORITY

The establishment of Canaan Valley National Wildlife Refuge (refuge) was first approved in an Environmental Impact Statement (EIS) released on May 30, 1979. However, the U.S. Fish and Wildlife Service (Service) decided to await the outcome of litigation surrounding a proposed storage hydroelectric facility before pursuing any further action. The approval of the refuge was affirmed by the Service in a 1994 Final Environmental Assessment and Finding of No Significant Impact on July 11, 1994, which confirmed the adequacy of the previously-approved 1979 EIS. The refuge was officially established when the first tract of land was acquired on August 11, 1994. The Service has acquired lands for the Canaan Valley refuge under the following authorities:

1. Fish and Wildlife Act of 1956 [16 U.S.C. 742f(a)(4)]

2. Emergency Wetlands Resources Act of 1986 [16 U.S.C. 3901b]

3. Migratory Bird Conservation Act of 1929 [16 U.S.C. 715d]

REFUGE PURPOSE(S)

The refuge was established to ensure the ecological integrity of Canaan Valley and the continued availability of its wetland, botanical, and wildlife resources to the citizens of West Virginia and the United States (USFWS 1979, 1994). Additional refuge purposes derived from the legislative authorities are as follows:

(1) "... for the development, advancement, management, conservation, and protection of fish and wildlife resources..." (Fish and Wildlife Act of 1956; 16 U.S.C. 742f (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 international obligations contained in various migratory bird treaties and conventions." (Emergency Wetlands Resources Act of 1986; 16 U.S.C. 3901(b)); and,

(3) "... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." (Migratory Bird Conservation Act of 1929; 16 U.S.C. 715d).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION

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 PROPOSED USE

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

The use is public fishing on publicly accessible beaver ponds and the Blackwater River and its tributaries on the refuge. Priority public uses of the National Wildlife Refuge System (Refuge System) are defined by statute and regulation as: hunting, fishing, wildlife observation and photography, environmental education, and interpretation (16 U.S.C. §668ee(2), 50 CFR §25.12). Fishing is one of the six priority public uses of the refuge system. Using non-motorized watercraft to facilitate fishing is mentioned briefly in this document, but effects are analyzed in the compatibility determination entitled "Wildlife Observation, Photography, Environmental Education, and Interpretation."

(b) Where would the use be conducted?
The use would be conducted in all open areas within the refuge. The West Virginia Division of Natural Resources (WVDNR) stocked black bass in beaver ponds on the property in 1964. No additional stocking by the State has occurred since then on the Main Tract. About 20 large ponds currently exist but their capacity to support fish habitat is unknown. No scientific inventory has been conducted to determine what existing beaver ponds still contain sport fish. Reports from local anglers indicate that rock bass (*Ambloplites rupestris*) are caught in beaver ponds receiving water from Glade Run on the east side of the wetland and the Blackwater River on the west side. Sunfish species such as bluegill (*Lepomis macrochirus*) and pumpkinseed (*L. gibbosus*) are also reported from these ponds. Beaver ponds can be dynamic and sustaining fish habitat is dependent upon beaver activity, climate, and wetland conditions. Beavers continually create new impoundments and old ponds disappear through abandonment or successional changes that decrease standing water.

Fishing also occurs along the banks of the Blackwater River and its tributaries within the refuge. Vehicle access to Main Tract waters is primarily along A Frame road and Delta 13 road. Anglers typically walk designated pedestrian roads and trails to fishing access points. These points are: the Blackwater River which can be accessed from Delta 13 road, Timberline road, and Old Timberline road. Beaver pond complexes can be accessed from Delta 13 road and the A-Frame road. Glade Run can be accessed by the north and south crossing of the Middle Ridge trail. See map B-2 for fishing access locations.

(c) When would the use be conducted?
Beaver ponds and the Blackwater River are open year round subject to West Virginia state fishing regulations. Daily hours of use are between one hour before sunrise and one hour after sunset when the refuge is open to the public. Fishing at the south end fluctuates and is heavier during spring trout stocking of the Blackwater River. Additional information regarding timing of fishing is not known although concentrated use is expected in spring at peak water and stocking levels.

(d) How would the use be conducted?
Fishing methods and harvest limits on the refuge conform to West Virginia state law. The refuge will prohibit the possession or use and collection of live or dead bait fish (including crayfish and amphibians) on the refuge. Anglers enter the refuge from parking lots, follow designated public use trails and walk to fishing waters. Fishing areas in winter would be accessed by cross-country skiing or snowshoeing along designated roads and trails. Since no snow removal is conducted on refuge roads or parking areas, anglers may have to park farther away from refuge parking areas and public access sites during winter months. Anglers using non-motorized watercraft on the Blackwater River would enter the refuge from outside refuge boundaries or from designated refuge access points. Overland transport of watercraft is permitted on designated public use roads and trails to facilitate fishing access. Safety and information signs will be installed and maintained as necessary.

The use of gasoline motors will be prohibited on the refuge. Gasoline motors cause increased disturbance to wildlife and can pollute water through gas and oil discharge. The riparian corridor of the Blackwater River is an important resting and feeding area for refuge waterfowl. Eliminating the noise disturbance from gasoline motors will reduce the level of disturbance to waterfowl and other waterbirds utilizing river habitats.

A refuge officer will record the number of anglers fishing, areas used for fishing, access routes used, timing of use, and any related safety concerns. Anglers may be checked to determine compliance with state and refuge regulations. Use will be monitored annually to determine if it remains compatible.

(e) Why is this use being proposed?
Fishing existed on the refuge lands prior to acquisition and is considered to be a priority public use of the Refuge System. Allowing this use would continue to provide an opportunity for the public to engage in a priority public use.

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 spent maintaining associated road infrastructure, collecting visitor use data, analyzing use patterns, monitoring potential impacts of the use on refuge resources, 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 park ranger and outdoor recreation planner, and maintenance and repair will be performed by a heavy equipment operator. Additionally, resource protection is provided by a park ranger (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, parking lots, and associated structures. The refuge has heavy equipment including a motor grader, dump truck, bulldozer, backhoe, 4x4 farm tractor, bobcat, and front-end loader.

Annual costs associated with the administration of public fishing on the refuge are estimated below:

Road maintenance and repair, sign installation and kiosk construction and repair, maintaining parking areas, and picking up and removing litter associated with bank fishing activities

- WG-10 Equipment Operator for 10 work days = $2,725.60

Planning and supervising staff to monitor the use and its effects on environment and other visitors

- GS-13 Refuge Manager for 1 work day =$450.24
- GS-11/12 Deputy Refuge Manager for 3 work days = $836.16

Resource protection, monitoring fishing activities and interactions with other users, visitor services, sign maintenance, litter removal

- GS-9 Refuge Officer for 5 work days = $1,228.80

Monitoring habitat impacts from fishing activities

- GS-12 Wildlife Biologist for 2 work days (training & interagency coordination) = $735.04
- GS-11 Wildlife Biologist for 2 work days (sampling, electro shocking etc.) = $594.56
- GS-7 Biological Science Technician for 3 work days (sampling, electro shocking etc.) = $602.64

Providing information to the public about public fishing and compiling use data

- GS-11 Outdoor Recreation Planner for 5 work days = $1,765.20

Motor vehicle fuel / law enforcement patrols = $100.00

Heavy equipment fuel = $250.00

Kiosk repair, signs, printing maps and information = $1,000.00

Grand Total Estimated Costs = $10,288.24

FY 2009 Budget Allocations:

Employee Salaries and benefits = $624,039.53
Fixed costs (utilities, fuel, administrative) = $211,415.23
Base maintenance = $50,000
Discretionary Funds (maps, printing, etc.) = $62,243.32
Total Available Funds for FY 2009 = $947,698.08

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 and is expected to remain adequate, subject to the continuing availability of appropriated funds

ANTICIPATED IMPACTS OF THE USE

To evaluate potential impacts, 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 a Natural Resource Conservation Service soil scientist and the Tucker County soil survey. Information from 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 impacts of fishing access include: soil compaction and erosion, downstream sedimentation, trampling and mortality of fragile wetland plant communities, habitat loss/deterioration, and wildlife disturbance. These threats are described below based on literature reviews and staff field examinations:

Effects on Vegetation: Vegetation surveys have been conducted in Canaan Valley to document dominant plant communities and as well as rare plant species and plant communities (Fortney 1975, Bartgis and Berdine 1991, Fortney 1997). Foot travel to and use of fishing locations can have indirect impacts to plants by compacting soils and diminishing soil porosity, aeration and nutrient availability that affect plant growth and survival (Kuss 1986). Hammitt and Cole (1998) note that compaction limits the ability of plants to revegetate affected areas. Regularly occurring foot travel can crush plants. Rare plants with limited site occurrence are particularly susceptible. Many plant species considered rare in the state are found associated with riparian wetlands in the Canaan Valley (Bartgis and Berdine 1991). Fishing along riparian corridors may cause trampling impacts to rare plants disproportionate to other public use activities.

Walking to fishing areas during the growing season could cause increased damage to plants in the wetland communities. Plants in the process of growth and producing flowers, and growing in wet or moist soils, are

the most sensitive to disturbance from trampling effects (Kuss 1986). Moist and wet soil conditions are common in Canaan Valley, particularly during spring and early summer, and are directly associated with areas around beaver ponds and along riparian corridors where fishing occurs.

It is anticipated that allowing fishing access will cause minor vegetation loss. Foot travel may slightly increase root exposure and trampling, and some rare plant species could be impacted by anglers walking around beaver ponds or along riparian corridors. However, observations from refuge staff and anecdotal reports suggest that less than 10 persons per month fish the subject ponds in the northern portion of the refuge. Therefore, continuing pedestrian access for fishing, at the current level of use, is not anticipated to cause any significant impacts to plants or plant communities due to the low numbers of anglers interested in walking off trail to access remote beaver ponds or river sections. Additionally, the area of impact is generally spread to a variety of sites which prevents a concentrated impact at any one location.

Effects on Soils: Soils can be compacted and eroded as a result of continued foot traffic. All soils associated with wetland habitats were rated as either high or very high in their potential for compaction (Bell 2002). Impacts to soils will likely be greater during the growing season due to the greater soil moisture content at that time of year. The Mauch Chunk-derived soil in Canaan Valley is particularly vulnerable to mechanical erosion when the vegetation has been removed (Rizzo 2002). If compacted, Mauch Chunk soils can facilitate rapid water runoff that accelerates erosion down slope (Rizzo 2002). Field investigations of trails in Canaan Valley have documented extensive damage, displaying classic examples of the erosive nature of Mauch Chunk-derived soils after years of unregulated use. Although foot travel did not create highly erosive conditions in this soil type, lug soles of hiking boots could perpetuate the problem. Fishing along river corridors may cause bank erosion allowing sediment to enter the Blackwater River and its tributaries.

It is anticipated that minor impacts to soils will occur as a result of allowing fishing access on the refuge. Erosion potential will likely vary during the year based on soil moisture and temperatures. At the current use level, impacts to soils (erosion, compaction) are not likely to be significant. We would not expect large increases in the level of use due to the fact that the remote areas of the refuge will not be stocked by the state with game species and many ponds are difficult to access on foot.

Effects on Hydrology: Trails can affect the hydrology of an area, primarily through alteration of drainage patterns. Bartgis and Berdine (1991) note that roads and trails can divert water from their original drainage patterns in Canaan Valley. This can result in some drainages becoming dry while others accelerate erosion by being forced to carry more water. Zeedyk (2002) documented many instances in Canaan Valley where existing trails were channeling water away from historical wetlands and, in some cases, causing erosion and sedimentation of bog and other wetland communities. These historical problems have profoundly if not irreversibly altered the extent, depths, characteristics and function of the wetlands on the Main Tract (Zeedyk 2002). The effects of these trails and roads were a direct result of vehicle use and road construction prior to the refuge's acquisition of the property. Since then measures have been taken to remediate erosion and sedimentation issues, particularly on trails that are open to public access. Furthermore, since the refuge has now acquired lands within the acquisition boundary, it can now prohibit vehicle use and road construction in certain areas so as to minimize these types of impacts.

Angler foot traffic on existing trails will create only minor hydrologic impacts and is not anticipated to significantly exacerbate existing hydrologic problems. Maintenance will be required to create adequate and proper drainage so that existing routes do not impact local hydrology. These impacts are not likely to be significant in relation to other public uses permitted on refuge trails. Foot traffic off trail, if concentrated, could remove vegetation, compact soil and cause water channeling/pooling. Areas will be monitored for these effects and if impacts are found, areas will be temporarily closed for restoration.

Effects on Wildlife: About 20 large ponds currently exist but no inventory has been conducted to determine what existing beaver ponds still contain fish. Reports from anglers indicate that rock bass and largemouth bass are caught in beaver ponds receiving water from Glade Run on the east side of the refuge and the Blackwater River on the west side. Sunfish species such as bluegill and pumpkinseed are also reported from these ponds. Twenty of the thirty documented fish species which occur on the refuge are native. The others are non-native species introduced on purpose or through accidental releases from anglers using live bait. For example, bass

were introduced into the valley by the state in the 1960's. Rainbow and brown trout are stocked annually in the Blackwater River.

Brook trout are the only native salmonid to the Blackwater River. Naturally reproducing brook trout populations exist in several small, cold streams that flow into the Blackwater River. Although no refuge-wide survey has been accomplished, populations of brook trout are known from Idleman's Run, Freeland Run, and Yokum Run. There are historical documentations in the Little Blackwater River, North Branch, Flag Run, and two other small tributaries in the valley. Additionally, some limestone springs have been noted with brook trout on the south end of the refuge.

Redside dace, a rare, medium-sized minnow, has also been found on the refuge. This species is listed as a state species of concern (S1S2) and is known from only 9 localities in West Virginia (Stauffer et al. 1995). Historical records document this species occurring in Freeland Run, Sand Run, and the North Branch. Records of this species in the 1940's and 1950's were apparently common in Canaan Valley, occurring in small tributaries as well as the main stem of the Blackwater River (Cincotta et al. 2002). However surveys by the WVDNR in recent years have found this species only in Freeland Run and only one individual was found. It is possible that habitat alteration from development and other land use practices have degraded stream conditions, therefore contributing to the decrease in the redside dace population. Angling pressure is not considered to have played an important role in reducing the redside dace's population on the refuge. Redside dace are a minnow, not a sport fish, and as such they are not a target species for anglers.

Impacts to the fishery are expected to be insignificant. Most game species present on the refuge are non-native species to the Blackwater watershed. Native brook trout occur in very limited locations in smaller drainages in the valley. Overfishing these areas could have a significant effect on their persistence on the refuge. However, most drainages where brook trout are found are not fished aggressively due to the small size of the streams and correspondingly small size of the fish. Additionally, habitat degradation from grazing and water diversions as well as the stocking of non-native brown trout are considered to be a larger threat to brook trout populations than angling pressure.

The largest pressure on fish populations on the refuge is for stocked rainbow and brown trout populations. These are non-native species to the Blackwater River watershed and are stocked annually by the state. Permitting fishing access for these species is considered to be an acceptable form of wildlife dependent recreation on the refuge which does not significantly impact refuge resources. Since the fishery is artificially stocked, the rainbow and brown trout populations are supplemented to compensate for angling pressures.

The presence of anglers can impact terrestrial wildlife. Disturbances vary with the species involved and the type, level, frequency, duration and the time of year such activities occur. Whittaker and Knight (1998) note that wildlife response can include attraction, habituation, and avoidance. These responses can have negative impacts to wildlife, such as mammals becoming habituated to humans, making them easier targets for hunters. Human- induced avoidance by wildlife can prevent animals from using otherwise suitable habitat (Pomerantz et al. 1988).

Foot travel to fishing areas will occur on established trails. Trail use can disturb wildlife outside the immediate trail corridor (Trails and Wildlife Task Force 1998, Miller et al. 2001). Miller et al. (1998) found bird abundance and nesting activities (including nest success) increased as distance from a recreational trail increased in both grassland and forested habitats. Bird communities in this study were apparently affected by the presence of recreational trails, where common species (i.e., American robins) were found near trails and rare species (i.e., grasshopper sparrows) were found farther from trails. Songbird nest failure was also greater near trails (Miller et al. 1998).

Humans walking off trail have been shown to cause greater disturbance (greater area of influence, flush distance, and distance moved) to wildlife than walking within trail corridors (Miller et al. 2001). Predictability of disturbance (on trail vs. off trail) has been cited as a major factor in impacts to wildlife. Walking off trail is considered less predictable to wildlife and typically more disruptive (Knight and Cole 1991, Trails and Wildlife Task Force 1998, Miller et al. 2001). Requiring anglers to use designated public use trails to access fishing areas will help limit this type of disturbance.

Disturbance can cause shifts in habitat use, abandonment of habitat, and increased energy demands on affected wildlife (Knight and Cole 1991). Flight in response to disturbance can lower nesting productivity and cause disease and death. Knight and Cole (1991) suggest recreational activities occurring simultaneously may have a combined negative impact on wildlife. Hammitt and Cole (1998) conclude that the frequent presence of humans in wildland areas can dramatically change the normal behavior of wildlife mostly through unintentional harassment.

Seasonal sensitivities can compound the effect of disturbance on wildlife. Examples include regularly flushing birds during nesting or causing mammals to flee during winter months, thereby consuming large amounts of stored fat reserves. Hammitt and Cole (1998) note that females with young (such as white-tailed deer) are more likely to flee from a disturbance than those without young. Year-round fishing may disturb wildlife during sensitive periods of their life cycle.

It is anticipated that there will be temporary disturbances to wildlife species because of walking and fishing around ponds. Fishing at beaver ponds may have a greater disturbance to birds than walking on pedestrian routes. State listed species of concern such as alder flycatchers (*Empidonax alnorum*), American bitterns (*Botaurus lentiginosus*), Virginia rails (*Rallus limicola*), and American black ducks (*Anas rubripes*) nest and feed in and around beaver ponds. Due to the scarcity and small size of ponds in Canaan Valley, birds likely concentrate in these waters and therefore are vulnerable to disturbance by anglers. Prolonged angler presence at these areas could disrupt normal nesting behavior and possibly disturb nests in the vegetation surrounding the ponds. Waterbirds may also be prevented from resting and feeding on water bodies by angler presence (Havera et al. 1992).

Similar impacts may occur from fishing along riparian corridors. Stream and river corridors are known to be important areas for a variety of wildlife species and typically have greater species diversity then other habitats (Technical Riparian Work Group 1992, Trails and Wildlife Task Force 1998). Therefore, disturbance to riparian corridors may have a disproportionate affect on wildlife using refuge habitats.

Impacts to wildlife may be indirectly caused through erosion and subsequent sedimentation of streams and vernal pools because of foot travel over bare soils and around drainages. Amphibians lay eggs in the shallow pools that surround beaver ponds on the Main Tract during spring and summer. Species such as spotted salamanders (*Ambystoma maculatum*), red-spotted newt (*Notophthalmus viridescens viridescens*), pickerel frog (*Rana palustris*), American toad (Bufo americanus americanus), and wood frogs (*Rana sylvatica*) nest and feed in these locations. Anglers using beaver ponds could potentially disturb and destroy egg masses in the early spring by wading in and through these shallow pools.

Sedimentation can directly kill aquatic invertebrates, which impacts the success of amphibian larvae and adults (Sadoway 1981). Observations by refuge staff in 2002 documented numerous occurrences of amphibian egg masses that failed after becoming coated in sediment from eroding trails and roads used by vehicles nearby. Bartgis and Berdine (1991) reported that sedimentation was damaging habitat in Canaan Valley and could cause impacts to the rare plants, water quality, and possibly affect habitat of the southern water shrew (*Sorex palustris punctulatus)*, a state species of concern. The effects of sedimentation were a direct result of vehicle use and road construction prior to the refuge's acquisition of the property. Since then measures have been taken to remediate erosion and sedimentation issues, particularly on trails that are open to public access. Additionally, since the refuge has now acquired lands within the acquisition boundary, it can prohibit vehicle use and road construction in certain areas so as to minimize these types of impacts.

No impact is expected on the West Virginia northern flying squirrel, another state species of concern, because this species mostly occurs in upland forested habitat, where fishing generally does not occur.

Anticipated disturbances to wildlife are likely to be short term and infrequent based on staff observations of low interest in fishing remote areas of the refuge. Because much of the refuge, particularly the remote beaver ponds and river corridors, is not stocked with game fish, interest in fishing these areas is generally low. Sedimentation impacts will likely be minor from foot travel. Long-term impacts may include certain wildlife species avoiding trail corridors as a result of this use. Over time, however, the use of trails for angler access is not significant compared to the use of trails for other approved uses and will not create significant cumulative effects on wildlife disturbance. Observations from refuge staff and anecdotal reports suggest that less than 10

persons per month fish the subject ponds in the northern portion of the refuge. Based on the staff observations on numbers of anglers and locations of fishing activities, it is not expected that disturbance impacts will be significant.

Effects on Threatened and Endangered Species: The federally threatened Cheat Mountain salamander (*Plethodon nettingi)* is found on the refuge. This species is found associated with high elevation forested habitat, typically with some component of red spruce (*Picea rubens*) and/or Eastern hemlock (*Tsuga canadensis*) and it is likely that it is restricted to the cooler mountain slopes and ridges. Primary access for fishing will occur only in the lower elevations and valley floor and will not traverse known or potentially occupied habitat of Cheat Mountain salamanders. Therefore, there are no adverse affects to this species as a result of allowing fishing access.

Indiana bats (*Myotis soldalis*) were documented on the refuge for the first time through acoustical monitoring conducted by the U.S. Forest Service in 2003 (Ford 2003). Indiana bats were found foraging at two locations in the south end of the refuge. The refuge began conducting acoustical surveys in 2005. These surveys have documented three likely Indiana bat observations in the same location as the 2003 survey during 2005, 2007, and 2008. Additionally, acoustical surveys documented one new location for the species during 2007. Indiana bat calls have been documented from the refuge in the months of May, July, August, and September. However, since fishing is restricted to day time hours, and must comply with the stipulations of this document, any potential negative effects on this nocturnal species are expected to be insignificant. We will periodically evaluate this activity to determine any effects it may have. In particular the use of roost trees near beaver ponds would be a concern and would be evaluated to determine if fishing created disturbance to roosting bats. If evidence of any adverse affects appears, the location(s) of activities will be curtailed or discontinued as needed.

User Conflicts: Conflicts between recreational uses are commonly reported in the literature (Chavez et al. 1993, Watson et al. 1994, Knight and Gutzwiller 1995, Ramthun 1995). 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. In the 1997 National Wildlife Refuge System Improvement Act, there was no priority order given to the big six uses (hunting, fishing, wildlife observation, wildlife photography, environmental education, and interpretation). Based on interviews with individuals and user groups, conflicts among groups are not significant in Canaan Valley. This is likely due to the relatively low number of visitors in the area as compared with heavy use at conflict sites reported in the literature.

Fishing is viewed as an effective and justifiable use that enables the public to discover, experience, and enjoy the refuge and participate in a priority public use. Potential habitat degradation from angler foot traffic and disturbance to breeding/nesting birds and wildlife species warrants monitoring. Due to the low level of fishing activity occurring on beaver ponds and rivers on the refuge, no significant impacts to refuge resources are anticipated. However if unanticipated impacts are noted, corrective actions will be taken to protect refuge resources.

Cultural Resources: There are no known cultural resources on or near the designated access points or any of the fishing areas mentioned in this compatibility determination. This use, as described, will not impact cultural resources.

PUBLIC REVIEW AND COMMENT

This compatibility determination will be released concurrent with the draft Comprehensive Conservation Plan/ Environmental Assessment for a 45-day public review and comment period.

DETERMINATION

_____ Use is Not Compatible

__X__ Use is Compatible With the Following Stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY

The refuge has developed a list of criteria for determining whether any given route would be appropriate for public use, including fishing. These criteria would apply to current and future trails. Criteria are as follows:

Checklist for Existing Routes to Be Eligible for Compatibility Consideration
(Routes must meet all criteria)

1. Route provides an opportunity to view a variety of habitats and wildlife.

2. Route is safe for the access proposed at current use levels.

3. Route requires minimal annual maintenance (i.e, waterbars, stepping stones, etc.) to ensure safe access and to prevent further habitat degradation.

4. Route has a low potential for fragmenting habitat or disturbing wildlife populations.

5. 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.

6. Any route crossing of sensitive soils occupies the shortest possible distance. Organic soil crossings are minimized or eliminated.

7. 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.

8. Route predominately occupies modified substrate (graveled, compacted, or filled) like logging roads and rail grades.

9. Route is not incised greater than 1 foot deep over 10% of its total length.

Additional Stipulations for Fishing Access Include:

—Fishing is allowed during refuge open hours: between one hour before sunrise and one hour after sunset.

—No overnight parking or camping is permitted.

—No discarding monofilament line.

—Signs necessary for visitor information, safety, and traffic control are installed and maintained as necessary.

—The refuge conducts an outreach program to promote public awareness and compliance with refuge public use regulations.

—Fishing access is restricted to designated trails and access points. The designated access points are A-frame road, Delta 13 road, Old Timberline road, and Timberline road to access the Blackwater River.

—Anglers accessing the Blackwater River by watercraft enter the refuge from outside refuge boundaries or one of the designated access points on the refuge. The use of gasoline motors is prohibited on the refuge.

—Routes designated for public access are monitored annually to determine if they continue to meet the compatibility criteria. Biological inventories continue to provide baseline information to measure change. 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 is developed and conducted upon approval. Providing for safe public use through proper administration and regulation, public education, and law enforcement will be essential.

—The possession, use or collection of bait fish (including crayfish and amphibians) is prohibited anywhere on the refuge. Exotic fish introductions from bait fish, and movement of aquatic organisms between watersheds, has impacted native species and their habitats throughout the state.

—All anglers must possess a required state fishing license and must comply with all state fishing regulations (50 CFR. § 32.6(c)).

JUSTIFICATION

Fishing seasons and limits are established by the state and adopted by the refuge. These restrictions are designed to protect fish populations from overharvest. The refuge has established additional regulations and stipulations for refuge lands to protect fish, wildlife, and habitats from potential negative effects. Anticipated disturbances to wildlife would be short term and infrequent based on the current level of use. Sedimentation impacts from foot travel would be minor. Fishing access is limited to designated trails and access points to help minimize potential erosion, sedimentation, soil compaction, and vegetation trampling. Long-term impacts may include certain wildlife species avoiding trail corridors as a result of this use over time. However, the use of trails by anglers would be a minor component of the overall public use program which allows access on designated trails. Additionally, the effects would be limited to the trail corridor and there are larger areas off-limits to public access which would not be disturbed by this use. This ensures the refuge would continue to conserve and protect the wetlands of Canaan Valley as directed in its established purposes under the Emergency Wetland Resources Act (1986).

Based on the current level of fishing, wildlife disturbance impacts would not be significant. Because the majority of the refuge is not stocked with game fish and because it is difficult to access remote beaver ponds and river stretches, the level of fishing activity for most of the refuge is not expected to increase significantly. To minimize effects on native species, harvest or use of bait fish, crayfish, and amphibians is not authorized on refuge lands. This refuge-specific regulation will help ensure the ecological integrity of Canaan Valley as directed by the 1979 EIS.

Observations from refuge staff and anecdotal reports suggest that less than 10 persons per month fish the subject ponds in the northern portion of the refuge. Because of the relatively low level of use and no expectation of a significant increase in use, there would be no significant adverse impacts from wildlife disturbance and compaction of soil and vegetation. When conducted in the manner prescribed at the current use level, fishing would not adversely affect refuge resources or public safety. Given the low density of anglers, conflicts between anglers and other users are minimal, and are addressed through law enforcement, public education, and review and updating of state and refuge regulations as needed.

The majority of the fish that are caught on the refuge are non-native species that are stocked by the state on streams and tributaries outside the refuge boundary. These stocked species are further supplemented by hatchery releases. The state designs its fish stocking program to ensure that there are surplus fish populations to withstand fishing pressure. Therefore, public fishing on the refuge contributes to a balanced conservation program, is operated under sound principles of fishery management, and does not prevent the refuge from conserving or protecting the fish and wildlife resources of the refuge. Stipulations reduce wetland impacts by restricting stream and pond access to public use trails. Wildlife disturbance would be limited to the trail and stream corridors and peripheral areas of beaver ponds which are adjacent to public use trials. There are stream and pond habitats which are not accessible by public use trail and therefore provide habitat for wildlife and wetland plants which will be unaffected by this use.

With the access stipulations provided, the use will not have significant effects on the protection and conservation of wetland resources or the protection and management of migratory birds which will ensure the refuge meets requirements for the Wetland Resources Act (1986) and the Migratory Bird Conservation Act (1929). Since access methods are restricted and observed use is low, it is unlikely that continued public fishing will affect the ability of the refuge to protect, restore, and manage wildlife and their habitats, as directed by the Fish and Wildlife Act of 1956. As long as it is conducted according to the stipulations listed above, fishing would not materially interfere with the refuge purposes of ensuring the ecological integrity of the Canaan Valley, conserving and protecting fish and wildlife resources, conserving wetlands, and protecting migratory birds. Fishing also supports the mission of the Refuge System by providing resource benefits to the American people.

Allowing fishing furthers the mission of the Refuge System by providing access to renewable natural resources for the benefit of the American public while conserving fish, wildlife, and plant resources on the refuge. For the reasons stated above, fishing would not materially interfere with or detract from the mission of the Refuge System or the purposes for which the refuge was established. Monitoring will be conducted to ensure this use remains compatible. If significant impacts are found, corrective actions will be taken to protect refuge resources.

Refuge Manager _____ _____
(Signature) (Date)

Concurrence

Regional Chief _____ _____
(Signature) (Date)

MANDATORY 15 YEAR RE-EVALUATION DATE

_____
(Date)

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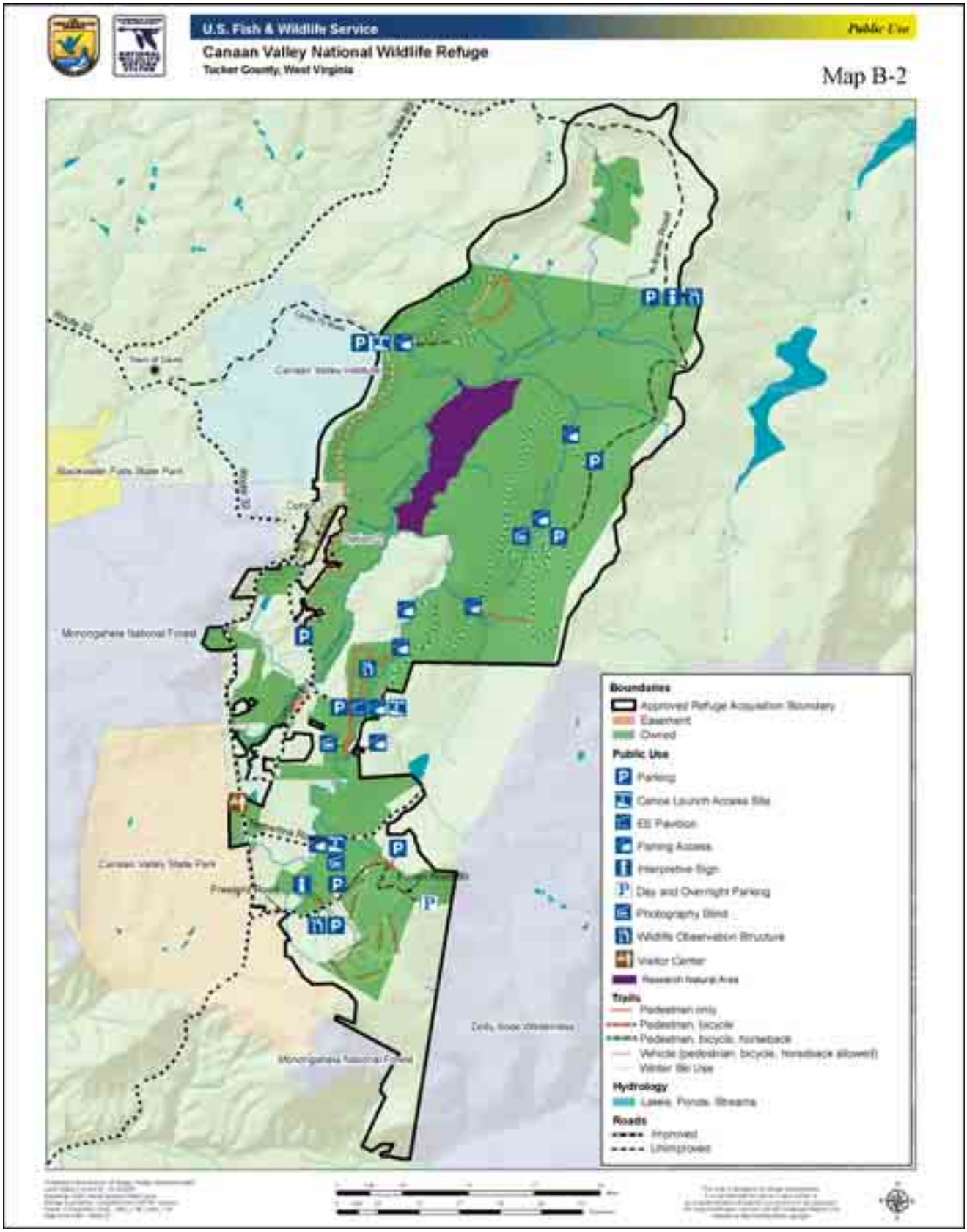
Attachment: Map B-2. Public Use


U.S. Fish & Wildlife Service
Public Use
Canaan Valley National Wildlife Refuge
Tucker County, West Virginia
Map B-2
Town of Davis
Canaan Valley Wildlife
Blackwater Falls State Park
Davis
Monongahela National Forest
Canaan Valley State Park
Freeman Road
Dolly Sods Wilderness
Monongahela National Forest
Boundaries
Approved Refuge Acquisition Boundary
Easement
Owned
Public Use
Parking
Canoe Launch Access Site
ES Pavilion
Fishing Access
Interpretive Sign
Day and Overnight Parking
Photography Blind
Wildlife Observation Structure
Visitor Center
Research Natural Area
Trails
Pedestrian only
Pedestrian, bicycle
Pedestrian, bicycle, horseback
Vehicle (pedestrian, bicycle, horseback allowed)
Winter Ski Use
Hydrology
Lakes, Ponds, Streams
Roads
Improved
Unimproved

COMPATIBILITY DETERMINATION

USE

Wildlife Observation, Photography, Environmental Education, and Interpretation

REFUGE NAME

Canaan Valley National Wildlife Refuge

ESTABLISHING AND ACQUISITION AUTHORITY

The establishment of Canaan Valley National Wildlife Refuge (refuge) was first approved in an Environmental Impact Statement (EIS) released on May 30, 1979. However, the U.S. Fish and Wildlife Service (Service) decided to await the outcome of litigation surrounding a proposed storage hydroelectric facility before pursuing any further action. The approval of the refuge was affirmed by the Service in a 1994 Final Environmental Assessment and Finding of No Significant Impact on July 11, 1994, which confirmed the adequacy of the previously-approved 1979 EIS. The refuge was officially established when the first tract of land was acquired on August 11, 1994. The Service has acquired lands for the Canaan Valley refuge under the following authorities:

1. Fish and Wildlife Act of 1956 [16 U.S.C. 742f(a)(4)]

2. Emergency Wetlands Resources Act of 1986 [16 U.S.C. 3901b]

3. Migratory Bird Conservation Act of 1929 [16 U.S.C. 715d]

REFUGE PURPOSES

The refuge was established to ensure the ecological integrity of Canaan Valley and the continued availability of its wetland, botanical, and wildlife resources to the citizens of West Virginia and the United States (USFWS 1979, 1994). Additional refuge purposes derived from the legislative authorities are as follows:

(1) "... for the development, advancement, management, conservation, and protection of fish and wildlife resources..." (Fish and Wildlife Act of 1956; 16 U.S.C. 742f(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 international obligations contained in various migratory bird treaties and conventions." (Emergency Wetlands Resources Act of 1986; 16 U.S.C. 3901(b)); and,

(3) "... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." (Migratory Bird Conservation Act of 1929; 16 U.S.C. 715d).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION

The mission of the National Wildlife Refuge System (Refuge System) is "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." 16 U.S.C. 668dd(a)(2) (National Wildlife Refuge System Improvement Act of 1997).

DESCRIPTION OF USE

(a) What is the use? Is it a priority public use?
The uses are wildlife observation and photography, environmental education and interpretation accessed by walking or hiking on established roads and trails, or by using non-motorized boats. Wildlife observation, photography, environmental education, and interpretation are priority uses of the Refuge System under the

National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57). While boating is not a priority public use, it facilitates visitor participation in all six priority public uses (fishing, hunting, wildlife observation, photography, environmental education, and interpretation).

Other Supporting Uses: Vehicular Use, Horseback riding, Bicycling, Cross-country skiing, and Snowshoeing, are addressed separately in individual compatibility determinations.

(b) Where will these uses be conducted?
These uses have been allowed and will continue to be allowed on designated roads and trails in all Service-owned areas open to the public. These areas include, but are not limited to the nearly 30 miles of existing designated roads and trails listed below (see Map B-2 for trail locations):

Forest Road (FR) 80 - 2.2 miles
Idleman's Run Road - 0.2 miles
Idleman's Run Trail - 0.4 miles
Freeland Trail - 0.24 miles
Beall Trails - 4.5 miles
Swinging Bridge Trail - 1.1 miles
Brown Mountain Trail - 2.4 miles
Brown Mountain Overlook Trail- 2 miles
A-Frame Road - 4.8 miles
Cabin Mountain Trail - 2 miles
Cabin Mountain Spur - 0.8 miles
Sand Run Trail - 0.9 miles
South Glade Run Crossing - 0.8 miles
Middle Valley Trail - 6.2 miles
Blackwater View Trail - 1.4 miles
Founder's (Valley) Overlook - 0.1 miles

In the Service-preferred alternative of the draft Comprehensive Conservation Plan (CCP)/Environmental Assessment (EA), the refuge proposes to add the following trails to increase connections between existing trails on the refuge:

- Connect Beall Trails to Middle Valley Trail
- Connect Brown Mountain Overlook to Camp 70 Loop to make a large loop
- Coordinate with Canaan Valley Institute and other partners to connect Swinging Bridge trail to Cortland Road

The refuge will evaluate the effects and alternatives to these additional trails in a separate EA. Trail construction and location criteria will follow the conditions established for the existing trail system and will be evaluated based on established trail criteria presented in Stipulations for Compatibility.

The refuge permits access on Service-owned lands for non-motorized boats on the Blackwater River and associated tributaries. This draft CCP/EA proposes to improve existing launch sites.

Any of the above uses may also be allowed on any additional lands acquired by the Service in the future.

(c) When will the uses be conducted?
These uses occur throughout the year when the refuge is open to the public. Currently the refuge is open daily from one-hour before sunrise until one-hour after sunset.

(d) How will the uses be conducted?
Visitors enter the refuge at public entry points or drive to refuge parking areas and walk from there. To participate in these activities, visitors may park vehicles at refuge parking areas, along the shoulders of designated refuge roads and trails, and along public roads.

Wildlife observation and photography occur on an individual or group basis. To accommodate other users and promote a positive wildlife observation experience, we encourage smaller group sizes (i.e., less than 10 members).

Information kiosks identify the roads and trails open for travel and explain permitted public uses. Designated wildlife observation trails on the refuge are described and interpreted in the trail brochures. As trail connections are made, refuge brochures and kiosks will be updated to show all designated trails. Parking lots and kiosks have been constructed at the trailheads of refuge trails.

Boating access is currently provided by allowing hand launch and retrieval of small, non-motorized water craft where accessible.

Contingent on available staffing and funding, the draft CCP/EA also proposes expanding or enhancing these four priority public uses through a variety of methods, including but not limited to:

A. WILDLIFE OBSERVATION AND PHOTOGRAPHY

- If the refuge gains ownership over the portion of Camp 70 road that is within the refuge acquisition boundary, repair and maintain the road as a trail open to pedestrian, equestrian, and bicycle use.
- Allow overnight parking, by permit, at the top of Forest Road (FR) 80 to access the Dolly Sods Wilderness Area.
- Construct an interpretive kiosk and parking area where A-frame Rd. enters the refuge.
- Construct a photo/observation blind along the trail at the end of A-Frame Rd.
- Improve existing boat launch sites and create two new ones,

B. INTERPRETATION

- Increase the number of on-site and off-site interpretive programs.
- Develop the Freeland Trail as a self-guided interpretive trail.
- Provide guided interpretive programs to the refuge's Research Natural Area that highlight the wetland ecosystem of Canaan Valley.
- Develop additional interpretive signs for other trails and kiosks.
- Develop a professional traveling exhibit.
- Create a larger meeting room in the vicinity of the visitor center.
- Open the visitor center daily during times of peak visitation.
- Recruit work camper volunteers and local and part-time resident volunteers to staff the visitor center.

C. ENVIRONMENTAL EDUCATION

- Conduct increased outreach to area schools about opportunities to use the refuge and its library.
- Increase outreach efforts to communities that are within an hour's drive of the refuge.
- Present six to eight programs in the schools per year.

- Develop and present environmental education workshops for teachers, in line with state education standards.

- Construct an environmental education pavilion on the Beall Trail in the vicinity of the Blackwater River.

(e) Why are these uses being proposed?
The National Wildlife Refuge System Improvement Act defines wildlife observation, photography, environmental education, and interpretation as priority public uses that, if compatible, are to receive our enhanced consideration over other general public uses. Authorizing these uses will provide opportunities for the public to enjoy wildlife and plants on the refuge in accordance with law, and it will produce better-informed public advocates for Service programs.

These uses will provide opportunities for visitors to observe and learn about wildlife and wild lands at their own pace in both structured and unstructured environments, and observe wildlife in their natural habitats firsthand. These four priority uses provide visitors with opportunities to enjoy refuge resources and gain a better understanding and appreciation of fish and wildlife, wild lands ecology, the relationships of plant and animal populations in an ecosystem, and wildlife management. These activities will enhance public understanding of natural resource management programs and ecological concepts, enable the public to better understand the problems facing our wildlife and wild lands resources, help visitors to better understand how they affect wildlife and other natural resources, and learn about the Service's role in conservation and restoration.

Photographers will gain opportunities to photograph wildlife in its natural habitat. These opportunities will increase the publicity and advocacy of Service programs. Photography provides wholesome, safe, outdoor recreation in a scenic setting, and entices those who come strictly for recreational enjoyment to participate in the educational facets of our public use program and become advocates for the refuge and the Service.

Visitors need a way to access these priority uses. By allowing visitors to walk, hike, and use non-motorized boats in designated areas of the refuge, we are providing access to these important priority public uses with minimal impacts to sensitive wildlife and habitat.

AVAILABILITY OF RESOURCES

The following list estimates the required costs for the refuge to administer and manage its current programs for wildlife observation and photography, environmental education and interpretation. They do not include the costs of new construction, kiosks, signs and other costs associated with alternative B (the Service-preferred alternative). These costs are described in appendix E in a Refuge Operating and Needs and Service Asset Maintenance Management System data list. They also do not cover un-anticipated costs such as participation in search and rescue operations. The refuge officer is the primary contact for any emergency operations on the refuge, however local resources are available to assist and provide significant resources if necessary. Because such an incident is uncommon and unpredictable, these costs are not assumed in the resources estimate below.

COSTS

Staff time associated with administration of this use is related to assessing the need for road and trail maintenance and repair, maintaining kiosks, maintaining gates, maintaining traffic counters and recording collected data, maintaining sign-posting roads and trails, informing the public about new refuge uses, conducting visitor use surveys, analyzing visitor use patterns, monitoring the effects of public uses on refuge resources and visitors, and providing information to the public about the use. Boating costs are included in these costs.

Annual costs associated with the administration of trail use on the refuge are estimated below:

Road maintenance and repair: (filling significant potholes, maintaining water bars, cleaning culverts, brush clearing) sign installation and repair, trail evaluation and planning

- WG-10 Equipment Operator for 28 work days = $7361.68

Planning trail connections, working with partners

- GS-13 Refuge Manager for 21 working days = $9455.04

Planning and monitoring road conditions and supervising staff to monitor pedestrian travel and its effects on environment and other visitors

- GS-11/12 Deputy Refuge Manager for 7 work days = $2128.50

Law enforcement, monitoring trail users and their interactions with each other, visitor services, and sign maintenance needs while conducting other LE activities.

- GS-9 Refuge Officer for 40 work days = $9830.40

Monitoring environmental effects of pedestrian travel

- GS-12 Wildlife Biologist for 7 work days (training & inspection) = $2572.64,
- GS-11 Wildlife Biologist for 14 work days (monitoring) = $4161.92
- GS-7 Biological Science Technician for 14 work days (monitoring) = $2812.32

Providing information to the public, working with and training Adopt a Trail volunteers, evaluating and planning trail improvements, and analyzing traffic counter and user data

- GS-11 Visitor Services Manager for 20 work days = $7060.80

Vehicle fuel / law enforcement patrols = $1000

Heavy equipment fuel = $600

Total Estimated Costs = $46,983.30

FY 2009 Budget Allocations:
Employee Salaries and benefits = $624,039.53
Fixed costs (utilities, fuel, administrative) = $211,415.23
Base maintenance = $50,000
Discretionary Funds (maps, printing, etc.) = $62,243.32
Total Available Funds for FY 2009 = $947,698.08

The financial and staff resources necessary to provide and administer these uses at their current levels are now available. We expect the resources to continue in the future, subject to availability of appropriated funds. As stated above, we would need additional resources to expand and enhance these uses as described in the draft CCP/EA.

ANTICIPATED IMPACTS OF THE USE

Following are descriptions of potential adverse effects on natural resources of wildlife observation, photography, environmental education, and interpretation accessed by walking, hiking, and non-motorized boating in authorized areas within the refuge. Effects of other modes of access (e.g., snow-shoeing, cross-country skiing) are addressed in separate documents.

Effects on Hydrology and Water Quality: Visitor use has the potential to contaminate the Blackwater River and its tributaries through soil sedimentation from hiking, canoeing, and kayaking into streams and runoff of petroleum products from parking lots. Plans for new visitor trails, an observation platform along A-Frame Road, an environmental education pavilion, and parking lot construction may also cause short-term adverse impacts from soil runoff and sedimentation into the refuge's water resources. A more detailed discussion of the impacts of these construction projects will be addressed in a subsequent environmental assessment after the final CCP for the refuge is approved.

Foot travel—The refuge minimizes adverse effects on water resources in a variety of ways. Refuge staff routinely monitor roads and trails for damage and remediate problem areas as needed. There may be additional impacts to water resources where new trails cross the refuge's rivers, streams, and tributaries increasing the potential short-term and long-term downstream erosion and sedimentation. However, the refuge will maintain trails to minimize erosion and adverse impacts to hydrology and water quality. Additional visitor use also increases the potential for contaminating rivers, streams, and open water through the runoff of petroleum products from parking lots. Refuge parking lots are not located directly adjacent to streams, rivers, or other wetlands. Additionally, parking lots are graveled and are therefore more porous than impervious surfaces such as tar.

The construction of boardwalks on some trails may result in short-term localized effects to hydrology and water quality during construction. By providing a path for users to cross over the wetlands and not through them, long-term adverse effects to hydrology and water quality will be minimized.

Boating—The refuge is planning to provide improved boat launch sites, which would benefit water resources as a whole by concentrating use to specific locations; however, adverse impacts may be observed at these sites. Increasing boat access would increase the risk of spreading aquatic invasive species in refuge waterways and would increase the risk of stream bank erosion and siltation. In addition, an increase in recreational boating activities might lead to river and stream contamination from trash and surface run off. By improving these launch sites, the refuge will minimize risks of stream bank erosion and siltation into refuge waterways. Public outreach would notify those visitors of proper precautions, including carrying out all trash and methods to reduce the spread of aquatic invasive species. Refuge law enforcement will also contact boaters to provide information on aquatic invasive species and monitor launch areas for invasive infestations. This would help minimize risks associated with visitor use of waterways on the refuge.

Effects on Vegetation: To facilitate wildlife observation, photography, environmental education, and interpretation, we would allowing hiking access and boating access on designed roads and trails. Short-term effects consist of the deterioration of plant material, whereas long-term effects of trampling include direct and indirect effects on vegetation and soils like diminishing soil porosity, aeration and nutrient availability through soil compaction (Kuss 1986, Roovers et al. 2004). Compaction of soils thus limits the ability of plants, particularly rare and sensitive species, to revegetate affected areas (Hammitt and Cole 1998). Kuss (1986) found that plant species adapted to wet or moist habitats are the most sensitive and increased moisture content reduces the ability of the soil to support recreational traffic. Where adverse impacts to vegetation are observed, the refuge would take necessary measures, such as remediation and trail closures, to restore plant communities.

It is anticipated that allowing use on designated routes will cause some vegetation loss. Foot travel may increase root exposure and trampling effects, however it is anticipated that under current and projected use the incidence of these problems will be minor. Designated routes for pedestrian travel consist of former logging roads with hardened surfaces or are existing trails that have been used for many years. Designated routes do not have any known occurrences of rare plant species on their surface or soils subject to compaction that would be impacted by this use. Some rare plants have been documented in habitat adjacent to trails. Users leaving designated trails could have impacts to adjacent vegetation. Trails will be monitored, problem areas will be identified, and appropriate restoration and protection efforts will be made.

Boating—Boating may adversely affect vegetation in several ways. Direct impacts on vegetation can result from portaging boats over stream banks and through wetland vegetation. Riparian soils and habitat are sensitive, and negative effects on vegetation are likely to occur along stream and river banks where visitors launch canoes, kayaks, and other non-motorized boats. To help protect sensitive riparian vegetation, we propose

to improve existing boat launch sites. Improvement will primarily focus on adding gravel to small sections of the bank to create a stable launch area and creating small gravel parking areas nearby. Refuge boat access sites and trails will be located away from sensitive wetlands, peat lands, and rare plants under all alternatives. Habitat features important for trout, such as overhanging banks, will also be protected from disturbance. These efforts will help mitigate risks associated with visitor use of waterways on the refuge.

Effects on Soils: Trail use on the refuge could adversely impact soils through compaction, erosion, and sedimentation.

Foot travel—Soils can be compacted and eroded as a result of continued use of pedestrian routes. The Mauch Chunk-derived soil in Canaan Valley is particularly vulnerable to mechanical erosion when the vegetation has been removed (Rizzo 2002). If compacted, Mauch Chunk soils can facilitate rapid water runoff that accelerates erosion down slope (Rizzo 2002). Although it is unlikely foot travel would create highly erosive conditions, lug soles on hiking boots can exacerbate the problem.

There would be localized soil compaction and loss of productive soil where soils are removed or surfaced for observation platforms, environmental education pavilion, parking lots, kiosks, roads, and trails and in adjacent areas where vehicles and heavy equipment are used for site access and preparation work. These impacts would constitute unavoidable adverse impacts from refuge infrastructure improvements but would be short-term and temporary as restoration and revegetation of construction sites would be prioritized. Additionally, trail construction projects may cause temporary disturbance to improve trails but would lead to more stable and sustainable trails over the long term.

Construction and maintenance of trails would result in short-term and long-term adverse impacts to soils. To provide connectivity to already existing trails, we are proposing three new trails. In cases where exact trail location has not been determined, the refuge plans to use existing logging roads and avoid wetlands where possible to minimize the impact from and extent of new trail development. New trail construction, estimated at no greater than 7.5 miles, will cause short-term impacts to soils. Impacts of new trail construction will be evaluated in a supplemental environmental assessment.

The creation of a boardwalk to connect Camp 70/Delta 13 trail to Brown Mountain Overlook trail will create short-term direct impacts to soils through trail construction. No construction other than placement of boardwalk pilings would be done in wetlands so there would be short-term localized effects to wetland soils during construction and potential for long-term impacts on wetland plants from the shading effect produced by the boardwalk itself. The purpose of the boardwalk is to provide a new trail connection which will help prevent greater long-term negative impacts to sensitive wetlands soils. By providing a path for users to cross over the wetlands and not through them, long-term effects to unsuitable and highly compactable soils will be avoided.

Over the long-term, the risk of erosion and sedimentation problems that might affect soils in these habitats would increase with increased visitor usage and trail use. At current levels the trail system supports hiking. Wetland complexes adjacent to active trails, like the Middle Valley trail and South Glade Run Crossing trail, would be of particular concern as degradation from hiking would increase the potential for soil compaction, erosion, and sedimentation into adjacent wetlands and streams. Trail surveys completed in 2002 and again in 2005 showed an improvement in trail conditions. For example, following refuge acquisition and as a result of initial trail maintenance, instances of erosion dropped by 58% and number of bootleg trails dropped by 38%. This indicates that the current level of trail use and maintenance results in a sustainable level of trail use. In fact, trail conditions have improved relative to when the refuge first acquired the property. Future monitoring efforts will document trail conditions to focus management actions on locations which will minimize erosion and sedimentation as a result of public use activities.

Boating—Soil impacts related to boating are confined to launch sites. Riparian soils and habitat are sensitive, and soil erosion and compaction are likely to occur along stream and river banks where visitors launch canoes, kayaks, and other non-motorized boats. To minimize negative effects associated with boating, we propose to designate and improve two to three boat launch sites. Improvement will primarily focus on adding gravel to small sections of the bank to create a stable launch area and creating small gravel parking areas nearby. Impacts of creating new boat launch sites will be evaluated in a supplemental environmental assessment.

Effects on Wildlife: Short-term and long-term adverse impacts would be expected for wildlife populations in relation to increasing trail miles and visitor use. Disturbances will vary by wildlife species involved and the type, level, frequency, duration, and the time of year activities occur. Beale and Monaghan (2004) found that adverse effects to wildlife increase as number of users increase. The study found that an animal's response to one visitor walking down a trail is entirely different than its response to a group of users walking down a trail. The refuge recognizes that large group sizes may amplify negative effects to wildlife. Therefore, groups larger than 10 are required to notify the refuge prior to visiting to determine if a special use permit would be needed. This will enable the refuge to understand which trails are preferred by large groups, and to monitor any potential excessive wildlife disturbance created by large groups. Having the ability to monitor these kinds of disturbances will also enable the refuge to mitigate impacts associated with large groups. Examples of mitigation may include directing large groups to less sensitive habitats during breeding seasons or assigning refuge staff to lead or meet with the group while on refuge lands.

Disturbance can cause shifts in habitat use, abandonment of habitat and increased energy demands on affected wildlife (Knight and Cole 1991). Miller et al. (1998) found bird abundance and nesting activities (including nest success) increased as distance from a recreational trail increased in both grassland and forested habitats. In this study, common species (e.g., American Robins) were found near trails and rare species (e.g., Blackburnian warblers) were found farther from trails. In some cases there is a clear link between the extent of disturbance and either the survival or reproductive success of individuals (e.g., Schulz and Stock 1993), but in many cases disturbance acts in a more subtle way, by reducing access to resources such as food supplies or nesting sites (Gill et al. 1996). Bird flight in response to disturbance can lower reproductive success by exposing individuals and nests to predators. For recreation activities that occur simultaneously (hiking, biking, and horseback riding) there would likely be compounding negative impacts to wildlife (Knight and Cole 1991).

There is evidence to suggest that species most likely to be adversely affected are those where available habitat is limited thus constraining them to stay in disturbed areas and suffer the costs of reduced survival or reproductive success (Gill et al. 2001). Because of the diversity of habitats represented on the refuge, its rural setting, and adjacency to large tracts of protected lands, any population level effects to wildlife species from trail use might be minimized by the abundance of habitat on the refuge and adjacent lands. Additionally, trail development has striven to avoid sensitive habitats and extensive open areas to reduce the effects of disturbance to wildlife on the refuge. Spreading the disturbance within the most common habitat type on the refuge, and the most common habitat type regionally, further reduces the overall effect on wildlife tied to that habitat.

Wildlife disturbance may be compounded by seasonal needs. For example, causing mammals to flee during winter months would consume stored fat reserves that are necessary to get through the winter. Hammitt and Cole (1998) found white-tailed deer females with young are more likely to flee from disturbance than those without young. Some species, like warblers, would be negatively affected by disturbance associated with birdwatching particularly during the breeding season.

For songbirds, Gutzwiller et al. (1994) found that low levels of human intrusion altered the singing behavior of some species. Disturbance may also affect the reproductive fitness of males by hampering territory defense, mate selection, and other reproductive functions of vocalizations (Arrese 1987). Disturbance, which leads to reduced singing activity, would make males rely more heavily on physical deterrents, which are time- and energy-consuming in defending territories (Ewald and Carpenter 1978).

Birds are not the only species that may be adversely affected by human disturbance. Short-term localized adverse impacts to fish populations may result from refuge construction and restoration projects that might cause soil erosion and sedimentation into refuge waterways. Long-term adverse impacts from increased trail miles and trail use might pose another concern to refuge fisheries. Trails that have stream and river crossings would likely degrade over time with increased use and contribute to downstream sedimentation and turbidity, which has been found to be a stressor to brook trout (Sweka and Hartman 2001) and redside dace (Holm and Crossman 1986) populations that are sensitive to habitat degradation. The refuge would monitor stream and river crossings closely and remediate any damaged areas to minimize adverse impacts associated with trail use.

West Virginia northern flying squirrels have been documented on refuge property near the end of FR 80. This species has recently been removed from the endangered species list. The recovery plan (USFWS 2001) notes that habitat modification may create a competitive advantage for the southern flying squirrel (*Glaucomys volans*), although the extent to which a logging road or trail would create conditions conducive for this are unknown. Some research has found northern flying squirrels occupying den sites near logging roads, skid trails and on hiking trails (Ford 2002).

Refuge visitors who choose to boat may cause localized, minor, short-term impacts by disturbing the bottom substrate in shallow water. In addition, discarded items such as plastic containers present a risk for waterfowl and other birds.

We will take all necessary measures to minimize all of these impacts, particularly where group educational activities are involved. We will evaluate the sites and programs periodically to assess whether they are meeting the objectives, and to prevent site degradation. If evidence of unacceptable adverse impacts appears, we will rotate the activities to secondary sites, or curtail or discontinue them. We will continue to close areas seasonally around active bird nesting sites to minimize human disturbance. We will post and enforce refuge regulations, and establish, post, and enforce closed areas.

Effects on Threatened and Endangered Species: There are two federally listed species known to occur on the refuge, and one species that has recently been de-listed, as described in the previous subsection. Cheat Mountain salamanders (*Plethodon nettingi*), listed as threatened, have been documented near the upper section of FR 80, and near the cross-country ski trails in that area. Indiana bats (*Myotis sodalis*), listed as endangered, are known to use the refuge's forested areas for summer foraging and may have a summer maternity colony on refuge lands as well. The refuge requested Section 7 informal consultation with the Service's West Virginia Field Office under the Endangered Species Act (16 U.S.C. 1536) on all the actions in alternative B of this draft CCP/EA, including wildlife observation, photography, environmental education and interpretation, that could potentially impact listed species. This process resulted in a finding that the proposed actions in the draft CCP/EA are not likely to adversely affect the listed species or their associated habitats on the refuge. The full Intra-Service Section 7 Biological Evaluation form can be found in appendix I of this draft CCP/EA.

Cheat Mountain salamanders—This species is sensitive to any habitat changes that remove a forest canopy or reduce soil moisture and relative humidity. According to Pauley (1991), trails that receive heavy use resulting in bare trail treads could limit movements of Cheat Mountain salamanders and interfere with reproduction. Consequently, the refuge limits the use of trails near Cheat Mountain salamander habitat to winter cross-country skiing. For impacts to salamanders from cross-country skiing and snowshoeing, see the compatibility determination that addresses those uses. We are not proposing any changes to current activities on Cheat Mountain salamander habitat, so no adverse impacts are expected with these visitor uses. Also, we do not anticipate any adverse impacts from use associated with boating since there are no navigable waters in the area where this species is known to occur.

Indiana Bats—Based on the bat call surveys, the refuge appears to provide foraging and roosting habitat for Indiana bats during the summer and fall, but no known hibernacula or maternity colonies exist in Canaan Valley. We are planning to continue mist net surveys to assess the status of Indiana bats within the refuge. If maternity and roosting colonies do exist or are likely to become established on the refuge, disturbance from visitor use could adversely affect Indiana bats. If roosting colonies are discovered locations for public uses will be chosen to avoid these sites. We will periodically evaluate sites and programs to assess whether objectives are being met and to prevent site degradation.

Routes designated for these uses are pre-existing roads and trails, some of which have been in existence for many years. No new habitat clearing will be required to accommodate visitor activities; however some vegetation clearing will be required for maintenance within trail corridors. Similar to the Cheat Mountain salamander, we anticipate that these are not likely to adversely affect Indiana bats because these activities do not coincide with the area where this species is known to occur.

As described, these public uses are not likely to adversely affect threatened or endangered species.

PUBLIC REVIEW AND COMMENT

This compatibility determination will be made available for public review and comment for 45 days as an appendix to the draft CCP/EA for Canaan Valley National Wildlife Refuge.

DETERMINATION

_____ Use is Not Compatible

__X__ Use is Compatible With the Following Stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY

The refuge has developed a list of criteria for determining whether any given route would be appropriate for public wildlife observation, wildlife photography, environmental education or interpretation. These criteria would apply to current and future trails. Criteria are as follows:

Checklist for Existing Routes to Be Eligible for Compatibility Consideration
(Routes must meet all criteria)

1. Route provides an opportunity to view a variety of habitats and wildlife.

2. Route is safe for the access proposed at current use levels.

3. Route requires minimal annual maintenance (i.e, waterbars, stepping stones, etc.) to ensure safe access and to prevent further habitat degradation.

4. Route has a low potential for fragmenting habitat or disturbing wildlife populations.

5. 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.

6. Any route crossing of sensitive soils occupies the shortest possible distance. Organic soil crossings are minimized or eliminated.

7. 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.

8. Route predominately occupies modified substrate (graveled, compacted, or filled) like logging roads and rail grades.

9. Route is not incised greater than 1 foot deep over 10% of its total length.

Additional stipulations that would apply to ensuring compatibility include:

— Refuge regulations will be posted and enforced. Closed areas will be established as needed, posted, and enforced. Signs necessary for visitor information, safety, and traffic control will be kept up to date.

— The known presence of a threatened or endangered species will preclude any new use of an area until the refuge manager determines otherwise.

— Locations for public uses will be chosen to minimize impacts to wildlife and habitat. We will periodically evaluate sites and programs to assess whether objectives are being met and to prevent site degradation. If evidence of unacceptable adverse impacts appears, the location(s) of activities will be rotated with secondary sites, curtailed, or discontinued.

—Walking, hiking, and boating to facilitate wildlife observation, photography, environmental education and interpretation is only compatible on designated roads, trails, and waterways.

—Walking and hiking are restricted to refuge open hours: 1 hour before sunrise until 1 hour after sunset. Boat launching and retrieval from refuge lands are restricted to refuge open hours.

—Camping and overnight parking are currently prohibited. However this draft CCP/EA proposes to allow overnight parking by special use permit at the end of Forest Road 80 to facilitate visitor access to non-refuge lands.

—The refuge conducts an outreach program to promote public awareness and compliance with public use regulations on the refuge.

—Group size is encouraged to be no more than 10 persons to promote public safety, accommodate other users, and reduce wildlife disturbance. Groups larger than 10 persons must contact the refuge office prior to visiting the trail system so the refuge can determine if the group will require a special use permit. Groups traveling only on roads shared with vehicles are not required to contact the refuge office or obtain a special use permit.

—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 and trails are maintained at a level that reasonably accounts for safe travel. Roads are not plowed in winter.

—Guidelines to ensure the safety of all participants will be issued in writing to any special use permit holder for the activities and will be reviewed before the activity begins.

—Routes designated for public access are monitored periodically to determine if they continue to meet the compatibility criteria (listed above) established by the refuge. Should monitoring and evaluation of the use(s) 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.

—Routine law enforcement patrols are conducted throughout the year. The patrols promote education and compliance with refuge regulations, monitor public use patterns and public safety, and document visitor interaction. .

—Potential conflicts with other public uses such as hunting will be minimized by using trailhead signs and other media to inform the visitors about current public use activities as well as which activities are authorized in specific locations throughout the refuge.

JUSTIFICATION

Environmental education, interpretation, wildlife observation, and photography are all priority public uses and are to receive enhanced consideration on refuges, according to the Refuge Improvement Act of 1997. Providing increased wildlife dependent recreational opportunities promotes visitor appreciation and support for refuge programs as well as habitat conservation efforts in Canaan Valley and elsewhere.

Environmental education and interpretation activities generally support refuge purposes and impacts can largely be minimized (Goff et al. 1988). Environmental education and interpretation are public use management tools used to develop a resource protection ethic within society. These tools allow us to educate refuge visitors about endangered and threatened species management, wildlife management, ecological principles and ecological communities. Environmental education and interpretation also instill an 'ownership' or 'stewardship' ethic in visitors. They strengthen Service visibility in the local community.

The majority of visitors to the refuge are there to view and/or photograph the wildlife and upland, wetland, and grassland habitat areas. Some visit to develop an understanding of natural or cultural history. This purpose is in accordance with a wildlife-oriented activity and is an acceptable secondary use. There will be some visitor impacts from this activity, such as trampling vegetation (Kuss and Hall 1991) and disturbance to wildlife near trails (Burger 1981, Klein, 1989); however stipulations to ensure compatibility will make these impacts minimal.

For example, wildlife disturbance will be limited to the trail corridor that represents a fraction of the wildlife habitat available which will remain un-disturbed.

By allowing these uses on trails which have been evaluated by refuge staff to meet the criteria presented in this document, physical impacts to vegetation, soils, hydrology, wetland communities and ecological integrity of Canaan Valley will be minimized. Through proper trail maintenance these impacts will be further reduced. Hydrologic and soil impacts were generally inherited with refuge lands and are being remediated through routine maintenance operations. These uses will not affect the refuge's ability to restore impacted lands nor will they materially increase sedimentation, erosion or hydrologic impacts on refuge lands.

By limiting the uses to designated trails on a small percentage of the refuge and within the most common habitat type, disturbance will be limited and manageable. For this reason disturbance effects will not prevent the refuge from fulfilling the purposes of the Fish and Wildlife Act (1956) or the mission of the Refuge System for conserving, managing, restoring, and protecting wildlife resources. Through these measures the refuge would still be able to fulfill its obligations to ensure the biological integrity of the refuge's wildlife, plant and habitat resources. Since no public use trails occur on the lands acquired under the Migratory Bird Conservation Act of (1929), these uses will have no effect on the protection and management of migratory birds on those tracts. The stipulations reduce anticipated impacts and trails occupy predominately upland habitats so that these uses will not interfere with the refuge's ability to protect, manage and conserve the wetland resources or the wildlife as directed by the Emergency Wetland Resources Act (1986). Therefore these uses will not interfere with the refuge purposes of ensuring the ecological integrity of the Canaan Valley as directed by the 1979 EIS.

These uses will not have an affect on threatened or endangered species. No public use trails are open on lands which are occupied by threatened Cheat Mountain salamanders when they are active. The endangered Indiana bat is nocturnal and therefore these uses will not affect their foraging activities. No bat roosts have been documented on refuge land; however, if future information determines the presence of a roost or maternity colony which may be affected by these uses, the refuge will work with the Service's Ecological Services Office to ensure that no adverse affects will occur.

For the reasons discussed above, these uses will not affect the refuge's ability to conserve wetlands or protect, manage, and restore the wildlife and plant resources, as mandated through the Emergency Wetlands Resources Act (1986) and the Fish and Wildlife Act (1956), or the mission of the Refuge System. Since public use trails do not occur on lands acquired under the Migratory Bird Conservation Act (1929), these uses will not affect the refuge's ability to protect and manage migratory birds on those tracts. Based on this information, we have determined that environmental education and interpretation and wildlife observation and photography will not materially interfere with or detract from the mission of the Refuge System or the purposes for which the refuge was established.

Refuge Manager _____ _____
(Signature) (Date)

Concurrence

Regional Chief _____ _____
(Signature) (Date)

MANDATORY 15 YEAR RE-EVALUATION DATE

_____
(Date)

LITERATURE CITED

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COMPATIBILITY DETERMINATION

USE

Bicycling to Facilitate Priority Public Uses

REFUGE NAME

Canaan Valley National Wildlife Refuge

ESTABLISHING AND ACQUISITION AUTHORITY

The establishment of Canaan Valley National Wildlife Refuge (refuge) was first approved in an Environmental Impact Statement (EIS) released on May 30, 1979. However, the U.S. Fish and Wildlife Service (Service) decided to await the outcome of litigation surrounding a proposed storage hydroelectric facility before pursuing any further action. The approval of the refuge was affirmed by the Service in a 1994 Final Environmental Assessment and Finding of No Significant Impact on July 11, 1994, which confirmed the adequacy of the previously-approved 1979 EIS. The refuge was officially established when the first tract of land was acquired on August 11, 1994. The Service has acquired lands for the Canaan Valley National Wildlife Refuge under the following authorities:

1. Fish and Wildlife Act of 1956 [16 U.S.C. 742f(a)(4)]

2. Emergency Wetlands Resources Act of 1986 [16 U.S.C. 3901

3. Migratory Bird Conservation Act of 1929 [16 U.S.C 715d]

REFUGE PURPOSES

The refuge was established to ensure the ecological integrity of Canaan Valley and the continued availability of its wetland, botanical, and wildlife resources to the citizens of West Virginia and the United States (USFWS 1979, 1994). Additional refuge purposes derived from the legislative authorities are as follows:

(1) "... for the development, advancement, management, conservation, and protection of fish and wildlife resources..." (Fish and Wildlife Act of 1956; 16 U.S.C. 742f(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 international obligations contained in various migratory bird treaties and conventions." (Emergency Wetlands Resources Act of 1986; 16 U.S.C. 3901(b)); and,

(3) "... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." (Migratory Bird Conservation Act of 1929; 16 U.S.C. 715d).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION

The mission of the National Wildlife Refuge System (Refuge System) is "…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 it a priority public use?
The use is bicycling. Bicycling is not a priority public use within the National Wildlife Refuge System.

(b) Where will these uses be conducted?
Bicycling is allowed on designated roads and trails on the refuge. Bicycling may also be allowed on any additional trails constructed or opened to the public through this Comprehensive Conservation Plan (CCP) or other appropriate regulatory process. See map B-2 for locations of bicycling trails.

(c) When will the uses be conducted?
Bicycle travel is authorized on designated roads and trails year-round. Daily use hours are from one-hour before sunrise until one-hour after sunset. This use may be restricted during the late-fall and winter when the refuge has priority, wildlife-dependent activities (like deer hunting) in progress. This helps ensure public safety and minimize user conflicts.

(d) How will the uses be conducted?
Cyclists either travel to the refuge by bicycle and enter at public entry points or transport bicycles by vehicle and depart from designated parking areas. Travel is limited to designated roads and trails, where road width can accommodate the safe passage of other users. Designated roads and trails also have sufficient viewing distance for bicyclists to detect the approach of other users and maneuver to accommodate them.

Information kiosks identify the roads and trails open for travel and explain permitted public uses. Current designated wildlife observation trails on the refuge are described in the trail brochure. As trail connections are made, refuge brochures and kiosks will be updated to show all designated trails. Parking lots and kiosks have been constructed at the trailheads of refuge trails.

Bicycling occurs on individual and group bases. To accommodate other users and promote a positive wildlife observation experience, we encourage smaller group sizes (i.e., 10 people or less). Groups larger than 10 persons must contact the refuge office prior to visiting the trail system so the refuge can determine whether the group will require a special use permit.

Refuge staff will continue to record visitor numbers seen during patrols, types of access, user interactions, and potential safety concerns. Safety and information signs will be installed and maintained as necessary. Designated roads and trails 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.

Additional trails also may be constructed or opened to bicycle use. A subsequent environmental assessment will evaluate the alternatives and effects of new trails on refuge resources. The refuge would minimize adverse impacts by using its trail/route checklist in the stipulations below to determine whether the existing or new trail meets established criteria and addresses impacts to soil compaction and erosion potential. If a trail does not meet the checklist criteria, appropriate modifications will be made to trail routes either by locating a more suitable site or adding infrastructure to minimize short-term, localized and long-term impacts to soils and other resources.

(e) Why are these uses being proposed?
One of the secondary goals of the Refuge System is to provide opportunities for the public to develop an understanding for wildlife wherever those opportunities are compatible. Many visitors participating in this activity will be directly engaged in the priority public uses which are identified in the National Wildlife Refuge Improvement Act of 1997.

The use of bicycles provides increased opportunity for public participation in and access to priority public uses such as fishing, wildlife observation and photography, and environmental education and interpretation. Bicycling provides visitors with a way to view the refuge's diverse biological assets. This exposure may lead to a better understanding of the importance and value of the Refuge System to the environment and the American people. Bicycle access has been allowed on the refuge since the refuge was established in 1994, and was found to be compatible in a compatibility determination signed August 1, 2003.

AVAILABILITY OF RESOURCES

The resources necessary to provide and administer road and trail 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 and trail maintenance and repair, infrastructure maintenance, recording collected data, sign-posting roads and trails, informing the public about new refuge uses, conducting visitor use surveys, analyzing visitor use patterns, monitoring the effects of public uses on refuge resources and visitors, and providing information to the public about the use. These activities would be conducted in conjunction and are not additive to the activities outlined in the "Wildlife Observation and Photography," and "Environmental Education and Interpretation" compatibility determinations; therefore bicycling would not require additional staffing or resources.

ANTICIPATED IMPACTS OF USE

Bicycling has the potential to affect a variety of migratory and resident wildlife and their habitats. Possible negative effects include disturbing wildlife, removing or trampling vegetation, littering, vandalism, and entering closed areas. Refuge staff will monitor the impacts of this use on roads and trails to assess potential negative effects. The refuge trail monitoring plan evaluates physical impact monitoring of the trail bed including percent trail incision, exposed roots, and puddles. Additionally it measures numbers of "bootleg trails" and trail width. The established criteria are used to evaluate when the level of use or the way the public is using the trail becomes incompatible with the protection of the physical resources (soils, vegetation) the refuge is charged to protect. In the event of persistent disturbance to habitat or wildlife, the activity will be restricted or discontinued.

Effects on Hydrology and Water Quality: Visitor use has the potential to contaminate refuge wetlands, and the Blackwater River and its tributaries by introducing soil sedimentation from bicycling and runoff of petroleum products from parking lots into streams. Trail maintenance may cause short term erosion and sedimentation in area waters. There may be additional impacts to water resources where new trails cross the refuge's rivers, streams, and tributaries increasing the potential short-term and long-term downstream erosion and sedimentation. The impact of new trail development will be addressed in a subsequent environmental assessment. If visitor use increases over time the potential for contaminating rivers, streams, and open water through the runoff of petroleum products from parking lots can be expected to increase as well.

Roads and trails used for bicycle travel can affect the hydrology of an area, primarily through alteration of drainage patterns. Bartgis and Berdine (1991) note that roads and trails can divert water from their original drainage patterns in Canaan Valley. This results in some drainages receiving less water and therefore becoming drier, while others are forced to carry more water resulting in accelerated erosion and increased water levels. Zeedyk (2002) documented many instances in Canaan Valley where existing roads and trails were channeling water away from historical wetlands and in some cases causing erosion and sedimentation of bog and other wetland communities. These problems have profoundly if not irreversibly altered the extent, depths, characteristics and function of the wetlands on the Main Tract (Zeedyk 2002). The effects of these trails and roads were a direct result of vehicle use and road construction prior to the refuge's acquisition of the property. Since then measures have been taken to remediate erosion and sedimentation issues, particularly on trails that are open to public access. Furthermore, since the refuge has now acquired lands within the acquisition boundary, it can prohibit vehicle use and road construction in certain areas so as to minimize these types of impacts.

Many of the roads evaluated are not open to public use and have been or are planned to be restored to minimize hydrologic impacts. The old roads currently in public use were evaluated for their potential impact to wetland resources and their continued use will not substantially increase their historical impact to refuge wetlands. We will focus maintenance and restoration activities to ensure a quality public use experience. Routine maintenance to redirect water and repair existing erosion is required to sustain bicycling routes due to the erosive nature of some soils on refuge trails. Rizzo 2002, Zeedyk 2002). If access occurs when conditions are wet, bicycle tires can create narrow ruts in the trail bed. If this occurs on a slope, water will channel in these ruts and accelerate erosion. Trail work to move water off the trail bed and harden areas which are susceptible to erosion is necessary to mitigate this impact. Much of this work has been conducted since the 2002 evaluations by refuge staff and volunteers. Regular trail work is conducted to move water from the trail bed and reconstruct trails for proper drainage. This reduces the overall impact of the trail and the use of bicycles on the trail to the hydrology of refuge wetlands. This work is not additional to the regular annual maintenance required to facilitate other public access methods.

The refuge minimizes adverse effects on water resources in a variety of ways. Refuge staff routinely monitors roads and trails for damage and remediates problem areas as needed. Trail maintenance is conducted to help minimize negative effects associated with trail use. These activities include maintenance and creation of water bars to move water off the trail tread, hardening areas which are sensitive through rock placement, and brushing in areas where "bootleg" trails are becoming evident. Through regular maintenance and proper trail construction techniques, refuge staff will ensure any potential negative effects are avoided or minimized

We anticipate that bicycle use could alter drainage features of roads and trails through erosion and compaction, potentially affecting water quality and hydrology in sections of the trail system where soils are more erosive. Tires may create trail incision causing increased water channeling and erosion during wet conditions. These problems would be minimized because routes designated for bicycle use are on existing logging and skid roads, and most have hardened surfaces (trails with embedded rocks) or already compacted soils. These routes are located predominately on upland soils to prevent impacts to fragile wetland soils. Because bicycle routes are permitted only on trails which are stable (typically all old logging road beds) and the trail maintenance is performed by the refuge staff and volunteers, adverse effects on water resources, will be minimized.

Effects on Vegetation: Bicycle use can cause compaction, of presently uncompacted soils, particularly when soils are wet, which can degrade plant communities associated with fragile organic soils. Soil compaction can diminish the soil porosity, aeration, and nutrient availability. These directly affect plant growth and survival (Kuss 1986). Compaction can also limit the re-colonization of areas due to increased difficulty for root growth and penetration in the affected soils (Hammitt and Cole 1998). Kuss (1986) found plant species adapted to wet or moist habitats are the most sensitive, and increased moisture content reduces the ability of the soil to support recreational traffic.

It is anticipated that bicycling will have some impacts on refuge plant communities growing on the designated travel routes by crushing the plants themselves. Designated routes for bicycle travel consist of former logging roads with hardened surfaces or are existing trails that have been used for many years. These routes are located predominately on upland soils to prevent impacts to fragile wetland soils and associated plant communities. Some rare plants have been documented in habitat adjacent to trails; however, rare plant species have not been found on the designated route surfaces themselves. Monitoring includes documenting off trail riding, which often creates "bootleg" trails. Often these trails develop when trail conditions deteriorate (muddy soil, puddles) or if a tree fall blocks the designated trail route. Impacts of off trail bike riding can be minimized through proper trail maintenance which keeps riders on designated trails and prevents vegetation impacts adjacent to trails. In the case of new trail construction, the refuge will follow the trail checklist to minimize impacts to refuge resources. A subsequent environmental assessment will evaluate the effects of proposed new trails on refuge resources.

Exposed soil and an abundance of sunlight along roads and trails provide ideal conditions for the establishment of invasive plant species. Bicycle use may impact vegetation and create bare soil conditions, thus creating conducive conditions for invasive species growth. Invasions result from the use of foreign material to construct and maintain roads and trails, and from seed transport via visitors and vehicles traveling on roads and trails. Stout (1992) found that roads and trails created through emergent wetlands were being colonized by barnyard grass (*Echinochloa crusgalli*), which displaces native plants, and is a species on the West Virginia state list of invasive exotic plants. Designated routes do not cross any emergent wetlands. Instead, they mostly include old logging roads that previously have been planted with exotic cover species following logging operations.

Invasive plants, if allowed to establish and spread, can cause major damage to native plant assemblages and the wildlife they support. We will monitor for invasive species and control or eliminate them annually. Key among these invasive plants species are reed canary grass (*Phalaris arundinacea*), multiflora rose (*Rosa multifora*), yellow flag iris (*Iris pseudacorus*), and cattails. We will take proper care in cleaning and maintaining all refuge equipment to avoid introduction or transport of invasive plants through refuge- or volunteer-based trail maintenance programs. Based on current trail monitoring results, invasive species presence along trails is low. Therefore it is likely that the current levels of bicycle use and all other public uses permitted on these trails are not causing significant increases in invasive plants relative to the current vegetative community on designated routes.

The refuge minimizes adverse effects on vegetation in a variety of ways. Refuge staff routinely monitors roads and trails for damage and remediates problem areas as needed. Trail maintenance is conducted to help minimize any negative effects associated with trail use. Staff and volunteers also monitor the refuge for the presence of invasive species with the intent of controlling or eliminating them. Because bicycle use is limited to an existing trail bed which is typically packed earth (from past logging road use), direct effects of vegetation impacts will be minimal. There will be minimal impacts to the vegetation growing on the trail itself, typically native and non-native grasses and forbs. Any impacts will occur in the maintained bicycle trail corridor. This corridor does not provide significant habitat for native plant communities on the refuge. If future evidence

of unacceptable adverse impacts appears, we will re-route, curtail, or close trails to this use as deemed appropriate. Additionally, the amount of bicycle use (as documented by trail inventories and observation of direct physical impacts) relative to other permitted activities will be considered when making changes to bicycle use on trails.

Effects on Soils: Bicycle wheels can cause physical impacts to soil surfaces. Cessford (1995) notes the shearing action of wheels creates damage to roads and trails, which increases when trail conditions are wet or when traveling up a steep slope. When traveling down slope, skidding with hard braking can result in loosening soil surfaces, which leads to rutting and erosion by channeling water down wheel ruts. If braking is not performed on downhill travel, the impact of tires on the slope will be much less damaging (Cessford 1995).

The Mauch Chunk-derived soil in Canaan Valley is particularly vulnerable to mechanical erosion when vegetation has been removed (Rizzo 2002). This type of erosion may occur when bicycle wheels skid or spin over the soil surface. This can create wheel channels causing rapid water runoff that accelerates erosion down slope (Rizzo 2002).

Trails designated for bicycle use were selected based on soil conditions that were listed as low risk for compaction and erosion as well as an in-field evaluation of existing conditions (Bell 2002, Rizzo 2002). Most of the designated trails are pre-existing roads that have been previously altered by vehicles and logging equipment, therefore soils are generally compacted and less susceptible to additional physical impact and mechanical erosion. Bicycle use on any new trails will follow the existing trail checklist. More specifically, any new bicycle use will occur on previously-disturbed areas such as logging roads and rail beds, thereby reducing or eliminating wetland disturbance.

Effects on Wildlife: Disturbances vary with the wildlife species involved and the type, level, frequency, duration and the time of year that human activities occur. The responses of wildlife to human activities include avoidance or departure from the site (Owen 1973, Burger 1981, Kaiser and Fritzell 1984, Korschen et al. 1985, Henson and Grant 1991, Kahl 1991, Klein 1993, Whittaker and Knight 1998), the use of sub-optimal habitat (Erwin 1980, Williams and Forbes 1980), altered behavior or habituation (Burger 1981, Korschen et al. 1985, Morton et al. 1989, Ward and Stehn 1989, Havera et al. 1992, Klein 1993, Whittaker and Knight 1998), attraction (Whittaker and Knight 1998), and an increase in energy expenditure (Morton et al. 1989, Belanger and Bedard 1990). Mammals may become habituated to humans making them easier targets for hunters. Disturbance can cause shifts in habitat use, abandonment of habitat and increased energy demands on affected wildlife (Knight and Cole 1991).

The effects of roads and trails on plants and animals are complex and not limited to the trail width. Trail use can disturb areas outside the immediate trail corridor (Trails and Wildlife Task Force 1998, Miller et al. 2001). Miller et al. (1998) describe a 75-meter zone of influence where bird abundance and nesting activities (including nest success) were found to increase as distance from a recreational trail increased in both grassland and forested habitats. Bird communities in this study were apparently affected by the presence of recreational roads and trails, where common species (e.g., American robins) were found near trails and rare species (e.g., grasshopper sparrows) were found farther from trails. Songbird nest failure was also greater near trails (Miller et al. 1998).

Several studies have examined the effects of recreationists on birds using shallow-water habitats adjacent to trails and roads through wildlife refuges and coastal habitats in the eastern United States (Burger 1981, Burger 1986, Klein 1993, Burger et al. 1995, Klein et al. 1995, Rodgers and Smith 1995, Rodgers and Smith 1997, Burger and Gochfeld 1998). Overall, the existing research clearly demonstrates that disturbances from recreation activities have at least temporary effects on the behavior and movement of birds within a habitat or localized area (Burger 1981, Burger 1986, Klein 1993, Burger et al. 1995, Klein et al. 1995, Rodgers and Smith 1997, Burger and Gochfeld 1998). The findings that were reported in these studies are summarized as follows in terms of visitor activity and avian response to disturbance.

Presence: Birds avoided places where people were present and when visitor activity was high (Burger 1981, Klein et al. 1995, Burger and Gochfeld 1998). Batten (1977) and Burger (1981) found that wading birds were extremely sensitive to disturbance in the northeastern United States. Klein (1993) found that, as the intensity of human disturbance increased, avoidance response by water birds increased. Conflicts arise when migratory

birds and humans are present in the same areas (Boyle and Samson 1985). McNeil et al. (1992) found that many waterfowl species avoid disturbance by feeding at night instead of during the day. Studying the effects of human visitation on water birds at the J.N. "Ding" Darling National Wildlife Refuge, Klein (1989) found resident water birds to be less sensitive to disturbance than migrants were; she also found that sensitivity varied according to species and individuals within species. In general, she found that herons and cranes were quite tolerant of people but were disturbed as they took terrestrial prey; great blue herons, tricolored herons, great egrets, and little blue herons were disturbed to the point of flight more than other birds. Kushlan (1978) found that the need of these birds to move frequently while feeding might disrupt inter-specific and intra-specific relationships. Gutzwiller et al. (1994) found that singing behavior of some songbird species was altered by low levels of human intrusion. Some bird species habituate to repeated intrusion; frequently disturbed individuals of some species have been found to vocalize more aggressively, have higher body masses, or tend to remain in place longer (Cairns and McLaren 1980).

Distance: Disturbance increased with decreased distance between visitors and birds (Burger 1986), though exact measurements were not reported.

Reproduction and nesting success: Flight in response to disturbance can lower nesting productivity and cause disease and death (Knight and Cole 1991). Miller et al. (1998) found bird abundance and nesting activities (including nest success) increased as distance from a recreational trail increased in both grassland and forested habitats. Bird communities in this study were apparently affected by the presence of recreational trails, where common species (i.e., American robins) were found near trails and more specialized species (i.e., grasshopper sparrows) were found farther from trails. Nest predation also was found to be greater near trails (Miller et al., 1998). Disturbance may affect the reproductive fitness of males by hampering territory defense, male attraction and other reproductive functions of song (Arrese 1987). Disturbance, which leads to reduced singing activity, would make males rely more heavily on physical deterrents in defending territories, which are time- and energy-consuming (Ewald and Carpenter 1978).

Noise: Noise caused by visitors resulted in increased levels of disturbance (Burger 1986, Klein 1993, Burger and Gochfeld 1998), though noise was not correlated with visitor group size (Burger and Gochfeld 1998).

Knight and Cole (1991) suggest recreational activities occurring simultaneously may have a combined negative impact on wildlife. Hammitt and Cole (1998) conclude that the frequent presence of humans in 'wildland' areas can dramatically change the normal behavior of wildlife mostly through 'unintentional harassment.'

Seasonal sensitivities can compound the effect of disturbance on wildlife. Examples include regularly flushing birds during nesting or causing mammals to flee during winter months, thereby consuming large amounts of stored fat reserves. Hammitt and Cole (1998) note that females with young (such as white-tailed deer) are more likely to flee from a disturbance than those without young. Some uses, such as bird observation, are directly focused on viewing certain wildlife species and can cause more significant impacts during breeding season.

Wildlife associated with aquatic habitats may also be affected by bicycles on trails. Impacts may be indirectly caused by erosion and subsequent sedimentation of streams and vernal pools as a result of poorly designed trails and bicycle travel over bare soils and around drainages. Increased sediment loads can reduce aquatic vegetation and dissolved oxygen concentrations (Sadoway 1986). Sedimentation can directly kill aquatic invertebrates, affecting the success of amphibian larvae and adults (Sadoway 1986). Observations by refuge staff in 2002 document numerous occurrences of amphibian egg masses that failed after becoming coated in sediment from eroding trails and roads nearby. Bartgis and Berdine (1991) report that sedimentation was damaging habitat in Canaan Valley and could cause impacts to rare plants, impair water quality and possibly affect habitat of the southern water shrew (Sorex palustris punctulatus), a state species of concern. This was a direct result of vehicle use and road construction prior to the refuge's acquisition of the property. Trail work conducted since 2002 has begun to address sedimentation and erosion issues on refuge trails. Because trails designated for bicycle use are upland areas or locations of existing (compacted) logging roads, the use of bicycles is not expected to significantly increase erosion or sedimentation problems. Through proper trail maintenance and construction, trail drainage will be improved to minimize the effects of erosion and sedimentation on wildlife.

Short-term localized adverse impacts to fish populations also may result from soil erosion and sedimentation into refuge waterways associated with this activity. Long-term adverse impacts from increased trail miles and trail use might pose another concern to refuge fisheries. Trails that have stream and river crossings would likely degrade over time with increased use and contribute to downstream sedimentation and turbidity, which has been found to be a stressor to brook trout (Sweka and Hartman 2001) and redside dace (Holm and Crossman 1986) populations that are sensitive to habitat degradation.

Two stream crossings have been hardened with rock pilings on stream banks to reduce erosive impacts of bicycle use on those banks. The refuge will monitor stream and river crossings closely and remediate any damaged areas to minimize adverse impacts associated with trail use. Through proper trail construction and maintenance, excessive sedimentation from existing or new trails will be minimized. The addition of bicycle use on existing and new refuge trails will not increase the monitoring requirements to ensure compatibility.

Wildlife disturbance by bicycles has been cited for trail closures on the Handley Wildlife Management Area in West Virginia (Dale 2002). Similar disturbances to resident and migratory wildlife species may also become a problem in the Canaan Valley if bicycle activity increases substantially. The refuge will monitor bicycle use and will curtail this use if it contributes to unacceptable wildlife disturbance. The refuge will also continue to prohibit trails in sensitive areas where wildlife concentrate, such as open water, riparian areas, and open grasslands. This will help reduce the disturbance effect on wildlife.

Anticipated impacts of bicycle use on wildlife include temporary disturbances to species using habitats on the trail or directly adjacent to the trail. Bicycle use typically only occurs from spring through fall and usually when the ground is dry. Additionally, with 23 miles of existing trail open for bicycle use, this activity will be dispersed. Therefore disturbances will be limited in time (season) and space (miles of trail), thus reducing the overall impact. Use of some roads and trails may cause direct impacts such as mortality (e.g., crushing amphibians foraging on grassy roads and trails) to nest abandonment of bird species nesting on trails. Long-term impacts may include certain wildlife species avoiding trail corridors as a result of this use over time. Routes found compatible for bicycle use are located primarily in continuous tracts of northern hardwood forest on the refuge, where forest cover may help reduce disturbance. More sensitive wildlife habitat such as riparian, wetland, and grassland areas are avoided or minimized to the maximum extent possible. The refuge will minimize adverse impacts by using its trail/route checklist to determine whether the existing or new trail meets established criteria.

West Virginia northern flying squirrels have been documented on refuge property near the end of FR 80. This species has recently been removed from the endangered species list. The recovery plan (USFWS 2001) notes that habitat modification may create a competitive advantage for the southern flying squirrel (*Glaucomys volans*), although the extent to which a logging road or trail would create conditions conducive for this are unknown. Roads can adversely affect northern flying squirrel movement by fragmenting habitat, although not all roads create absolute barriers. West Virginia northern flying squirrel are capable of gliding up to 200 ft, with the majority of the glides ranging from 16 to 82 ft (Scheibe et al. 2007, p. 857; Vernes 2001, pp. 1028–1029). West Virginia northern flying squirrel are known to have crossed logging roads, gravel roads, and ski slopes (Ford et al. 2007, p. 8; Menzel et al. 2006a, p. 207; Terry 2004, pp. 18–19). Menzel et al. (2004, p. 358) noted that many northern flying squirrel day dens were located along or near abandoned skidder trails. Some research has found northern flying squirrels occupying den sites near logging roads, skid trails, and on hiking trails (Ford 2002). Routes designated for bicycle use are pre-existing roads and trails, some of which have been in existence for many years. No new habitat clearing is planned in this area; however, some vegetation clearing may be required to maintain the trail corridor. We will periodically evaluate bicycle use to determine any effects it may have on the northern flying squirrel.

The refuge also recognizes that large group sizes may amplify negative effects to wildlife; therefore, groups larger than 10 are required to notify the refuge prior to visiting to determine if a special use permit will be needed. Limiting group size for bicycles is consistent with West Virginia Division of Natural Resources Wildlife Management Area regulations (limit of 10 bicycles with permit) and therefore will aid in consistency between refuge and state managed lands. Requiring large groups to contact the refuge prior to visiting will also enable the refuge to understand which trails are preferred by large groups, and to monitor any potential excessive wildlife disturbance created by large groups. Having the ability to monitor these kinds of disturbances will enable the refuge to mitigate impacts associated with large groups, Examples of mitigation may include directing large groups to less sensitive habitats during breeding seasons or assigning refuge staff to lead or

meet with the group while on refuge lands. Limiting group size will also increase the quality of the experience and decrease the potential of conflicting with other users' experience.

We will take all appropriate measures to avoid or minimize any negative effects. We will evaluate the roads and trails periodically to assess whether they meet established suitability criteria and to prevent habitat degradation. If there is evidence of unacceptable adverse impacts on wildlife, we will reroute, curtail, or close trails to this use as deemed appropriate. We will post and enforce refuge regulations, and establish, post, and enforce closed areas as needed. Based on the information provided above, this use is not anticipated to significantly increase wildlife habitat fragmentation or cause significant impacts on wildlife through disturbance.

Effects on Threatened and Endangered Species: There are two federally listed species known to occur on the refuge, and one species that has recently been de-listed. Cheat Mountain salamanders (*Plethodon nettingi*), listed as threatened, have been documented near the upper section of Forest Road (FR) 80, and near the cross-country ski trails in that area. Indiana bats (*Myotis sodalis*), listed as endangered, are known to use the refuge's forested areas for summer foraging and may have a summer maternity colony on refuge lands as well. The West Virginia northern flying squirrel (*Glaucomys sabrinus fuscus*) has been documented on refuge property near the end of FR 80. This species has recently been removed from the endangered species list. The refuge requested Section 7 informal consultation with the Service's West Virginia Field Office under the Endangered Species Act (16 U.S.C. 1536) on all the actions in alternative B of this draft CCP/Environmental Assessment (EA), including bicycling, that could potentially impact listed species. This process resulted in a finding that the proposed actions are not likely to adversely affect the listed species or their associated habitats on the refuge. The full Intra-Service Section 7 Biological Evaluation form can be found in appendix I of this draft CCP/EA.

Cheat Mountain salamander – This species is sensitive to any habitat changes that remove a forest canopy or reduce soil moisture and relative humidity. Habitat used by the Cheat Mountain salamander can be impacted through modifications and alterations to the forest canopy which can include road development, ski slope development, timber harvesting, or any other activity which significantly increases the amount of sunlight reaching the forest floor. Because Cheat Mountain salamanders have very specific ranges of tolerance for temperature and relative humidity, any activity which increases soil temperature and lowers relative humidity near the ground surface can have detrimental effects on salamander populations (USFWS 1991). According to the Service (USFWS 1991), trails that receive heavy use resulting in bare trail treads could limit movements of Cheat Mountain salamanders and interfere with reproduction.

Since refuge acquisition of the Kelly-Elkins and Graham tracts, surveys for Cheat Mountain salamanders have documented their presence on the uphill and downhill sides of Powderline and Three-Mile ski trails. These, as well as all cross-country ski trails on the Kelly-Elkins Tract are closed to public use outside the ski season. To protect this sensitive species, bicycling is prohibited on the ski trails and is restricted to FR 80, an established forest road.

Indiana Bat – Indiana bats were documented on the refuge for the first time through acoustical monitoring conducted by the U.S. Forest Service in 2003 (Ford 2003). Indiana bats were found foraging at two locations in the south end of the refuge. Refuge staff began conducting acoustical surveys in 2005. These surveys have documented three likely Indiana bat observations in the same location as the 2003 survey during 2005, 2007, and 2008. Additionally, acoustical surveys documented one new location for the species during 2007. Indiana bat calls have been documented from the refuge in the months of May, July, August, and September. However, since bicycling has been occurring for many years, is restricted to day time hours, and must comply with the stipulations of this document, any potential negative effects are expected to be minimal. We will periodically evaluate this activity to determine any effects it may have. If evidence of unacceptable adverse effects appears, the location(s) of bicycle use will be curtailed or discontinued as needed.

As determined in the Section 7 informal consultation (appendix I), bicycle use is not likely to adversely affect threatened or endangered species on the refuge. The use will occur primarily on existing roads and trails, none of which intersect occupied, threatened or endangered species habitat. The nearest known Cheat Mountain salamander habitat to FR 80 is 754 feet from the road (USFWS 2008), far more than the 300-foot buffer zone recommended in the recovery plan for this species (USFWS 1991). Additional trail openings or

new trails will be evaluated for suitability using established criteria (trail check list) before being opened to bicycling. Sensitive habitats such as those occupied by threatened or endangered species will be avoided.

Any effects of bicycling on designated roads and trails are not considered, separately or cumulatively, to constitute significant short-term or long-term impacts. Assessment of potential future impacts was based on available information and current and anticipated level and pattern of use collected from a variety of annual wildlife and plant surveys conducted by refuge staff as well as informal field observations. The current use is viewed as an effective and justifiable method of travel that allows the public to discover, experience, and enjoy priority public uses on the refuge. Continued monitoring of the effects of bicycling and associated human activities is necessary to better understand the influence of the use on refuge habitats, plant and wildlife communities, and visitors. Monitoring identifies any actions needed to respond to new information (adaptive management) and correct problems that may arise in the future.

PUBLIC REVIEW AND COMMENT

This compatibility determination will be made available for public review and comment for 45 days as an appendix to the draft CCP/EA for Canaan Valley National Wildlife Refuge.

DETERMINATION

_____ Use is Not Compatible

__X__ Use is Compatible With the Following Stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY

The refuge has developed a list of criteria for determining whether any given route would be appropriate for public uses, including bicycle use. These criteria would apply to current and future trails. Criteria are as follows:

Checklist for Existing Routes to Be Eligible for Compatibility Consideration
(Routes must meet all criteria)

1. Route provides an opportunity to view a variety of habitats and wildlife.

2. Route is safe for the access proposed at current use levels.

3. Route requires minimal annual maintenance (i.e, waterbars, stepping stones, etc.) to ensure safe access and to prevent further habitat degradation.

4. Route has a low potential for fragmenting habitat or disturbing wildlife populations.

5. 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.

6. Any route crossing of sensitive soils occupies the shortest possible distance. Organic soil crossings are minimized or eliminated.

7. 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.

8. Route predominately occupies modified substrate (graveled, compacted, or filled) like logging roads and rail grades.

9. Route is not incised greater than 1 foot deep over 10% of its total length.

Additional Stipulations for Bicycle Use:

—Refuge regulations will be posted and enforced. Closed areas will be established as needed, posted, and enforced. Signs necessary for visitor information, safety, and traffic control will be kept up to date.

—The known presence of a threatened or endangered species will preclude the use of an area until the refuge manager determines otherwise.

—Bicycling is only compatible on designated roads and trails.

—Bicycling is restricted to refuge open hours: 1 hour before sunrise until 1 hour after sunset.

—Group size is encouraged to be no more than 10 persons to promote public safety, accommodate other users, and reduce wildlife disturbance. Groups larger than 10 persons must contact the refuge office prior to visiting the trail system to determine if a special use permit is needed. Visitors traveling only on roads shared with vehicles are not required to contact the refuge office or obtain a special use permit.

—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 and trails are maintained at a level that reasonably accounts for safe travel. Roads and trails are not cleared in winter.

—Routes designated for public access are monitored periodically to determine if they continue to meet the compatibility criteria established by the refuge. 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.

—Routine law enforcement patrols are conducted throughout the year. The patrols promote education and compliance with refuge regulations, monitor public use patterns and public safety, and document visitor interaction.

—Potential conflicts with other public uses such as hunting, interpretation, etc. will be minimized by using trailhead signs and other media to inform the visitors about current public use activities as well as which activities are authorized in specific locations throughout the refuge.

JUSTIFICATION

Bicycling has occurred on the refuge since its establishment. The use of bicycles at Canaan Valley refuge to facilitate priority public uses enhances visitors' ability to view the wide diversity of refuge habitats and can make access easier as many trails exceed four miles round trip. Trails at Canaan Valley refuge are longer than trails at many other refuges. By providing opportunities for bicycling, the refuge opens itself to a whole new group of users that might not otherwise benefit from the outreach and educational opportunities available at the refuge.

Refuge staff has implemented several restrictions to minimize the anticipated impacts of bicycling on fish, wildlife, and habitats. Bicycling is only authorized on designated roads and trails. Routes designated for bicycle use are existing logging and skid roads, and most have hardened surfaces or already compacted soils which directly limit the physical impact of this activity to soils, hydrology, and vegetation. In addition, these routes are located predominately on upland soils to prevent impacts to fragile wetland soils. Trail conditions have improved since refuge acquisition of the Main Tract in 2002 due to restoration and maintenance actions.

Additionally, vehicles were prohibited from accessing these areas after the refuge acquired the property which greatly reduced impacts. The use of bicycles on existing designated public use trails will not significantly increase resource impacts over and above the other, existing public uses. Because of the restrictions and management of the trail system, the impact to soils and possible sedimentation of wetland resources will be minimized. Therefore these anticipated impacts will not affect the refuge's ability to fulfill the purposes of wetland conservation established through the Emergency Wetland Resources Act (1986). Because tread width is narrow and trails are on established logging roads, impacts to plants and potential invasive species

colonization will be minor and therefore not affect the refuge's ability to conserve plant resources as described in the mission of the Refuge System and to protect the ecological integrity of Canaan Valley and its resources, a founding purpose for designation of the refuge in the 1979 EIS.

Bicycling routes occur primarily in forested habitats to help reduce disturbance to wildlife. Disturbance along bicycling corridors will impact only a fraction of the habitat available for wildlife on the refuge, and this disturbance will occur within the most abundant habitat type on the refuge. By limiting use to designated trails on a small percentage of the refuge and within the most common habitat type, disturbance will be limited and manageable.

For this reason disturbance effects will not prevent the refuge from fulfilling the purposes of the Fish and Wildlife Act (1956) or the mission of the Refuge System for conserving, managing, restoring, and protecting wildlife resources. This use will not affect the ability to fulfill its purpose under the Migratory Bird Conservation Act to serve as a sanctuary or management area for migratory birds as this use will not occur on the tracts that were acquired under that act.

We will post and enforce refuge regulations, and establish, post, and enforce closed areas as needed. We also evaluate the roads and trails periodically to assess whether they meet established suitability criteria and to prevent degradation. If evidence of unacceptable adverse impacts appears, we will repair the trail through scheduled maintenance programs, or re-route, curtail, or close trails to bicycling as deemed appropriate.

Conflicts between bicycle riders and other users are localized and limited in time and space. Many refuge trails are closed to bicycle access to prevent user conflicts and to reduce the overall impact on the priority public uses. Given the size of the refuge and miles of trail open for the various forms of public access, conflicts are expected to be minor.

Because of the criteria established for permitting this activity, bicycling is considered to be an acceptable and manageable method for facilitating priority public uses at Canaan Valley refuge. Bicycling would provide access to more remote areas of the refuge where wetland plant communities and other habitats may be viewed and interpreted. For the reasons discussed above, this access will not affect the refuge's ability to conserve wetlands or protect, manage, and restore the wildlife and plant resources, as mandated through two of the refuge's establishing purposes, namely the Emergency Wetlands Resources Act (1986) and the Fish and Wildlife Act (1956), or the mission of the Refuge System. Since public use trails do not occur on lands acquired under the Migratory Bird Conservation Act, bicycling will not affect the refuge's ability to protect and manage migratory birds on those tracts. We therefore conclude bicycling will not materially interfere with or detract from the mission of the Refuge System or the purposes for which the refuge was established.

Refuge Manager _____ _____
(Signature) (Date)

Concurrence

Regional Chief _____ _____
(Signature) (Date)

MANDATORY 10 YEAR RE-EVALUATION DATE

_____
(Date)

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COMPATIBILITY DETERMINATION

USE

Cross-Country Skiing and Snowshoeing to Facilitate Priority Public Uses

REFUGE NAME

Canaan Valley National Wildlife Refuge

ESTABLISHING AND ACQUISITION AUTHORITY

The establishment of Canaan Valley National Wildlife Refuge (refuge) was first approved in an Environmental Impact Statement (EIS) released on May 30, 1979. However, the U.S. Fish and Wildlife Service (Service) decided to await the outcome of litigation surrounding a proposed storage hydroelectric facility before pursuing any further action. The approval of the refuge was affirmed by the Service in a 1994 Final Environmental Assessment and Finding of No Significant Impact on July 11, 1994, which confirmed the adequacy of the previously-approved 1979 EIS. The refuge was officially established when the first tract of land was acquired on August 11, 1994. The Service has acquired lands for the Canaan Valley National Wildlife Refuge (refuge) under the following authorities:

1. Fish and Wildlife Act of 1956 [16 U.S.C. 742f (a)(4)]

2. Emergency Wetlands Resources Act of 1986 [16 U.S.C. 3901b]

3. Migratory Bird Conservation Act of 1929 [16 U.S.C. 715d]

REFUGE PURPOSES

The refuge was established to ensure the ecological integrity of Canaan Valley and the continued availability of its wetland, botanical, and wildlife resources to the citizens of West Virginia and the United States (USFWS 1979, 1994). Additional refuge purposes as derived from the legislative authorities are as follows:

(1) "... for the development, advancement, management, conservation, and protection of fish and wildlife resources..." (Fish and Wildlife Act of 1956; 16 U.S.C. 742f(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 international obligations contained in various migratory bird treaties and conventions." (Emergency Wetlands Resources Act of 1986;16 U.S.C. 3901(b)); and,

(3) "... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." (Migratory Bird Conservation of Act; 16 U.S.C. 715d).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION

The mission of the National Wildlife Refuge System (Refuge System) is "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." 16 U.S.C. 668dd(a)(2) (National Wildlife Refuge System Improvement Act of 1997).

DESCRIPTION OF USE

(a) What is the use? Is it a priority public use?
The uses are cross-country skiing and snowshoeing on 32 miles of designated trails on the refuge. While these uses are not priority public uses, they facilitate visitor participation in priority public uses (e.g., wildlife observation and photography).

An additional 10 miles of trails on the refuge are managed for commercial cross-country skiing and snowshoeing. There is a separate compatibility determination for commercial cross-country skiing and snowshoeing on the refuge.

(b) Where will these uses be conducted?
These uses will be allowed on the nearly 32 miles of existing designated roads and trails (see Map). These uses may also be allowed on any additional trails constructed or opened to the public through this draft Comprehensive Conservation Plan (CCP)/Environmental Assessment (EA) or other appropriate regulatory process. See map B-2 for locations of public cross-country ski and snowshoeing trails.

(c) When will the uses be conducted?
These uses occur in the winter when there is sufficient snow to allow the activities and when the refuge is open to the public. Most cross-country skiing and snowshoeing occur mid-November through mid-March. Currently the refuge is open daily from one-hour before sunrise until one-hour after sunset.

(d) How will the uses be conducted?
Visitors on cross-country skis and snowshoes depart from refuge roads or parking areas and are authorized to use designated roads and trails. Refuge staff does not plow roads or groom trails in the winter, so access may be limited.

Information kiosks identify the roads and trails open for travel and explain permitted public uses. Refuge trails and roads currently open to skiing and snowshoeing are described in the trail brochure. As additional trail connections are made, refuge brochures and kiosks will be updated to show all designated trails. Parking lots and kiosks have been constructed at the trailheads of refuge trails to help orient visitors.

(e) Why are these uses being proposed?
While skiing and snowshoeing are not priority public uses, they provide opportunities for visitors to observe and learn about the Refuge System, Canaan Valley refuge, and wildlife and habitats firsthand. Often visitors skiing and snowshoeing on the refuge engage in priority public uses such as wildlife observation and photography. Although much of the bird life is gone for the season and many mammal species are dormant or active only at night, this activity does help provide opportunities for wildlife observation. Winter species such as chickadees, nuthatches and ravens are commonly observed. Mammal tracks are used to interpret the area's wildlife populations during the winter months. This exposure may lead to a better understanding of and interest in natural ecosystems, the importance of national wildlife refuges, and the role of the Service in protecting and restoring natural resources.

AVAILABILITY OF RESOURCES

The resources necessary to provide and administer road and trail use, at the current use level, are available within current and anticipated refuge budgets. Staff time associated with administration of this use is related to assessing the need for road and trail maintenance and repair, maintaining kiosks, gates, maintaining traffic counters and recording collected data, sign-posting roads and trails, informing the public about new refuge uses, conducting visitor use surveys, analyzing visitor use patterns, monitoring the effects of public uses on refuge resources and visitors, and providing information to the public about the use. These activities would be conducted in conjunction with the activities outlined in the "Wildlife Observation and Photography," and "Environmental Education and Interpretation" compatibility determinations; therefore managing for cross-country skiing and snowshoeing will not require additional staffing or resources.

ANTICIPATED IMPACTS OF THE USE

In general, negative effects on habitat and wildlife associated with these activities are considered minimal. Most wildlife species are less active during winter months, sensitive migratory birds have largely left the refuge, and it is not breeding season for any of the wildlife that may be present. The refuge does not groom or maintain trails in the winter. Cross-country skiing and snowshoeing are limited to winter and require sufficient snow cover to allow access. Surface water and soil may be frozen for at least a portion of this time, most vegetation is dormant, and sensitive habitat will largely be protected by a surface layer of snow. In addition, skis and snowshoes are designed to distribute weight, decreasing potential for eroding soils near waterways.

Skiing and snowshoeing are limited to established roads and trails, and no recreational snowmobiles are allowed. Following are more specific descriptions of potential impacts associated with cross-country skiing and snowshoeing.

Effects on Hydrology and Water Quality: Visitor use has the potential to contaminate the Blackwater River and its tributaries through soil sedimentation into streams caused by skiing and snowshoeing. There may also be runoff of petroleum products from parking lots.

There may be additional impacts to water resources where new trails cross the refuge's rivers, streams, and tributaries increasing the potential short-term and long-term downstream erosion and sedimentation. Additional visitor use also increases the potential for contaminating rivers, streams, and open water through the runoff of petroleum products from parking lots. However, many refuge roads and parking lots are not plowed in the winter time, thus reducing impacts from parked cars.

The refuge minimizes adverse effects on water resources in a variety of ways. Refuge staff routinely monitors roads and trails for damage and remediates problem areas as needed. The refuge also conducts public outreach efforts to notify visitors of proper precautions, including carrying out all trash. This helps minimize risks associated with visitor use on the refuge. Visitors are also encouraged to limit group size to less than 10 people, and groups of more than 10 are required to check in at the refuge office. Because of these efforts, combined with the seasonal limitations, trail restrictions, and stipulations listed in this document, impacts to water resources are expected to be minimal.

Effects on Vegetation: Short-term effects consist of the deterioration of plant material, whereas long-term effects of trampling include direct and indirect effects on vegetation and soils like diminishing soil porosity, aeration, and nutrient availability through soil compaction (Kuss 1986, Roovers et al. 2004). Compaction of soils thus limits the ability of plants, particularly rare and sensitive species, to revegetate affected areas (Hammitt and Cole 1998). Kuss (1986) found, plant species adapted to wet or moist habitats are the most sensitive and increased moisture content reduces the ability of the soil to support recreational traffic.

Overall effects on vegetation are expected to be minimal. As mentioned previously, skiing and snowshoeing are limited to winter and require sufficient snow cover to allow access. Vegetation is largely dormant during the winter and will largely be protected by a surface layer of snow. In addition, skis and snowshoes are designed to distribute weight, decreasing potential for compacting or eroding soils and trampling vegetation. Skiing and snowshoeing are limited to designated roads and trails, and no recreational snowmobiling is allowed. Designated roads and trails do not have any known occurrences of rare plant species on their surface that would be impacted by these uses. Some rare plants have been documented in habitat adjacent to trails. Users leaving designated trails could adversely affect adjacent vegetation; however, because of the time of year and low numbers of visitors expected to leave the trails, negative effects are expected to minimal.

Effects on Soils: Soils can be compacted and eroded as a result of continued use of roads and trails. The Mauch Chunk-derived soil in Canaan Valley is particularly vulnerable to mechanical erosion when the vegetation has been removed (Rizzo 2002). If compacted, Mauch Chunk soils can facilitate rapid water runoff that accelerates erosion down slope (Rizzo 2002).

Overall effects on soils are expected to be minimal. Skiing and snowshoeing are limited to winter and require sufficient snow cover to allow access. The soil surface will likely be frozen for some of the season, making it much less vulnerable to compaction or erosion. When these activities are occurring, soils also will largely be protected by a surface layer of snow. In addition, skis and snow shoes are designed to distribute weight, decreasing potential for compacting or eroding soils. Over the long-term, the risk of erosion and sedimentation problems that might affect soils in these habitats would increase with increased visitor use and trail use. However, given the time of year, locations, and methods used, increased levels of skiing and snowshoeing are not expected to significantly affect soils on the refuge.

Effects on Wildlife: Short-term and long-term adverse impacts would be expected for wildlife populations in relation to increasing trail miles and visitor use. Disturbances will vary by wildlife species involved and the type, level, frequency, duration and the time of year activities occur. Beale and Monaghan (2004) found that

adverse effects to wildlife increase as number of users increase. The study found that an animal's response to one visitor walking down a trail is entirely different than its response to a group of users walking down a trail.

Long-term adverse impacts from increased trail miles and trail use might pose a concern to refuge fisheries. Trails that have stream and river crossings would likely degrade over time with increased use and contribute to downstream sedimentation and turbidity, which has been found to be a stressor to brook trout (Sweka and Hartman 2001) and redside dace (Holm and Crossman 1986) populations that are sensitive to habitat degradation. However, most stream and river crossings occur on bridges, which helps to minimize impacts to habitats. The refuge will monitor stream and river crossings closely and remediate any damaged areas to minimize adverse impacts associated with trail use. During winter months when the ground is frozen, erosive potential of soils are reduced and impacts of cross-country skiing snowshoeing on erosion and sedimentation of aquatic habitats would be minimal.

The use of trails in the winter for cross-country skiing and snowshoeing have similar wildlife disturbance effects as those which occur through pedestrian travel on these trails during the other seasons. One of the primary differences is that many migratory birds are not present and most resident species are not breeding or raising young during the time of year when cross-country skiing and snowshoeing occur. Additionally, many mammal species are less active during winter months. The most commonly-observed wildlife in the winter is chickadees, nuthatches and ravens. Winter conditions cause increased stress through extreme weather conditions and food availability (Hammit and Cole 1998). Both bird and mammal species which are present and active this time of year can be even more negatively affected from the same level of disturbance because of the added environmental stressors of severe weather and food shortages.

We will take all necessary measures to mitigate any negative effects on wildlife associated with skiing and snowshoeing. We will evaluate roads, trails, and activities periodically to assess potential negative effects. If evidence of unacceptable adverse effects is observed, we will curtail or discontinue activities as needed. We will post and enforce refuge regulations, and establish, post, and enforce closed areas as needed. However, negative effects on wildlife are expected to be minimal. As discussed previously, cross-country skiing and snowshoeing are limited to winter months and require sufficient snow levels to allow access. Additionally, many refuge trails become difficult to access during winter conditions as access to main trail heads (A-frame Road and Old Timberline Road) are not maintained. This greatly reduces the numbers of users accessing refuge trails for these uses and thereby minimizes impacts. Requirements for skiers to remain on designated trails also reduce the impact of recreational activities on wildlife (Miller et al 2001).

West Virginia northern flying squirrels have been documented on refuge property near the end of Forest Road (FR) 80. This species has recently been removed from the endangered species list. The recovery plan (USFWS 2001) notes that habitat modification may create a competitive advantage for the southern flying squirrel (Glaucomys volans), although the extent to which a logging road or trail would create conditions conducive for this are unknown. Some research has found northern flying squirrels occupying den sites near logging roads, skid trails, and hiking trails (Ford 2002). Routes designated for these uses are pre-existing roads and trails, some of which have been in existence for many years. No new habitat clearing is planned in this area; however, some vegetation clearing may be required within the trail corridor. As mentioned previously, we will periodically evaluate these activities to determine any effects they may have. If evidence of unacceptable adverse effects appears, the location(s) of activities will be curtailed or discontinued as needed.
The refuge also recognizes that large group sizes may amplify negative effects to wildlife. Therefore, groups larger than 10 are required to notify the refuge prior to visiting to determine if a special use permit will be needed. Requiring large groups to contact the refuge prior to visiting will enable the refuge to understand which trails are preferred by large groups, and to monitor any potential excessive wildlife disturbance created by large groups. Having the ability to monitor these kinds of disturbances will enable the refuge to mitigate impacts associated with large groups, Examples of mitigation may include directing large groups to less sensitive habitats during breeding seasons or assigning refuge staff to lead or meet with the group while on refuge lands. Limiting group size will also increase the quality of the experience and decrease the potential of conflicting with other users' experience.

Effects on Threatened and Endangered Species: There are two federally listed species known to occur on the refuge, and one species that has recently been de-listed. Cheat Mountain salamanders (*Plethodon nettingi*), listed as threatened, have been documented near the upper section of FR 80, and near the cross-country ski

trails in that area. Indiana bats (*Myotis sodalis*), listed as endangered, is known to use the refuge's forested areas for summer foraging and roosting. It is possible that they have a summer maternity colony on refuge lands as well, but this has not been documented. The refuge requested Section 7 informal consultation with the Service's West Virginia Field Office under the Endangered Species Act (16 U.S.C. 1536) on all the actions in alternative B of this draft CCP/EA, including cross-country skiing and snowshoeing, that could potentially impact listed species. This process resulted in a finding that the actions are not likely to adversely affect the listed species or their associated habitats on the refuge. The full Intra-Service Section 7 Biological Evaluation form can be found in appendix I of this draft CCP/EA.

Cheat Mountain salamander—Public use on Powderline and Three-Mile Trail only occurs during winter months by cross-country skiing and snow shoe access when there is snow on the ground. During these times of year, salamanders are not active and are underground (USFWS 2009). Furthermore, because these trails are not open to the public outside of the winter time, the trails and the substrate on the trails remain undisturbed during the time of year when the salamanders are active. Therefore these public uses are not likely to adversely affect Cheat Mountain salamanders.

These old roads, now public use ski trails, have an altered micro-habitat and are not habitat for Cheat Mountain salamanders; therefore, we do not expect this species to be living in these trails. Therefore, the potential for Cheat Mountain salamanders to be present on the trails is limited to salamanders occasionally crossing the trail.

Salamanders may cross the trail in low numbers until temperatures drop and the salamanders are no longer active and present on the surface. Their presence on the surface is temperature and moisture dependent, thus dates of emergence and submergence depend on these environmental factors and can vary from year to year (Pauley 1978a; 1978b; Pauley 2005 in Pauley 2008). It is estimated that when temperatures are below 550F salamanders are not likely to be active on the surface (USFWS 1991). Based on climate information from 1948 to 2000, average temperatures in Canaan Valley do not exceed 550F until May 14 and fall below 550F after September 26 (Brooks pers. comm.). Under the current conditions of the special use permit, maintenance operations can only occur between October 10 and April 30. This is well beyond when salamanders are likely to be present on the surface. Therefore the chance of direct take is extremely unlikely (discountable).

The chance of direct take from maintenance activities is further limited due to the expected low amount of active maintenance conducted on these trail sections. Maintenance typically occurs on one to two days a year on these higher elevations trails and consists of hand crews with one all-terrain vehicle (ATV) and trailer to haul equipment. ATV use is limited to usually two passes up and down the trail to move tools (Chase, pers.comm). Maintenance activities typically include the removal of downed trees and limbs which have fallen across the trail during the previous season and maintaining existing waterbars to prevent erosion. Maintenance activities occur within a 4-foot-wide corridor of the trail – two feet in either direction of the center line – as stipulated in the special use permit. Any other activities related to trail maintenance occur within the footprint of the trail. The risk of the maintenance crew encountering a salamander is extremely unlikely to occur (discountable).

Trails have been noted impediments to Cheat Mountain salamander movements, possibly fragmenting and genetically isolating populations as well as making these populations more vulnerable to stochastic events. Pauley (unpublished data in USFWS 1991) found that roads, and potentially some trails, serve as barriers that prevent territories of different individuals from overlapping, thus fragmenting populations and gene pools. Heavily traveled trails can result in removal of leaves and other forest litter, leaving bare trail treads (USFWS 1991; West Virginia Department of NaturalResources 2000, 1999). Preliminary data suggest that the salamanders rarely cross trails and other openings that lack sufficient leaf litter cover (Pauley 2005 in Pauley and Waldron 2008). Cheat Mountain salamanders use forest floor litter as foraging cover and refugia, especially during the day. Therefore, the extent to which trails and roads serve as a barrier to the salamander most likely depends on the site-specific characteristics such as width, canopy cover, substrate material, compaction, and level/type of use.

Conditions related to blocking movements for salamanders appear to be related to increased temperature and humidity resulting from an open tree canopy as well as the removal of vegetation and leaf litter through public use activities creating bare soil conditions. The cross-country ski trails that White Grass maintains are not used outside the ski season for public use and are not heavily traveled. Therefore excessive trampling resulting

in the removal of litter and vegetation to create bare dirt surfaces does not occur on these trails. Because habitat on the trail is predominately grass and fern cover with limited rock and woody debris, it likely permits salamanders to move across the trail. In addition, both Powderline and Three-Mile trails are narrow and have partial canopy cover providing shading and cooling effects to the trail surface. This creates more suitable conditions for salamanders to move across the trail. The lack of bare soil conditions coupled with the presence of canopy cover suggest that these trails do not create a barrier to salamander movement.

We do not expect the presence of these trails to fragment these populations or create genetic barriers. For this reason the trails are not likely to cause indirect adverse effects to Cheat Mountain salamanders.

The refuge will create a vegetated buffer of native tree species along these trails. Planting native tree species such as red spruce along the trails would eventually provide a more closed canopy over the trail and improve substrate and vegetation on the trail itself. Native tree species would eventually shade out all of the grass and fern cover which currently dominates the trails, and would improve microhabitat conditions for salamanders by increasing leaf litter, woody debris, and soil moisture (USFWS 1991). These trail improvements would provide a more conducive corridor for Cheat Mountain salamanders to move between upslope and downslope populations. Revegetation of refuge cross-country ski trails and increasing canopy cover is an additional conservation measure the refuge can accomplish to further enhance habitat conditions for the salamander.

In the future, the refuge would also consider other options such as replacing trail segments with boardwalks to further facilitate salamander movement across trails. This action is one of the recommended management guidelines in the recovery plan for this species (USFWS 1991). In 2009, the Monongahela National Forest initiated a study to design more effective road and trail maintenance activities to benefit Cheat Mountain salamander populations (Pauley and Waldron 2008). If those results apply to habitats on the Canaan Valley refuge, the refuge will consider implementation of similar measures.

Indiana Bat—Indiana bats were documented on the refuge for the first time through acoustical monitoring conducted by the U.S. Forest Service in 2003 (Ford 2003). Indiana bats were found foraging at two locations in the south end of the refuge. The refuge began conducting acoustical surveys in 2005. These surveys have documented three likely Indiana bat observations in the same location as the 2003 survey during 2005, 2007, and 2008. Additionally, acoustical surveys documented one new location for the species during 2007. Indiana bat calls have been documented from the refuge in the months of May, July, August, and September. Maternity colonies may also be present on the refuge. As stated in the Section 7 informal consultation (appendix I), cross-country skiing and snowshoeing are not likely to adversely affect this species as these activities will not be disrupting hibernacula during the winter months or disrupting foraging activities during the remainder of the year.

Conclusion

At current and projected levels of use, potential negative effects from cross-country skiing and snowshoeing are not considered significant. The effects would be temporary in duration and are not expected to cause serious changes in animal behavior. As with other activities, we will continue to implement management actions which minimize potential negative effects on hydrology and water quality, soils, vegetation, and wildlife. Trails will be monitored for potential negative effects. If evidence of unacceptable adverse effects is observed, we will curtail or discontinue these activities as needed to protect wildlife and habitat. We will post and enforce refuge regulations, and establish, post, and enforce closed areas as needed.

PUBLIC REVIEW AND COMMENT

This compatibility determination will be made available for public review and comment for 45 days as an appendix to the draft CCP/EA for Canaan Valley National Wildlife Refuge.

DETERMINATION

_____ Use is Not Compatible

__X__ Use is Compatible With the Following Stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY

The refuge has developed a list of criteria for determining whether any given route would be appropriate for public uses, including cross-country skiing and snowshoeing. These criteria would apply to current and future trails. Criteria are as follows:

Checklist for Existing Routes to Be Eligible for Compatibility Consideration
(Routes must meet all criteria)

1. Route provides an opportunity to view a variety of habitats and wildlife.

2. Route is safe for the access proposed at current use levels.

3. Route requires minimal annual maintenance (i.e, waterbars, stepping stones, etc.) to ensure safe access and to prevent further habitat degradation.

4. Route has a low potential for fragmenting habitat or disturbing wildlife populations.

5. 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.

6. Any route crossing of sensitive soils occupies the shortest possible distance. Organic soil crossings are minimized or eliminated.

7. 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.

8. Route predominately occupies modified substrate (graveled, compacted, or filled) like logging roads and rail grades.

9. Route is not incised greater than 1 foot deep over 10% of its total length.

Additional Stipulations to Ensure Compatibility:

—Refuge regulations will be posted and enforced. Closed areas will be established as needed, posted, and enforced. Signs necessary for visitor information, safety, and traffic control will be kept up to date. Trails have been blazed on refuge lands to allow cross-country skiers to follow designated routes when trails are snow covered.

—The known presence of a threatened or endangered species will preclude the use of an area until the refuge manager determines otherwise.

— Snowshoeing and cross-country skiing are only compatible on designated roads and trails shown.

—Snowshoeing and cross-country skiing are restricted to refuge open hours: 1 hour before sunrise until 1 hour after sunset.

—The refuge conducts an outreach program to promote public awareness and compliance with public use regulations on the refuge.

—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 and trails are maintained at a level that reasonably accounts for safe travel. Roads are not plowed in winter and non-commercial trails are not groomed.

—Routes designated for public access are monitored periodically to determine if they continue to meet the compatibility criteria established by the refuge. Should monitoring and evaluation of the use(s) 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.

—Routine law enforcement patrols are conducted throughout the year. The patrols promote education and compliance with refuge regulations, monitor public use patterns and public safety, and document visitor interaction.

—Guidelines to ensure the safety of all participants will be issued in writing to any special use permit holder for the activities and will be reviewed before the activity begins.

—Potential conflicts with other public uses such as hunting, interpretation, etc. will be minimized by using trailhead signs and other media to inform the visitors about current public use activities as well as which activities are authorized in specific locations throughout the refuge.

JUSTIFICATION

One of the secondary goals of the Refuge System is to provide opportunities for the public to develop an understanding of wildlife wherever those opportunities are compatible. Cross country skiing and snowshoeing facilitate opportunities for viewing wildlife and habitats with relatively low levels of disturbance. Visitors participating in this activity will be directly engaged in wildlife observation, education, and photography which are identified in the National Wildlife Refuge Improvement Act of 1997 as priority public uses of the Refuge System.

Additionally, during much of the winter months when there is deep snow cover in the valley, cross-country skiing and snowshoeing are often the only methods available for facilitating priority public uses. It is likely that visitors participating in these activities will learn more about wildlife and habitats, the refuge, and the Refuge System, and will therefore support the mission of the Refuge System and the purposes of the refuge.

Cross country skiing and snowshoeing are restricted to designated roads and trails. These activities are limited to winter months and require sufficient snow levels to allow access. The soil surface will be frozen and covered in snow for most of the season, making it much less vulnerable to compaction or erosion. Vegetation is largely dormant during the winter and will be protected by a surface layer of snow. In addition, skis and snowshoes are designed to distribute weight, decreasing the potential for harming vegetation and compacting or eroding soils.

Because of the established trail criteria and additional stipulations listed above, cross-country skiing and snowshoeing are considered to be acceptable and manageable methods for facilitating priority public uses at Canaan Valley refuge. These uses will provide access to more remote areas of the refuge where wetland plant communities and other habitats may be viewed and interpreted. Trails open to this use are predominately on upland soils so wetlands are not affected. Because of the restrictions and management of the trail system, the impact to soils and possible sedimentation of wetland resources will be minimized. Because of trail habitat conditions and limited public use and maintenance on trails through Cheat Mountain salamander habitat there will not likely be adverse effects to the species.

Furthermore, alternative B in the draft CCP/EA says that the refuge will improve habitat conditions for the Cheat Mountain salamander through trail revegetation and narrowing on the Kelly-Elkins tract as well as other physical means for improving habitat connectivity. Therefore any anticipated impacts will not affect the refuge's ability to fulfill the purposes of wetland conservation established through the Emergency Wetland Resources Act (1986).

Most of the use is concentrated at on the Kelly-Elkins and Graham tracts which represent a small portion of the available wildlife habitat which remains unaffected by this use. Other public use trails are open to this use, however, road access to trail heads is not maintained and the trails themselves are not groomed on other refuge tracts. This greatly affects the numbers of users on other areas of the refuge and minimizes disturbance to wildlife and other potential impacts to a smaller area of refuge land. Because cross-country skiing and

snowshoeing are restricted to the winter months when there is snow on the ground, disturbance from these activities will not cause significant impacts to wildlife populations or their habitats. We do not expect these activities to cause many adverse impacts because most wildlife species are less active during winter months, many sensitive migratory birds have already left the refuge, and it is not breeding season for the wildlife that may be present. This ensures the refuge will continue to meet the purposes of the Fish and Wildlife Act (1956) and the mission of the Refuge System to manage, conserve and protect fish and wildlife and plant resources on refuge land. Because ski tracks are typically narrow and trails are on established logging roads, impacts will be minor and therefore not affect the refuge's ability to conserve plant resources as described in the mission of the Refuge System and to protect the ecological integrity of Canaan Valley and its resources, a founding purpose for designation of the refuge in the 1979 EIS.

Providing this access will not affect the refuge's responsibility for wetland protection or wildlife conservation and management as stipulated in the mission of the Refuge System, Emergency Wetlands Resources Act (1986) and the Fish and Wildlife Act (1956). No cross-country ski trails are located on the tracts acquired through the Migratory Bird Conservation Act (1929); therefore allowing this use will not inhibit the refuge from fulfilling the conservation and management of migratory birds on these tracts. Overall, this use conducted as described, will have negligible effects on the refuge's ability to ensure the ecological integrity of Canaan Valley and the resources that the refuge was established to protect. We therefore conclude that cross-country skiing and snowshoeing will not materially interfere with or detract from the mission of the Refuge System or the purposes for which the refuge was established.

Refuge Manager _____ _____
(Signature) (Date)

Concurrence

Regional Chief _____ _____
(Signature) (Date)

MANDATORY 10 YEAR RE-EVALUATION DATE

_____
(Date)

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COMPATIBILITY DETERMINATION

USE

Commercial Cross Country Skiing and Snowshoeing to Facilitate Priority Public Uses

REFUGE NAME

Canaan Valley National Wildlife Refuge

ESTABLISHING AND ACQUISITION AUTHORITY

The establishment of Canaan Valley National Wildlife Refuge (refuge) was first approved in an Environmental Impact Statement (EIS) released on May 30, 1979. However, the U.S. Fish and Wildlife Service (Service) decided to await the outcome of litigation surrounding a proposed storage hydroelectric facility before pursuing any further action. The approval of the refuge was affirmed by the Service in a 1994 Final Environmental Assessment and Finding of No Significant Impact on July 11, 1994, which confirmed the adequacy of the previously-approved 1979 EIS. The refuge was officially established when the first tract of land was acquired on August 11, 1994. The Service has acquired lands for the Canaan Valley refuge under the following authorities:

1. Fish and Wildlife Act of 1956 [16 U.S.C. 742f(a)(4)]

2. Emergency Wetlands Resources Act of 1986 [16 U.S.C. 3901b]

3. Migratory Bird Conservation Act of 1929 [16 U.S.C. 715d]

REFUGE PURPOSES

The refuge was established to ensure the ecological integrity of Canaan Valley and the continued availability of its wetland, botanical, and wildlife resources to the citizens of West Virginia and the United States (USFWS 1979, 1994). Additional refuge purposes as derived from the legislative authorities are as follows:

(1) "... for the development, advancement, management, conservation, and protection of fish and wildlife resources..." (Fish and Wildlife Act of 1956; 16 U.S.C. 742f (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 international obligations contained in various migratory bird treaties and conventions." (Emergency Wetlands Resources Act of 1986; 16 U.S.C. 3901(b)); and,

(3) "... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." (Migratory Bird Conservation Act of 1929; 16 U.S.C. 715d).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION

The mission of the National Wildlife Refuge System (Refuge System) is "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." 16 U.S.C. 668dd (a)(2) (National Wildlife Refuge System Improvement Act of 1997).

DESCRIPTION OF USE

(a) What is the use? Is it a priority public use?
The uses are commercial cross-country skiing and snowshoeing on 10 miles of designated trails on the refuge. While these uses are not priority public uses, they facilitate visitor participation in priority public uses (e.g., wildlife observation and photography).

(b) Where will these uses be conducted?
White Grass Touring Center (White Grass) is a commercial operation that offers snowshoeing and cross-country skiing on 10 miles of trails located on refuge lands. See map B-2 for locations of commercial cross-country ski and snowshoe trails.

(c) When will the uses be conducted?
These uses occur in the winter when there is sufficient snow to allow the activities and when the refuge is open to the public. Most commercial cross-country skiing and snowshoeing occur mid-November through mid-March. Currently the refuge is open daily from one hour before sunrise until one hour after sunset.

(d) How will the uses be conducted?
The refuge permits White Grass to maintain and use approximately 10 miles of trails on the Kelly-Elkins and Graham tracts. Trails are accessed from Forest Road (FR) 80 or through the White Grass lodge parking area. This use has been authorized by annual special use permits (SUP) since 1999 when the Kelly-Elkins and Graham tracts were acquired by the refuge. Each annual SUP specifies terms, conditions, methods, and activities that are authorized.

(e) Why are these uses being proposed?
White Grass has operated a cross-country skiing and snowshoeing operation here since 1979, and has been operating under an annual SUP since the Service acquired the property in 1999. While commercial cross-country skiing and snowshoeing are not priority public uses, they provide opportunities for visitors to observe and learn about the Refuge System, Canaan Valley refuge, and wildlife and habitats firsthand. During winter months snow cover limits pedestrian access to much of the refuge. Visitors skiing and snowshoeing on the refuge are able to engage in priority public uses such as wildlife observation and photography during times when it would be otherwise too difficult because of snow depths. These uses essentially permit the majority of wildlife observation, education and interpretation to occur at the refuge (outside the visitor's center) during winter months when there is snow cover.

Although much of the bird life is gone for the season and many mammal species are dormant or active only at night, this activity does provide opportunities for wildlife observation. Winter species such as chickadees, nuthatches and ravens are commonly observed. Mammal tracks are used to interpret the areas wildlife populations during winter months. This exposure may lead to a better understanding of and interest in natural ecosystems, the importance of national wildlife refuges, and the role of the Service in protecting and restoring natural resources. Additionally the permittee is required to provide environmental education programs regularly throughout the season. These programs are always well received with typically 40 or more participants and require minimal staff oversight. This use allows the refuge to reach large numbers of people of a unique demographic during otherwise low visitation periods.

AVAILABILITY OF RESOURCES

The following list estimates the required costs for the refuge to administer and manage commercial cross-country skiing on the refuge. They do not include the costs of new construction, kiosks, signs, and other costs associated with alternative B (the Service-preferred alternative). These costs are described in appendix E in a Refuge Operating and Needs and Service Asset Maintenance Management System data list. They also do not cover un-anticipated costs such as participation in search and rescue operations. The refuge officer is the primary contact for any emergency operations on the refuge, however local resources are available to assist and provide significant resources if necessary. Because such an incident is uncommon and unpredictable, these costs are not assumed in the resources estimate below.

COSTS

Staff time associated with administration of this use is related to administration of the SUP, maintaining kiosks and gates, sign-posting roads and trails, informing the public about new refuge uses, conducting visitor use surveys, analyzing visitor use patterns, monitoring the effects of public uses on refuge resources and visitors, and providing information to the public and enforcing refuge regulations. All trail maintenance and repair is conducted by White Grass staff and volunteers.

Annual costs associated with the administration of trail use on the refuge are estimated below:

Kiosk Maintenance and Repair:

- WG-10 Equipment Operator for 1 work days = $262.91

Planning trail connections, working with partners

- GS-13 Refuge Manager for 1 working days = $450.24

Administration of permits, meetings with White Grass staff, Consultations with refuge staff

- GS-11/12 Deputy Refuge Manager for 2 work days = $608.14

Law enforcement, monitoring trail users and their interactions with each other, visitor services, and sign maintenance needs while conducting other LE activities.

- GS-9 Refuge Officer for 10 work days = $2457.60

Monitoring environmental effects of pedestrian travel

- GS-11 Wildlife Biologist for 2 work days (monitoring) = $594.56
- GS-7 Biological Science Technician for 2 work days (monitoring) = $1406.16

Providing information to the public, working with and training Adopt a Trail volunteers, evaluating and planning trail improvements, and analyzing traffic counter and user data

- GS-11 Visitor Services Manager for 10 work days = $3530.40

Vehicle fuel / law enforcement patrols = $100.00

Total Estimated Costs = $9410.01

FY 2009 Budget Allocations:

Employee Salaries and benefits = $624,039.5
Fixed costs (utilities, fuel, administrative) = $211,415.23
Base maintenance = $50,000
Discretionary Funds (maps, printing, etc.) = $62,243.32
Total Available Funds for FY 2009 = $947,698.08

The financial and staff resources necessary to provide and administer these uses at their current levels are now available. We expect the resources to continue in the future, subject to availability of appropriated funds.

ANTICIPATED IMPACTS OF THE USE

Commercial operations on the Kelly-Elkins and Graham tracts include pre- and post-season trail maintenance and grooming operations during ski seasons. Ski trails that are maintained vary in width, from approximately four feet to 15 feet. Maintenance during the ski season involves grooming established ski trails with a snowmobile. Snowmobile use is limited to necessary trail maintenance operations only. No recreational snowmobile use is allowed.

During the ski season (November - April) an average of 5,000 skiers use the trails on the Kelly-Elkins and Graham tracts. Annual user fluctuations depend on snow cover and timing and can vary from 3,000 to over 7,000 visitors during the season. This, in addition to grooming activities, could cause temporary wildlife disturbances to mammals and bird species on these tracts. In general, negative effects on habitat and wildlife associated with these activities are considered minimal. Mammals are less active during winter months, sensitive migratory birds have largely left the refuge, and it is not breeding season for any of the wildlife that may be present. Commercial cross-country skiing and snowshoeing also are limited to winter and require sufficient snow cover to allow access. Additionally, public use of this area is typically concentrated on weekends when there is snow. Therefore the effects of the use are concentrated on the weekends so that wildlife disturbance is not constant. Surface water and soil may be frozen for at least a portion of this time, most vegetation is dormant, and sensitive habitat will largely be protected by a surface layer of snow. In addition, skis and snowshoes are designed to distribute weight, decreasing potential for eroding soils near waterways. Commercial skiing and snowshoeing are limited to established roads and trails, and no recreational snowmobiles are allowed. Following are more specific descriptions of potential impacts associated with cross-country skiing and snowshoeing.

Effects on Hydrology and Water Quality: Visitor use has the potential to contaminate the Blackwater River and its tributaries through soil sedimentation into streams caused by trail maintenance and grooming efforts or from actual skiing and snowshoeing. There may also be runoff of petroleum products from parking lots or snowmobiles used for trail grooming.

There may be additional impacts to water resources where trails cross the refuge's rivers, streams, and tributaries increasing the potential short-term and long-term downstream erosion and sedimentation. Additional visitor use also increases the potential for contaminating rivers, streams, and open water through the runoff of petroleum products from parking lots. Trail maintenance activities associated with the commercial operation may have negative effects on hydrology and water quality. Trail grooming during the ski season involves the use of snowmobiles. As mentioned previously, snowmobiles can be a source of petroleum products that can contaminate water sources and operating these machines near waterways may lead increased soil erosion and sedimentation in the water.

The refuge minimizes adverse effects on water resources in a variety of ways. Refuge staff routinely monitors roads and trails for damage and White Grass is required to remediate problems as described in the permit. Commercial trail maintenance and grooming activities must comply with the terms and conditions of the annual SUP, ensuring any potential negative effects are minimized. The refuge also conducts public outreach efforts to notify visitors of proper precautions, including carrying out all trash. This helps minimize risks associated with visitor use on the refuge. Because of these efforts, combined with the seasonal limitations, trail restrictions, and stipulations listed in this document, impacts to water resources are expected to be minimal.

Effects on Vegetation: Short-term effects consist of the deterioration of plant material, whereas long-term effects of trampling include direct and indirect effects on vegetation and soils like diminishing soil porosity, aeration and nutrient availability through soil compaction (Kuss 1986, Roovers et al. 2004). Compaction of soils thus limits the ability of plants, particularly rare and sensitive species, to revegetate affected areas (Hammitt and Cole 1998). Kuss (1986) found, plant species adapted to wet or moist habitats are the most sensitive and increased moisture content reduces the ability of the soil to support recreational traffic.

Overall effects on vegetation are expected to be minimal. As mentioned previously, skiing and snowshoeing are limited to winter and require sufficient snow cover to allow access. Vegetation is largely dormant during the winter and will largely be protected by a surface layer of snow. In addition, skis and snowshoes are designed to distribute weight, decreasing potential for compacting or eroding soils and trampling vegetation. Skiing and snowshoeing are limited to designated roads and trails, and no recreational snowmobiling is allowed. Designated roads and trails do not have any known occurrences of rare plant species on their surface that would be impacted by these uses. Some rare plants have been documented in habitat adjacent to trails. Users leaving designated trails could adversely affect adjacent vegetation; however, because of the time of year and low numbers of visitors expected to leave the trails, negative effects are expected to minimal.

While recreational snowmobiling is not allowed, snow mobiles are authorized to groom the commercial trails. In-season trail grooming is limited to the commercial trails. To protect natural resources in the area, the

refuge specifies appropriate terms and conditions for snow mobile grooming in the company's annual SUP. Trails will be monitored, any problem areas will be identified, and appropriate restoration and protection efforts will be made. If adverse impacts to vegetation are observed, the refuge will take necessary measures, such as remediation and trail closures, to restore plant communities.

Effects on Soils: Soils can be compacted and eroded as a result of continued use of roads and trails. The Mauch Chunk-derived soil in Canaan Valley is particularly vulnerable to mechanical erosion when the vegetation has been removed (Rizzo 2002). If compacted, Mauch Chunk soils can facilitate rapid water runoff that accelerates erosion down slope (Rizzo 2002).

Trail maintenance and grooming on the commercial trails could have negative effects on soils. In general, trail maintenance involves using hand tools or small motorized equipment (e.g., chain saws and all-terrain vehicles (ATV) in the off-season) to keep trails clear. Maintenance crews use snowmobiles to access trails for maintenance in the winter. The bulk of the work is done by foot access in the off-season. Trail maintenance and grooming associated with the commercial trails is addressed under the annual SUP. This permit stipulates a series of requirements to minimize or avoid any potential negative effects. Trail maintenance activities are limited to occur only between October and April of each year, which avoids the growing and breeding season of most species.

Overall effects on soils are expected to be minimal. Commercial cross-country skiing and snowshoeing are limited to winter and require sufficient snow cover to allow access. The soil surface will likely be frozen for some of the season, making it much less vulnerable to compaction or erosion. When these activities are occurring, soils also will largely be protected by a surface layer of snow. In addition, skis and snow shoes are designed to distribute weight, decreasing potential for compacting or eroding soils. Over the long-term, the risk of erosion and sedimentation problems that might affect soils in these habitats would increase with increased visitor use and trail use. However, given the time of year, locations, and methods used, increased levels of skiing and snowshoeing are not expected to significantly affect soils on the refuge.

Effects on Wildlife: Short-term and long-term adverse impacts would be expected for wildlife populations in relation to increasing trail miles and visitor use. Disturbances will vary by wildlife species involved and the type, level, frequency, duration and the time of year activities occur. Beale and Monaghan (2004) found that adverse effects to wildlife increase as number of users increase. The study found that an animal's response to one visitor walking down a trail is entirely different than its response to a group of users walking down a trail.

The high density of trails per acre on the Kelly-Elkins and Graham tracts increases the likelihood of wildlife disturbance. The effects of roads and trails on plants and animals are complex and not limited to trail width. Trail use can disturb areas outside the immediate trail corridor (Trails and Wildlife Task Force 1998, Miller et al. 2001). Miller et al. (1998) describe a 75-meter zone of influence where bird abundance and nesting activities (including nest success) were found to be affected based on distance to the trail. Bird communities in this study were apparently affected by the presence of recreational roads and trails, where common species (e.g., American robins) were found near trails and rare species (e.g., grasshopper sparrows) were found farther from trails. Songbird nest failure was also greater near trails (Miller et al. 1998). Taylor and Knight (2003) describe a similar disturbance zone of 100 meters for mammals in which mammal activity is affected by trail presence and use. This 100-meter disturbance zone helps demonstrate the potential impacts to wildlife on the cross-country ski and snowshoe trails during the winter months. Using this 100-meter disturbance buffer around the commercial cross-country skiing and snow shoeing trails, it can be concluded that 501 of the 992 acres of the Kelly-Elkins and Graham tracts are potentially impacted by cross-country skiing trails.

The use of trails in the winter for commercial cross-country skiing and snowshoeing have similar wildlife disturbance effects as those which occur through pedestrian travel on these trails during the other seasons. One of the primary differences is that migratory birds are not present and resident species are not breeding or raising young during the winter months. Additionally, many mammal species are less active during winter months. However, winter conditions cause increased stress because of extreme weather conditions and limited food availability (Hammit and Cole 1998). Additionally, some species which are typically more active during evening hours in the summer months increase activity during daylight hours in the winter months often in response to prey species activity patterns. Both bird and mammal species which are present and active can be negatively affected proportionally greater than other times of the year to the same level of disturbance because

of these added environmental stressors. Bird species that are common in the wintertime include chickadees, nuthatches and ravens. A variety of mammal tracks are also commonly observed.

Long-term adverse impacts from increased trail miles and trail use might pose a concern to refuge fisheries. Trails that have stream and river crossings would likely degrade over time with increased use and contribute to downstream sedimentation and turbidity, which has been found to be a stressor to brook trout (Sweka and Hartman 2001) and redside dace (Holm and Crossman 1986) populations that are sensitive to habitat degradation. The refuge will monitor stream and river crossings closely and remediate any damaged areas to minimize adverse impacts associated with trail use. However, during winter months when the ground is frozen, erosive potential of soils are reduced and impacts of cross-country ski use would be minimal to erosion and sedimentation of aquatic habitats. Small bridges are erected over drainages on the Kelly-Elkins and Graham tracts at the beginning of each ski season to further protect streams from erosive effects of this use.

Trail maintenance on the commercial trails could disturb a variety of wildlife including white-tailed deer, black bear, turkey and a variety of migratory birds. Using snow mobiles to groom trails may also disturb over-wintering species (e.g., white-tailed deer). Grooming activities are not permitted at night which protects nocturnal species from disturbance. Conditions for trail maintenance and grooming associated with the commercial trails are addressed under the annual SUP. Stipulations to ensure compatibility are listed at the end of this compatibility determination and include a series of requirements to minimize or avoid any potential negative effects to wildlife or habitat.

West Virginia northern flying squirrels have also been documented on refuge property near the end of FR 80. This species has recently been removed from the endangered species list. The recovery plan (USFWS 2001) notes that habitat modification may create a competitive advantage for the southern flying squirrel (*Glaucomys volans*), although the extent to which a logging road or trail would create conditions conducive for this is unknown. Some research has found northern flying squirrels occupying den sites near logging roads, skid trails, and on hiking trails (Ford 2002). Routes designated for these uses are pre-existing roads and trails some of which have been in existence for many years. No new habitat clearing is planned in this area; however, some vegetation clearing may be required for maintaining the trail corridor.

As mentioned previously, we will periodically evaluate these activities to determine any effects they may have. If evidence of unacceptable adverse impacts appears, the location(s) of activities will be curtailed or discontinued as needed. We will take all necessary measures to mitigate any negative effects on wildlife associated with skiing and snowshoeing. We will evaluate roads, trails, and activities periodically to assess potential negative effects. If evidence of unacceptable adverse effects is observed, we will curtail or discontinue activities as needed. We will post and enforce refuge regulations, and establish, post, and enforce closed areas as needed. However, negative effects on wildlife are expected to be minimal. As discussed previously, cross-country skiing and snowshoeing are limited to winter months and require sufficient snow levels to allow access.

The refuge also recognizes that large group sizes may amplify negative effects to wildlife. Therefore, groups larger than 10 are required to notify the refuge prior to visiting to determine if a SUP will be needed. Requiring large groups to contact the refuge prior to visiting will also enable the refuge to understand which trails are preferred by large groups, and to monitor any potential excessive wildlife disturbance created by large groups. Having the ability to monitor these kinds of disturbances will enable the refuge to mitigate impacts associated with large groups. Examples of mitigation may include directing large groups to less sensitive habitats during breeding seasons or assigning refuge staff to lead or meet with the group while on refuge lands. Limiting group size will also increase the quality of the experience and decrease the potential of conflicting with other users' experience.

Effects on Threatened and Endangered Species: There are two federally listed species known to occur on the refuge, and one species that has recently been de-listed, as discussed in the previous section. Cheat Mountain salamanders (*Plethodon nettingi*), listed as threatened, have been documented near the upper section of FR 80, and near the cross-country ski trails in that area. Indiana bats (*Myotis sodalis*), listed as endangered, are known to use the refuge's forested areas for summer foraging and may have a summer maternity colony on refuge lands as well. The refuge requested Section 7 informal consultation with the Service's West Virginia Field Office (WVFO) under the Endangered Species Act (16 U.S.C. 1536) on all the actions in alternative B of this draft Cooperative Conservation Plan (CCP)/Environmental Assessment (EA),

including commercial cross-country skiing and snowshoeing, that could potentially impact listed species. This process resulted in a finding that the proposed actions are not likely to adversely affect the listed species or their associated habitats on the refuge. The full intra-Service Section 7 Biological Evaluation form can be found in appendix I of this draft CCP/EA.

Cheat Mountain salamander—Public use on Powderline and Three-Mile Trail only occurs during winter months by cross-country skiing and snow shoe access when there is snow on the ground. During these times of year, salamanders are not active and are underground (USFWS 2009). Furthermore, because these trails are not open to the public outside of the winter time, the trails and the substrate on the trails remain undisturbed during the time of year when the salamanders are active. Therefore these public uses are not likely to adversely affect Cheat Mountain salamanders.

These old roads, now public use ski trails, have an altered micro-habitat and are not habitat for Cheat Mountain salamanders; therefore, we do not expect this species to be living in these trails. Therefore, the potential for Cheat Mountain salamanders to be present on the trails is limited to salamanders occasionally crossing the trail.

Salamanders may cross the trail in low numbers until temperatures drop and the salamanders are no longer active and present on the surface. Their presence on the surface is temperature and moisture dependent, thus dates of emergence and submergence depend on these environmental factors and can vary from year to year (Pauley 1978a; 1978b; Pauley 2005 in Pauley 2008). It is estimated that when temperatures are below 550F salamanders are not likely to be active on the surface (USFWS 1991). Based on climate information from 1948 to 2000, average temperatures in Canaan Valley do not exceed 550F until May 14 and fall below 550F after September 26 (Brooks pers. comm.). Under the current conditions of the SUP, maintenance operations can only occur between October 10 and April 30. This is well beyond when salamanders are likely to be present on the surface. Therefore the chance of direct take is extremely unlikely (discountable).

The chance of direct take from maintenance activities is further limited due to the expected low amount of active maintenance conducted on these trail sections. Maintenance typically occurs on one to two days a year on these higher elevations trails and consists of hand crews with one ATV and trailer to haul equipment. ATV use is limited to usually two passes up and down the trail to move tools (Chase, pers.comm). Maintenance activities typically include the removal of downed trees and limbs which have fallen across the trail during the previous season and maintaining existing waterbars to prevent erosion. Maintenance activities occur within a 4-foot-wide corridor of the trail – two feet in either direction of the center line – as stipulated in the SUP. Any other activities related to trail maintenance occur within the footprint of the trail. The risk of the maintenance crew encountering a salamander is extremely unlikely to occur (discountable).

Trails have been noted impediments to Cheat Mountain salamander movements, possibly fragmenting and genetically isolating populations as well as making these populations more vulnerable to stochastic events. Pauley (unpublished data in USFWS 1991) found that roads, and potentially some trails, serve as barriers that prevent territories of different individuals from overlapping, thus fragmenting populations and gene pools. Heavily traveled trails can result in removal of leaves and other forest litter, leaving bare trail treads (USFWS 1991; WVDNR 2000, 1999). Preliminary data suggest that the salamander rarely cross trails and other openings that lack sufficient leaf litter cover (Pauley 2005 in Pauley and Waldron 2008). Cheat Mountain salamander use forest floor litter as foraging cover and refugia, especially during the day. Therefore, the extent to which trails and roads serve as a barrier to the salamander most likely depends on the site-specific characteristics such as width, canopy cover, substrate material, compaction, and level/type of use.

Conditions related to blocking movements for salamanders appear to be related to increased temperature and humidity resulting from an open tree canopy as well as the removal of vegetation and leaf litter through public use activities creating bare soil conditions. The cross-country ski trails that White Grass maintains are not used outside the ski season for public use and are not heavily traveled. Therefore excessive trampling resulting in the removal of litter and vegetation to create bare dirt surfaces does not occur on these trails. Because habitat on the trail is predominately grass and fern cover with limited rock and woody debris, it likely permits salamanders to move across the trail. In addition, both Powderline and Three-Mile trails are narrow and have partial canopy cover providing shading and cooling effects to the trail surface. This creates more suitable

conditions for salamanders to move across the trail. The lack of bare soil conditions coupled with the presence of canopy cover suggest that these trails do not create a barrier to salamander movement.

We do not expect the presence of these trails to fragment these populations creating genetic barriers. For this reason the trails are not likely to cause indirect adverse effects to Cheat Mountain salamanders.

Additional benefits to Cheat Mountain salamander populations would be expected from reforestation of the edges of Powderline and Three-Mile cross-country ski trails.

The refuge therefore proposes to create a vegetated buffer of native tree species along these trails. Planting native tree species such as red spruce along the trails would eventually provide a more closed canopy over the trail and improve substrate and vegetation on the trail itself. Native tree species would eventually shade out all of the grass and fern cover which currently dominates the trails, and would improve microhabitat conditions for salamanders by increasing leaf litter, woody debris, and soil moisture (USFWS 1991). These trail improvements would provide a more conducive corridor for Cheat Mountain salamanders to move between upslope and downslope populations. Revegetation of refuge cross-country ski trails and increasing canopy cover is an additional conservation measure the refuge can accomplish to further enhance habitat conditions for the salamander.

In the future, the refuge would also consider other options such as replacing trail segments with boardwalks to further facilitate salamander movement across trails. This action is one of the recommended management guidelines in the recovery plan for this species (USFWS 1991). In 2009, the Monongahela National Forest initiated a study to design more effective road and trail maintenance activities to benefit Cheat Mountain salamander populations (Pauley and Waldron 2008). If those results apply to habitats on the Canaan Valley refuge, the refuge will consider implementation of similar measures.

Indiana Bat—Indiana bats were documented on the refuge for the first time through acoustical monitoring conducted by the U.S. Forest Service in 2003 (Ford 2003). Indiana bats were found foraging at two locations in the south end of the refuge. The refuge began conducting acoustical surveys in 2005. These surveys have documented three likely Indiana bat observations in the same location as the 2003 survey during 2005, 2007, and 2008. Additionally, acoustical surveys documented one new location for the species during 2007. Indiana bat calls have been documented from the refuge in the months of May, July, August, and September. It is likely that Indiana bats use the Kelly-Elkins property for foraging habitat, particularly in openings such as the existing logging roads and maintained ski trails. Commercial cross-country skiing and snowshoeing are not likely to cause impacts to this species as these activities will not be disrupting hibernacula during the winter months or disrupting foraging activities the remainder of the year.

Because of seasonal restrictions and the lack of hiberbacula on the refuge, no adverse effects are expected on Indiana bats during the ski/snow shoe season. It is possible that trail maintenance activities on commercial trails could cause minor disturbances to this species; however, since these activities have been occurring for many years, are restricted to day time hours, and must comply with the terms and conditions of the SUP, any potential negative effects are expected to be minimal. We will periodically evaluate these activities to determine any effects they may have on listed species, and we will initiate consultation with the Service's West Virginia Field Office whenever needed. If evidence of unacceptable adverse effects appears, the location(s) of activities will be curtailed or discontinued as needed.
Under the described conditions and use levels, these public uses will not cause any direct or indirect adverse effects to threatened or endangered species.

CONCLUSION

At current and projected levels of use, potential negative effects from commercial cross-country skiing and snowshoeing are not considered significant. The effects would be temporary in duration and are not expected to cause serious changes in behavior. As with other activities, we will continue to minimize potential negative effects on hydrology and water quality, soils, vegetation, and wildlife. This includes regular maintenance operations to ensure trail stability and erosion control measures. Trails and roads will be monitored for

potential negative effects. If evidence of unacceptable adverse effects is observed, we will curtail or discontinue these activities as needed to protect wildlife and habitat. We will post and enforce refuge regulations, and establish, post, and enforce closed areas as needed.

In addition to the above measures, the annual SUP authorizing commercial cross-country skiing and snowshoeing outlines specific maintenance and grooming methods that may be used as well as timing, duration, and any other requirements. These requirements ensure minimal negative effects on soil, habitat, and wildlife.

PUBLIC REVIEW AND COMMENT

This compatibility determination will be made available for public review and comment for 45 days as an appendix to the draft CCP/EA for Canaan Valley National Wildlife Refuge.

DETERMINATION

_____ Use is Not Compatible

__X__ Use is Compatible With the Following Stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY

The refuge has developed a list of criteria for determining whether any given route would be appropriate for public uses, including commercial cross-country skiing and snowshoeing. These criteria would apply to current and future trails. Criteria are as follows:

Checklist for Existing Routes to Be Eligible for Compatibility Consideration
(Routes must meet all criteria)

1. Route provides an opportunity to view a variety of habitats and wildlife.

2. Route is safe for the access proposed at current use levels.

3. Route requires minimal annual maintenance (i.e, waterbars, stepping stones, etc.) to ensure safe access and to prevent further habitat degradation.

4. Route has a low potential for fragmenting habitat or disturbing wildlife populations.

5. 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.

6. Any route crossing of sensitive soils occupies the shortest possible distance. Organic soil crossings are minimized or eliminated.

7. 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.

8. Route predominately occupies modified substrate (graveled, compacted, or filled) like logging roads and rail grades.

9. Route is not incised greater than 1 foot deep over 10% of its total length.

Additional Stipulations to ensure compatibility:

—Refuge regulations will be posted and enforced. Closed areas will be established as needed, posted, and enforced. Signs necessary for visitor information, safety, and traffic control will be kept up to date.

—The known presence of a threatened or endangered species will preclude the use of an area until the refuge manager determines otherwise.

—Commercial snowshoeing and cross-country skiing are only compatible on designated roads and trails..

—Commercial snowshoeing and cross-country skiing are restricted to refuge open hours: 1 hour before sunrise until 1 hour after sunset. Night grooming is prohibited.

—Skiing off designated open trails by permittee staff and customers is prohibited.

—Trail clearing (cutting woody vegetation) can occur only from the center point of the existing trail to two feet on either side of the center point to create a corridor four feet wide, even if the trail itself is wider than four feet.

—Trail clearing operations must only be performed from October 10 through April 30.

—The use of all-terrain vehicles is prohibited except for spring and fall maintenance operations.

—A written trail maintenance schedule will be submitted and approved by the refuge manager prior to initiating any trail maintenance.

—All material removed from the permitted ski trails during trail maintenance will be placed on the side of the trail. The removal of any materials from the refuge, including wood, is prohibited.

—Snowmobiles may be used for trail grooming and skier rescue operations only. No recreational snowmobile is permitted.

—Permittee will work with the refuge to develop and provide monthly interpretive programs that teach visitors about the refuge system, local ecology, and the environment.

—The refuge conducts an outreach program to promote public awareness and compliance with public use regulations on the refuge. The permittee is required to conduct monthly outreach and education programs related to refuge resources, and the local ecology to further visitors' understanding of the Refuge System and the purposes of the refuge.

—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 and trails are maintained at a level that reasonably accounts for safe travel. Roads are not plowed in winter and non-commercial trails are not groomed.

—Routes designated for cross-country use on Kelly-Elkins and Graham Tract are monitored annually to determine if they continue to meet the compatibility criteria established by the refuge. Should monitoring and evaluation of the use(s) 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.

—Routine law enforcement patrols are conducted. The patrols promote education and compliance with refuge regulations, monitor public use patterns and public safety, and document visitor interaction.

—The commercial skiing operation must obtain and abide by a SUP annually. All other organizations conducting for-profit group tours or activities on the refuge must also obtain and abide by a SUP. A fee may be charged for the SUP. The areas used by permit will be closely monitored to evaluate the impacts on the resource. If adverse impacts appear, the activity will be curtailed or discontinued.

—Guidelines to ensure the safety of all participants will be issued in writing to the SUP holder for the activities and will be reviewed before the activity begins.

—Potential conflicts with other public uses such as hunting, interpretation, etc. will be minimized by using trailhead signs and other media to inform the visitors about current public use activities as well as which activities are authorized in specific locations throughout the refuge.

—The SUP is granted upon the express condition that the United States of America, its agents and employees shall be free from any and all liabilities and claims for damages, injuries, and/or suits for or by reason of any injury to any person or property of any kind whatsoever, whether to the person or property of the permitee, its agents, employees, members, or third parties, from any cause or causes whatsoever, including ordinary negligence attributable to the United States, while in or upon the Canaan Valley National Wildlife Refuge during the term of this permit, arising out of or in any way connected to any of the activities authorized under this permit, including but not limited to the use of refuge lands for skiing and or other recreational activities, during the term of this permit, and the permitee hereby covenants and agrees to indemnify, defend, save and hold harmless the United States of America, its agents and employees from all such liabilities, expenses and costs on account of or by reason of any property damage, personal injuries, deaths, liabilities, claims, suits or losses however occurring or damages arising out of the same. This obligation shall survive the termination of the agreement and is intended to be as broad and inclusive as permitted by the laws of the State of West Virginia and if any portion hereof is held invalid, it is agreed that the balance shall, notwithstanding, continue in full legal force and effect.

—The permitee shall prior to the effective date of the permit provide the refuge manager with a Certificate of Insurance evidencing that it has obtained and will maintain during the term of this agreement Comprehensive General Liability and Property Damage insurance against claims occasioned by the actions or omissions of the permitee, its agents and employees in carrying out the activities and operations authorized hereunder. Such insurance shall be in an amount commensurate with the degree of risk and the scope and size of such activities authorized hereunder, but in any event, the limits of liability shall not be less than $2,000,000 per occurrence and $5,000,000 aggregate. If claims reduce available insurance below the required per occurrence limits, the permitee shall obtain additional insurance to restore the required limits. An umbrella or excess liability policy, in addition to a Comprehensive General Liability Policy, may be used to achieve the required limits. All liability policies shall name the United States of America as a named insured or shall specify that the insurance company shall have no right of subrogation against the United States and shall have no recourse against the Government for payment of any premium or assessment.

JUSTIFICATION

One of the secondary goals of the Refuge System is to provide opportunities for the public to develop an understanding for wildlife wherever those opportunities are compatible. Commercial cross-country skiing and snowshoeing provide increased opportunities for viewing wildlife and habitats with relatively low levels of disturbance. Visitors participating in this activity will be directly engaged in wildlife observation, education, interpretation and photography which are identified in the National Wildlife Refuge Improvement Act of 1997 as the priority public uses of the Refuge System. Additionally, during much of the winter season when there is deep snow cover on the refuge, cross-country skiing and snowshoeing are often the only methods available for facilitating priority public uses. The Service and the Refuge System have established goals of providing opportunities for the public to observe wildlife and habitats. Commercial cross-country skiing and snowshoeing provide additional opportunities for viewing wildlife and habitats with relatively low levels of disturbance. It is likely that visitors participating in these activities will learn more about local wildlife and habitats, the refuge, and the Refuge System.

Commercial cross-country skiing and snowshoeing are restricted to designated roads and trails on the Kelly-Elkins and Graham tracts. These activities are limited to winter months and require sufficient snow levels to allow access. These uses essentially permit the majority of wildlife observation, photography, education and interpretation to occur at the refuge (outside the visitor's center) during winter season when there is snow cover. These uses are concentrated, which reduces the overall impact in other portions of the refuge. Habitat which is disturbed represents the largest habitat type that the refuge protects and manages and therefore the disturbance that does occur is offset by the large percentage of similar habitats on the refuge which remain undisturbed.

Because these activities are limited to winter months, the soil surface will be frozen and covered with snow for most of the season, making it much less vulnerable to compaction or erosion. Vegetation is largely dormant during the winter and will be protected by a surface layer of snow. In addition, skis and snowshoes are designed to distribute weight, decreasing the potential for harming vegetation and compacting or eroding soils. Due to trail habitat conditions and limited public use and maintenance on trails through Cheat Mountain salamander habitat there will not likely be adverse effects to the species. Furthermore, the refuge will improve habitat conditions for the Cheat Mountain salamander through trail revegetation on the Kelly-Elkins tract as well as other physical means for improving habitat

Because of the established trail criteria and additional stipulations listed above, cross-country skiing and snowshoeing are considered to be acceptable and manageable methods for facilitating priority public uses at Canaan Valley refuge. Trails open to this use are entirely on upland soils. Small drainages cross these trails but are maintained to ensure proper drainage and are bridged in the winter so that ski and snowshoe use can not cause erosion or sedimentation. Because of the restrictions and management of the trail system, the impact to soils and possible sedimentation of wetland resources are minimized. Therefore these anticipated impacts will not affect the refuge's ability to fulfill the purposes to conserve wetlands of Canaan Valley as established through the Emergency Wetland Resources Act (1986).

This use is concentrated on the Kelly-Elkins and Graham tracts which represent a small portion of the available wildlife habitat which is unaffected by this use. Other public use trails are open to cross-country skiing and snowshoeing, however, road access to trail heads is not maintained and the trails themselves are not groomed on other refuge tracts. This greatly affects the numbers of users on other areas of the refuge and minimizes disturbance to wildlife and other potential impacts to a smaller area of refuge land. We do not expect these activities to cause many adverse impacts because most mammal species are less active during winter months, amphibians are dormant, many sensitive migratory birds have already left the refuge, and it is not breeding season for the wildlife that may be present.

Although some species of birds, small mammals and deer may be observed and disturbed by this activity, the overall effects will be mitigated by the lower numbers encountered, and the abundance of similar habitat which is not affected by this use. Most mammal observations during winter are typically through the interpretation of tracks left from night time activities, therefore most mammal disturbance will be minimal as this activity is not permitted at night. This ensures the refuge will continue to meet the purposes of the Fish and Wildlife Act (1956) and the mission of the Refuge System to manage, conserve and protect fish and wildlife and plant resources on refuge land. Because ski trails are typically narrow and are on established logging roads, impacts will be minor and therefore not affect the refuge's ability to conserve plant resources as described in the mission of the Refuge System and to protect the ecological integrity of Canaan Valley and its resources, a founding purpose for designation of the refuge in the 1979 EIS.

Providing this access will not affect the refuge's responsibility for wetland protection or wildlife conservation and management as stipulated in the mission of the Refuge System, Emergency Wetlands Resources Act (1986) and the Fish and Wildlife Act (1956). No cross-country ski trails are located on the tracts acquired through the Migratory Bird Conservation Act (1929); therefore allowing this use will not inhibit the refuge from fulfilling the conservation and management of migratory birds on these tracts. Issuance of the SUP will

include stipulations to ensure the compatibility of this use. These stipulations will include specific maintenance and grooming methods. This activity directly contributes to the mission of the Refuge System, as required by 50 Code of Federal Regulations §29.1, by facilitating the main opportunities for wildlife observation, education, interpretation and photography during winter months. Overall, this use, conducted as described, will have negligible effects on the refuge's ability to ensure the ecological integrity of Canaan Valley and the resources that the refuge was established to protect. We therefore conclude that commercial cross-country skiing and snowshoeing will not materially interfere with or detract from the mission of the Refuge System or the purposes for which the refuge was established.

Refuge Manager _____ _____
(Signature) (Date)

Concurrence

Regional Chief _____ _____
(Signature) (Date)

MANDATORY 10 YEAR RE-EVALUATION DATE

_____
(Date)

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COMPATIBILITY DETERMINATION

USE

Horseback Riding to Facilitate Priority Public Uses

REFUGE NAME

Canaan Valley National Wildlife Refuge

ESTABLISHING AND ACQUISITION AUTHORITY

The establishment of Canaan Valley National Wildlife Refuge (refuge) was first approved in an Environmental Impact Statement (EIS) released on May 30, 1979. However, the U.S. Fish and Wildlife Service (Service) decided to await the outcome of litigation surrounding a proposed storage hydroelectric facility before pursuing any further action. The approval of the refuge was affirmed by the Service in a 1994 Final Environmental Assessment and Finding of No Significant Impact on July 11, 1994, which confirmed the adequacy of the previously-approved 1979 EIS. The refuge was officially established when the first tract of land was acquired on August 11, 1994. The Service has acquired lands for the Canaan Valley National Wildlife Refuge (refuge) under the following authorities:

1. Fish and Wildlife Act of 1956 [16 U.S.C. 742f(a)(4)]

2. Emergency Wetlands Resources Act of 1986 [16 U.S.C. 3901b]

3. Migratory Bird Conservation Act of 1929 [16 U.S.C 715d]

REFUGE PURPOSES

The refuge was established to ensure the ecological integrity of Canaan Valley and the continued availability of its wetland, botanical, and wildlife resources to the citizens of West Virginia and the United States. Additional refuge purposes as derived from the legislative authorities are as follows:

(1) "... for the development, advancement, management, conservation, and protection of fish and wildlife resources..." (Fish and Wildlife Act of 1956; 16 U.S.C. 742f (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 international obligations contained in various migratory bird treaties and conventions." (Emergency Wetlands Resources Act of 1986; 16 U.S.C. 3901(b)); and,

(3) "... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." (Migratory Bird Conservation Act of 1929; 16 U.S.C. 715d).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION

The mission of the National Wildlife Refuge System (Refuge System) is "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 it a priority public use?
The use is horseback riding. Although Horseback riding is not a priority public use within the Refuge System, it facilitates wildlife-dependent, recreational uses such as wildlife observation and photography.

(b) Where will these uses be conducted?
Horseback riding is allowed on current designated roads and trails, and on any new trails as proposed in alternative B of the draft Comprehensive Conservation Plan (CCP)/Environmental Assessment (EA). See map B-2 for locations of trails that would permit horseback riding.

(c) When will the uses be conducted?
Horseback riding is authorized on designated roads and trails year-round. Daily use hours are from one-hour before sunrise until one-hour after sunset.

(d) How will the uses be conducted?
Riders either travel to the refuge on horseback and enter at public entry points or transport their horse by vehicle and trailers and depart from designated parking areas. Information kiosks identify the roads and trails open for travel and explain permitted public uses. Current designated wildlife observation trails on the refuge are described in the trail brochure. As trail connections are made, refuge brochures and kiosks will be updated to show all designated trails. Parking lots and kiosks have been constructed at the trailheads of refuge trails.

Designated roads and trails also have sufficient viewing distance for riders to detect the approach of other users and maneuver to accommodate them. Horses must be accompanied by riders at all times and not tied to trees or confined. Horseback riding is typically seasonal with the majority of the use occurring during summer and fall months.

(e) Why are these uses being proposed?
Horseback riding on the refuge provides increased opportunity for public participation in and access to the six priority public uses (hunting, fishing, wildlife observation and photography, and environmental education and interpretation). Visitors participating in horseback riding are also participating in one or more of the six priority public uses. Allowing this activity provides visitors with another way to view the refuge's diverse biological assets. Some trails on the refuge are long (4 miles round trip) and horseback riding facilitates access to some of the more remote areas of the refuge. Additionally it creates direct connectivity between the refuge and the Dolly Sods Wilderness Area, a popular destination for equestrian use. This exposure may lead to a better understanding of the importance and value of the Refuge System to the environment and the American people. Horseback riding access has been allowed on the refuge since the refuge was established in 1994, and was determined compatible in a compatibility determination in 2003.

AVAILABILITY OF RESOURCES

The resources necessary to provide and administer road and trail use will require a few additional resources and actions. Staff time associated with administration of this use is related to assessing the need for road and trail maintenance and repair, maintaining kiosks, gates, maintaining traffic counters and recording collected data, sign-posting roads and trails, informing the public about new refuge uses, conducting visitor use surveys, analyzing visitor use patterns, monitoring the effects of public uses on refuge resources and visitors, and providing information to the public about the use. These activities would be conducted in conjunction with the activities outlined in the "Wildlife Observation and Photography," and "Environmental Education and Interpretation" compatibility determinations and are therefore not additive. Additional resources are necessary for increased monitoring for invasive species to reduce the risk of the introduction and spread of invasive plants from horse use, and for trail maintenance to prevent erosion from horse hooves. Recently invasive species monitoring has been successfully conducted by volunteer efforts along public use trails.

Additional annual costs associated with the administration of horseback access on the refuge are estimated below:

Administration, planning and consultation with refuge staff:

- GS-13 Refuge Manager for 1 work days = $450.24

Planning and monitoring trail conditions for effects of horseback access

- GS-12 Wildlife Biologist for 2 work days = $735.04
- GS-7 Biological Technician for 7 work days = $1,406.16

Providing information to the public and analyzing user data

- GS-11 Outdoor Recreation Planner for 4 work days = $1,412.16

Maintenance operations to improve trail conditions directly associated with horse damage

- WG-10 Equipment Operator for 2 work days = $545.12

Herbicide and Supplies = $200.00

Heavy Equipment Fuel = $250.00

Grand Total Costs= $4,998.72

FY 2009 Budget Allocations:
Employee Salaries and benefits = $624,039.53
Fixed costs (utilities, fuel, administrative) = $211,415.2
Base maintenance = $50,000
Discretionary Funds (maps, printing, etc.) = $62,243.32
Total Available Funds for FY 2009 = $947,698.08

The financial and staff resources necessary to provide and administer these uses at their current levels are now available. We expect the resources to continue in the future, subject to availability of appropriated funds. As stated above, we would need additional resources to expand and enhance these uses as described in the draft CCP/EA.

ANTICIPATED IMPACTS OF USE

Horseback riding has the potential to affect a variety of migratory and resident wildlife and their habitats when they are close to the travel routes. Possible negative effects include disturbing wildlife, removing or trampling vegetation, littering, vandalism, and entering closed areas. However, visitor use associated with this activity is relatively low. Out of 44 monitoring days (mostly weekends) between September 2002 and July 2003, five horseback riders were documented on refuge roads and trails. Anticipated levels of use are higher on Forest Road (FR) 80 which is more popular with horseback riders due to the connection with U.S. Forest Service Property. Although no direct monitoring has occurred for horse use on FR 80, incidental observations by refuge staff indicate that this road is one of the most popular routes on refuge land for this use.

Effects on Hydrology and Water Quality: Visitor use has the potential to contaminate refuge wetlands, and the Blackwater River and its tributaries, through soil sedimentation from horseback riding into streams and runoff of petroleum products from parking lots. Additionally horse use has been linked to increased coliform bacteria from fecal contamination in at least one study in wilderness areas (Derlet et al 2008). However, this research was conducted in areas used heavily by pack horses and in some areas by cattle. Maintaining trails for horse use away from water sources and minimizing the area used for stream crossings will reduce the risk of fecal contamination. The risk of contamination from petroleum products originating from vehicles in parking areas is no greater than other forms of public use permitted on the refuge. Trail maintenance may cause short term erosion and sedimentation in area waters. There may be additional impacts to water resources where new trails cross the refuge's rivers, streams, and tributaries increasing the potential short-term and long-term downstream erosion and sedimentation. Additional visitor use also increases the potential for contaminating rivers, streams, and open water through the runoff of petroleum products from parking lots. However, refuge parking lots are situated away from wetlands, in well-drained areas that can absorb potential contaminants without harm to water quality.

Roads and trails used for horseback riding can affect the hydrology of an area, primarily through alteration of drainage patterns. Bartgis and Berdine (1991) note that roads and trails can divert water from their original drainage patterns in Canaan Valley. This results in some drainages receiving less water and therefore

becoming drier, while others are forced to carry more water resulting in accelerated erosion and increased water levels. Routine maintenance to redirect water and repair existing erosion is required to sustain horseback riding routes (Rizzo 2002, Zeedyk 2002).

Zeedyk (2002) documented many instances in Canaan Valley where existing roads and trails were channeling water away from historical wetlands and in some cases causing erosion and sedimentation of bog and other wetland communities. These problems have profoundly if not irreversibly altered the extent, depths, characteristics and function of the wetlands on the Main Tract (Zeedyk 2002). The effects of these trails and roads were a direct result of vehicle use and road construction prior to the refuge's acquisition of the property. Since then measures have been taken to remediate erosion and sedimentation issues, particularly on trails that are open to public access. Furthermore, since the refuge has now acquired lands within the acquisition boundary, it can prohibit vehicle use and road construction in certain areas so as to minimize these types of impacts.

The refuge minimizes adverse effects on water resources in a variety of ways. Refuge staff routinely monitors roads and trails for damage and remediate problem areas as needed. Trail maintenance is conducted to help minimize any negative affects associated with trail use. Refuge staff ensures any potential negative effects are avoided or minimized.

The refuge also conducts public outreach efforts to notify visitors of proper precautions, including carrying out all trash. This helps minimize risks associated with visitor use on the refuge.

It is anticipated that horseback riding could alter drainage features of roads and trails through erosion and compaction, potentially affecting water quality and hydrology. These problems will be minimized because routes designated for this use are primarily existing logging and skid roads, and most have hardened surfaces or already compacted soils. These routes are located predominately on upland soils to prevent impacts to fragile wetland soils. Any new trails proposed for public use with horses will be evaluated similarly and permitted only when they meet the trail checklist criteria. New trail development and use will be evaluated in subsequent EAs as appropriate to evaluate the potential impacts and possible alternatives of this use.

Based on the current and projected levels of use, condition of designated routes, and minimization measures employed, adverse effects on water resources because of this use are expected to be minimal.

Effects on Vegetation: Horse travel can impact plants on roads and trails by crushing them. Indirectly, horses can impact plants by compacting soils, thereby diminishing soil porosity, aeration and nutrient availability (Kuss 1986). Hammitt and Cole (1998) note compaction limits the ability of plants to revegetate affected areas. Plants growing in wet or moist soils are the most sensitive to disturbance from trampling effects (Kuss 1986). Horseback riding has caused braided roads and trails in excessively muddy trail sections (Summer 1986). Weaver and Dale (1978) found horse use caused a greater loss of vegetation cover, wider and deeper roads and trails, and greater soil compaction when compared to hiker use on meadow and forest trail conditions. Moist and wet soil conditions are common in Canaan Valley, particularly during spring and early summer, and can occur on upland roads and trails that have been incised and are channeling water.

It is anticipated that horses will have some impacts on refuge plant communities growing on the designated travel routes. Designated routes for horseback riding consist of former logging roads with hardened surfaces or are existing trails that have been used for many years. These routes are located predominately on upland soils to prevent impacts to fragile wetland soils and associated plant communities. Designated routes do not have any known occurrences of rare plant species on their surface that would be affected by this use. Some rare plants have been documented in habitat adjacent to trails; however, rare plant species have not been found on the designated route surfaces themselves, and several routes contain exotic grasses and forbs planted during logging operations prior to refuge acquisition.

Horse use may cause local impacts to plants and soils when horses are confined. Spencer (2002) observed that tying horses to trees damaged plants and soils. Confined horses in Canaan Valley ate the bark of nearby trees. This occurred at upland camps where horses were left for extended periods (Spencer 2002). According to Cole (1983), bark damage from tethering horses to trees can result in insect invasions and girdling that can ultimately kill the tree. Soil compaction and erosion at these sites was also cited as a problem, especially

where it exposed tree roots (Cole 1983). Horses may also browse native plants if tethered for extended periods. Typically horses are confined to areas where camping is permitted. Since camping is prohibited on the refuge, long term confinement and subsequent impacts are minimized. Further, refuge stipulations to ensure compatibility prohibit tethering horses to trees or other vegetation to prevent damage to vegetation.

Invasive plant species may be transported into the refuge through the presence of exotic plant seeds in feed hay. This concern has initiated strict requirements for weed free hay in some natural areas. At Yellowstone National Park (CA), and Green Mountain and Fingerlakes National Forests (NY) only processed feed (pelletized or cubed hay) or certified "weed seed free" hay is allowed in the back-country (Zimmer 2001, Oliff 2002). Currently, there are no programs to provide or certify weed free hay in West Virginia or in the surrounding vicinity (Rayburn 2001, 2009). According to the West Virginia Agricultural Extension office, two plants that could be easily transported in hay, via seed, are tall fescue (Festuca arundinacea) and reed canary grass (Phalaris arundinacea) (Rayburn 2001, 2009). The presence of reed canary grass has been documented on the refuge's wet meadows and fields. However, hay cut later in the season is typically vegetative and seed free (Rayburn 2009).

Wells and Lauenroth (2007) found that horses have the potential to disperse a large number of seeds from a variety of plant types. Because horses take an average of 3 to 4 days, and up to 10 days, to eliminate the seeds they ingest, they represent an important vector for long distance seed dispersal from where the horses are kept to wildlands.

The refuge anticipates that there will be minimal adverse impacts to plant communities on designated routes. Most routes designated for horse use are highly modified vehicle access roads and old logging roads where common grass and sedge species were planted for erosion control or where plant communities are nonexistent on roadbeds consisting of hard-packed graded surfaces. As weed-seed free hay is not available in West Virginia, horses could introduce invasive plant species to the trails and adjacent habitats on the refuge. While no rare plant species or communities are known to exist on the trails, some rare plants have been documented adjacent to trails designated for pedestrian use. Users leaving designated trails could have impacts to adjacent vegetation. Where impacts to vegetation are observed, the refuge would take necessary measures, such as remediation and trail closures, to restore plant communities on or adjacent to the affected trail.

Exposed soil and an abundance of sunlight along roads and trails provide ideal conditions for the establishment of invasive plant species. Invasions result from the use of foreign material to construct and maintain roads and trails, and from transport via visitors and vehicles traveling on roads and trails. Stout (1992) found that roads and trails created through emergent wetlands were being colonized by barnyard grass (Echinochloa crusgalli), which displaces native plants, and is a species on the state list of invasive exotic plants. Designated routes include old logging roads that previously have been planted with exotic cover species following logging operations.

Horseback riding may create bare soil conditions conducive for invasive species growth. Invasive plants, if allowed to establish and spread, can cause major damage to native plant assemblages and the wildlife they support. We will take steps to ensure that invasive species are not introduced or spread. We will monitor for invasive species and control or eliminate them where they occur. Key among these invasive plants species are reed canary grass (Phalaris arundinacea), multiflora rose (Rosa multifora), yellow flag iris (Iris pseudacorus), Japanese stilt grass (Microstegium vimineum), garlic mustard (Alliaria petiolata), and cattails. We will take proper care in cleaning and maintaining all refuge equipment (e.g., used for trail maintenance) to avoid introduction or transport of invasive plants, we will implement visitor outreach and education programs, and we will actively support state and partner initiatives and continue to work with the state to prevent introduction of invasive species to all habitats on the refuge.

It is anticipated that horse use will cause minimal increases in invasive plants relative to the current vegetative community on designated routes. Typical hay from local sources contains plants listed as noxious weeds by the Mid-Atlantic Exotic Pest Plant Council including orchard grass, velvet grass, yellow sweet clover, timothy and others. Additionally, refuge grasslands contain many of the same species utilized as hay forage for horses, since refuge grasslands were acquired directly from farmers growing hay or pasturing cattle. Therefore the increased risk of spread of invasive species through horse use that is confined to specific hardened trails is not expected to greatly increase the risk of invasive species spread and establishment.

The refuge minimizes adverse effects on vegetation in a variety of ways. Refuge staff routinely monitors roads and trails for damage and remediates problem areas as needed. Trails are monitored for invasive species during the growing season and invasive plants are treated mechanically or with herbicides. Trail maintenance is conducted to help minimize any negative affects associated with trail use. If evidence of unacceptable adverse impacts appears, we will reroute, curtail, or close trails to this use as deemed appropriate. Based on the conditions of routes and minimization measures employed, negative effects on vegetation because of this use are expected to be minimal.

Effects on Soils: Horses can cause physical impacts to soil surfaces. Horses may cause trail erosion by loosening the soil and increasing soil particle detachment under both wet and dry trail conditions (Deluca et al. 1998). Horses can also increase soil compaction (Weaver and Dale 1978). The Mauch Chunk-derived soil in Canaan Valley is particularly vulnerable to mechanical erosion when vegetation has been removed (Rizzo 2002). If compacted, Mauch Chunk soils can facilitate rapid water runoff that accelerates erosion down slope (Rizzo 2002).

While horse use would increase the impacts to soils through compaction and erosion, the refuge has attempted to minimize those impacts by only allowing horseback riding on roads open for vehicle use and trails modified through grading and proper drainage, located predominantly on upland soils. Routes designated for horseback riding were selected based on soil conditions that were listed as low risk for compaction and erosion as well as an in-field evaluation of existing conditions (Bell 2002, Rizzo 2002). Most of the designated routes are pre-existing roads that have been previously altered by vehicles and logging equipment, therefore soils are generally compacted and less susceptible to additional physical impact and mechanical erosion. There are trail sections where Mauch Chunk-derived soils, which have high erosion and compaction potentials, have been exposed through activities that occurred prior to refuge acquisition. Future trail development will allow horse use only if those trails meet refuge trail criteria to prevent degradation.

We will take all reasonable measures to prevent or minimize any negative effects. We will evaluate the roads and trails periodically to assess whether they meet established suitability criteria and to prevent degradation. If evidence of unacceptable adverse impacts appears, we will re-route, curtail, or close trails to this use as deemed appropriate. We will post and enforce refuge regulations, and establish, post, and enforce closed areas. Based on the information provided above and the current and projected levels of use, the refuge anticipates that there will be minimal adverse impacts to soils associated with horse use.

Effects on Wildlife: Disturbances vary with the wildlife species involved and the type, level, frequency, duration, and the time of year such activities occur. The responses of wildlife to human activities include avoidance or departure from the site (Owen 1973, Burger 1981, Kaiser and Fritzell 1984, Korschen et al. 1985, Henson and Grant 1991, Kahl 1991, Klein 1993, Whittaker and Knight 1998), the use of sub-optimal habitat (Erwin 1980, Williams and Forbes 1980), altered behavior or habituation (Burger 1981, Korschen et al. 1985, Morton et al. 1989, Ward and Stehn 1989, Havera et al. 1992, Klein 1993, Whittaker and Knight 1998), attraction (Whittaker and Knight 1998), and an increase in energy expenditure (Morton et al. 1989, Belanger and Bedard 1990). Mammals may become habituated to humans, making them easier targets for hunters. Disturbance can have other effects including causing shifts in habitat use, abandonment of habitat, and increased energy demands on affected wildlife (Knight and Cole 1991).

The effects of roads and trails on plants and animals are complex and not limited to trail width. Trail use can disturb areas outside the immediate trail corridor (Trails and Wildlife Task Force 1998, Miller et al. 2001). Taylor and Knight (2003) describe a 100-meter zone of disturbance for mammals adjacent to trail corridors. Miller et al. (1998) describe a 75-meter zone of influence where bird abundance and nesting activities (including nest success) were found to increase as distance from a recreational trail increased in both grassland and forested habitats. Bird communities in this study were apparently affected by the presence of recreational roads and trails, where common species (e.g., American robins) were found near trails and rare species (e.g., grasshopper sparrows) were found farther from trails. Songbird nest failure was also greater near trails (Miller et al. 1998).

Several studies have examined the effects of recreationists on birds using shallow-water habitats adjacent to trails and roads through wildlife refuges and coastal habitats in the eastern United States (Burger 1981, Burger 1986, Klein 1993, Burger et al. 1995, Klein et al. 1995, Rodgers and Smith 1995, Rodgers and Smith

1997, Burger and Gochfeld 1998).Overall, the existing research clearly demonstrates that disturbances from recreation activities have at least temporary effects on the behavior and movement of birds within a habitat or localized area (Burger 1981, Burger 1986, Klein 1993, Burger et al. 1995, Klein et al. 1995, Rodgers and Smith 1997, Burger and Gochfeld 1998). The findings that were reported in these studies are summarized as follows in terms of visitor activity and avian response to disturbance.

Presence: Birds avoided places where people were present and when visitor activity was high (Burger, 1981; Klein et al., 1995; Burger and Gochfeld, 1998). Batten (1977) and Burger (1981) found that wading birds were extremely sensitive to disturbance in the northeastern United States. Klein (1993) found that, as the intensity of human disturbance increased, avoidance response by water birds increased. Conflicts arise when migratory birds and humans are present in the same areas (Boyle and Samson, 1985). McNeil et al. (1992) found that many waterfowl species avoid disturbance by feeding at night instead of during the day. Studying the effects of human visitation on water birds at the J.N. "Ding" Darling National Wildlife Refuge, Klein (1989) found resident water birds to be less sensitive to disturbance than migrants were. Klein also found that sensitivity varied according to species and individuals within species. Ardeids (herons and cranes) were quite tolerant of people but were disturbed as they took terrestrial prey; great blue herons, tricolored herons, great egrets, and little blue herons were observed to be disturbed to the point of flight more than other birds. Kushlan (1978) found that the need of these birds to move frequently while feeding might disrupt interspecific and intraspecific relationships. Gutzwiller et al. (1994) found that singing behavior of some songbird species was altered by low levels of human intrusion. Some bird species habituate to repeated intrusion; frequently disturbed individuals of some species have been found to vocalize more aggressively, have higher body masses, or tend to remain in place longer (Cairns and McLaren 1980).

Distance: Disturbance increased with decreased distance between visitors and birds (Burger, 1986), though exact measurements were not reported.

Reproduction and nesting success: Disturbance may affect the reproductive fitness of males by hampering territory defense, male attraction and other reproductive functions of song (Arrese 1987). Disturbance, which leads to reduced singing activity, would make males rely more heavily on physical deterrents in defending territories, which are time and energy consuming (Ewald and Carpenter 1978). Flight in response to disturbance can lower nesting productivity and cause disease and death (Knight and Cole 1991). Miller et al. (1998) found bird abundance and nesting activities (including nest success) increased as distance from a recreational trail increased in both grassland and forested habitats. Bird communities in this study were apparently affected by the presence of recreational trails, where common species (i.e., American robins) were found near trails and more specialized species (i.e., grasshopper sparrows) were found farther from trails. Nest predation also was found to be greater near trails (Miller et al. 1998).

Noise: Noise caused by visitors resulted in increased levels of disturbance (Burger 1986, Klein 1993, Burger and Gochfeld 1998), though noise was not correlated with visitor group size (Burger and Gochfeld, 1998).

Knight and Cole (1991) suggest recreational activities occurring simultaneously may have combined negative impacts on wildlife. Hammitt and Cole (1998) conclude that the frequent presence of humans in 'wildland' areas can dramatically change the normal behavior of wildlife mostly through 'unintentional harassment.'

Seasonal sensitivities can compound the effect of disturbance on wildlife. Examples include regularly flushing birds during nesting or causing mammals to flee during winter months, thereby consuming large amounts of stored fat reserves. Hammitt and Cole (1998) note that females with young (such as white-tailed deer) are more likely to flee from a disturbance than those without young. Some uses, such as bird observation, are directly focused on viewing certain wildlife species and can cause more significant impacts during breeding season and winter months.

Impacts to wildlife may be indirectly caused by erosion and subsequent sedimentation of streams and vernal pools as a result of poorly designed trails and travel over bare soils and around drainages. Increased sediment loads can reduce aquatic vegetation and dissolved oxygen concentrations (Sadoway 1981). Sedimentation can directly kill aquatic invertebrates, affecting the success of amphibian larvae and adults (Sadoway 1981). Observations by refuge staff in 2002 document numerous occurrences of amphibian egg masses that failed after becoming coated in sediment from eroding trails and roads nearby. Bartgis and Berdine (1991) report

that sedimentation was damaging habitat in Canaan Valley and could cause impacts to the rare plants, water quality and possibly affect habitat of the southern water shrew (*Sorex palustris punctulatus*), a state species of concern. This was a direct result of vehicle use and road construction prior to the refuge's acquisition of the property. Trail work conducted since 2002 has begun to address sedimentation and erosion issues on refuge trails. Because trails designated for horseback riding are upland areas or locations of existing (compacted) logging roads, the use of horses is not expected to significantly increase erosion or sedimentation problems. Through proper trail maintenance and construction, trail drainage will be improved to minimize the effects of erosion and sedimentation on wildlife.

Short-term, localized adverse impacts to fish populations also may result from soil erosion and sedimentation into refuge waterways associated with this activity. Long-term adverse impacts from increased trail miles and trail use might pose another concern to refuge fisheries. Trails that have stream and river crossings would likely degrade over time with increased use and contribute to downstream sedimentation and turbidity, which has been found to be a stressor to brook trout (Sweka and Hartman 2001) and redside dace (Holm and Crossman 1986) populations that are sensitive to habitat degradation. Currently there are four stream crossings which are open to horse use. Two crossings have been hardened to resist the erosive effect of horse hooves. The refuge has constructed bridges for the other two crossings to allow horses to cross without impacting soils. The majority of horse use trails occur on upland soils and on old logging roads which have been compacted over years of use prior to refuge acquisition. The refuge will monitor stream and river crossings closely and remediate any damaged areas to minimize adverse impacts associated with trail use.

Anticipated impacts of horseback riding on wildlife include temporary disturbances to species using habitat on the trail or directly adjacent to the trail. These disturbances are likely to be short term and infrequent as much of the use is concentrated during weekends in the summer and fall. Use of some roads and trails may cause direct impacts such as mortality (e.g., crushing amphibians foraging on grassy roads and trails) to nest abandonment of bird species nesting on trails. Long-term impacts may include certain wildlife species avoiding trail corridors as a result of this use over time.

Routes found compatible for horseback riding are located primarily in continuous tracts of northern hardwood forest on the refuge. Smaller, more sensitive wildlife habitat such as riparian, wetland, and grassland areas were avoided which reduces the potential for wildlife disturbance. Locating these trails in upland forested habitat spreads the disturbance over the largest habitat type on the refuge, thereby diluting the overall impact on refuge wildlife associated with this habitat.

Horseback trails are not located in areas where habitats are more sensitive and under represented. This helps to prevent disproportionate disturbance to wildlife in these areas. To minimize adverse impacts of any future trails that are open to horseback riding, the refuge would use its trail/route checklist to determine whether the existing or new trail meets established criteria, and it would monitor effects associated with these new trails in the same manner that established trails are monitored. Any new trails that are open to horseback riding and that are not mentioned in alternative B of the draft CCP/EA will likely have to undergo additional National Environmental Policy Act analysis.

West Virginia northern flying squirrels have been documented on refuge property near the end of FR 80. This species has recently been removed from the endangered species list. The recovery plan (USFWS 2001) notes that habitat modification may create a competitive advantage for the southern flying squirrel (Glaucomys volans), although the extent to which a logging road or trail would create conditions conducive for this are unknown. Some research has found northern flying squirrels occupying den sites near logging roads, skid trails, and on hiking trails (Ford 2002). Routes designated for these uses are pre-existing roads and trails some of which have been in existence for many years. No new habitat clearing is planned in this area; however, some vegetation clearing may be required to maintain the trail corridor. As mentioned previously, we will periodically evaluate these activities to determine any effects they may have. If evidence of unacceptable adverse impacts appears, the location(s) of activities will be curtailed or discontinued as needed.

Based on the information provided above and the current and projected levels of use, allowing this use is not anticipated to significantly increase wildlife habitat fragmentation or cause significant impacts on wildlife through disturbance. Nearly all of the designated roads and trails have been consistently used for horseback riding for at least 20 years.

Effects on Threatened and Endangered Species: There are two federally listed species known to occur on the refuge, and one species that has recently been de-listed. Cheat Mountain salamanders (*Plethodon nettingi*), listed as threatened, have been documented near the top of FR 80, and near the cross-country ski trails in that area. Indiana bats (*Myotis sodalis*), listed as endangered, are known to use the refuge's forested areas for summer foraging and may have a summer maternity colony on refuge lands as well. The West Virginia northern flying squirrel (*Glaucomys sabrinus fuscus*) has been documented on refuge property near the end of FR 80. This species has recently been removed from the endangered species list. The refuge requested Section 7 informal consultation with the Service's West Virginia Field Office under the Endangered Species Act (16 U.S.C. 1536) on all the actions in alternative B of this draft CCP/EA, including horseback riding, that could potentially impact listed species. This process resulted in a finding that the proposed actions are not likely to adversely affect the listed species or their associated habitats on the refuge. The full intra-Service Section 7 Biological Evaluation form can be found in appendix I of this draft CCP/EA.

Cheat Mountain salamander—This species is sensitive to any habitat changes that remove a forest canopy or reduce soil moisture and relative humidity. Because Cheat Mountain salamanders have very specific ranges of tolerance for temperature and relative humidity, any activity which increases soil temperature and lowers relative humidity near the ground surface can have detrimental effects on salamander populations (USFWS 1991). According to the Service (USFWS 1991), trails that receive heavy use resulting in bare trail treads could limit movements of Cheat Mountain salamanders and interfere with reproduction.

Cheat Mountain salamanders become more sensitive during warmer seasons. Temperatures greater than 55° F are considered to be when activity increases for the salamander, and this temperature is the low end of the recommended temperature range in which salamander surveys should be conducted (USFWS 1991). Therefore, ground disturbance which is limited to those times of the year when temperatures are below 55° F is not likely to cause direct impacts to salamander populations. Horse use occurs primarily during summer and fall when this species is active. However, horseback riding is not permitted on any refuge trails that are located within Cheat Mountain salamander habitat.

Horseback riding is permitted on FR 80, where the salamanders have been documented. The refuge does not have exclusive use of the road because there is a private inholding at the top of the road, requiring an access easement. FR 80 has been in existence for many years, and has been open to a multitude of public uses, including vehicular traffic. The nearest known Cheat Mountain salamander habitat to FR 80 is 754 feet from the road (USFWS 2008), far more than the 300-foot buffer zone recommended in the recovery plan for this species (USFWS 1991). Therefore, the road and any uses on the road are not likely to adversely affect this species. We are not proposing any changes to current activities or land use in Cheat Mountain salamander habitat, so no additional adverse impacts are expected with this use. .

Indiana Bat—Indiana bats were documented on the refuge for the first time through acoustical monitoring conducted by the U.S. Forest Service in 2003 (Ford 2003). Indiana bats were found foraging at two locations in the south end of the refuge. The refuge began conducting acoustical surveys in 2005. These surveys have documented three likely Indiana bat observations in the same location as the 2003 survey during 2005, 2007, and 2008. Additionally, acoustical surveys documented one new location for the species during 2007. Indiana bat calls have been documented from the refuge in the months of May, July, August, and September. However, since the use is restricted to day time hours disturbance of foraging bats is unlikely. The refuge will be investigating Indiana bat use in greater detail following the completion of the CCP. If habitats used by this species, particularly any identified roost sites, are near trails used by horseback riders, the use will be reevaluated for its impact. The refuge will consult with the Service's West Virginia Field Office when any new information is gathered on the presence of Indiana bats or use of refuge habitats to ensure that horseback use will not affect the species. We will periodically evaluate this activity to determine any effects it may have. If evidence of unacceptable adverse impacts appears, horseback riding will be curtailed or discontinued as needed.

Horseback riding along designated routes is not likely to adversely affect to threatened or endangered species. This use will occur primarily on existing roads and trails and on any trails that are newly-designated for horseback riding through the draft CCP/EA. Although Cheat Mountain salamander habitat occurs near FR 80, there is enough distance between the habitat and the road so that the species is not likely to be adversely affected by the road or any activities on the road.

Horseback riding on the roads and trails designated are not expected, separately or cumulatively, to constitute major short-term or long-term impacts. Assessment of potential future impacts was based on available information and current and anticipated level and pattern of use collected from surveys conducted by refuge staff in 2002-2003 and informal field observations since then. The current use is viewed as a manageable and justifiable method of travel that allows the public to discover, experience, and enjoy priority public uses on the refuge. Continued monitoring of the effects of horseback riding and associated human activities is necessary to better understand the influence of the use on refuge habitats, plant and wildlife communities, and visitors. Monitoring identifies any actions needed to respond to new information (adaptive management) and correct problems that may arise in the future.

PUBLIC REVIEW AND COMMENT

This compatibility determination will be made available for public review and comment for 45 days as an appendix to the draft CCP/EA for Canaan Valley National Wildlife Refuge.

DETERMINATION

_____ Use is Not Compatible

__X__ Use is Compatible With the Following Stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY

The refuge has also developed a list of criteria for determining whether any given route would be appropriate for public uses, including horseback riding. These criteria would apply to current and future trails. Criteria are as follows:

Checklist for Existing Routes to Be Eligible for Compatibility Consideration
(Routes must meet all criteria)

1. Route provides an opportunity to view a variety of habitats and wildlife.

2. Route is safe for the access proposed at current use levels.

3. Route requires minimal annual maintenance (i.e, waterbars, stepping stones, etc.) to ensure safe access and to prevent further habitat degradation.

4. Route has a low potential for fragmenting habitat or disturbing wildlife populations.

5. 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.

6. Any route crossing of sensitive soils occupies the shortest possible distance. Organic soil crossings are minimized or eliminated.

7. 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.

8. Route predominately occupies modified substrate (graveled, compacted, or filled) like logging roads and rail grades.

9. Route is not incised greater than 1 foot deep over 10% of its total length.

Additional Stipulations for Horseback Use:

—Refuge regulations will be posted and enforced. Closed areas will be established as needed, posted, and enforced. Signs necessary for visitor information, safety, and traffic control will be kept up to date.

—Free-trailing or loose-herding of horses on trails is prohibited.

—Allowing horses to proceed in excess of a slow walk when passing in the immediate vicinity of persons on foot or bicycle is prohibited. Horses are not permitted to travel at any time faster than normal walking gait.

—All trail users should avoid obstructing a trail, or making an unreasonable noise or gesture, considering the nature and purpose of the actor's conduct, and other factors that would govern the conduct of a reasonably prudent person, while horses or pack animals are passing.

—The known presence of a threatened or endangered species will preclude the use of an area until the refuge manager determines otherwise.

—Camping and overnight parking are currently prohibited. Overnight parking may be authorized by special use permit at the end of FR 80 to facilitate visitor access to non-refuge lands.

—The refuge conducts an outreach program to promote public awareness and compliance with public use regulations on the refuge.

—Horseback rider group size is encouraged to be no more than 10 persons to promote public safety, reduce conflict with other users, promote a quality experience, and reduce wildlife disturbance. Groups larger than 10 persons must contact the refuge office prior to visiting the trail system so the refuge can determine if a special use permit is needed.

—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 and trails are maintained at a level that reasonably accounts for safe travel. Roads are not plowed in winter.

—Routes designated for public access are monitored periodically to determine if they continue to meet the compatibility criteria established by the refuge. Should monitoring and evaluation of the use(s) indicate that the compatibility criteria are or will be compromised, appropriate action will be taken to ensure continued compatibility, including modifying or discontinuing the use.

—Routine law enforcement patrols are conducted throughout the year. The patrols promote education and compliance with refuge regulations, monitor public use patterns and public safety, and document visitor interaction.

—Potential conflicts with other public uses such as hunting, interpretation, etc. will be minimized by using trailhead signs and other media to inform the visitors about current public use activities as well as which activities are authorized in specific locations throughout the refuge.

—This use may be restricted during the late-fall and winter when the refuge has priority, wildlife-dependent activities (like deer hunting) in progress. This helps ensure public safety and minimize user conflicts.

JUSTIFICATION

The Service and the Refuge System have established priority uses for the public to observe wildlife and habitats at refuges. Horseback riding provides additional opportunities for viewing wildlife and habitats with relatively low levels of disturbance, facilitating many of the priority public uses. It is likely that visitors participating in this activity will learn more about the area's wildlife and habitats, the refuge, and the Refuge System. This may lead to increased awareness of and support for each of these.

Routes designated for horseback riding are pre-existing roads and trails, most of which have been in existence for many years. Nearly all of the designated roads and trails have been consistently used for horseback riding for at least 20 years. Confining horse use to only those routes evaluated, maintained and approved for this activity restricts this use more than what was previously permitted by the original landowner. Most of the designated routes are pre-existing roads or trails that have been previously altered by vehicles and logging equipment, therefore soils are generally compacted and less susceptible to additional physical impact and mechanical erosion. These conditions directly limit the physical impact of this activity to soils, hydrology, and vegetation. In addition, these routes are located predominately on upland soils to prevent impacts to fragile wetland soils.

Trail conditions have improved since refuge acquisition of the Main Tract in 2002 due to restoration and maintenance actions. Additionally, vehicles were prohibited from accessing these areas after the refuge acquired the property which greatly reduced impacts. The use of horses on existing designated public use trails will not significantly increase resource impacts over and above the other, existing public uses. Because of the restrictions and management of the trail system, the impact to soils and possible sedimentation of wetland resources will be minimized. Therefore these anticipated impacts will not affect the refuge's ability to fulfill the purposes of wetland conservation established through the Emergency Wetland Resources Act (1986).Because trail width is narrow and trails are on established logging roads, impacts to plants will be minor and therefore not affect the refuge's ability to conserve plant resources as described in the mission of the Refuge System and to protect the ecological integrity of Canaan Valley and its resources, a founding purpose for designation of the refuge in the 1979 EIS.

No horse trails are located in areas occupied by the threatened Cheat Mountain salamander. The endangered Indiana bat forages in the evening when this use is not permitted. There are no identified Indiana bat hibernacula, roosting or maternity colonies on refuge land, however, if any are discovered in the future, the refuge would consult with the Service's Ecological Services Office to ensure that no adverse impacts will occur.

Trails used by horses are generally long (4 miles or greater in round trip distance) and the use of horses on these routes increases the public's ability to experience the refuge by facilitating access over longer trail segments. Anticipated impacts of horseback riding on wildlife include temporary disturbances to species using habitat on the trail or directly adjacent to the trail. These disturbances are likely to be short term and infrequent based on seasonality of use, expected timing of use (i.e. concentrated on weekends) and locations where the use is permitted to occur. Horse routes occur primarily in forested habitats to help reduce disturbance to wildlife. Disturbance along trail corridors will impact only a fraction of the habitat available for wildlife on the refuge, and this disturbance will occur within the most abundant habitat type on the refuge. By limiting use to designated trails on a small percentage of the refuge and within the most common habitat type, disturbance will be limited and manageable. For this reason, disturbance effects will not prevent the refuge from fulfilling the establishing purposes of the Fish and Wildlife Act (1956) or the mission of the Refuge System for conserving, managing, restoring, and protecting wildlife resources. This use will not affect the refuge's ability to fulfill its purpose under the Migratory Bird Conservation Act to serve as a sanctuary or management area for migratory birds, as this use will not occur on the tracts that were acquired under that act.

The risk of invasive species introduction is considered low and manageable. Horse use is only permitted on trails with previously compacted surfaces which are less likely to erode and create new opportunities for plant establishment. Additionally, horse feed is typically from local sources which include the same exotic grass species which exist in the refuge's managed grasslands. Most of these species are considered exotic but not invasive and can be controlled through regular inventory and management procedures.

We will post and enforce refuge regulations, and establish, post, and enforce closed areas as needed. We also evaluate the roads and trails periodically to assess whether they meet established suitability criteria and to prevent degradation. If evidence of unacceptable adverse impacts appears, we will repair the trail through scheduled maintenance programs, or re-route, curtail, or close trails to horseback riding as deemed appropriate.

Conflicts between horseback riders and other users are localized and limited in time and space. Many refuge trails are closed to horse access to prevent user conflicts and to reduce the overall impact on the priority public uses. Given the size of the refuge and the miles of trail open for the various forms of public access, conflicts are expected to be minor.
Because of the limitations established for this activity, disturbance from horseback riding is not expected to greatly increase the disturbance to wildlife or habitat on the refuge relative to other permitted priority public use activities. Providing increased access to remote sections of refuge lands increases the public's ability to learn about the refuges' role in protecting the wetlands of Canaan Valley and managing and protecting wildlife species and habitat. For the reasons discussed above, this access will not affect the refuge's ability to conserve wetlands or protect, manage, and restore the wildlife and plant resources, as mandated through the Emergency Wetlands Resources Act (1986) and the Fish and Wildlife Act (1956), or the mission of the Refuge System. Since public use trails do not occur on lands acquired under the Migratory Bird Conservation Act, horseback riding will not affect the refuge's ability to protect and manage migratory birds on those tracts. We therefore conclude horseback riding will not materially interfere with or detract from the mission of the Refuge System or the purposes for which the refuge was established.

Refuge Manager _____ _____
(Signature) (Date)

Concurrence

Regional Chief _____ _____
(Signature) (Date)

MANDATORY 10 YEAR RE-EVALUATION DATE

_____
(Date)

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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 AND ACQUISITION AUTHORITY

The establishment of Canaan Valley National Wildlife Refuge (refuge) was first approved in an Environmental Impact Statement (EIS) released on May 30, 1979. However, the U.S. Fish and Wildlife Service (Service) decided to await the outcome of litigation surrounding a proposed storage hydroelectric facility before pursuing any further action. The approval of the refuge was affirmed by the Service in a 1994 Final Environmental Assessment and Finding of No Significant Impact on July 11, 1994, which confirmed the adequacy of the previously-approved 1979 EIS. The refuge was officially established when the first tract of land was acquired on August 11, 1994. The Service has acquired lands for the Canaan Valley refuge under the following authorities:

1. Fish and Wildlife Act of 1956 [16 U.S.C. 742f(a)(4)]

2. Emergency Wetlands Resources Act of 1986 [16 U.S.C. 3901b]

3. Migratory Bird Conservation Act of 1929 [16 U.S.C. 715d]

REFUGE PURPOSES

The refuge was established to ensure the ecological integrity of Canaan Valley and the continued availability of its wetland, botanical, and wildlife resources to the citizens of West Virginia and the United States (USFWS 1979, 1994). Additional refuge purposes as derived from the legislative authorities are as follows:

(1) "... for the development, advancement, management, conservation, and protection of fish and wildlife resources..." (Fish and Wildlife Act of 1956; 16 U.S.C. 742f (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 international obligations contained in various migratory bird treaties and conventions." (Emergency Wetlands Resources Act of 1986; 16 U.S.C. 3901(b)); and,

(3) "... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." (Migratory Bird Conservation Act of 1929; 16 U.S.C. 715d).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION

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 PROPOSED 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 refuge, such as hunting, fishing, wildlife observation and photography, environmental education, and interpretation 9 16 U.S.C. § 668 ee(2); 50 CFR. § 25.12). These uses are described as the priority public uses of the refuge system [16 U.S.C 668dd(a)(3)(c). For the purpose of this determination, "vehicles" mean legally licensed cars, trucks, and motorcycles. This term does not include recreational all-terrain vehicles and snowmobiles, which are prohibited on the refuge. The operation of a vehicle which does not bear valid license plates and is not properly certified, registered, or inspected in accordance with applicable state laws is prohibited. Vehicle use is not a priority public use but is necessary to facilitate refuge priority public uses.

(b) Where would the use be conducted?
Since the establishment of the refuge in 1994, the public has been allowed to operate vehicles on two roads. Forest Road (FR) 80 is 1.91 miles and provides vehicular access from Route 32 to U.S. Forest Service lands, including the Dolly Sods Wilderness Area. A-frame Road (4.79 miles on refuge) provides vehicular access to the northern portion of the refuge (Main Tract). This road is accessed from Highway 93. Vehicle travel is allowed on these two maintained roads to points where they are closed to protect refuge resources.

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. 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, but a population is located greater than 300 feet from the road, a distance greater than the recommended buffer for salamander habitat protection (USFWS 1991). The recently de-listed West Virginia northern flying squirrel (*Glaucomys sabrinus fuscus*) has been documented on refuge property near the end of FR 80.

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. Also, 73 plants that are tracked by the West Virginia Division of Natural Resources (WVDNR) as state species of concern have documented occurrences in Canaan Valley. 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, many 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. 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 Code of Federal Regulations 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 road, 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.

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 WVDNR Conservation Officers. The level of vehicle use on refuge property was monitored by refuge staff in 2002 and 2003. 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 A Frame road.

Traffic counters have been installed at FR 80, A-frame Road, 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 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. These existing roads were created for logging or other purposes prior to refuge acquisition. 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 records 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.

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. All trail head parking lots are either gated or blocked from unauthorized vehicle access and contain appropriate signage.

(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 road 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. The roads have existing hard-packed surfaces and are maintained to minimize the impact of vehicle 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 offer no opportunities to observe the wildlife and plant communities associated with the refuge's wetland.

AVAILABILITY OF RESOURCES

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.

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 refuge staff will perform repair as necessary and feasible to the road system, however there is currently only one equipment operator on staff. If maintenance needs exceed the capability of refuge staffing, work will be contracted as possible to perform road maintenance.

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

Administration, planning and consultation with refuge staff

- GS-13 Refuge Manager for 2 work days =$900.48

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 = $2,725.60

Planning and monitoring road conditions and supervising staff to monitor vehicle travel and its effects on environment and other visitors

- GS-11/12 Deputy Refuge Manager for 3 work days = $836.16

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 = $ 3,440.64

Monitoring environmental effects of vehicle travel

- GS-12 Wildlife Biologist for 2 work days (training & inspection) = $735.04
- GS-11 Wildlife Biologist for 5 work days (monitoring & invasive spp. control) = $1,486.40
- GS-7 Biological Science Technician for 5 work days (monitoring and invasive species control) = $1,004.40

Providing information to the public and analyzing traffic counter and user data

- GS-11 Outdoor Recreation Planner for 10 work days = $3,530.40

Motor vehicle fuel / law enforcement patrols = $300.00
Heavy equipment fuel = $350.00
Gravel and culverts for repairing wash outs = $5,500.00
Kiosk construction, repair, signs, printing maps and information = $550.00

Grand Total Estimated Costs = $21,359.12

FY 2009 Budget Allocations:
Employee Salaries and benefits = $624,039.53
Fixed costs (utilities, fuel, administrative) = $211,415.23
Base maintenance = $50,000
Discretionary Funds (maps, printing, etc.) = $62,243.32
Total Available Funds for FY 2009 = $947,698.08

The financial and staff resources necessary to provide and administer this use at its current level are now available. We expect the resources to continue in the future, subject to availability of appropriated funds.

ANTICIPATED IMPACTS OF THE 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.

Effects on Soil: 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, the longest refuge 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. FR 80 is a steeper road but is maintained several times a year to prevent erosion and culvert plugging. Narrowing the road to decrease total surface area available for runoff will help prevent future erosion and ease maintenance operations. Improvements have been made to improve water flow and reduce soil erosion from the road surface.

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.

Effects on Hydrology: Roads can affect the hydrology of an area, primarily through alteration of drainage patterns. A number of culverts exist on A-frame Road and it crosses 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. New culverts and road construction improved drainage and erosion from historical conditions. 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. Some of the biggest problems with both roads and trails were drainage issues, 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. Corrective actions have taken place prior to the Comprehensive Conservation Plan (CCP) to restore hydrologic flows, protect plant communities, and prevent erosion. Major road repairs that have occurred on both FR 80 and A-Frame Road include replacement and installation of culverts to improve surface drainage. Regular road and culvert maintenance helps reduce erosion and sedimentation of streams and seeps.

Effects on Invasive Species: 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. 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*) and garlic mustard (*Alliaria petiolata*) are 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. Garlic mustard has been documented along A-Frame road where disturbance is regular from ditches and culverts.

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 have been used for decades prior to refuge acquisition. New maintenance operations have brought in significant quantities of limestone gravel which can increase the potential of invasive species spread through modification of soil chemistry. Imported gravel may also transport new invasive plants onto the refuge and periodic ditch cleaning may create conditions conducive for the establishment of invasive species. This can be mitigated partly by only using sandstone gravel. Unlike limestone, sandstone gravel will not materially change soil conditions through buffering effects that can favor exotic plant species. Therefore, we will use sandstone gravel in the future. Routes designated for vehicle travel will be monitored for invasive plant species annually. Refuge staff will implement control measures for invasive plants if they become established along vehicle routes.

Effects on Pollution and Noise: 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 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.

Effects on Wildlife: 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 et al. (1980) found that roads could cause disturbance to bird species up to 600 meters from "quiet rural roads". However, many bird and mammal species 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. The relatively low volume of traffic and maintenance operations of refuge roads compared to typical "rural roads" likely minimizes the effect of these roads on refuge wildlife populations.

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. However, many mammals are nocturnal and would be utilizing this corridor when refuge roads are closed to public use traffic. Animals traveling within or directly adjacent to roads generally flee from vehicles although vehicles 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.

West Virginia northern flying squirrels have been documented on refuge property near the end of FR 80. This species has recently been removed from the endangered species list. The recovery plan (USFWS 2001) notes that habitat modification may create a competitive advantage for the southern flying squirrel (*Glaucomys volans*), although no additional road clearing is planned for FR 80. Some research has found northern flying squirrels occupying den sites near logging roads, skid trails and on hiking trails (Ford 2002). Research on the refuge has found West Virginia northern flying squirrels living directly adjacent to FR 80 including a pregnant female. Use of the habitat adjacent to FR 80 is monitored annually by refuge staff. As mentioned previously, we will periodically evaluate these activities to determine any effects they may have. If evidence of unacceptable adverse impacts appears, the location(s) of vehicle travel will be curtailed or discontinued as needed.

Vehicle travel is limited to the hours when the refuge is open to the public (one hour before sunrise to one hour after sunset). This 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 is greater use during the hunting season.

Effects on Threatened and Endangered Species: 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 (USFWS 1991). Because of this species' reliance on high soil moisture and relative humidity, Cheat Mountain salamanders are not likely to be found on or crossing an established 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 754 feet of FR 80 (USFWS 2008). This distance is far more than the 300-foot buffer zone recommended in the recovery plan for this species (USFWS 1991). Because this use will occur on pre-existing roads, no new habitat will be disturbed where the salamander is found.

The refuge requested Section 7 informal consultation with the Service's West Virginia Field Office under the Endangered Species Act (16 U.S.C. 1536) on all the actions in alternative B of this draft CCP/Environmental Assessment (EA), including vehicle use, that could potentially impact listed species. This process resulted in a finding that the proposed actions are not likely to adversely affect any of the listed species or their associated habitats on the refuge. The full intra-Service Section 7 Biological Evaluation form can be found in appendix I of this draft CCP/EA.

Indiana Bat—Indiana bats were documented on the refuge for the first time through acoustical monitoring conducted by the U.S. Forest Service in 2003 (Ford 2003). Indiana bats were found foraging at two locations in the south end of the refuge. The refuge began conducting acoustical surveys in 2005. These surveys have

documented three likely Indiana bat observations in the same location as the 2003 survey during 2005, 2007, and 2008. Additionally, acoustical surveys documented one new location for the species during 2007. Indiana bat calls have been documented from the refuge in the months of May, July, August, and September. However, since the use is restricted to day time hours, disturbance of foraging bats is unlikely. The refuge will be investigating Indiana bat use in greater detail following the completion of the CCP. If habitats used by this species, particularly any identified roost sites, are near roads used by vehicles, the use will be reevaluated for its impact. The refuge will consult with the Service's West Virginia Field Office when any new information is gathered on the presence of Indiana bats or use of refuge habitats to ensure that vehicle use will not affect the species. We will periodically evaluate this activity to determine any effects it may have. If evidence of unacceptable adverse effects appears, the location(s) of activities will be curtailed or discontinued as needed.

It is anticipated that vehicle use of the existing designated roads is not likely to adversely affect 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 an historical 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.

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 (Chavez et al. 1993, Watson et al. 1994, Knight and Gutzwiller1995, Ramthun 1995). 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 at 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.

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

Summary:
The 16 acres of direct habitat loss from the historical foot print of refuge roads, and any negative impacts 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 manageable 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).

PUBLIC REVIEW AND COMMENT

This compatibility determination will be released concurrent with the draft CCP/EA for a 45-day public review and comment period.

DETERMINATION

_____ Use is Not Compatible

__X__ Use is Compatible With the Following Stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY

—Vehicle travel is restricted to refuge public use hours: Between 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.

—Vehicles must park in designated parking areas. On A-frame road, vehicles are permitted to park on the shoulder of the road during hunting season as long as they are not restricting vehicle flow.

—Refuge staff are able to conduct invasive species monitoring and control operations to effectively prevent the establishment of invasive plants along vehicle routes.

—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 be compatible. 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 risky 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

Anticipated impacts of vehicle travel on habitat include the permanent loss of vegetation as a result of the road itself, loss of road side vegetation, and potential fragmentation of wildlife habitat. These roads were constructed prior to the refuge's acquisition and are being maintained to provide public and staff access to refuge lands. No new roads are being proposed so the impacts will be limited to the pre-existing routes. 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 and the regular maintenance conducted by refuge staff, the designated vehicle routes are not likely to cause significant increases in erosion and sedimentation. In fact, since refuge acquisition, these roads have been significantly improved to reduce soil erosion and sedimentation through annual maintenance. Because refuge roads are not constructed on wetlands and through continued road maintenance, no significant effects on wetlands are expected. Therefore the use will not affect the refuge's ability to fulfill the purposes established under the Emergency Wetland Resources Act (1986).

Vehicular traffic can also affect wildlife and habitat through pollution and noise. However, vehicle traffic on refuge roads is low and sporadic. 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, invasive species, or wildlife disturbance) are not considered to constitute a significant long-term impact. Routes designated for vehicle travel are old logging roads that have been used for decades prior to refuge acquisition. Because these roads have been in existence for many years and habitat loss is confined to a narrow corridor and is a small fraction (.09%) of the total refuge acreage, impacts from continued use to wildlife and plant species are not expected to be significant. The roads are generally peripheral to refuge core habitat areas. Therefore the majority of refuge habitats will remain intact and unaffected by the roads' presence and vehicular use. Because of the fact that vehicles are not expected to significantly affect wildlife populations on the refuge, this ensures that the refuge will meet its obligations as stated in the Fish and Wildlife Act (1956) and the mission of the Refuge System.

By utilizing sandstone gravel, rather than limestone, the refuge will reduce chances of invasive species establishment when conducting routine maintenance. Regular road surveys for invasive species will still be needed but are easily conducted (due to the linear nature of the survey area) and this is considered a manageable risk based on the past 5 years of refuge road surveys. Through continued survey and control efforts, invasive species establishment will be limited and not affect the refuge's purpose of ensuring the ecological integrity of Canaan Valley (1979 EIS).

Only FR 80 occurs in areas which are occupied by threatened Cheat Mountain salamanders. However the nearest known Cheat Mountain salamander habitat is 754 feet from FR 80 (USFWS 2008), far more than the 300-foot buffer recommended in the recovery plan for this species (USFWS 1991) Endangered Indiana bats have been found foraging nearby the road corridor. Disturbance to foraging bats will be prevented by the refuge specific regulations to close one hour after sunset. Any new information collected on the locations of foraging, roosting or maternity sites for Indiana bats will be discussed with the Service's West Virginia Field Office to ensure that continued vehicle use of FR 80 will not affect this species on the refuge.

Roads designated for vehicle access are also designated for bicycle, horseback, and pedestrian travel. Based on interviews with individuals and user groups, conflicts between groups are not significant in Canaan Valley. Roads designated for vehicle use permit access to remote parts of the refuge (A-frame road) and connect the refuge to other public lands (FR 80). These roads are necessary to facilitate priority public uses and to meet other management objectives such as providing hunter access to remote areas of the refuge and to provide connectivity for public use between refuge and other public lands. Vehicle access will not affect the refuge's

ability to conserve the wetlands of Canaan Valley as provided in the establishing purposes of the refuge through the Emergency Wetland Resources Act (1986). This use will also not affect the refuge's ability to protect, manage, and restore the wildlife and plant resources, as mandated through the Fish and Wildlife Act (1956), or the mission of the National Wildlife Refuge System. The refuge will still be able to meet its establishing purpose of protecting the ecological integrity of Canaan Valley as directed by the 1979 EIS, and particularly of ensuring the continued availability of refuge resources to the public. No roads occur on the properties acquired under the authority of the Migratory Bird Conservation Act (1929); therefore, this use will not affect the refuge's ability to conserve and manage migratory birds on these tracts. Without these roads, accessibility to refuge habitats would be greatly compromised.

For these reasons, vehicle use as identified in this compatibility determination is not expected to materially interfere with or detract from the mission of the National Wildlife Refuge System or the purposes for which the refuge was established. Monitoring will be conducted to ensure this use remains compatible. If significant impacts are found, corrective actions will be taken to protect refuge resources.

Refuge Manager _____ _____
(Signature) (Date)

Concurrence

Regional Chief _____ _____
(Signature) (Date)

MANDATORY 10 YEAR RE-EVALUATION DATE

_____
(Date)

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COMPATIBILITY DETERMINATION

USE

Public Beaver Trapping for Habitat Management Purposes

REFUGE NAME

Canaan Valley National Wildlife Refuge

DATE ESTABLISHED

August 11, 1994

ESTABLISHING AND ACQUISITION AUTHORITY

The establishment of Canaan Valley National Wildlife Refuge (refuge) was first approved in an Environmental Impact Statement (EIS) released on May 30, 1979. However, the U.S. Fish and Wildlife Service (Service) decided to await the outcome of litigation surrounding a proposed storage hydroelectric facility before pursuing any further action. The approval of the refuge was affirmed by the Service in a 1994 Final Environmental Assessment and Finding of No Significant Impact on July 11, 1994, which confirmed the adequacy of the previously-approved 1979 EIS. The refuge was officially established when the first tract of land was acquired on August 11, 1994. The Service has acquired lands for the Canaan Valley refuge under the following authorities:

1. Fish and Wildlife Act of 1956 [16 U.S.C. 742f(a)(4)]

2. Emergency Wetlands Resources Act of 1986 [16 U.S.C. 3901b]

3. Migratory Bird Conservation Act of 1929 [16 U.S.C. 715d]

REFUGE PURPOSES

The refuge was established to ensure the ecological integrity of Canaan Valley and the continued availability of its wetland, botanical, and wildlife resources to the citizens of West Virginia and the United States (USFWS 1979, 1994). Additional refuge purposes as derived from the legislative authorities are as follows:

(1) "... for the development, advancement, management, conservation, and protection of fish and wildlife resources..." (Fish and Wildlife Act of 1956; 16 U.S.C. 742f (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 international obligations contained in various migratory bird treaties and conventions." (Emergency Wetlands Resources Act of 1986; 16 U.S.C. 3901(b)); and,

(3) "... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." (Migratory Bird Conservation Act of 1929; 16 U.S.C. 715d).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION

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 PROPOSED USE:

(a) What is the use? Is it a priority public use?
The use is regulated trapping as part of an integrated approach to beaver management on all Service-owned lands within the boundary of the refuge, in accordance with laws and regulations of the United States and the state of West Virginia, and refuge special use permit (SUP) conditions. This use is not a priority public use of the National Wildlife Refuge System (Refuge System) under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57). Because pelts are retained by trappers and can be sold this use is also a refuge management economic activity as described by 50 Code of Federal Regulations (CFR) 25.12. National Environmental Policy Act analysis was done on this use in 2004, with the Furbearer Management and Trapping Environmental Assessment (EA).

(b) Where would the use be conducted?
The primary areas targeted for trapping would be locations where beaver flooding has caused damage or threatens to damage refuge resources such as flooding of riparian forest habitat (or other sensitive plant communities) or refuge roads and trails. Seasonal inventory of beaver activity would be conducted by refuge biologists to determine locations for regulated beaver trapping. A majority of the use would occur on refuge Tracts 50 and 100 also known as the Main Tract. Trapping would focus on the beaver ponds and corridors of the Blackwater River and its tributaries. Some trapping may also occur on wetland areas on or near Tract 200 (Freeland Tract) on the refuge's south end.

(c) When would the use be conducted?
The use would be conducted within the season framework set by the state of West Virginia. Typically, beaver trapping occurs between November 1 and March 31.

(d) How would the use be conducted?
Beaver trapping would be conducted under a refuge SUP and would follow state regulations and seasons. Permits would be issued for specific areas on the refuge where trapping could resolve or prevent a management problem. Locations of targeted trapping efforts would be determined through monitoring of beaver activity and documenting locations where plant communities or other resources are being impacted through beaver flooding activity. A determination would be made for specific locations on the refuge indicating that beaver presence is out of balance with resource protection. The refuge manager would reserve the ability to control numbers of beaver taken in any one location, if it is desirable to remove some, but not all beaver. This may be desirable where beaver are causing impacts to Refuge resources, but are still valuable for wildlife observation and education. Removal of beaver for resource protection is authorized under 50 CFR 31.2, 31.14, and 31.16.

Trappers would request a permit from the refuge manager before the beginning of each trapping season. The refuge would ensure that if the individual were a returning trapper that the appropriate paperwork was submitted to the refuge office. A harvest report will be required from each trapper following the close of trapping season and will include data about trapping effort, time span of trapping beaver, number of target and non-target species harvested, refuge areas trapped, and remarks on observations of wildlife and other noteworthy ecological information. These data can provide a basis for catch-per-unit effort and population trend analyses. If information were lacking for a trapper from the previous year, the SUP would not be issued.

Trapping zones may be instituted to reduce the potential for conflict between individual trappers. Trapping equipment would be supplied by the trappers and would comply with state regulations.

If public trapping did not resolve impacts to refuge resources, refuge personnel and/or refuge appointed contractors would be assigned to remove problem animals. This scenario could occur if locations of targeted beaver populations are hard to access such as in the main portion of the valley. Areas in the Main Tract can be difficult to access, particularly in the winter when the state-trapping season occurs. Low pelt values and prohibiting wheeled vehicle access may limit the interest of public trapping.

(e) Why is the use being proposed?
The need is to preserve and protect plant communities of special interest on the refuge, such as the relict boreal vegetation in the valley. These are the only plant communities on the valley floor that resemble the original red spruce forests and are plant communities the refuge is obligated to protect. Flooding is also a concern where beaver activity exists adjacent to refuge public use trails. Through this draft Comprehensive

Conservation Plan (CCP)/EA, the Service intends to assess the environmental impact of regulated trapping as a tool for beaver management on the refuge to protect refuge plant communities and infrastructure.

Previous owners of lands that now comprise the refuge permitted trapping beavers. Land acquired in 2002 from Allegheny Energy has sustained beaver trapping under state regulations and contains the majority of beaver habitat on the refuge. The area also harbors 73 plant species listed as species of special concern by the state of West Virginia. These plants and plant communities have been impacted by flooding activities caused by beaver inhabitation. The impact of beaver activity has been documented many times in Canaan Valley by wetland researchers (Fortney 1975, Fortney 1997, Fortney and Rentch 2003, Snyder et al. 2006). Fortney (1997) concludes, "If the present population of beavers in Canaan Valley is not greatly reduced in the near future, a larger proportion of the swamp forests will be destroyed…". Importantly this statement was written when trapping in the refuge-owned portion of the valley was permitted by the previous landowner, Allegheny Energy. Without trapping pressure to reduce beaver densities, increased loss of bottomland forest communities will continue and likely accelerate.

Management of beaver populations on the refuge will aid in the protection of selected plant species and plant communities of concern. This use is being proposed to eliminate or reduce damage to refuge resources from beaver induced flooding.

Furbearers are considered a renewable natural resource with cultural and economic values (Payne 1980, Andelt et al. 1999, Boggess et al. 1990, Northeast Furbearer Resources Technical Committee 1996). Several human dimensions studies have documented trapper profiles, cultural aspects of trapping, and the socioeconomic role of trapping in the United States (Gentile 1987, Boggess et al. 1990, Daigle et al. 1998, Andelt et al. 1999). Trapping is an activity in which family members and friends often participate together and share joint experiences that broaden the sense of appreciation for natural resources and ecological awareness (Daigle et al. 1998).

AVAILABILITY OF RESOURCES

The refuge manager will provide overall administration of the program. A wildlife biologist will be required to evaluate beaver activity, potential, and current impacts on refuge resources. The biologist will also be required to evaluate trapper data and compile trapping reports. An administrative assistant is required to help process SUPs and enter trapping data into a database. A refuge law enforcement officer will be required to check refuge trappers and ensure compliance with State and refuge regulations. An outdoor recreation planner is responsible for public outreach related to this program. Additional funds may be required if trapping activities would need to be conducted by refuge staff or contract employees.

Annual costs associated with the administration of a regulated trapping program on the refuge are estimated below:

Planning and supervising staff to monitor the use and its effects on environment and other visitors:

- GS 11/12 Deputy Refuge Manager for 3 work days = $836.16

Monitoring habitat impacts from trapping activities and issuing SUP's:

- GS 12 Wildlife Biologist for 10 work days = $3,675.20

Providing information to the public about management trapping and compiling use data

- GS-11 Outdoor Recreation Planner for 2 work days = $706.08

Resource Protection, monitoring fishing activities and interactions with other users, visitor services, sign maintenance, litter removal

- GS-9 Park Ranger for 10 work days = $2,457.60

Administrative work, permit issuing:

- GS-5 Administrative Assistant for 5 work days = $724.80

Vehicle fuel / law enforcement patrols = $100.00

Annual program (estimated) cost: $8,499.84

FY 2009 Budget Allocations:
Employee Salaries and benefits = $624,039.53
Fixed costs (utilities, fuel, administrative) = $211,415.23
Base maintenance = $50,000
Discretionary Funds (maps, printing, etc.) = $62,243.32
Total Available Funds for FY 2009 = $947,698.08

The financial and staff resources necessary to provide and administer this use at its current level are now available. We expect the resources to continue in the future, subject to availability of appropriated funds.

ANTICIPATED IMPACTS OF THE USE

The anticipated impacts of trapping on refuge resources are detailed in the refuge's approved 2004 EA for Furbearer Management and Beaver Trapping. Below is a summary of the impacts detailed in that EA. In general, the impacts from trapping are extremely low because of the low level of use. Over the past six years, an annual average of only three trappers has participated in the public trapping program. Low pelt values and the prohibition of vehicle access may contribute to the low public interest in this activity. We predict this level of use will not change in the future. This low level of use ensures that trapping remains a low-impact tool for achieving the refuge's habitat management goals.

Alternative B in the draft CCP/EA would also allow refuge personnel and/or refuge appointed contractors to remove problem animals when public trapping does not resolve impacts to refuge resources. This may require the expenditure of additional funds to conduct trapping activities by refuge staff or contract employees. Money spent conducting this activity would deplete funds that could be used for other refuge management activities. However, only when public participation (through SUP) is not adequate for resolving the beaver impact would the refuge manager make the decision to undertake removal operations using refuge staff or contract employees. The use of refuge staff or contractors will be the last choice in resolving beaver impacts to refuge resources, but will be available if necessary.

The primary areas targeted for trapping would be locations where beaver flooding has caused damage to refuge resources such as flooding of riparian forest habitat (or other sensitive plant communities) or refuge roads and trails. Seasonal inventory of beaver activity would be conducted by refuge biologists to determine locations for regulated beaver trapping. Refuge law enforcement would ensure that trappers on the refuge were complying with state and refuge regulations and that data submitted to the refuge is accurate. Designation of trapping zones may help prevent conflicts between trappers and zones are given on a first come first serve basis.

In addition, identifying trapping zones would allow the refuge to concentrate trapping efforts in areas where management intervention is necessary to prevent resource damage. Identifying locations where specific trappers are permitted on the refuge will facilitate enforcement of refuge and state regulations. Zoning may also provide better quality trapping experiences by preventing overlap with other trappers. For example, an experienced trapper may prefer to trap in areas without other trappers, to teach children or other family members. However, if necessary, trapping effort may be concentrated or zoning eliminated to meet refuge resource protection goals.

The refuge would be able to control trapping pressure through the SUP process and deny permits to trappers who do not comply with regulations. By administering the program under an annual SUP, the refuge manager

is able to maintain a list of trappers that are available for helping with specific management needs such as dealing with problem areas, targeting offending beavers for removal, and assisting with wildlife and habitat surveys or research.

In locations where beaver are causing impacts to refuge infrastructure (roads, trails etc.) exclusionary fencing and water flow control devices may be used. This method may be chosen in conjunction with a regulated trapping program or as a way to limit damage where trapping may not be preferable. Jensen et al (2001) note that using larger (or oversized) culverts can reduce many beaver impacts to roads. However, it is also noted that other water control devices may be required in conjunction with larger culvert sizes (Jensen et al. 2001). A variety of beaver control structures have been created and tested including water level control devices that are placed within the existing dam as well as cattle fencing to exclude beaver from a particular area (Northeast Furbearer Resources Technical Committee 1996). The refuge will evaluate all options when considering the management of the beaver population to protect refuge habitats and infrastructure.

Implementation of a regulated trapping program on the refuge affords a potential mechanism to collect survey and monitoring information, or contribute to research on beaver (and other wildlife) occurrence, activity, movement, population status, and ecology. By maintaining a trained and experienced group of trappers, the Service can utilize their skills and local knowledge to perform or assist with valuable management or research functions. Trappers that participate in the refuge program would provide assistance with the implementation of structured management objectives, such as alleviation or reduction of wildlife damage conflicts and negative species interactions. Refuge trappers typically have a stake in proper habitat and wildlife conservation, and protection of the ecological integrity of the refuge so that their activity can continue. Accordingly, they are valuable assets to the refuge manager in terms of providing on-site reports concerning the fundamental status of habitat, wildlife, and refuge conditions.

A national program has been designed to systematically improve the welfare of animals in trapping through trap testing and development of best management practices (BMPs) for Trapping Furbearers in the United States. This is operated under the guidance of the Fur Resources Technical Subcommittee of the International Association of Fish and Wildlife Agencies (International Association of Fish and Wildlife Agencies 1998). As would be expected, in practicing an integrated and comprehensive approach to furbearer management, the refuge would cooperate with and contribute to the development and implementation of the BMPs where possible.

This concept of cooperation is fully in keeping with the refuge's role as an outdoor laboratory for research and scientific education. Additionally, the refuge could work in cooperation with the West Virginia Trappers Association or other trapping organizations to produce educational information on trapping to inform the public on its use for management purposes.

Non-target furbearer species could potentially be taken through this trapping program. Risk of taking species other than beaver will be reduced significantly as beaver sets will occur specifically around areas of beaver activity. Selectivity for beaver can be achieved by carefully choosing trap locations, using specific beaver attractants and employing trap types and trigger configurations that are unlikely to be sprung by other species.

Over a 5 year period only nine muskrat and six snapping turtles have been taken as non target species during targeted refuge trapping efforts. According to trapper contacts, several of the snapping turtles were released unharmed due to the nature of the body gripping trap used which did not harm the turtles' carapace. Due to the reproductive capacities, this low number of captures of snapping turtles and muskrats are considered insignificant in relation to maintaining their populations on refuge lands. Trapper experience and the selection of the appropriate trap size will reduce non-target furbearer captures (Boggess et al. 1990, Northeast Furbearer Resources Technical Committee 1996). In particular, river otters are protected in the state of West Virginia. Currently the state provides trappers with recommendations on how to prevent the accidental take of river otters. This information will be made available to refuge trappers to help prevent accidental take. The Service will continue work with the state to help prevent the accidental take of river otter on the refuge through trapper education.

With respect to possible negative reaction to trapping on the refuge by the visiting public, conflicts are not expected because trapping is generally an inconspicuous activity that occurs during winter months. It also will often occur in remote areas of the refuge not accessible from public use trails. The refuge will inform the public about its trapping program through visitor contact and educational materials. Explanation of the purposes for which the trapping is conducted with focus on the protection of rare plant communities can help the public understand the program's necessity.

Impacts to Vegetation: Foot travel to trapping locations (beaver ponds and rivers) can have indirect impacts to plants by compacting soils and diminishing soil porosity, aeration and nutrient availability that affect plant growth and survival (Kuss 1986). Hammitt and Cole (1998) note that compaction limits the ability of plants to revegetate affected areas. Regularly occurring foot travel can crush plants. Rare plants with limited site occurrence are particularly susceptible. Many plant species considered rare in the state are found associated with riparian wetlands in the Canaan Valley (Bartgis and Berdine 1991). Trapping activities only occur during state regulated seasons which are outside the growing season for plants. Impacts are expected to be negligible as the number of trappers permitted is low (average of 3 per year from 2004-2009) and trapping areas are segregated to prevent overlap, further reducing trampling effects.

Effects on Soils: Soils can be compacted and eroded as a result of continued foot traffic. All soils associated with wetland habitats were rated as either high or very high in their potential for compaction (Bell 2002). Impacts to soils will likely be greater during the growing season due to the greater soil moisture content at that time of year. The Mauch Chunk-derived soil in Canaan Valley is particularly vulnerable to mechanical erosion when the vegetation has been removed (Rizzo 2002). If compacted, Mauch Chunk soils can facilitate rapid water runoff that accelerates erosion down slope (Rizzo 2002). Although foot travel did not create highly erosive conditions in this soil type, lug soles of hiking boots could perpetuate the problem. Impacts to soils are considered negligible as a result of the low number of trappers on the refuge.

Effects on Hydrology: Trails can affect the hydrology of an area, primarily through alteration of drainage patterns. Bartgis and Berdine (1991) note that roads and trails can divert water from their original drainage patterns in Canaan Valley. This can result in some drainages becoming dry while others accelerate erosion by being forced to carry more water. Zeedyk (2002) documented many instances in Canaan Valley where existing trails were channeling water away from historic wetlands and, in some cases, causing erosion and sedimentation of bog and other wetland communities. These problems have profoundly if not irreversibly altered the extent, depths, characteristics and function of the wetlands on the Main Tract (Zeedyk 2002). These impacts were preexisting at the time the refuge acquired the property and restoration actions have helped reduce the problems associated with the existing trails. Trappers are not restricted to trails and therefore will only use them when necessary to facilitate access to designated trapping zones. Trapper foot traffic will not exacerbate existing hydrologic problems due to the low number of trappers permitted on refuge land annually.

Effects on Wildlife: Trapping will be concentrated in areas surrounding beaver ponds and along riparian corridors. Trappers will traverse other habitats moving to and from these areas. Disturbances vary with the species involved and the type, level, frequency, duration and the time of year such activities occur. Whittaker and Knight (1998) note that wildlife response can include attraction, habituation, and avoidance. These responses can have negative impacts to wildlife, such as mammals becoming habituated to humans making them easier targets for hunters. Human induced avoidance by wildlife can prevent animals from using otherwise suitable habitat (Pomerantz et al. 1988).

Humans walking off trail have been shown to cause greater disturbance (greater area of influence, flush distance and distance moved) to wildlife than walking within trail corridors (Miller et al. 2001). Predictability of disturbance (on trail vs. off trail) has been cited as a major factor in impacts to wildlife. Walking off trail is considered less predictable to wildlife and typically more disruptive (Knight and Cole 1991, Trails and Wildlife Task Force 1998, Miller et al. 2001).

Anticipated disturbances to wildlife are likely to be short term and very infrequent based on the low number of permits issued for trapping on the refuge. Trapping season occurs outside of the breeding season and many bird species are absent from the refuge during this activity. With the refuge's ability to limit the numbers and locations of trappers participating in this activity, no major impacts from wildlife disturbance are likely.

Effects on Threatened and Endangered Species: The federally threatened Cheat Mountain salamander (*Plethodon nettingi*) is found on the refuge. This species is associated with high elevation forested habitat,

typically with some component of red spruce (*Picea rubens*) and/or Eastern hemlock (*Tsuga canadensis*), and it is likely they are restricted to the cooler mountain slopes and ridges. Because beaver inhabit wetland areas not suitable for Cheat Mountain salamanders, there will be no adverse impacts to this species.

Indiana bats (*Myotis soldalis*) were documented on the refuge for the first time through acoustical monitoring conducted by the U.S. Forest Service in 2003 (Ford 2003). Indiana bats were found foraging at two locations in the south end of the refuge. The refuge began conducting acoustical surveys in 2005. These surveys have documented three likely Indiana bat observations in the same location as the 2003 survey during 2005, 2007, and 2008. Additionally, acoustical surveys documented one new location for the species during 2007. Indiana bat calls have been documented from the refuge in the months of May, July, August, and September. However, since trapping is restricted to day time hours, and must comply with certain stipulations, any potential negative effects are expected to be minimal. We will periodically evaluate this activity to determine any effects it may have. In particular the use of roost trees near beaver ponds would be a concern and would be evaluated to determine if trapping created disturbance to roosting bats. Because trapping occurs outside the season when bats would be roosting on the refuge, any impacts are considered unlikely. However, if evidence of unacceptable adverse affects appears, the location(s) of activities will be curtailed or discontinued as needed.

PUBLIC REVIEW AND COMMENT

Impacts of the proposed use were evaluated in an EA and released for public review and comment for 30 days in 2004. Beaver conditions on the refuge have not changed substantially. This compatibility determination will be released for a 45-day public review and comment period as an appendix to the draft CCP/EA.

DETERMINATION

_____ Use is Not Compatible

__X__ Use is Compatible With the Following Stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY

The furbearer management program will be reviewed annually to assess its effectiveness and to insure and that wildlife populations and habitat quality are managed appropriately. In addition, the following refuge SUP Conditions will apply:

—Any person engaging in activities on the Canaan Valley refuge that would be defined as trapping under West Virginia state law must be in possession of a valid West Virginia trapping license and a valid refuge SUP. Trappers will present such credentials to refuge officials and law enforcement agents of United States or West Virginia upon their request. This permit is valid only for trapping conducted on the refuge during the legal trapping seasons established by the state of West Virginia and only for beaver.

—In consideration of being permitted to engage in the activity authorized under this permit at the Canaan Valley refuge, Permittee, being of lawful age, for himself and his personal representative, heirs, and next of kin, hereby releases, waives, and forever discharges the United States of America, its agents and employees, all for the purposes herein referred to as, Releasees, from any and every claim, demand, action or right of action, of whatsoever kind or nature, either in law or in equity, arising from or by reason of any bodily injury or personal injuries known or unknown, death and/or property damage resulting or to result from any injury, which may occur while engaged in the permitted activity, and covenants not to sue the Releasees, for any loss or damages, and any claim or damage therefore, on account of injury to the person or property or resulting in death of the Permittee, whether caused by the negligence of Releasees or otherwise.

—Permittee agrees to indemnify, defend, save and hold harmless the Releasees and each of them from any loss, liability, damage, or cost Releasees may incur due to the presence of Permittee in or upon the said property of the United States.

—Releasor agrees that this release and waiver is intended to be as broad and inclusive as permitted by the laws of the state of West Virginia and that if any portion thereof is held invalid, it is agreed that the balance shall notwithstanding, continue in full legal force and effect.

—Permittee will obey the laws of the United States and West Virginia, including those concerning trapping, firearms, and motor vehicles while engaged in activities connected with this permit.

—Travel by motor vehicle is restricted to established roads, and travel by snowmachine and all-terrain vehicle is prohibited.

—Permittee will use every feasible precaution against causing damage to refuge roads, lands, and waters. Permittee will report any damages as soon as possible.

—Permittee will not conduct activities in connection with this permit in any manner that would interfere with or cause hazards to vehicular travel or the activities of refuge visitors.

—Permittee shall not litter, start fires, or use open fires on refuge lands.

—Permittee is required to submit a completed refuge trapper report accompanying this permit to the Refuge manager within 30 days of the close of the West Virginia trapping season. Report forms MUST be submitted whether or not any trapping was conducted or any animals were captured. NOTE: Failure to submit this report will be grounds for denial of a refuge-trapping permit for the following season.

—Connabear Traps of size 8x8 and larger are permitted. No sizes smaller than 8x8.

—Leg hold traps no smaller than a size 7 are permitted and only if used in a drowning set. Traps should be set for a hind foot capture to prevent non-target wildlife captures.

—No snares will be permitted on the refuge.

—Permittee will receive and comply with information and recommendations to avoid trapping river otter and all other non-target species. Only beaver may be taken.

JUSTIFICATION

Regulated trapping is recognized by the Service as an effective, legitimate, and ecologically sound wildlife population and habitat management method on national wildlife refuges. Furbearers are considered a renewable natural resource with cultural and economic values (Andelt et al 1999, Boggess et al. 1990, Northeast Furbearer Resources Technical Committee 1996, Payne 1980). Trapping also allows the public the benefit of a renewable wildlife resource. As mentioned above and described in the approved 2004 EA for Furbearer Management and Beaver Trapping, trapping seasons and limits are established by the state and adopted by the refuge. These restrictions are designed to protect wildlife populations from over harvest. There is some risk of incidental trapping of non-target species (e.g., river otter).

Risk of taking species other than beaver will be reduced significantly through the conditions of the SUP and as described in the stipulations of this compatibility determination. Beaver sets will occur specifically around areas of beaver activity with trap sizes and set locations restricted by the permit to reduce non-target species captures. Selectivity for beaver can be achieved by carefully choosing trap locations, using specific beaver attractants and employing trap types and trigger configurations that are unlikely to be sprung by other species. In particular, risk of taking river otter will be addressed by ensuring that all trappers have access to the state's recommendations on how to prevent the accidental take of river otters.

Conflicts between trappers would be minimal because of the low level of use. Any potential conflicts would be minimized by designating trapping zones, controlling numbers through the SUP process, or through the presence of law enforcement officials. Trapping occurs during winter months, a time when other visitor numbers are low.

Anticipated disturbances to wildlife are likely to be short term and infrequent based on the current low level of use (average of 3 trappers per year between 2004 and 2009) and seasonal limitations. Sedimentation impacts will likely be insignificant from foot travel. Vegetation impacts will similarly be insignificant due to the limited number of participants and zoned locations of trapping activity. A regulated trapping program will help protect refuge habitats, specifically rare wetland forested and shrub swamp communities. Based on the current level of

trapping, disturbance impacts to wildlife will be insignificant. Restrictions outlined in the SUP are designed to prevent other wildlife from being directly affected by this management activity.

Because of the low use and established SUP restrictions the refuge will continue to meet its purposes established by the Fish and Wildlife Act (1956) to manage, conserve and protect fish and wildlife resources. This use also provides a low impact method to reduce beaver impacts to wetland plant communities which supports the establishing purpose for the refuge to ensure the ecological integrity of Canaan Valley (1979 EIS) and the Emergency Wetland Resources Act (1986) by conserving wetland communities of Canaan Valley. Because of the limited use, low impact, and supporting role to wetland plant conservation in Canaan Valley, this use does not prevent the refuge from fulfilling the mission of the Refuge System by helping to conserve and manage fish, wildlife and plant resources.

Trapping may occur within riparian areas within and bordering tracts acquired under the authority of the Migratory Bird Conservation Act (1929). This use is aimed at reducing the effects of beaver flooding on rare wetland plant communities. By altering beaver impact, habitats which support migratory birds will also be altered. Other open water habitats created through flooding activities will be minimized based on location and therefore the migratory birds utilizing these communities will be affected. However, the habitats targeted for protection are some of the rarest habitats on the refuge; therefore the migratory birds tied to these habitats will benefit from habitat protection and management. Although open water habitats are not common on the refuge, they are not as limited in distribution as the plant communities the trapping program is designed to protect. Therefore this activity will not affect the refuge's ability to meet the purposes to conserve and manage migratory birds as directed by the Migratory Bird Conservation Act (1929).

Trapping access is limited by terms and conditions outlined in special use permits to help minimize potential negative effects and maximize effective management. Allowing this use furthers the mission of the Refuge System, as required under 50 CFR 29.1, by meeting important management objectives to protect or enhance refuge ecosystems while allowing access to renewable natural resources for the benefit of the American public. For these reasons beaver trapping contributes to the establishing purpose of the refuge by helping to protect and maintain rare wetland plant communities and therefore the ecological integrity of Canaan Valley. Beaver trapping does not interfere with the other refuge purposes, namely the development and conservation of fish and wildlife resources (Fish and Wildlife Act of 1956; 16 U.S.C. 742f(a)(4)),the fulfillment of international obligations contained in various migratory bird treaties (Emergency Wetlands Resources Act of 1986;16 U.S.C. 3901(b));, and the use as an inviolate sanctuary for migratory birds (16 U.S.C. 715d (Migratory Bird Conservation Act 1929)). We have determined that regulated trapping as a component of an integrated furbearer management program at the Canaan Valley refuge will not materially interfere with or detract from fulfilling the refuge purposes and the Refuge System mission.

Refuge Manager _____ _____
(Signature) (Date)

Concurrence

Regional Chief _____ _____
(Signature) (Date)

MANDATORY 10 YEAR RE-EVALUATION DATE

_____
(Date)

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COMPATIBILITY DETERMINATION

USE

Commercial Haying to Manage Grassland Habitat

REFUGE NAME

Canaan Valley National Wildlife Refuge

DATE ESTABLISHED

August 11, 1994

ESTABLISHING AND ACQUISITION AUTHORITY

The establishment of Canaan Valley National Wildlife Refuge (refuge) was first approved in an Environmental Impact Statement (EIS) released on May 30, 1979. However, the U.S. Fish and Wildlife Service (Service) decided to await the outcome of litigation surrounding a proposed storage hydroelectric facility before pursuing any further action. The approval of the refuge was affirmed by the Service in a 1994 Final Environmental Assessment and Finding of No Significant Impact on July 11, 1994, which confirmed the adequacy of the previously-approved 1979 EIS. The refuge was officially established when the first tract of land was acquired on August 11, 1994. The Service has acquired lands for the Canaan Valley refuge under the following authorities:

1. Fish and Wildlife Act of 1956 [16 U.S.C. 742f(a)(4)]

2. Emergency Wetlands Resources Act of 1986 [16 U.S.C. 3901b]

3. Migratory Bird Conservation Act of 1929 [16 U.S.C. 715d]

REFUGE PURPOSES

The refuge was established to ensure the ecological integrity of Canaan Valley and the continued availability of its wetland, botanical, and wildlife resources to the citizens of West Virginia and the United States (USFWS 1979, 1994). Additional refuge purposes as derived from the legislative authorities are as follows:

(1) "... for the development, advancement, management, conservation, and protection of fish and wildlife resources..." (Fish and Wildlife Act of 1956; 16 U.S.C. 742f (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 international obligations contained in various migratory bird treaties and conventions." (Emergency Wetlands Resources Act of 1986; 16 U.S.C. 3901(b)); and,

(3) "... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." (Migratory Bird Conservation Act of 1929; 16 U.S.C. 715d).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION

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 commercial haying to manage grassland habitat for nesting obligate grassland bird species on the refuge. This use is not a priority public use of the National Wildlife Refuge System (Refuge System) under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57). This use is also a refuge management economic activity as described under 50 C.F.R 25.12.

(b) Where would the use be conducted?
Haying would be permitted in designated grassland management units of the refuge. These units are currently:

Freeland Tract: 40 acres
Beall Tract: 113 acres
Harper Tract: 52 acres
Cortland Tract: 14 acres
Bonner Tract: 9 acres
Cooper Tract: 74 acres
Orders Tract: 30 acres

The configuration of the units and the number of acres managed by haying may change from year to year.

(c) When would the use be conducted?
Haying would occur only after grassland nesting birds have completed nesting activities. In Canaan Valley, this is typically in mid- to late August. Haying operations would be required to be completed (all bales removed from refuge property) within one month of the haying operation (mid- to late September). Haying would only occur on an "as needed basis" as determined by the refuge manager. Since refuge grassland management occurs on a three to five year rotation and fields are rotated to allow for standing grassland habitat to occur within a portion of managed grassland units, only a portion of refuge grasslands would be potentially available to haying operations on an annual basis. The refuge staff will determine which fields will require management on an annual basis and these fields will be available for haying operations.

(d) How would the use be conducted?
The use would be conducted by issuance of a special use permit to individuals who have the ability to complete haying operations within the specified time frame. Because of the commercial viability of the hay crop from refuge lands, operators would be solicited through open advertisement. If more than one individual responds to the request, the refuge will select the individual randomly. The Service will charge the permit holder the fair market value of the standing hay crop as authorized by 50 Code of Federal Regulations (CFR) 29.5. The funds received would contribute to the Service revenue sharing program with county government as described by 50 CFR 34.3(d).

(e) Why is this use being proposed?
This use is being proposed to facilitate refuge grassland management. By permitting haying on refuge grasslands, less time is required by staff equipment operators to conduct required management activities. This saves the refuge time and money which may be allocated to different projects. Additionally, haying removes vegetation from the field which is otherwise left using refuge brush hog mowing equipment. This rank cut vegetation builds a duff layer in the "understory" of the grassland which, over time, can make the grassland less suitable for target grassland nesting bird species. Periodic removal of the vegetation from the field helps reduce dense duff layer development and can be beneficial for nesting grassland bird species such as bobolinks and grasshopper sparrows (Warren and Anderson 2005).

AVAILABILITY OF RESOURCES

The resources necessary to provide and administer this use, at the current use level, are available within current and anticipated refuge budgets. Staff time associated with administration of this use is related to assessing the need for grassland management activities, advertising and selecting an operator to conduct haying actions, and overseeing the project.

The deputy refuge manager will administer the program. A wildlife biologist will evaluate the need for grassland management annually and select the fields which will be available for haying. A park ranger/visitor services specialist will submit the advertisement for the haying opportunity.

Annual costs associated with the administration of haying on the refuge are estimated below:

Administration, planning and consultation with refuge staff:

- GS-13 Refuge Manager for 1 work day = $450.24

Monitoring field conditions and bird breeding activity to select appropriate fields for grassland management:

- GS-12 Wildlife Biologist for 4 work days = $1,470.08
- GS-11 Wildlife Biologist for 2 work days= $594.56
- GS-7 Biological Technician for 2 work days = $401.76

Outreach and education, providing information to visitors:

- GS-11 Outdoor Recreation Planner for 1 work days = $353.04

Oversight and administration

- GS-11/12 Deputy Refuge Manager for 7 work days = $1,951.04

Law enforcement and regulations

- GS-9 Law Enforcement Officer for 2 work days = $491.52

Vehicle fuel = $100.00

Grand Total Estimated Costs = $5,812.24

FY 2009 Budget Allocations:
Employee Salaries and benefits = $624,039.53
Fixed costs (utilities, fuel, administrative) = $211,415.23
Base maintenance = $50,000
Discretionary Funds (maps, printing, etc.) = $62,243.32
Total Available Funds for FY 2009 = $947,698.08

The financial and staff resources necessary to provide and administer this use at its current level are now available. We expect the resources to continue in the future, subject to availability of appropriated funds.

ANTICIPATED IMPACTS OF USE

The refuge contains approximately 332 acres of managed grassland, which provides important habitat for grassland nesting bird species and other wildlife. All of the grassland units had been hayed and/or grazed in the past prior to acquisition. Many grassland nesting bird species are in decline due to habitat loss, succession, and habitat conversion for cultivation. Haying is one treatment method for managing grassland habitat that is

used on national wildlife refuges. Haying has been proven to be a successful and desirable method for habitat management for grassland nesting bird species at Canaan over the past 10 years.

Impacts to Wildlife: Haying involves the use of farm equipment to mow, rake, bale and transport hay in grassland areas. The greatest potential for disturbance to wildlife occurs during mowing. Disturbance varies with vegetation composition and density, habitat use, wildlife species distribution and density, and time of year. Birds, mammals, amphibians and reptiles may be temporarily or permanently displaced, injured, or killed. For nesting birds, cutting would be allowed only after the nesting season grassland species is complete. This disturbance will be limited to the acreage deemed by the refuge staff to be available for management actions during any given year.

Depending upon bird use and vegetative conditions, the acreage potentially hayed could fluctuate between 0 and 50% of the available, refuge-managed grassland habitat annually. Typically 50% of the available grasslands will be left unmowed to provide dispersal and migration habitat for landbirds and foraging habitat for migrating and wintering raptor species. Impacts will also be temporary in nature and limited to the number of times equipment is required to enter the field to conduct various phases of the haying operation. Normally this will require four separate instances of equipment working in refuge grassland units. The time required for equipment to conduct necessary operations within the field will depend upon the size of the grassland unit; however, all fields are small enough to require only one visit per activity.

Since haying will occur in mid- to late August, after the nesting season, there will be minimal impacts to wildlife. Peak nesting activity in Canaan grasslands takes place between late May and mid-June. Research conducted on the refuge to document nesting and fledging success in managed grasslands indicated that most grassland obligate birds have completed nesting activities by early August (Warren and Anderson 2005). Recommendations of some grassland management areas indicate that waiting until mid-July for mowing or haying operations is adequate, however, waiting until mid-August will help prevent impacts to double and triple-brooded species at Canaan such as Savannah sparrows and Eastern Meadowlarks (Warren and Anderson 2005). Since bird species have fledged and young mammals are mobile and capable of escaping injury, direct impacts will be minimal. Since haying will primarily occur in dry grassland areas, impacts to wetlands and reptiles and amphibians will be minimal. This activity poses little additional impact to current grassland management actions by refuge personnel.

Impacts to Vegetation, Soils and Hydrology: If haying operations occur in wet or moist areas, equipment may adversely impact vegetation and soil. However, most grassland management units occur in dry and well-drained soil types and therefore we do not expect major impacts to vegetation, soils or hydrology. The exception is the Freeland tract which has areas of moist soil. Haying operations in wet soil types could have greater impacts to soil compaction and vegetation loss than refuge operations using a brush hog due to the necessity of working the cut field at least twice after cutting the hay. However, no adverse soil or vegetation affects have been noted by refuge staff after any of the previous haying operations over the last 10 years. Typically mid-August and early September, when haying occurs, are some of the driest months of the year. Fields that have been saturated by rain will not be hayed until soil conditions can support the required equipment.

Impacts to Cultural Resources: This use, as described, will not impact cultural resources. No significant ground (soil) disturbance will occur and all areas being considered for this use have been traditionally hayed or otherwise managed as grasslands for generations.

Impacts to Endangered and Threatened Species: The federally threatened Cheat Mountain salamander occurs in high elevation spruce and mixed spruce-northern hardwood forests and therefore will not be affected by this activity. The endangered Indiana bat has been documented foraging near grassland management units, but this species is more directly associated with the wetlands adjacent to these units. Additionally, haying operations will not occur at night when Indiana Bats are active. There are no known roosting or maternity sites for the Indiana bat on the refuge. If future documentation of these sites occur the refuge will consult with the Service's Ecological Services Office to ensure that haying operations will not adversely affect this species.

PUBLIC REVIEW AND COMMENT

This compatibility determination will be distributed as an appendix to the draft Comprehensive Conservation/ Environmental Assessment for a 45-day public review and comment period.

DETERMINATION

_____ Use is Not Compatible

__X__ Use is Compatible With the Following Stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY

—A Special Use Permit issued by the refuge manager will be required for this activity and will include the stipulations below. Additional stipulations may be included depending upon annual conditions of fields and other refuge activities:

—Haying will occur only after field surveys have indicated that no nesting is taking place and all juvenile birds have fledged. Typically this will be after August 15.

—In consideration of being permitted to engage in the activity authorized under this permit at the Canaan Valley refuge, Permittee, being of lawful age, for himself and his personal representative, heirs, and next of kin, hereby releases, waives, and forever discharges the United States of America, its agents and employees, all for the purposes herein referred to as, Releasees, from any and every claim, demand, action or right of action, of whatsoever kind or nature, either in law or in equity, arising from or by reason of any bodily injury or personal injuries known or unknown, death and/or property damage resulting or to result from any injury, which may occur while engaged in the permitted activity, and covenants not to sue the Releasees, for any loss or damages, and any claim or damage therefore, on account of injury to the person or property or resulting in death of the Permittee, whether caused by the negligence of Releasees or otherwise.

—Permittee agrees to indemnify, defend, save and hold harmless the Releasees and each of them from any loss, liability, damage or cost Releasees may incur due to the presence of Permittee in or upon the said property of the United States.

—Haying will only occur in identified treatment areas in grassland units.

—Haying will not occur in wet or moist areas. Operations will be delayed until equipment use will not negatively impact soils or vegetation.

—Cutting and retrieval of hay can only occur during regular refuge hours of operation between one hour before sunrise to one hour after sunset.

—All haying operations including removal of bails must be complete before the beginning of deer archery season to avoid conflicts with hunters.

—Permittee will follow access regulations specified in the special use permit.

—Vegetation and wildlife response will be monitored to determine impacts and evaluate success of the management action

JUSTIFICATION

This use facilitates the management of refuge grassland habitat and is not only a reasonable method, but sometimes is a preferred method of managing grasslands to maintain habitat for some nesting bird species. Limitations on the seasonal timing of haying, number of visits to each location, and specific locations for this activity will ensure minimal negative effects to wildlife. Impacts would be similar if refuge personnel

were required to conduct this management activity. This use relieves refuge staff from these operations while still achieving the management goals of the grassland program. This use is proposed and managed to benefit grassland habitat, so negative effects on this habitat are not expected. Vegetation and grassland bird responses will be monitored to ensure this use remains compatible. If significant impacts are found, or haying operations cease to benefit the resource or become cumbersome administratively, corrective actions will be taken.

Due to the timing of the haying operation, impacts to wildlife will be minimized. Since only a portion of refuge grasslands will be managed in a given year, other grassland habitat will be available for wildlife during these management actions. Overall the impacts to wildlife are considered negligible and the benefits of the management action improve habitat for targeted grassland obligate bird species. As such this activity will not interfere with the refuge's ability to meet the purposes of the Fish and Wildlife Act (1956) to manage, conserve and protect wildlife resources.

One grassland unit does occur on lands acquired under the authority of the Migratory Bird Conservation Act (1929). Stipulations to prevent nest disturbance and provide un-managed grassland for dispersal and migration habitat reduces the impact to migratory birds to the minimum necessary to achieve the management goals of the haying program. Following the stipulations outlined in this compatibility determination, allowing this use will not affect the refuge's ability to meet the purposes established in the Migratory Bird Conservation Act (1929) and, in fact, support the purposes by managing for migratory birds.
Most grassland habitat occurs in dry uplands soils. The Freeland tract is a mixture to upland and wetland soils which vary in their susceptibility to soil compaction and erosion depending upon the saturation of the soils from rainfall. Stipulations to conduct haying reduce soil and erosion impacts by requiring the sites to be dry when the activity is conducted. Because of the location of grassland management units and stipulations to reduce impacts when conditions are wet, this activity will not interfere with the refuges purpose as established by the Emergency Wetlands Resources Act (1986) to conserve the wetlands of Canaan Valley.
This use supports and contributes directly to the achievement of the purposes of the refuge and the mission of the National Wildlife Refuge System, as required by 50 CFR 29.1, by contributing to the conservation, protection and management of wildlife (migratory birds) on refuge lands. Conducting this activity improves habitat for grassland bird species and does not affect the refuge's establishing purpose to ensure the ecological integrity of Canaan Valley. For these reasons, commercial haying, as identified in this compatibility determination, is not expected to materially interfere with or detract from the mission of the National Wildlife Refuge System or the purposes for which the refuge was established.

Refuge Manager _____ _____
(Signature) (Date)

Concurrence

Regional Chief _____ _____
(Signature) (Date)

MANDATORY 10 YEAR RE-EVALUATION DATE

_____
(Date)

LITERATURE CITED

United States Fish and Wildlife Service (USFWS). 1979. Final Environmental Impact Statement - Acquisition of lands for the Canaan Valley National Wildlife Refuge, West Virginia. Department of the Interior - U.S. Fish and Wildlife Service.

U.S. Fish and Wildlife Service. 1994. Final Environmental Assessment - Acquisition of lands for the Canaan Valley National Wildlife Refuge, West Virginia. Department of Interior - U.S. Fish and Wildlife Service, Hadley, Massachusetts. 50 pp.

Warren, K.A. and J.T. Anderson. 2005. Grassland songbird nest-site selection and response to mowing in West Virginia. Wildlife Society Bulletin 33(1): 285-292

COMPATIBILITY DETERMINATION

USE

Maintenance and Use of NOAA Weather Station

REFUGE NAME

Canaan Valley National Wildlife Refuge

DATE ESTABLISHED

August 11, 1994

ESTABLISHING AND ACQUISITION AUTHORITY

The establishment of Canaan Valley National Wildlife Refuge (refuge) was first approved in an Environmental Impact Statement (EIS) released on May 30, 1979. However, the U.S. Fish and Wildlife Service (Service) decided to await the outcome of litigation surrounding a proposed storage hydroelectric facility before pursuing any further action. The approval of the refuge was affirmed by the Service in a 1994 Final Environmental Assessment and Finding of No Significant Impact on July 11, 1994, which confirmed the adequacy of the previously-approved 1979 EIS. The refuge was officially established when the first tract of land was acquired on August 11, 1994. The Service has acquired lands for the Canaan Valley refuge under the following authorities:

1. Fish and Wildlife Act of 1956 [16 U.S.C. 742f(a)(4)]

2. Emergency Wetlands Resources Act of 1986 [16 U.S.C. 3901b]

3. Migratory Bird Conservation Act of 1929 [16 U.S.C. 715d]

REFUGE PURPOSES

The refuge was established to ensure the ecological integrity of Canaan Valley and the continued availability of its wetland, botanical, and wildlife resources to the citizens of West Virginia and the United States (USFWS 1979, 1994). Additional refuge purposes as derived from the legislative authorities are as follows:

(1) "... for the development, advancement, management, conservation, and protection of fish and wildlife resources..." (Fish and Wildlife Act of 1956; 16 U.S.C. 742f (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 international obligations contained in various migratory bird treaties and conventions." (Emergency Wetlands Resources Act of 1986; 16 U.S.C. 3901(b)); and,

(3) "... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." (Migratory Bird Conservation Act of 1929; 16 U.S.C. 715d).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION

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 PROPOSED USE

(a) What is the use? Is the use a priority public use?
The use is the maintenance and use of an air quality monitoring and research site by the National Oceanic and Atmospheric Administration (NOAA). This is not a priority public use (National Wildlife Refuge System Improvement Act 1997, Public Law 105-57).

(b) Where would the use be conducted?
The use would be conducted on a 0.5 acre portion of the Beall Tract in an upland grassland field.

(c) When would the use be conducted?
The NOAA weather station was installed during FY 2000 on the Beall Tract and is a continuing use.

(d) How would the use be conducted?
The weather station consists of a 10-meter triangular tower used for dry deposition measurements and a wet deposition measurement station consisting of several collectors placed on a platform.

A galvanized shelter approximately 19 feet long, 6.5 feet high, and 6 feet wide used to house instruments and electronic equipment will be maintained. The shelter is buried approximately 4 feet and bermed over. Power is supplied to the shelter via an underground power line from a power pole located adjacent to the Old Timberline Road.

The NOAA administrator currently stationed at the Canaan Valley Institute is responsible for coordinating activities with the refuge manager. The station is visited typically once a day by a NOAA administrator, staff person, or volunteers in order to retrieve data and reset monitoring devices.

(e) Why is this use being proposed?
NOAA requested site access on refuge lands as the site is central in the valley and ideally situated to collect atmospheric data for the area. Additionally, having a stable protected site is important. This use was found compatible in a compatibility determination issued in 2000.

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 breeding bird use within the Beall tract grassland, coordinating with the NOAA scientist, and monitoring the access and maintenance of the site to ensure stipulations outlined in a Memorandum of Understanding and this compatibility determination are followed.

The program is administered by the deputy refuge manager, resource impacts are monitored by the wildlife biologist, and maintenance and repair operations, when necessary are performed by a heavy equipment operator. Law enforcement when necessary is provided by a refuge officer.

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

Bi-annual maintenance of site is coordinated with refuge Equipment Operator:

- WG-10 Equipment Operator for 1 work day = $272.56

Coordination with NOAA and administrative duties:

- GS-11/12 Deputy Refuge Manager for 1 work days = $278.72

Law enforcement, monitoring vehicle travel and interactions with other users, visitor services:

- GS-9 Park Ranger (LE) for 5 work days = $1,228.80

Monitoring environmental effects:

- GS-12 Wildlife Biologist for 1 work days (surveys and analysis) = $367.50
- GS-7 Biological Technician for 2 work days (surveys and analysis)=$401.76

Providing information to the public

- GS-11 Outdoor Recreation Planner for 1 work days = $353.04

Vehicle Fuel = $50.00

Grand Total Estimated Costs =$2,952.38

FY 2009 Budget Allocations:
Employee Salaries and benefits = $624,039.53
Fixed costs (utilities, fuel, administrative) = $211,415Base maintenance = $50,000
Discretionary Funds (maps, printing, etc.) = $62,243.32
Total Available Funds for FY 2009 = $947,698.08

The financial and staff resources necessary to provide and administer this use at its current level are now available. We expect the resources to continue in the future, subject to availability of appropriated funds.

ANTICIPATED IMPACTS OF THE USE

The site is located on grassland habitat located on the Beall Tract. In the early 1900's the site was logged, burned, graded, and converted for crop production and later used for hay production and grazing. Vehicle access to the site for the purpose of maintenance is limited to late fall/early winter in order to avoid disturbance to birds and other animals during breeding season. Because of the limited vehicle access and the time of year when vehicle access occurs, we do not anticipate adverse impacts from this use on threatened and endangered species, or on any other wildlife that use this habitat.

Disturbance to the site is limited because it is mostly accessed by foot, once a day by one person. Therefore we do not anticipate any adverse impacts to soils, vegetation, or hydrology because of the infrequency of use and the limited number of people accessing the site.

Since the installation of equipment and use of the facility by NOAA in 2000, breeding bird surveys have been conducted in the Beall grassland. Results indicate that aside from the immediate loss of habitat from the structures themselves, bird use of the area has remained steady and consistent. Banding research conducted collaboratively with the U.S. Forest Service Experimental Forest Research Unit has found that grasshopper sparrows are returning to the same area of the field each year. Breeding density has not changed significantly and in fact recent grassland management has encouraged use by Henslow's sparrows, a rare grassland obligate breeder. These facts indicate that under current conditions and use the NOAA weather station does not significantly affect the grassland management program or use of the grassland by migratory birds.

A consultation with regional archeologists John Wilson was completed and no impacts to archeological or historical sites are anticipated.

PUBLIC REVIEW AND COMMENT

This compatibility determination will be released as an appendix to the Comprehensive Conservation Plan/ Environmental Assessment for a 45-day public review and comment period.

DETERMINATION

_____ Use is Not Compatible

__X__ Use is Compatible With the Following Stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY

—To prevent migratory bird collisions, no lights will be placed on the tower.

—Wet and dry deposition equipment will be strategically located to avoid aesthetical impacts.

— Daily site access will be by foot only.

—Occasional vehicle access is permitted for the purpose of maintenance and is limited to late fall/early winter.

—No new structures shall be permitted at the site. Instruments, antenna, and other devices that are or can be affixed to existing infrastructure will be permitted following review by refuge manager.

—Refuge requires an annual report submitted to the refuge manager detailing the information collected at the weather station. Information should include monthly summaries of measurements taken (i.e., monthly rainfall, precipitation acidity, temperatures etc.).

—A Memorandum of Understanding was established to fulfill the agreements between the Service and NOAA. This agreement will be updated as necessary to ensure the activity remains compatible with refuge purposes.

JUSTIFICATION

The maintenance of the NOAA air quality monitoring and research site will result in negligible impacts to wildlife and will provide important climate data. This information will be useful in determining the impacts of air and waterborne pollutants on the ecological communities in Canaan Valley and the mid-Atlantic Highlands and will likely be important as the refuge addresses climate change impacts to refuge habitats. Information generated by the NOAA research station has been useful for reports generated by the refuge and other research partners requiring comprehensive atmospheric data.

To protect sensitive species, maintenance operations requiring vehicle access are limited to late fall/early winter, avoiding disturbance during breeding season. Disturbance to the site is limited to foot traffic and the site is typically accessed only once per day by one person. Monitoring data on area bird populations has shown no changes in breeding density or habitat use associated with this activity. In addition, the refuge has established a Memorandum of Understanding with NOAA to ensure wildlife species and their habitat are protected.

Because of the limited access and restrictions on maintenance operations this use will not affect the refuge's ability to protect, conserve and manage wildlife and their habitats (grassland species) as directed by the Fish and Wildlife Act (1956) and the mission of the National Wildlife Refuge System. This site is not located on tracts purchased under the authority of the Migratory Bird Conservation Act (1929) therefore the refuge will not be affected in meeting its mandates to conserve and manage for migratory birds on these tracts. The location of the site is an upland grassland field which prevents impacts to wetland resources. Therefore this use will not affect the refuge's purpose to conserve the wetlands of Canaan Valley as directed by the Emergency Wetland Resources Act. The establishing purpose of the refuge to protect the ecological integrity of Canaan Valley will not be affected by the minimal maintenance and access required to continue the NOAA operation on the Beall Tract. For these reasons, we have determined that this activity will not materially interfere with or detract from fulfilling the refuge purposes and the National Wildlife Refuge System mission.

Refuge Manager _____ _____
(Signature) (Date)

Concurrence

Regional Chief _____ _____
(Signature) (Date)

MANDATORY 10 YEAR RE-EVALUATION DATE

_____
(Date)

LITERATURE CITED

United States Fish and Wildlife Service (USFWS). 1979. Final Environmental Impact Statement - Acquisition of lands for the Canaan Valley National Wildlife Refuge, West Virginia. Department of the Interior - U.S. Fish and Wildlife Service.

U.S. Fish and Wildlife Service. 1994. Final Environmental Assessment - Acquisition of lands for the Canaan Valley National Wildlife Refuge, West Virginia. Department of Interior - U.S. Fish and Wildlife Service, Hadley, Massachusetts. 50 pp.

COMPATIBILITY DETERMINATION

USE

Research Conducted by Non-Service Personnel

REFUGE NAME

Canaan Valley National Wildlife Refuge

DATE ESTABLISHED

August 11, 1994

ESTABLISHING AND ACQUISITION AUTHORITY

The establishment of Canaan Valley National Wildlife Refuge (refuge) was first approved in an Environmental Impact Statement (EIS) released on May 30, 1979. However, the U.S. Fish and Wildlife Service (Service) decided to await the outcome of litigation surrounding a proposed storage hydroelectric facility before pursuing any further action. The approval of the refuge was affirmed by the Service in a 1994 Final Environmental Assessment and Finding of No Significant Impact on July 11, 1994, which confirmed the adequacy of the previously-approved 1979 EIS. The refuge was officially established when the first tract of land was acquired on August 11, 1994. The Service has acquired lands for the Canaan Valley refuge under the following authorities:

1. Fish and Wildlife Act of 1956 [16 U.S.C. 742f(a)(4)]

2. Emergency Wetlands Resources Act of 1986 [16 U.S.C. 3901b]

3. Migratory Bird Conservation Act of 1929 [16 U.S.C. 715d]

REFUGE PURPOSES

The refuge was established to ensure the ecological integrity of Canaan Valley and the continued availability of its wetland, botanical, and wildlife resources to the citizens of West Virginia and the United States (USFWS 1979, 1994). Additional refuge purposes as derived from the legislative authorities are as follows:

(1) "... for the development, advancement, management, conservation, and protection of fish and wildlife resources..." (Fish and Wildlife Act of 1956; 16 U.S.C. 742f (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 international obligations contained in various migratory bird treaties and conventions." (Emergency Wetlands Resources Act of 1986; 16 U.S.C. 3901(b)); and,

(3) "... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." (Migratory Bird Conservation Act of 1929; 16 U.S.C. 715d).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION

[T]o 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 research conducted by non-Service personnel. Research conducted by non-Service personnel is not a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57).

(b) Where would the use be conducted?
The location of the research will vary depending on the individual research project that is being conducted. The entire refuge may be made available for scientific research. An individual research project is usually limited to a particular habitat type, plant, or wildlife species. On occasion research projects will encompass an assemblage of habitat types, plants, or wildlife, or may span more than one refuge or include lands outside the refuge. The research location will be limited to those areas of the refuge that are absolutely necessary to conduct the research project. The refuge may limit areas available to research as necessary to ensure the protection of trust resources or reduce conflict with other compatible refuge uses. Access to study locations will be identified by refuge staff.

(c) When would the use be conducted?
The timing of the research will depend entirely on the individual research project's approved design. Scientific research would be allowed to occur on the refuge throughout the year. An individual research project could be short term in design, requiring one or two visits over the course of a few days. Other research projects could be multiple year studies that require daily visits to the study site. The timing of each individual research project will be limited to the minimum required to complete the project. If a research project occurs during the refuge hunting season, special precautions will be required and enforced to ensure the researchers' health and safety and so that conflicts with a priority public use (hunting) will be minimized or eliminated.

(d) How would the use be conducted?
The methods of the research will depend entirely on the individual research project that is conducted. The methods of each research project will be reviewed and scrutinized before it will be allowed to occur on the refuge. No research project will be allowed to occur if it does not have an approved scientific method, if it negatively impacts endangered species, migratory birds, other refuge trust resources, or if it compromises public health and safety. A research proposal form will be distributed to parties interested in conducting research on the refuge.

(e) Why is this use being proposed?
Research by non-Service personnel is conducted by colleges, universities, federal, state, and local agencienon-governmental organizations, and qualified members of the general public to further the understanding of the natural environment and to improve the management of the refuge's natural resources. Much of the information generated by the research is applicable to management on and near the refuge. In many cases research by non-Service personnel ensures the perception of un-biased and objective information gathering which can be important when using the research to develop management recommendations for politically sensitive issues. Additionally, universities and other federal partners can access equipment and facilities unavailable to refuge staff for analysis of data or biological samples.

The Service will encourage and support research and management studies on refuge lands that will improve and strengthen natural resource management decisions. The refuge manager will encourage and seek research relative to approved refuge objectives that clearly improves land management and promotes adaptive management. Priority research addresses information that will better manage the nation's biological resources and is generally considered important to: agencies of the Department of Interior; the Service; the National Wildlife Refuge System; and state fish and game agencies, and that addresses important management issues or demonstrates techniques for management of species and/or habitats.

The refuge will also consider research for other purposes which may not be directly related to refuge-specific objectives, but contribute to the broader enhancement, protection, use, preservation, and management of native populations of fish, wildlife and plants, and their natural diversity within the region or flyway.

The refuge will maintain a list of research needs that will be provided to prospective researchers or organizations upon request. Refuge support of research directly related to refuge objectives may take the form of funding, in-kind services such as housing or use of other facilities, direct staff assistance with the project in the form of data collection, provision of historical records, conducting management treatments, or other assistance as appropriate.

AVAILABILITY OF RESOURCES

The bulk of the cost for research is incurred in staff time to review research proposals, coordinate with researchers and write special use permits (SUP). In some cases, a research project may only require one day of staff time to write a SUP. In other cases, a research project may take an accumulation of weeks, as the refuge biologist must coordinate with students and advisors and accompany researchers on site visits. Because research conducted on the refuge is not constant, there may be fiscal years when little if any time is spent on managing outside research projects by refuge staff. However, over the last 10 years the refuge has typically hosted at least one outside research project on the refuge requiring an estimated three weeks of staff time support. This support includes review of the proposal by the refuge manager and biologist, consultation and coordination with principal researcher and field staff, issuance of SUP, review of progress reports and other daily operational communications.

Annual costs associated with the administration of permitting research by non-service personnel are estimated below:

Refuge Manager (GS 13): Review of research proposals, administration and consultation with refuge staff – 5 days = $1,360.00

Refuge Biologist (GS-12): Review of research proposals, administrative work, coordination with principal researcher and field crew, project monitoring and review – 2 weeks = $2,433.00

Refuge Biologist (GS-11): Administrative work, technical assistance, and support products – 5 days = $960.00

Equipment Operator (WG-10): Maintenance of housing facilities, coordination with field crew – 5 days $1,362.80

Grand Total Estimated Costs = $18,355.80

FY 2009 Budget Allocations:
- Employee Salaries and benefits = $624,039.53
- Fixed costs (utilities, fuel, administrative) = $211,415.23
- Base maintenance = $50,000
- Discretionary Funds (maps, printing, etc.) = $62,243.32
- Total Available Funds for FY 2009 = $947,698.08

Based on existing refuge expenditures for habitat management, funding is adequate to ensure compatibility and to administer and manage the subject use.

ANTICIPATED IMPACTS OF THE USE

The Service encourages approved research to further the understanding of natural resources. Research by other than Service personnel adds greatly to the information base for refuge managers to make proper decisions. Disturbance to wildlife and vegetation by researchers could occur through observation, mist-netting, banding, and accessing the study area by foot or vehicle. Mist-netting or other wildlife capture techniques, for example, can cause direct mortality through the capture method or in trap predation, and indirectly through capture injury or stress caused to the organism. Plant collection can also cause direct mortality of the target plant and can cause indirect mortality through the collection process.

Project-specific stipulations outlined in each SUP will act to minimize anticipated impacts of research projects. These stipulations will prevent impacts to wetlands, water quality, soils, and hydrology, or actions which would significantly affect fish, wildlife or habitat that the refuge was established to protect. Projects which occur within the habitat of, or include direct monitoring of, threatened and endangered species will be subject to a Section 7 informal consultation with the Service's West Virginia Field Office under the Endangered Species Act (87 Stat. 854, as amended; 16 U.S.C. 1531 et. seq). Only with the approval of the Section 7 consultation will the refuge permit research to be conducted on habitats or individuals of threatened and endangered species. Research that could adversely affect critical habitat or threatened and endangered wildlife will not be permitted.

The potential for user conflicts is minimal with research projects conducted on the refuge. Generally, most research occurs within closed areas and away from public use trails and facilities. During hunting seasons, hunters may encounter researchers in the field, or observe monitoring plots or other research infrastructure. However, these encounters would be infrequent due to the typically minimal presence of field technicians and interest in maintaining low profile infrastructure to prevent disturbance or vandalism of study sites.

Overall, allowing well designed and properly reviewed research to be conducted by non-Service personnel is likely to have very little impact on refuge wildlife populations or plant communities. If the research project is conducted with professionalism and integrity, potential adverse impacts are likely to be outweighed by the knowledge gained about a species, habitat or public use. Additionally, researchers are regularly required to present information to the public as a condition of the SUP issued by the refuge. This information can be a public presentation of field work, interpretive programs, and other materials detailing the research project and results. This is beneficial because it provides an opportunity for the public to understand and learn about the biological resources the refuge protects and manages.

PUBLIC REVIEW AND COMMENT

This compatibility determination will be released as an appendix to the draft Comprehensive Conservation Plan/Environmental Assessment for a 45-day public review and comment period.

DETERMINATION

_____ Use is Not Compatible

__X__ Use is Compatible With the Following Stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY

All researchers will be required to submit a detailed research proposal following Service policy (Service Refuge Manual Chapter 4 Section 6). The refuge must be given at least 45 days to review proposals before initiation of research. If collection of wildlife is involved, the refuge must be given 60 days to review and decide whether to approve the proposal. Proposals will be prioritized and approved based on need, benefit, compatibility, and funding required. The decision whether to approve any research proposal will be at the sole discretion of the refuge manager.

—SUPs will be issued for all research conducted by non-Service personnel. The SUP will list all conditions that are necessary to ensure compatibility. The SUP will also identify a schedule for annual progress reports and the submittal of a final report or scientific paper. The regional refuge biologists, other Service divisions, and state agencies may be asked to review and comment on proposals.

—All researchers will be required to obtain appropriate state and federal permits.

—All research projects will be designed to avoid significant impacts to hydrology, water quality, and soils.

—All research related SUPs will contain a statement regarding the Service's policy regarding disposition of biotic specimens. The current Service policy language in this regard (USFWS 1999) is,

> *"You may use specimens collected under this permit, any components of any specimens (including natural organisms, enzymes, genetic material or seeds), and research results derived from collected specimens for scientific or educational purposes only, and not for commercial purposes unless you have entered into a Cooperative Research and Development Agreement (CRADA) with us. We prohibit the sale of collected research specimens or other transfers to third parties. Breach of any of the terms of this permit will be grounds for revocation of this permit and denial of future permits. Furthermore, if you sell or otherwise transfer collected specimens, any components thereof, or any products or any research results developed from such specimens or their components without a CRADA, you will pay us a royalty rate of 20 percent of gross revenue from such sales. In addition to such royalty, we may seek other damages and injunctive relief against you."*

—Any research project may be terminated at any time for non-compliance with the SUP conditions, or modified, redesigned, relocated or terminated upon determination by the refuge manager that the project is causing unanticipated adverse impacts to wildlife, wildlife habitat, approved priority public uses, or other refuge management activities.

JUSTIFICATION

The Service encourages approved research to further understanding of refuge natural resources. Research by non-Service personnel adds greatly to the information base for refuge managers to make proper decisions. To protect habitat and wildlife, researchers are required to submit detailed research proposals. Proposals are reviewed and must be approved by refuge staff prior to implementation. In addition to the stipulations above, project-specific stipulations outlined in each SUP will act to minimize anticipated impacts of research projects. Projects which occur within the habitat of, or include direct monitoring of threatened and endangered species will be subject to an Intra-Service Section 7 consultation. Only with the approval of the Section 7 consultation will the refuge permit research to be conducted on habitats or individuals of threatened and endangered species. With the restrictions and approval process required to permit research activities this use will not prevent the refuge from meeting its purposes established by the Fish and Wildlife Act (1956) and the Emergency Wetlands Resources Act (1986) of ensuring the protection, conservation, management and restoration of the wetlands of Canaan Valley, or for the management and conservation of wildlife or their habitats. Stipulations will be designed to prevent impacts to migratory birds to ensure the refuge meets its obligations under the Migratory Bird Conservation Act (1929). In most cases the research will help guide refuge management to meet its purposes more effectively. For these reasons, we have determined that research conducted by non-Service personnel will not materially interfere with or detract from the mission of the National Wildlife Refuge System or the purposes for which the refuge was established.

Refuge Manager _____ _____
(Signature) (Date)

Concurrence

Regional Chief _____ _____
(Signature) (Date)

MANDATORY 10 YEAR RE-EVALUATION DATE

_____
(Date)

LITERATURE CITED

United States Fish and Wildlife Service (USFWS). 1979. Final Environmental Impact Statement - Acquisition of lands for the Canaan Valley National Wildlife Refuge, West Virginia. Department of the Interior - U.S. Fish and Wildlife Service.

U.S. Fish and Wildlife Service. 1994. Final Environmental Assessment - Acquisition of lands for the Canaan Valley National Wildlife Refuge, West Virginia. Department of Interior - U.S. Fish and Wildlife Service, Hadley, Massachusetts. 50 pp.

U.S. Fish and Wildlife Service. 1999. Director's Order No. 109: Use of Specimens Collected on Fish and Wildlife Lands. March 30, 1999.

COMPATIBILITY DETERMINATION

USE

Maintenance of a Utility Right-of-Way

REFUGE NAME

Canaan Valley National Wildlife Refuge

DATE ESTABLISHED

August 11, 1994

ESTABLISHING AND ACQUISITION AUTHORITY

The establishment of Canaan Valley National Wildlife Refuge (refuge) was first approved in an Environmental Impact Statement (EIS) released on May 30, 1979. However, the U.S. Fish and Wildlife Service (Service) decided to await the outcome of litigation surrounding a proposed storage hydroelectric facility before pursuing any further action. The approval of the refuge was affirmed by the Service in a 1994 Final Environmental Assessment and Finding of No Significant Impact on July 11, 1994, which confirmed the adequacy of the previously-approved 1979 EIS. The refuge was officially established when the first tract of land was acquired on August 11, 1994. The Service has acquired lands for the Canaan Valley refuge under the following authorities:

1. Fish and Wildlife Act of 1956 [16 U.S.C. 742f (a)(4)]

2. Emergency Wetlands Resources Act of 1986 [16 U.S.C. 3901b]

3. Migratory Bird Conservation Act of 1929 [16 U.S.C. 715d]

REFUGE PURPOSES

The refuge was established to ensure the ecological integrity of Canaan Valley and the continued availability of its wetland, botanical, and wildlife resources to the citizens of West Virginia and the United States (USFWS 1979, 1994). Additional refuge purposes as derived from the legislative authorities are as follows:

(1) "... for the development, advancement, management, conservation, and protection of fish and wildlife resources..." (Fish and Wildlife Act of 1956; 16 U.S.C. 742f (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 international obligations contained in various migratory bird treaties and conventions." (Emergency Wetlands Resources Act of 1986; 16 U.S.C. 3901(b)); and,

(3) "... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." (Migratory Bird Conservation Act of 1929; 16 U.S.C. 715d).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION

"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."

DESCRIPTION OF PROPOSED USE

(a) What is the use? Is the use a priority public use?
The use is the maintenance of a utility right-of-way (ROW) granted to Allegheny Power Company of Elkins, West Virginia in 2004 to accommodate a buried electric line from an existing electric pole on refuge land to a private residence adjacent to refuge land. The maintenance is necessary to ensure the buried electric cable remains functional. This use is not a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57).

(b) Where would the use be conducted?
The use occurs between the end of an existing utility easement on the south east corner of the Cooper tract (Tract 49) and the southern refuge boundary. This extension extends approximately 50 feet the existing utility easement and will accommodate a buried power line extending from an existing power pole to the refuge boundary and continuing on private land.

(c) When would the use be conducted?
The use is conducted by Allegheny Power on a periodic basis to inspect and maintain utility lines.
(d) How would the use be conducted?
The use is conducted by employees of Allegheny Power during scheduled and un-scheduled maintenance and monitoring visits. The use involves utility trucks traversing an existing refuge road to the site of a utility pole where a powerline extends approximately 50 feet underground across refuge land to a private residence located adjacent to the refuge boundary.

(d) Why is this use being proposed?
This use is being proposed to allow a local power company to maintain electric power across a short distance of refuge land. The alternative would be allowing the power line to deteriorate to an unsafe condition or cancelling the refuge's 2004 ROW agreement and removing the power line.

AVAILABILITY OF RESOURCES

The program is administered by the deputy refuge manager, resource impacts are monitored by the wildlife biologist, and maintenance and repair operations, when necessary are performed by a heavy equipment operator. Law enforcement when necessary is provided by a refuge officer.

Because vehicle access to the site is only necessary for monitoring and maintenance and these activities are only conducted irregularly it is expected that these costs will not be annual but sporadic. Assuming access is required, annual costs associated with the administration of vehicular access on the refuge are estimated below:

Coordination and administrative duties:

- GS-11/12 Deputy Refuge Manager for 1 work day = $278.72

Law enforcement, monitoring vehicle travel and interactions with other users, visitor services:

- GS-9 Park Ranger for 1 work day = $245.76

Monitoring environmental effects:

- GS-12 Wildlife Biologist for 1/2 work day = $183.76

Costs associated with the maintenance and monitoring of this utility ROW will be the responsibility of the applicant, not the Service. According to Service regulations (50 CFR 29.21-2)(3)(i) the entity who requests a ROW must "reimburse the United States for reasonable costs incurred by the Fish and Wildlife Service in the monitoring the construction, operation, maintenance and termination of facilities within or adjacent to the permit area." Because we will recover the costs of managing this use from the permittee Allegheny Power, resources are available to ensure that this use will remain compatible.

ANTICIPATED IMPACTS OF THE USE

This use would require periodic monitoring and maintenance of approximately a 50-foot strip across refuge land by Allegheny Power personnel. Regular maintenance and monitoring are not required for underground electric lines. Maintenance activities would be largely a result of emergency situations to repair damages and to minimize risk of failure through removal of woody vegetation. Any mowing or woody vegetation removal would only occur along the 50-foot length of the buried line, therefore concentrating the zone of disturbance to a small area. Therefore we do not anticipate adverse impacts to soils, vegetation or hydrology from vehicle or foot traffic. We also do not anticipate any impacts to wildlife, including threatened or endangered species, because the site requires so little maintenance, therefore minimizing the potential for wildlife disturbance.

This area is currently part of a refuge grassland unit which is mowed on a 3-5 year basis. As a result, no woody vegetation is permitted to become established. This tract is also planned to be under grassland management for the next 15 years based on recommendations in the refuge Comprehensive Conservation Plan. The small impact area would not affect grassland management capability or wildlife habitat. There would be no impacts to general public or to public safety. The site of the powerline (buried cable) is in an area that is closed to public access for most of the year. The area is open to hunters during the state hunting season. The site of the cable is within 50 feet of a home and is closed to hunting by state law. Hunting is not allowed within 500 feet of an occupied residence. No impacts from hunting activity or on hunting activity are anticipated.

DETERMINATION

_____ Use is Not Compatible

__X__ Use is Compatible With the Following Stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY

Allegheny Power will contact the refuge manager prior to accessing the site. If emergency conditions occur during times when contact with the refuge manager is not feasible, Allegheny Power will contact the refuge manager as soon as practical. No maintenance activities will be permitted during the breeding season of migratory birds, typically from late May through the middle of August.

JUSTIFICATION

Approximately 150 square feet of refuge land will be affected. The site will be accessed via an existing refuge road. The activity occurs in habitat that is already periodically mowed and maintained as grassland habitat, so no long-term changes to the habitat are expected.

This use was determined to be compatible in 2004. The continued maintenance of this 50 foot ROW is compatible provided the stipulations are implemented. Additionally, the area is currently being actively managed as grassland and will continue to be managed as such, as indicated in the refuge Comprehensive Conservation Plan. Therefore required maintenance for this ROW is being performed by the refuge in accordance with the grassland management program. Permitting this use is not anticipated to significantly reduce the quality or quantity or fragment habitats now or in future years. The amount of habitat disturbance

is inconsequential to the amount of similar habitat which remains protected. The use will not impose significant adverse effects on refuge resources, including the ability of the refuge to conserve and protect the wetlands of Canaan Valley as directed by the Emergency Wetland Resources Act (1986) or to conserve, manage and protect wildlife, plants and habitats as designated by the Fish and Wildlife Act (1956).The use does not occur on lands acquired under the Migratory Bird Conservation Act (1929). It will not interfere with public use of the refuge, nor will it cause an undue administrative burden. Because of the small scale of this use, and the fact that the land is already being managed to prevent woody encroachment and stipulations specified above, the use will not affect the refuge's ability to protect the ecological integrity of Canaan Valley as described in the 1979 EIS for the establishment of the refuge. This use will not materially interfere with or detract from the mission of the National Wildlife Refuge System nor diminish from the purposes for which the refuge was established.

Refuge Manager _____ _____
(Signature) (Date)

Concurrence

Regional Chief _____ _____
(Signature) (Date)

MANDATORY 10 YEAR RE-EVALUATION DATE

_____
(Date)

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