



Stakeholder Evaluation for Canaan Valley National Wildlife Refuge: Completion Report

By Natalie R. Sexton, Nina Burkardt, Margaret Earlene Swann, and Susan C. Stewart



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Stakeholder Evaluation for Canaan Valley National Wildlife Refuge: Completion Report

By Natalie Sexton¹, Nina Burkardt¹, Margaret Earlene Swann¹, and Susan Stewart²

Introduction

The National Wildlife Refuge System, established in 1903 and managed by the U.S. Fish and Wildlife Service (FWS), is the largest system of lands in the world dedicated to the conservation of wildlife. There are over 547 refuges nationwide, encompassing 96.5 million acres. The mission of the National Wildlife 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.” Part of achieving this mission is the goal “to foster understanding and instill appreciation of fish, wildlife, and plants, and their conservation, by providing the public with safe, high-quality, and compatible wildlife-dependent public use” (Director’s Order #132–601 FW1). About 98 percent of the system is open to the public, attracting nearly 40 million visitors annually. More than 25 million people per year visit refuges to observe and photograph wildlife, 8 million to hunt and fish and more than half a million to participate in educational and interpretation programs (Uniack, 1999).

The National Wildlife Refuge Improvement Act of 1997 (Public Law 105-57, USC668dd) is the guiding legislation for the management of these lands. The law identifies hunting, fishing, wildlife observation and photography, and environmental education and interpretation as uses that should be given priority and provides a process for ensuring that these and other activities do not conflict with the management purpose and goals of the refuge. The Act also requires the FWS to develop a comprehensive conservation plan (CCP) for every refuge by the year 2012. A refuge CCP outlines goals, objectives, and management strategies for the refuge for the next 15 years. It provides a vision and describes desired future conditions for the refuge. These goals and objectives have traditionally focused largely on habitat and wildlife management. Increasingly, however, refuges include visitor services goals and objectives in their CCPs to ensure that community and visitor appreciation and support for fish and wildlife conservation is a part of the refuge’s long-term plan.

Regardless of specific CCP goals and objectives, the National Environmental Policy Act (NEPA; Public Law 91–190:852–859.42, U.S.C. and as Amended [P.L. 94–52 and P.L. 94–83] 42 U.S.C. 4321–4347) mandates that the CCP for each refuge must contain an analysis of social and economic conditions (the affected environment) and evaluate social and economic impacts from likely management scenarios. In addition, public review and comment on alternatives for future management is required. There are many reasons to obtain public input besides legal mandates, however. Public input provides baseline data on public use, experience, preferences, and

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expectations. It can also provide managers with a better understanding of public acceptability and concerns of alternatives and future changes that may be proposed in the CCP. This public participation process also facilitates the engagement of a variety of stakeholders (defined as a party who affects or is affected by an organization's actions) in the refuge planning process.

There is some evidence that planning processes that include a broad array of stakeholders produce more comprehensive plans that are more likely to be implemented and accepted by the public (Beirele and Cayford, 2002; Burby, 2003). The challenge is structuring public participation in ways that are meaningful and productive for both agencies and the stakeholders.

The outcomes of a public participation process depend strongly on the way the process is organized and carried out. The design of a public participation process can be guided by four principles to guarantee a higher quality of deliberation:

- inclusiveness of participation,
- collaborative problem formulation and process design,
- transparency of the process, and
- good-faith communication (Dietz and Stern, 2008)

It is noted in the research literature that many successful public participation processes include both process components and outcome components (Chess and Purcell, 1999; Halvorsen, 2003; Tuler and Webler, 1999).

In regard to process, stakeholders seek accessibility to quality deliberation and full representation. They want a comfortable and convenient setting where processes are respectful of participants' time and include open discussions where they can initiate dialogue, as well as challenge and defend claims. Access to the best available information is important as well as having opportunities for learning (Chess and Purcell, 1999; Webler and Tuler, 2000).

In regard to outcomes, stakeholders need a sense of efficacy, to see that they have had the power to be effective in the public participation process. Decisionmakers need to show that they take public input seriously, and that the results of citizen input are reflected in the final decisions (McCool and Guthrie, 2001).

Bradbury, Branch, and Malone (2003) reiterate these needed criteria for both process and outcome success in the evaluation framework for public participation programs. The authors add that these criteria feed off of each other, may enhance relationships among stakeholders, and contribute to the stakeholders' ability to better provide informed input to decisions.

There are many options for designing/formatting public participation processes, but there are no concrete must-do steps for processes that guarantee successful outcomes. Dietz and Stern (2008) recommend choosing processes (formats, procedures) that are driven by the above principles while always taking into consideration the context-specific challenges (table 1).

In the CCP process, the public meeting is the forum primarily used to collect citizen input from community members, visitors, and potential visitors. This format can be inadequate for many reasons. Attendance at public meetings is often inconvenient or impossible for occasional visitors to refuges who frequently live long distances from the relevant FWS offices. In addition, those community members who most often attend meetings of this type may represent a vocal minority group that is not representative of the full range of community interests regarding the refuge. Also, the type of scientific baseline data that can be collected through this forum is limited.

Table 1. Classes of participation formats often used by government agencies (from Dietz and Stern, 2008).

Format Type	Breadth of Public Participation
Information Exchange (used both to inform and consult) Includes public hearings, comment periods, scoping meetings, focus groups, workshops, open houses, and listening sessions	Open access; often oriented toward individual citizens, but often includes interest group representatives
Involvement Includes citizen panels, deliberative polling, charettes, some advisory committees, citizen juries, study groups, town meetings, future search conferences, and online deliberation)	Predefined group selected to represent diverse perspectives; may include individual citizens or group representatives
Engagement (in both decisionmaking and collaborative action) Includes joint fact-finding, policy dialogues, negotiated rulemaking, blue-ribbon commissions, summits, community partnerships, and comanagement of projects or programs	Predefined to represent interested groups, sometimes geographically defined in the cases of partnerships or comanagement of projects to include stakeholders with local ecological knowledge

An Issues Workbook is another tool used by FWS for eliciting public response and participation early in the planning process. These workbooks are distributed to interested parties so they can provide written input on the CCP process. While the workbook can potentially gather broader input than the public meeting, responses many times represent a nonprobability or convenience sample (for example, the workbook is sent to available mailing lists) which is not selected from the entire population. This type of approach does not yield results that are representative of the entire population, due to the sampling approach.

A lesser used tool in CCP planning is a stakeholder evaluation. A stakeholder evaluation is one way that the CCP planning team can reach out to the public and collect information on community preferences and opinions. It is an effective supplement to a public meeting and(or) Issues Workbook when detailed, methodical information on stakeholder populations is needed. This type of research applied to refuge planning can help managers characterize current discourses and “conversations” around key topics related to refuge planning. It can also help managers understand how current and proposed management activities affect individuals in terms of their preference for services and experiences.

The purpose of this study was to provide a more meaningful public participation process for the Canaan Valley National Wildlife Refuge (henceforth Refuge). The U.S. Geological Survey (USGS) team of social scientists designed a stakeholder evaluation process that endeavored to meet the principles for higher quality public participation to improve the quality and legitimacy of decisions made regarding refuge’s long-term plan. The information from the stakeholder evaluation

will aid the Refuge in development of their CCP as they strive to balance stakeholder desires with their charge to manage the unique wetlands and uplands of the Canaan Valley for wildlife conservation.

Canaan Valley National Wildlife Refuge

Canaan Valley NWR is located in Tucker County, West Virginia, in the highest valley of its size east of the Rocky Mountains. Established in 1994, it was the 500th refuge in the National Wildlife Refuge System. The Refuge was established to preserve the unique wetlands and uplands of the high elevation valley. The 16,000-acre Refuge offers wildlife-dependent recreation opportunities, including wildlife observation and photography, hunting, fishing, environmental education, and nature programs. Climate and habitats in the valley are typical of areas much further north, with many plant and animal species at the southernmost edge of their ranges. The Refuge is home to at least four federally listed threatened or endangered species and is the largest single location for breeding snipe and migratory woodcock. Shorebirds, interior forest songbirds, raptors, and marsh birds also rely on the wetlands of the Refuge during spring and fall migration periods. Encompassing the headwaters of the Blackwater River, the area contains the largest freshwater wetlands in West Virginia.

Study Objectives

This report provides a summary of results for the stakeholder evaluation conducted for Canaan Valley National Wildlife Refuge in winter 2006–2007. This research was commissioned by the Northeast Region of the U.S. Fish and Wildlife Service in support of Canaan Valley National Wildlife Refuge and conducted by the Policy Analysis and Science Assistance Branch (PASA) of the U.S. Geological Survey/Fort Collins Science Center. We met with Refuge and planning staff in May of 2006 to determine the Refuge information needs related to stakeholders and to clarify the objectives of the stakeholder evaluation. The following questions were identified:

- Which Refuge management issues are most important, and to whom?
- How do opinions about what is most important to stakeholders overlap or conflict?
- Why do stakeholders emphasize specific issues, and what values are driving this?
- What potential solutions do stakeholders have for addressing important issues?

More specifically, the objectives of the stakeholder evaluation were to:

- clarify issues and obtain more detailed information about stakeholder preferences,
- allow stakeholders to prioritize issues from most important to least important,
- gather input about why stakeholders prioritize as they do, and
- provide means for stakeholders to become engaged in the planning process.

Methods

To answer these questions, we met with individuals involved in or having an interest in the Canaan Valley National Wildlife Refuge planning process. The meeting consisted of two parts: (1) an exercise called Q-Sort (McKeown and Thomas, 1988) using Q-methodology followed by

(2) an indepth followup discussion about the exercise and issues of concern. This included an opportunity for participants to use a refuge map to outline specific access preferences using magic markers and pens.

Q-methodology is a stakeholder evaluation method aimed at prioritizing key issues, identifying prevailing perspectives that exist among stakeholders, and identifying areas of consensus (general agreement) and conflict (general disagreement). What makes Q-methodology an effective tool for evaluating stakeholder perspectives is that it is not necessary to engage a large number of individuals, so long as the group represents the diversity of stakeholder perspectives. An overview of this methodology is provided below.

Primer on Q-Methodology

It was once thought that an individual's point of view was impossible to study precisely or systematically (McKeown and Thomas, 1988). However, Q-methodology allows a systematic and quantitative means to examine a complex problem from an individual's point of view (Donner, 2001). A key advantage of Q-methodology is that it allows respondents to communicate their own point of view (McKeown and Thomas, 1988). By employing this method with a diverse group of individuals, individual points of view are then "modeled" to reveal similar and dissimilar viewpoints on a topic of interest across the group of individuals.

Typically, in a Q-methodology study, a group of individuals are presented with a set of statements about a topic of interest; then individuals are asked to rank order the statements from their own point of view.

The key component of Q-methodology is sorting the statements (called a Q-sort). A Q-sort requires an individual to systematically rank-order a set of statements (for example, from strongly agree to strongly disagree) representing a range of viewpoints related to a particular issue or set of issues (Stephenson, 1978). The statements are opinion only (not fact), and the participant ranks the statements from his or her own point of view. The statements can be taken from actual oral or written communication of participants or from other sources. A comprehensive set of statements (usually hundreds) representing the full breadth of opinions is initially identified. This concourse of statements is then narrowed down to a manageable list that can be sorted by participants (usually 3–5 dozen statements). This set of 3–5 dozen statements is given to each participant. Participants are asked to read through all of the statements carefully and then sort them in rank order, usually on a scale of strongly agree to strongly disagree (see response sheet in the Appendix). Unlike a survey, where respondents are asked to answer each question in isolation of the others, Q-sorting requires that respondents react to statements in relation to all other statements. This sorting is usually followed by a debriefing or interview where each participant is able to elaborate on his or her Q-sort.

The data analysis for Q-methodology can be completed using most statistical analysis software packages. There are also programs designed specifically for Q-methodology. Regardless of the program, the statistical-analysis procedures are not unique to Q-methodology. Correlations between observations (the participants' Q-sorts) are derived, and a factor analysis is conducted.³ The factor analysis groups individual's sorts that exhibit similar patterns of responses. Each factor represents an idealized sort for those individuals whose Q-sorts most closely align with that factor.

³ Factor analysis is a statistical data reduction technique that assumes that it is possible to explain the correlation among objects by some underlying "factor." In Q-methodology, the objects are the individual's Q-sorts. Please see Nunnally and Bernstein (1994) for more information on factor analysis and(or) McKeown and Thomas (1988) for more information on factor analysis as it applies to Q-methodology.

We refer to these factor groupings as “perspectives” throughout this report. Unlike a survey where a representative sample is required to effectively interpret the results, in Q-methodology, the number of individuals who align with each perspective is not significant.

Once participants are grouped (and unique perspectives identified), additional information can be gleaned from this analysis, including the defining characteristics (or statements) for each perspective, the key differences among perspectives, and areas of likely consensus and potential conflict among perspectives. The information from the debriefing or followup interview is helpful in further interpreting these results.

Selecting the Statements

In the stakeholder evaluation for Canaan Valley NWR, one of the first steps was to select the statements for the Q-sort. To the extent possible, we wanted the statements used for the Q-sort exercise to be based upon the respondents’ own communications so they could mirror the opinions of the stakeholders of Canaan Valley National Wildlife Refuge. We used several sources for statements:

- Newspaper articles related to the Refuge from 1993–2006 from the *Parson’s Advocate*, *Charleston Gazette*, *Intermountain*, *Huntington Herald-Dispatch*, *Cumberland Times-News*, *Gazette-Mail* and *Highland’s Voice*;
- U.S. Fish and Wildlife Service Canaan Valley NWR planning documents (for example, Station Management Plan and Compatibility Determinations);
- Other pertinent brochures and information from such sources as Canaan Valley Institute, Friends of the 500th, and Outdoor America;
- Public comments from Canaan Valley NWR CCP Open Houses;
- Responses from the Canaan Valley NWR CCP Issues Workbook; and
- Answers to the four questions we asked stakeholders in the stakeholder evaluation invitation.

We methodically reviewed these sources using both a deductive and inductive approach. We looked for passages, statements, and quotes that were relevant to key issues identified as important considerations in the planning process by Refuge staff. We also looked for patterns in statements that represented other issues. Through this review, we collected 320 statements covering 20 issues related to the Refuge’s planning and management. Through further review of the statements and issues, we refined the list of 20 issues to the following 7:

- Watershed/Habitat Protection (with subcategories of watershed protection, species of interest, habitat management, and general preservation/protection),
- Access (with subcategories of general access, trail connectivity, and mountain biking),
- Hunting,
- Land Acquisition,
- Environmental Education,
- Economic Development (with subcategories of real estate development and economic development through tourism), and

- Process (which included all statements related to the planning process, communication, past history and relationship-building).

Once these issues were refined, we selected statements from the 320 that best represented the range of opinion on each issue and were the most unambiguous and clear. We chose 47 statements for the Q-sort (table 2). Though slight rewording of some statements was necessary for clarity, most statements were kept verbatim as they had appeared in their original source. Forty-seven statements were chosen because the ranking scheme was –5 to +5 with a forced normal distribution, meaning only a certain number of statements could be assigned to each number in the scale (see fig. 1). Two statements could be assigned to each extreme (+5 and –5), three statements for the next extreme, and the most statements (seven) could be placed in the neutral (0) category (fig. 1).

Table 2. Statements for Canaan Valley stakeholder evaluation listed by key issue.

Statement Number	Statements
Habitat/Watershed Protection	
1	The Refuge should manage for recovery and restoration of the great forests that once covered the area.
8	The control and eradication of invasive species should not be a high management priority for the Refuge.
11	It is important to ensure the continued protection of the diverse wetland complex on the Refuge.
17	Since the Refuge comprises the largest wetland in West Virginia, monitoring and protecting water quality is of primary importance.
18	It is imperative that the Refuge find ways to increase deer harvesting to protect the fragile, significant and in some cases rare plant communities.
20	The Refuge should help grassland bird populations recover and ensure their success in the future.
23	The thing I value most about the Refuge is knowing the area will be preserved and better managed for grouse/woodcock.
25	The Refuge should be for wildlife and not a playground for tourists lured by the promise of being able to hike, bike, backpack, or ski on land that once upon a time could be used by anyone.
27	It is important to maintain plant and animal habitat connections between Refuge lands and neighboring Monongahela National Forest and Canaan Valley State Park lands.
35	While the community wants the Refuge to be a shining example of why we need to protect and conserve our wildlife resources, the decisions and implementation of decisions have been contrary to this process.
37	The Refuge should do more to protect threatened and endangered species such as the Cheat Mountain salamander and the West Virginia northern flying squirrel.
40	By preserving wildlife resources the Refuge maintains the scenic beauty and quality of life valued by those who live, visit, or vacation in the area.
41	I value the role the Refuge plays in conserving and restoring West Virginia's streams and rivers.
43	The most important problem facing the Refuge is keeping the "tree-huggers" from taking it over.
44	Wilderness designation should be obtained for portions of the Refuge to protect fragile environments and allow natural processes to restore the area.
Access	
6	In some cases there are sections of trails that have been degraded to the point where use of mountain biking just shouldn't continue.
12	Continuous, looped and easy trails should be provided on the Refuge.
14	A trail that crosses the valley is important because the close contact with our wetlands would be a moving experience that would help visitors care more for the resource.
16	I support biking corridors through the Refuge. These corridors are vitally important links in the recreational trail system that connects Tucker County's communities, parks, and forests.

Table 2 (Continued). Statements for Canaan Valley stakeholder evaluation listed by key issue.

Statement Number	Statements
Access	
19	It is important that any new trails the Refuge creates are compatible with the "wildlife first" mission of the National Wildlife Refuge system.
21	Access to the Refuge should be improved through the restoration of historic railroad grades. These would allow a great variety of habitat to be seen without leaving the trail system, thereby avoiding damage to the bogs.
22	Bicyclists don't need access to the Refuge because they have plenty of other places in the county to ride—highways, roadways, state parks, national forests, and taxpayer-funded bike trails.
24	I support low impact mountain biking on the Refuge.
29	I believe access through the Refuge creating a connected trail system will support exceptional recreational opportunities and will provide economic benefits to local businesses.
30	I strongly support the Refuge's purpose. It is important to continue to resist the desire of some locals to expand human activity on the Refuge and turn it into a National Forest "land of many uses."
33	Minimizing the impact to wetlands should be the driving factor in determining access to the Refuge.
38	I support a hiking trail crossing the valley that would connect Forest Service lands to Dolly Sods Wilderness Area.
42	We need better access for all people (handicapped, families, elderly, and mainstream people) not just die-hard fitness types.
45	I support new ideas for providing reasonable access while protecting fragile ecosystems, for example, guided hikes by experts, fencing fragile areas near trails, building boardwalks, and/or a permit system for backcountry use.
Hunting	
2	It is unfair that hunters using the Refuge have off-trail access, while other users must stay on the trails.
3	The Refuge should increase the deer harvest by developing trails to make it easier for hunters to access the Refuge interior.
5	Woodcock hunting should be banned on the Refuge.
13	I would like to see more areas within the Refuge designated as nature viewing areas, with no hunting, fishing or dogs allowed.
32	The thing I value most about this Refuge is that it is one of few places in the state to hunt woodcock.
Process	
15	It is critical, as part of the Refuge planning process, to repair the deep-rooted mistrust of the U.S. Fish & Wildlife Service.
26	The most important problem facing the Refuge is lack of funding to provide services.
28	The most important issue in this planning process is to establish a meaningful method of creating dialogue between the Refuge and the local community.
36	Refuge staff should meet with a committee of local interests on a regular basis to discuss and recommend solutions to issues before decisions are made so that local perspectives are integrated into the planning process.
47	It is important for the Refuge to provide the research, evidence, or logic behind management decisions.
Economic Development	
4	It is important to minimize development pressures in and around the Refuge to prevent loss of wildlife and plant habitat.
9	The Refuge is a key part of the economic development picture for the Canaan Valley, Tucker County, and the West Virginia Highlands because it supports local businesses and draws tourists from all over the world.
10	Tucker County should not rely on tourism for all of its business; tourism should be balanced with industry.
31	Development, rather than preservation, would be in the best interest of the valley.
Land Acquisition	
39	We will never have a decent tax base in our county if the government is not stopped from grabbing up all our land.
46	I support the Refuge acquiring lands within the acquisition boundary to help protect wildlife habitats.
Environmental Education	
7	One of the most important Refuge issues is the lack of an adequate visitor center and the lack of available Refuge personnel to present programs or answer questions.
34	The Refuge should provide more education about its unique habitats through self-guided and guided trail walks.

Identifying Participants

The next step in the stakeholder evaluation was to identify the key groups and individuals with an interest or role in the Canaan Valley National Wildlife Refuge CCP process. We developed this initial list through an extensive search of Web sites, planning documents, and local newspaper articles from 2002–2005 related to the Refuge and its planning. A technique called snowball sampling was used to develop the stakeholder sample. As each Web site was considered and reviewed, any links to other Web sites were investigated. Once an individual stakeholder or stakeholder group was mentioned at least three times within any of these sources, they were considered part of the sample. Seven categories of stakeholders were identified:

- individuals (not affiliated with a specific stakeholder group);
- local businesses;
- nongovernmental organizations;
- academia;
- Federal government (including FWS Regional and Refuge staff);
- State government; and
- local government.

For many of the stakeholder groups, we were able to identify the representative or representatives for each group. We “ground-truthed” this list with Refuge staff and collectively identified specific individuals for stakeholder groups for which we had been unable to identify a representative. We invited 100 identified stakeholders to meet with us one-on-one at Canaan Valley State Park (table 3).

Inviting Participants

We invited the 100 identified stakeholders to meet with us in late winter of 2007. Individuals were invited via e-mail (those without e-mail were invited via mail) and asked to participate in a stakeholder meeting where they would have an opportunity to clarify and prioritize issues and preferences for future Refuge management in a one-on-one setting. In this invitation, we also asked stakeholders to answer the following four questions related to Refuge planning.

1. From your perspective, what are the most important issues that the Refuge should address in its planning process?
2. For each issue you listed in Question 1, please tell us why this is an important issue to you.
3. What opportunities do you think exist that could help resolve the issues you listed?
4. In your opinion, what are the biggest obstacles to resolving the issues you listed?

We followed a modified Dillman Method (Dillman, 2000; a method traditionally used for surveys to ensure high response rate) to follow up with those who did not respond initially to ensure that we had the greatest level of participation. This involved two followup invitations to nonrespondents and a final phone call followup. Stakeholders who responded were assigned a time to meet with us at the Canaan Valley State Park Conference Center.

Table 3. List of stakeholder groups who were identified in the stakeholder evaluation for Canaan Valley National Wildlife Refuge.

Stakeholder Group	# Invited
Individuals	18
Local Businesses	19
Adams Blackwater Realty	
Davis High Valley Realty	
Blackwater Bikes	
Bright Morning Inn Bed and Breakfast	
Canaan Valley Realty	
Highland Prospects	
Highland Scene Tours	
Landis Realty	
Mountain Trail Rides	
Mountaintop Realty	
Sirianni's Café	
The Purple Fiddle	
Timberline Four Seasons Resort	
Timberline Resort Realty	
Tucker County Rotary Club	
White Grass Lodge (White Grass Touring Center)	
Windwood Resort	
Nongovernmental Organizations	21
Campaign for America's Wilderness	
Canaan Valley Institute	
Friends of Blackwater Canyon/Friends of the Blackwater	
Friends of the 500th	
Mountain Top Hunting Club	
National Audubon Society: West Virginia Chapter	
Ruffed Grouse Society	
Sierra Club: West Virginia Chapter	
The Nature Conservancy	
Tucker County Trails	
Vandalia Heritage Foundation	
West Virginia Conservation Fund	
West Virginia Highlands Conservancy	
West Virginia Mountain Biking Association	
West Virginia Rivers Coalition	
West Virginia Wilderness Coalition	
Woodcock Limited	

Stakeholder Group	# Invited
Academia and Other	5
Davis & Elkins College	
Timberline Home Owners Association	
Federal Government	23
Canaan Valley NWR	
Environmental Protection Agency	
National Natural Landmark Program (NNLP)	
NOAA Air Resources Laboratory	
U.S. Army Corps of Engineers	
U.S. Congress	
U.S. Senate	
USDA-FS, Fernow Experimental Station	
USDA National Forest: Monongahela National Forest	
U.S. Fish and Wildlife Service Northeast Region	
State Government	7
Canaan Valley State Park	
West Virginia Department of Environmental Protection	
West Virginia Division of Natural Resources	
West Virginia Senate District	
West Virginia State Parks	
Local Government	7
Town of Davis	
Town of Thomas	
Tucker County Chamber of Commerce	
Tucker County Commission	
Tucker County Development Authority	
Tucker County Planning Commission	
TOTAL	100

Meeting with Stakeholders

Of the 100 stakeholders invited, 63 (63 percent) participated. Nearly all stakeholders met with us at Canaan Valley State Park Conference Center February 28–March 3, 2007. We met with a small number of stakeholders who were not available during that timeframe by telephone in early Spring 2007.

The Q-Sort Exercise

To begin the process with each stakeholder, we introduced them to the purpose and instructions for the Q-sort exercise. Once instructions were given, we handed participants a set of 47 small cards, each with one statement printed on it. We asked each participant to sort the cards by rank ordering them using a response sheet from +5, strongly agree, to –5, strongly disagree. Two statements could be assigned to each extreme (+5 and –5), three statements for the next extreme, and the most statements (seven) could be placed in the neutral category (see fig. 1).

The Followup Discussion

After each stakeholder completed the Q-sort exercise, we met with them in order to gain a richer understanding of their Q-sort and their opinions regarding Refuge issues. Conversations with stakeholders varied from 30 minutes to over 2 hours. These conversations were tape recorded (with permission), but not transcribed, for the purposes of clarification and consultation during the analysis phase of the study. During conversations, stakeholders were offered a Refuge map to mark their preferences and concerns. Through these conversations we wanted to learn:

- The statements they most agree with and why.
- The statements they most disagree with and why.
- For those issues of most concern to them, the solutions they see to addressing those.
- While deciding what statements they agreed or disagreed with, any trade-offs that were required.
- Whether their concerns were adequately represented by the statements in the Q-sort.

Analyzing the Data

For the first part of our analysis, we used freeware PQMethod (Atkinson, 2002) to analyze stakeholders' Q-sorts and identify dominant perspectives on the identified issues. To identify these perspectives, we ran a principal components factor analysis, using varimax orthogonal rotation (a rotation method that simplifies the interpretation of factors). We based the number of factors on the statistical significance of each factor and the amount of variance it explained.⁴ Key output from the statistical analyses is included in the Appendix.

In addition to the statistical analysis, we relied upon the information gleaned from the followup discussions to better describe each perspective. The statistical analysis provided us with the statements (and associated scores) that best characterize that perspective and the individuals that are most closely associated with that perspective. Information from the followup discussions

⁴ To be considered, a factor had to have an Eigen Value of 2.0 or above and contribute at least 5 percent individually to the explained variance of the solution. Please see Nunnally and Bernstein (1994) for more information on factor analysis and(or) McKeown and Thomas (1988) for more information on factor analysis as it applies to Q-methodology.

provided us with a more qualitative understanding of the reason behind their points of view and the underlying values driving those perspectives.

A second part of our analysis was to discern the values underlying each perspective. To accomplish this, we reviewed the taped followup discussions with stakeholders and the reasons given for why they ranked statements as they did. Through systematic examination of these responses, we identified a list of eight potential natural resource and environmental values, based on the work of King (1966) and Kellert (1993):

- Aesthetic value — sees the beauty of nature and has an emotional attachment.
- Moralistic value — has an ethical concern and a spiritual reverence for wildlife and nature.
- Ecological/Scientific value — recognizes the interdependence of wildlife, habitats, and ecological processes in nature and the importance of studying these relationships.
- Recreational value — benefits from directly interacting with wildlife and nature in the outdoors.
- Social value — recognizes the societal benefits from wildlife and nature to quality of life.
- Utilitarian value — views wildlife and nature for the benefit of humans.
- Commercial value — considers the economic benefits or costs associated with wildlife and nature.
- Negative value — holds negative emotions toward wildlife and nature.

A third part our analysis was to identify areas of likely consensus and potential conflict, based on the ranking of statements across perspectives. This analysis is described in more detail in the Results. Lastly, we summarized possible solutions to key issues that stakeholders offered during followup discussions.

Results

Stakeholder Perspectives

Five factors emerged from the data analysis. These five perspectives are summarized in table 4 and described in detail in the following sections. They represent the unique points of view or “conversations” around the key Refuge planning issues mentioned earlier in this report. While these perspectives are statistically unique, there is some overlap in the points of view represented by each of these perspectives (see the inter-factor correlations in the Appendix for the numerical correlations between perspectives).

The five prevailing perspectives related to key Refuge issues are:

- Ecological Preservation;
- Recreational Access;
- Traditional Wildlife Management;
- Wildlife First, Recreation Second; and
- Economic Development.

Each perspective description is followed by a table that identifies the statements for which individuals within that perspective most agree (rated +3 to +5) and most disagree (–3 to –5). Also included in the table are additional statements that are distinguishing for that perspective

(statements ranked significantly differently from other perspectives—for example, higher or lower than the overall average) and the predominant values for each perspective.

In the appendix is a table of all of the statements in numerical order with the average scores for each perspective. This table is helpful for comparing statement scores across perspectives (Appendix, table A-4).

Perspective 1: Ecological Preservation

The 10 stakeholders in this perspective included five members of nongovernmental organizations, two representatives of the State government, two people representing the Federal government, and one stakeholder from the community at large. Table 5 summarizes the average ranking for key statements by this perspective.

This perspective emphasizes protecting wildlife and habitats. Wetland protection is especially important, with stakeholders agreeing most strongly with statements related to the conservation, restoration, or protection of wetlands. This support does not appear to be Refuge-specific, but is related more to the effect the Refuge might have on the health of wetlands outside its boundaries. Strong positive rankings of the statements “Since the Refuge comprises the largest wetland in West Virginia, monitoring and protecting water quality is of primary importance” (statement #17) and “I value the role the Refuge plays in conserving and restoring West Virginia’s streams and rivers” (#44) reflect this attitude.

Stakeholders with this perspective feel it is important to maintain plant and habitat connections between Refuge lands and adjacent public lands. This perspective places a greater emphasis on managing for habitat and wildlife than on managing for recreational opportunities. Stakeholders in this group are not opposed to public access, but believe that “minimizing the impact to wetlands should be the driving factor in determining access” (#33).

They do not support pursuing economic development at the expense of preservation. This sentiment is captured by a positive ranking of the statement, “It is important to minimize development pressures in and around the Refuge to prevent loss of wildlife and plant habitat” (#4).

Hunting is not a high priority with this group. Followup discussions indicate that there is not an opposition to hunting per se, but that hunting issues are secondary to overall ecosystem management. Unlike other perspectives, this perspective did not agree that deer harvesting should be increased to protect fragile or rare plant communities. Stakeholders with this perspective disagree with statements emphasizing one type of hunting, for example, woodcock hunting, due to the emphasis on single species management.

This group reports overall satisfaction with current opportunities for public input, and feels that a public forum is *not* the place for biological decisions to be made.

Stakeholders with this perspective hold an *ecological/scientific* value related to wildlife and nature, with an emphasis on the benefit that wildlife and habitats contribute to the larger ecosystem and a desire to study these relationships. They also appear to value the *aesthetic* qualities of wildlife and nature, appreciating the beauty both provide and have a *moralistic* concern for and connection to wildlife and nature. This is evidenced by the positive ranking of the statement, “By preserving wildlife resources the Refuge maintains the scenic beauty and quality of life valued by those who live, visit, or vacation in the area” (#40).

Table 4. Summary of stakeholder perspectives and values from Canaan Valley National Wildlife Refuge stakeholder evaluation. (Summary bullets based on 47 statements sorted by stakeholders.)

Perspective	This Perspective Agrees That...	This Perspective Does Not Agree That...	Values ^a
Ecological Preservation	<ul style="list-style-type: none"> The Refuge plays an important role in conserving, restoring, and protecting wetlands. The Refuge needs to monitor and protect water quality that affects the region. Wetland protection should be the driving force in determining access. Monitoring and controlling invasive species is important. Plant and habitat connections with other public lands are important. Land acquisition is important to help protect wildlife habitats. 	<ul style="list-style-type: none"> Federal land management is a problem; economic woes would be alleviated if more development were allowed. Increasing access is more important than ecosystem health. Managing for game and increasing hunting access is of paramount concern. 	Aesthetic Ecological/Scientific Moralistic
Recreational Access	<ul style="list-style-type: none"> Trail connectivity to other public lands through use of a variety of old and or new trails, rails, and boardwalks is important. Easy trails for young families, the elderly, and the disabled are important to the community. A well designed bike corridor can exist within the Refuge when using science and new technologies. Improved access will create appreciation of resources and support for Refuge. Feasibility studies by experts are important. The local community is eager to work as volunteers on building, monitoring, and maintaining trails. Problems with poor communication and lack of trust must be addressed. Tourism, especially when it depends on federal lands, is in the best economic interests of the Valley. 	<ul style="list-style-type: none"> Mountain bikers have plenty of places to ride so they do not need access to the Refuge. The “wildlife first” mission of the FWS should be the one and only guide for management decisions. If trails are degraded, closing them is the best answer to the problem. Federal land management is a problem; economic woes would be alleviated if more development were allowed. Wilderness designation is desirable. 	Aesthetic Recreational Social Utilitarian
Traditional Wildlife Management	<ul style="list-style-type: none"> The “wildlife first” mission of the FWS should guide management decisions. The Refuge should manage for grouse and woodcock. Deer harvest should be managed to protect Refuge resources. Land acquisition to support management goals is important. Improving access is acceptable, especially by railroad grades, as long as wildlife is protected. 	<ul style="list-style-type: none"> Federal land management is a problem; economic woes would be alleviated if more development were allowed. Wilderness designation is desirable. Hunting should be limited in some parts of the Refuge. 	Ecological/Scientific Recreational Utilitarian
Wildlife First, Recreation Second	<ul style="list-style-type: none"> The “wildlife first” mission of the FWS should guide management decisions. Watershed and habitat protection are primary concerns. Land acquisition to support management goals is important. Reasonable access is acceptable, as long as resources are protected. Communication and relationship building with the local community is important. It is important for the Refuge to provide research and logic behind management decisions. It is important to provide more education about the Refuge’s unique habitats. 	<ul style="list-style-type: none"> Hunting, except for the purposes of managing deer populations, is a high priority. Federal land management is a problem; economic woes would be alleviated if more development were allowed. Biking corridors through the refuge are vitally important links in the recreational trail system that connects Tucker County. 	Aesthetic Ecological/Scientific Recreational Social
Economic Development	<ul style="list-style-type: none"> Problems with poor communication and lack of trust must be addressed up front. Tourism, especially when it depends on federal lands, is not in the best economic interests of the Valley—need to also pursue industry. Access should be increased. The Refuge plays an important role in protecting wetlands. 	<ul style="list-style-type: none"> The Refuge should acquire more land. The Refuge is under-funded. The Refuge makes an important economic contribution to the Valley. 	Aesthetic Commercial Negative Utilitarian

^a Listing does not represent any order.

Table 5. Summary profile for Ecological Preservation perspective. Statements listed include those rated as agree (+3 to +5) or disagree (–3 to –5) plus any distinguishing statements (in bold). Distinguishing statements are those ranked significantly different from other perspectives (higher or lower than overall average).

Statement Number	Statements	Ranking Score
41	I value the role the Refuge plays in conserving and restoring West Virginia's streams and rivers.	5
27	It is important to maintain plant and animal habitat connections between Refuge lands and neighboring Monongahela National Forest and Canaan Valley State Park lands.	5
1	The Refuge should manage for recovery and restoration of the great forests that once covered the area.	4
17	Since the Refuge comprises the largest wetland in West Virginia, monitoring and protecting water quality is of primary importance.	4
11	It is important to ensure the continued protection of the diverse wetland complex on the Refuge.	4
33	Minimizing the impact to wetlands should be the driving factor in determining access to the Refuge.	3
40	By preserving wildlife resources the Refuge maintains the scenic beauty and quality of life valued by those who live, visit, or vacation in the area.	3
30	I strongly support the Refuge's purpose. It is important to continue to resist the desire of some locals to expand human activity on the Refuge and turn it into a National Forest "land of many uses."	3
4	It is important to minimize development pressures in and around the Refuge to prevent loss of wildlife and plant habitat.	3
46	I support the Refuge acquiring lands within the acquisition boundary to help protect wildlife habitats.	2
15	It is critical, as part of the Refuge planning process, to repair the deep-rooted mistrust of the U.S. Fish & Wildlife Service.	–2
18	It is imperative that the Refuge find ways to increase deer harvesting to protect the fragile, significant, and in some cases rare plant communities.	–2
36	Refuge staff should meet with a committee of local interests on a regular basis to discuss and recommend solutions to issues before decisions are made so that local perspectives are integrated into the planning process.	–3
35	While the community wants the Refuge to be a shining example of why we need to protect and conserve our wildlife resources, the decisions and implementation of decisions has been contrary to this process.	–3
23	The thing I value most about the Refuge is knowing the area will be preserved and better managed for grouse/woodcock.	–3
3	The Refuge should increase the deer harvest by developing trails to make it easier for hunters to access the Refuge interior.	–3
8	The control and eradication of invasive species should not be a high management priority for the Refuge.	–4
32	The thing I value most about this Refuge is that it is one of few places in the state to hunt woodcock.	–4
43	The most important problem facing the Refuge is keeping the "tree-huggers" from taking it over.	–5
39	We will never have a decent tax base in our county if the government is not stopped from grabbing up all our land.	–5
31	Development, rather than preservation, would be in the best interest of the valley.	–5

Perspective 2: Recreational Access

The 14 stakeholders that most closely align with this perspective include three community members at large, nine local business owners, four representing recreational nonprofits, and one local government official. Table 6 summarizes the average ranking for key statements by this perspective.

Stakeholders associated with this perspective place the greatest emphasis on recreational access to the Refuge. They are interested in creating a recreational corridor through the Refuge that connects to other public lands. They embrace a larger landscape perspective that includes trail connectivity, while supporting continuous, looped, and easy trails on the Refuge geared toward families, the elderly, and the disabled. There is a strong belief that increasing access could be designed to minimize impacts to wetlands. One stakeholder said, “I believe you can minimize impact on wetlands and have hiking, biking, horseback riding, and hunting, if we have good, well-designed, well-built trails.” Followup discussions revealed a desire by many in this perspective to see feasibility studies by experts to determine best access choices. At the time of this research, a feasibility study had not been conducted. Also, they believe the use of new technologies to build and/or improve trails could minimize impacts and allow the trails to be sustainable.

For this group, trail connectivity is paramount and the refuge is seen as an essential hub for bike trail tourism in this region. But using new science and technologies is seen as a necessity if mountain biking is to be doable on the refuge, according to some. This group also strongly agrees with the statement, “I support biking corridors through the Refuge because these corridors are vitally important links in the recreational trail system that connects Tucker County’s communities, parks, and forests” (statement #16). This group most strongly disagrees with the statement, “Bicyclists don’t need access to the Refuge because they have plenty of other places in the county to ride” (#22). This Recreational Access perspective also agrees with the statement “A trail that crosses the valley is important because the close contact with our wetlands would be a moving experience that would help visitors care more for the resource” (#14). One stakeholder stated, “If people can’t see it, touch, or feel it in one way or another, they will have a hard time appreciating it, and they won’t care enough to protect it.”

Secondary to access is meaningful participation in Refuge planning. As the current planning process proceeds, stakeholders in this group want to know what is happening and want a chance to share their ideas, concerns, and recommended solutions to issues before decisions are made.

This perspective does not favor development. This is reflected by the negative ranking of the statement, “Development, rather than preservation, would be in the best interest of the valley” (#31). Also this group does not favor wilderness designation, “...to protect fragile environments and allow natural processes to restore the area” (#44). One participant’s statement, “Wildlife first but not wildlife only,” supports this.

For most stakeholders holding this perspective, the desire for access is driven by their *recreational* value that emphasizes the physical and mental health benefits from outdoor activities. Most believe that outdoor experiences improve their quality of life (*social* value). Through outdoor recreation, they enjoy the *aesthetic* beauty of wildlife and nature. And many share the *utilitarian* value of natural resources, using resources for human benefit and consumption.

Table 6. Summary profile for Recreational Access Perspective. Statements listed include those rated as agree (+3 to +5) or disagree (-3 to -5) plus any distinguishing statements (in bold). Distinguishing statements are those ranked significantly different from other perspectives (higher or lower than overall average).

Statement Number	Statements	Ranking Score
12	Continuous, looped, and easy trails should be provided on the Refuge.	5
29	I believe access through the Refuge creating a connected trail system will support exceptional recreational opportunities and will provide economic benefits to local businesses.	5
16	I support biking corridors through the Refuge. These corridors are vitally important links in the recreational trail system that connects Tucker County's communities, parks, and forests.	4
21	Access to the Refuge should be improved through the restoration of historic railroad grades. These would allow a great variety of habitat to be seen without leaving the trail system, thereby avoiding damage to the bogs.	4
14	A trail that crosses the valley is important because the close contact with our wetlands would be a moving experience that would help visitors care more for the resource.	4
38	I support a hiking trail crossing the valley that would connect Forest Service lands to Dolly Sods Wilderness Area.	3
36	Refuge staff should meet with a committee of local interests on a regular basis to discuss and recommend solutions to issues before decisions are made so that local perspectives are integrated into the planning process.	3
15	It is critical, as part of the Refuge planning process, to repair the deep-rooted mistrust of the U.S. Fish & Wildlife Service	3
9	The Refuge is a key part of the economic development picture for the Canaan Valley, Tucker County, and the West Virginia Highlands because it supports local businesses and draws tourists from all over the world.	3
28	The most important issue in this planning process is to establish a meaningful method of creating dialogue between the Refuge and the local community.	2
42	We need better access for all people (handicapped, families, elderly, and mainstream people) not just die-hard fitness types.	2
19	It is important that any new trails the Refuge creates are compatible with the "wildlife first" mission of the National Wildlife Refuge system.	-2
5	Woodcock hunting should be banned on the Refuge.	-3
39	We will never have a decent tax base in our county if the government is not stopped from grabbing up all our land.	-3
43	The most important problem facing the Refuge is keeping the "tree-huggers" from taking it over.	-3
44	Wilderness designation should be obtained for portions of the Refuge to protect fragile environments and allow natural processes to restore the area.	-3
31	Development, rather than preservation, would be in the best interest of the valley.	-4
30	I strongly support the Refuge's purpose. It is important to continue to resist the desire of some locals to expand human activity on the Refuge and turn it into a National Forest "land of many uses."	-4
6	In some cases there are sections of trails that have been degraded to the point where use of mountain biking just shouldn't continue.	-4
25	The Refuge should be for wildlife and not a playground for tourists lured by the promise of being able to hike, bike, backpack, or ski on land that once upon a time could be used by anyone.	-5
22	Bicyclists don't need access to the Refuge because they have plenty of other places in the county to ride--highways, roadways, state parks, national forests, and taxpayer-funded bike trails.	-5

Perspective 3: Traditional Wildlife Management

Five stakeholders were identified with the Traditional Wildlife Management perspective. They represent two nongovernmental organizations, two Federal government agencies, and one State government agency. Table 7 shows the average ranking of statements by this perspective.

This perspective supports traditional wildlife management, with an emphasis on managing game species such as deer, grouse, and woodcock. Some stakeholders point to the fact that a foundational purpose of the Refuge is to protect woodcock habitat. Within this perspective there is more support for grassland management than for restoration of the great forests of the past.

This perspective supports an increase in deer harvest (both for recreation and for protecting Refuge resources) and an increase in hunter access. Stakeholders in this group believe in the wildlife conservation mission of National Wildlife Refuge System, support the Refuge's need to protect wetlands, and are in favor of land acquisition. They are not supportive of wilderness designation because they believe that current management practices provide adequate protection.

Stakeholders in this group have varied opinions about Refuge recreational access. Most appear to value the recreational uses of the Refuge, though some believe those uses should be limited to those that directly support the Refuge mission. Others support increased access and believe if trails are properly constructed, recreational use will not damage Refuge resources: "If trails are properly built, all access is low impact." Others suggest that a more extensive trail system will disperse users and result in less damage to the Refuge. Like those in Perspective 2, Recreational Access, some believe that involving community members in building and maintaining trails creates a core group of people who care about the trail system, will monitor use, and will informally patrol the trails.

This group is concerned about development in the valley and does not believe that tourism is the answer to the area's economic challenges.

While they recognize there have been strained relationships between the Refuge and the community, people with this perspective feel Refuge decisions should be centered on scientific information and not necessarily focused on public wishes.

This perspective holds a predominantly *utilitarian* value of natural resources, using resources for human benefit and consumption. Closely tied to this is a *recreational* value, as stakeholders benefit greatly from interacting with wildlife and nature in the outdoors. Additionally, this group holds *ecological/scientific* values toward wildlife and nature, recognizing an interdependence of wildlife with the larger ecosystem.

Table 7. Summary profile for Traditional Wildlife Management Perspective. Bolded numbers indicate a distinguishing statement. Statements listed include those rated as agree (+3 to +5) or disagree (–3 to –5) plus any distinguishing statements (in bold). Distinguishing statements are those ranked significantly different from other perspectives (higher or lower than overall average).

Statement Number	Statements	Ranking Score
23	The thing I value most about the Refuge is knowing the area will be preserved and better managed for grouse/woodcock.	5
32	I strongly support the Refuge's purpose. It is important to continue to resist the desire of some locals to expand human activity on the Refuge and turn it into a National Forest "land of many uses."	5
46	I support the Refuge acquiring lands within the acquisition boundary to help protect wildlife habitats.	4
18	It is imperative that the Refuge find ways to increase deer harvesting to protect the fragile, significant and in some cases rare plant communities.	4
40	By preserving wildlife resources the Refuge maintains the scenic beauty and quality of life valued by those who live, visit, or vacation in the area.	4
21	Access to the Refuge should be improved through the restoration of historic railroad grades. These would allow a great variety of habitat to be seen without leaving the trail system, thereby avoiding damage to the bogs.	3
27	It is important to maintain plant and animal habitat connections between Refuge lands and neighboring Monongahela National Forest and Canaan Valley State Park lands.	3
19	It is important that any new trails the Refuge creates are compatible with the "wildlife first" mission of the National Wildlife Refuge system.	3
25	The Refuge should be for wildlife and not a playground for tourists lured by the promise of being able to hike, bike, backpack, or ski on land that once upon a time could be used by anyone.	3
43	The most important problem facing the Refuge is keeping the "tree-huggers" from taking it over.	1
15	It is critical, as part of the Refuge planning process, to repair the deep-rooted mistrust of the U.S. Fish & Wildlife Service.	0
1	The Refuge should manage for recovery and restoration of the great forests that once covered the area.	–3
2	It is unfair that hunters using the Refuge have off-trail access, while other users must stay on the trails.	–3
13	I would like to see more areas within the Refuge designated as nature viewing areas, with no hunting, fishing or dogs allowed.	–3
28	The most important issue in this planning process is to establish a meaningful method of creating dialogue between the Refuge and the local community.	–3
8	The control and eradication of invasive species should not be a high management priority for the Refuge.	–4
39	We will never have a decent tax base in our county if the government is not stopped from grabbing up all our land.	–4
44	Wilderness designation should be obtained for portions of the Refuge to protect fragile environments and allow natural processes to restore the area.	–4
5	Woodcock hunting should be banned on the Refuge.	–5
31	Development, rather than preservation, would be in the best interest of the valley.	–5

Perspective 4: Wildlife First, Recreation Second

The 23 Q-sorts represented by this perspective include 10 stakeholders representing the Federal government, 4 representing nongovernmental organizations, 4 stakeholders from the community at large, 2 local business owners, 1 homeowner's association, 1 State agency, and 1 college. Table 8 shows the average ranking of statements by this perspective.

As with the ecological preservation perspective, watershed and habitat are primary concerns associated with this perspective. Stakeholders in this group agree most strongly with protecting wetlands and water quality, acquiring lands within the Refuge acquisition boundary, and controlling invasive species. Stakeholders in this group also place importance on maintaining plant and habitat connections between Refuge lands and neighboring public lands. They feel to do this, it is important for the Refuge to acquire as much land in the acquisition boundary as they can in order to increase contiguous lands.

What makes this group unique from other groups is that they also feel access on the Refuge is important, so long as resources can be protected and the Refuge mission can be upheld. They support... "new ideas for providing reasonable access while protecting fragile ecosystems..." (statement #45). They do not, however, agree with most statements related to mountain biking. In particular the statements "I support biking corridors through the Refuge. These corridors are vitally important links in the recreational trail system that connects Tucker County's communities, parks, and forests" (#16), and "I support low impact mountain biking on the Refuge" (#24) were rated lower by this group than any other. However, followup discussions revealed more support for the idea of access for mountain bikes, so long as the reasons behind putting in trails were in line with the Refuge mission *and* any trail access could be constructed, used, and maintained in a way that was compatible with wildlife and wetland resources. There is a sense in this group that the Refuge needs to uphold their mission to protect wildlife, but should be more open to providing access, so people will support the Refuge and better appreciate the resources the Refuge protects.

Equally important to this group is communication and relationship-building with the local community, including improved explanation of the management decisions. This group supports more and better environmental education efforts related to the Refuge so that community members better understand the Refuge's purpose and the resources it protects. Strong positive rankings of the statements, "The most important issue in this planning process is to establish a meaningful method of creating dialogue between the Refuge and the local community" (#28) and "It is important for the Refuge to provide the research, evidence, or logic behind management decisions" (#47) reflect this attitude. Followup discussions further support this, with much discussion about the importance of maintaining and improving relationships with the community and that it is imperative that decisions made by the Refuge be defensible.

Hunting is not a high priority for this perspective. While they do not agree that woodcock hunting should be banned, they also do not agree with the statement "The thing I value most about this Refuge is that it is one of few places in the state to hunt woodcock" (#32). They also do not agree that that "The Refuge should increase the deer harvest by developing trails to make it easier for hunters to access the Refuge interior" (#3). Followup discussions related to hunting were limited to increasing deer harvest, but through special hunts primarily for the purposes of controlling numbers and subsequently protecting fragile or rare plants communities.

Additionally, stakeholders in this perspective do not see development, as compared with preservation, to be in the best interest of the Valley. They generally see the Refuge as part of the economic picture of the Valley and they believe that "By preserving wildlife resources the Refuge maintains the scenic beauty and quality of life valued by those who live, visit, or vacation in the

area” (#40). However, there is less agreement among stakeholders of this group about the role the Refuge should play in promoting recreational tourism in the Valley.

Lastly, this group rated the statement, “The Refuge should provide more education about its unique habitats through self-guided and guided trail walks” (#34), higher than any other group. Followup discussions further support this idea, with many members expressing the need for more and better environmental education and interpretation opportunities so community members better understand the Refuge’s purpose and the resources it protects.

This perspective holds an *ecological/scientific* value related to wildlife and nature, with an emphasis on the benefit that wildlife and habitats contribute to the larger ecosystem and the importance of studying these relationships. Stakeholders in this group also value the *aesthetic* qualities of the environment and have an appreciation for the beauty it provides. Similarly, they value nature and wildlife for the quality of life it provides society as a whole (*social* value). Finally, this group values the *recreational* interactions with wildlife and nature.

Table 8. Summary profile for Wildlife First, Recreation Second. Bolded numbers indicate a distinguishing statement. Statements listed include those rated as agree (+3 to +5) or disagree (–3 to –5) plus any distinguishing statements (in bold). Distinguishing statements are those ranked significantly different from other perspectives (higher or lower than overall average).

Statement Number	Statements	Ranking Score
11	It is important to ensure the continued protection of the diverse wetland complex on the Refuge.	5
46	I support the Refuge acquiring lands within the acquisition boundary to help protect wildlife habitats.	5
28	The most important issue in this planning process is to establish a meaningful method of creating dialogue between the Refuge and the local community.	4
19	It is important that any new trails the Refuge creates are compatible with the "wildlife first" mission of the National Wildlife Refuge system.	4
17	Since the Refuge comprises the largest wetland in West Virginia, monitoring and protecting water quality is of primary importance.	4
47	It is important for the Refuge to provide the research, evidence, or logic behind management decisions.	3
27	It is important to maintain plant and animal habitat connections between Refuge lands and neighboring Monongahela National Forest and Canaan Valley State Park lands.	3
40	By preserving wildlife resources the Refuge maintains the scenic beauty and quality of life valued by those who live, visit, or vacation in the area.	3
45	I support new ideas for providing reasonable access while protecting fragile ecosystems, for example, guided hikes by experts, fencing fragile areas near trails, building boardwalks, and(or) a permit system for backcountry use.	3
34	The Refuge should provide more education about its unique habitats through self-guided and guided trail walks.	2

Table 8 (Continued). Summary profile for Wildlife First, Recreation Second. Bolded numbers indicate a distinguishing statement. Statements listed include those rated as agree (+3 to +5) or disagree (–3 to –5) plus any distinguishing statements (in bold). Distinguishing statements are those ranked significantly different from other perspectives (higher or lower than overall average).

Statement Number	Statements	Ranking Score
33	Minimizing the impact to wetlands should be the driving factor in determining access to the Refuge.	2
36	Refuge staff should meet with a committee of local interests on a regular basis to discuss and recommend solutions to issues before decisions are made so that local perspectives are integrated into the planning process.	0
24	I support low impact mountain biking on the Refuge.	–2
3	The Refuge should increase the deer harvest by developing trails to make it easier for hunters to access the Refuge interior.	–3
35	While the community wants the Refuge to be a shining example of why we need to protect and conserve our wildlife resources, the decisions and implementation of decisions have been contrary to this process.	–3
32	The thing I value most about this Refuge is that it is one of few places in the state to hunt woodcock.	–3
16	I support biking corridors through the Refuge. These corridors are vitally important links in the recreational trail system that connects Tucker County's communities, parks, and forests.	–3
5	Woodcock hunting should be banned on the Refuge.	–4
43	The most important problem facing the Refuge is keeping the "tree-huggers" from taking it over.	–4
39	We will never have a decent tax base in our county if the government is not stopped from grabbing up all our land.	–4
8	The control and eradication of invasive species should not be a high management priority for the Refuge.	–5
31	Development, rather than preservation, would be in the best interest of the valley.	–5

Perspective 5: Economic Development

Three of the Q-sorts were classified as the Economic Development perspective. These represented a County Planning Commission, a County Commission, a local homeowners' association, and a local realty firm. One of the individuals identified themselves with two organizations. Table 9 shows rankings of statements for this perspective.

While the effects of the Refuge on economic growth and development are the key issues for those in this perspective, the statements that are the most highly ranked focus on process and public involvement. Perspective 5 respondents indicate that “the most important issue in this planning process is to establish a meaningful method of creating dialogue between the Refuge and the local

community” (statement #28) and that “Refuge staff should meet with a committee of local interests on a regular basis to discuss and recommend solutions to issues before decisions are made so that local perspectives are integrated into the planning process” (#36). In followup discussions, it appeared that some stakeholders in this perspective believe that the community was misled, initially, about the Refuge and what Refuge designation would mean for those who used the land. The desire for more participation is motivated by a desire to be an integral part of the process, and a belief that economic development issues should be important in the Refuge planning process but may not be adequately addressed without broad and ongoing public involvement.

A central concern for stakeholders with this perspective is maintaining and improving the economic vitality of the Valley. This perspective supports development, particularly industrial development, and sees the Refuge and other public lands as impediments to growth. While stakeholders with this perspective believe some people are drawn to the area because of the Refuge and other public lands, in the long run the only way to ensure steady and high quality employment for local residents is to attract industry. This perspective does not support further land acquisition, believing it will harm the local economy by cutting off opportunities for economic development. As one respondent noted, “protecting wildlife and wetlands is a good thing (there are some pluses) but they are minimal compared to the damage to the economy.”

Some in this group support Refuge mandates, and believe it is important for the Refuge to protect wetlands, but feel that the Refuge can do more to make itself attractive to tourists. The focus is on the ability of the Refuge to provide practical and concrete benefits to the local community, such as tourism dollars.

This perspective also supports improved access to the Refuge. The reason for this seems to be that recreational access will attract more tourists, which will help the economy. Another suggestion from this perspective is to increase offerings of Refuge educational programs. Like those in the Recreational Access and Traditional Wildlife Management perspectives, this perspective supports the idea of restoring historic railroad grades to provide Refuge access. The people in this perspective do not agree that the Refuge is underfunded, and so do not see that as a reason for the lack of “marketing.”

This perspective holds a *commercial* value toward wildlife and nature, valuing the environment for its economic contribution and ability to bring dollars to the local community. Similarly, this group values wildlife and nature for the benefit to humans (*utilitarian* value). Because of the view that natural resources in the area may be impediments to development (and potentially lost economic benefits to the Valley), stakeholders with this perspective sometimes hold a *negative* value toward wildlife and nature. Although those in this group are very interested in development and are not convinced that the Refuge can provide sufficient economic benefits, they live in the Valley because of its natural setting and beauty, and value the *aesthetic* quality of the Valley.

Table 9. Summary profile for Economic Development Perspective. Statements listed include those rated as agree (+3 to +5) or disagree (-3 to -5) plus any distinguishing statements (in bold). Distinguishing statements are those ranked significantly different from other perspectives (higher or lower than overall average).

Statement Number	Statement	Ranking Score
28	The most important issue in this planning process is to establish a meaningful method of creating dialogue between the Refuge and the local community.	5
36	Refuge staff should meet with a committee of local interests on a regular basis to discuss and recommend solutions to issues before decisions are made so that local perspectives are integrated into the planning process.	5
10	Tucker County should <i>not</i> rely on tourism for all of its business; tourism should be balanced with industry.	4
39	We will never have a decent tax base in our county if the government is not stopped from grabbing up all our land.	4
21	Access to the Refuge should be improved through the restoration of historic railroad grades. These would allow a great variety of habitat to be seen without leaving the trail system, thereby avoiding damage to the bogs	4
11	It is important to ensure the continued protection of the diverse wetland complex on the Refuge.	3
15	It is critical, as part of the Refuge planning process, to repair the deep-rooted mistrust of the U.S. Fish & Wildlife Service.	3
17	Since the Refuge comprises the largest wetland in West Virginia, monitoring and protecting water quality is of primary importance.	3
18	It is imperative that the Refuge find ways to increase deer harvesting to protect the fragile, significant, and in some cases rare plant communities.	3
16	I support biking corridors through the Refuge. These corridors are vitally important links in the recreational trail system that connects Tucker County's communities, parks, and forests.	2
31	Development, rather than preservation, would be in the best interest of the valley.	1
19	It is important that any new trails the Refuge creates are compatible with the "wildlife first" mission of the National Wildlife Refuge system.	1
30	I strongly support the Refuge's purpose. It is important to continue to resist the desire of some locals to expand human activity on the Refuge and turn it into a National Forest "land of many uses."	-1
40	By preserving wildlife resources the Refuge maintains the scenic beauty and quality of life valued by those who live, visit, or vacation in the area.	-2
27	It is important to maintain plant and animal habitat connections between Refuge lands and neighboring Monongahela National Forest and Canaan Valley State Park lands.	-2
2	It is unfair that hunters using the Refuge have off-trail access, while other users must stay on the trails.	-3
22	Bicyclists don't need access to the Refuge because they have plenty of other places in the county to ride--highways, roadways, state parks, national forests, and taxpayer-funded bike trails.	-3
32	The thing I value most about this Refuge is that it is one of few places in the state to hunt woodcock.	-3
41	I value the role the Refuge plays in conserving and restoring West Virginia's streams and rivers.	-3

Table 9 (Continued). Summary profile for Economic Development Perspective. Statements listed include those rated as agree (+3 to +5) or disagree (-3 to -5) plus any distinguishing statements (in bold). Distinguishing statements are those ranked significantly different from other perspectives (higher or lower than overall average).

Statement Number	Statement	Ranking Score
7	One of the most important Refuge issues is the lack of an adequate visitor center and the lack of available Refuge personnel to present programs or answer questions.	-4
43	The most important problem facing the Refuge is keeping the "tree-huggers" from taking it over.	-4
46	I support the Refuge acquiring lands within the acquisition boundary to help protect wildlife habitats.	-4
9	The Refuge is a key part of the economic development picture for the Canaan Valley, Tucker County, and the West Virginia Highlands because it supports local businesses and draws tourists from all over the world.	-5
26	The most important problem facing the Refuge is lack of funding to provide services.	-5

Areas of Consensus and Concern

Consensus can be defined as “general agreement” or “the judgment arrived at by most of those concerned” (<http://www.merriam-webster.com>). We use this as a general definition, recognizing that in reality the disagreement of one party can make a decision untenable. This evaluation reveals areas of common ground and areas where conflict is more likely and additional work will be required to resolve differences. We identified the following categories of consensus and concern (fig. 2):

- High Consensus/Low Concern — general agreement across perspectives; low importance of the issue. Statements in this category are likely to offer opportunities for good-faith efforts and low conflict.
- High Consensus/High Concern — general agreement across perspectives; high importance of the issue; Statements in this category illustrate opportunities for collaboration, and conflict may be low.
- Low Consensus/High Concern — general disagreement across perspectives; high importance of the issue. The highest levels of conflict are likely to center on these statements and managers may need to devote considerable attention to statements in this category.
- Low Consensus/Low Concern — there were no statements in this category.

Depending on the disparity or similarity of scores across perspectives, statements were assigned to one of the four categories.

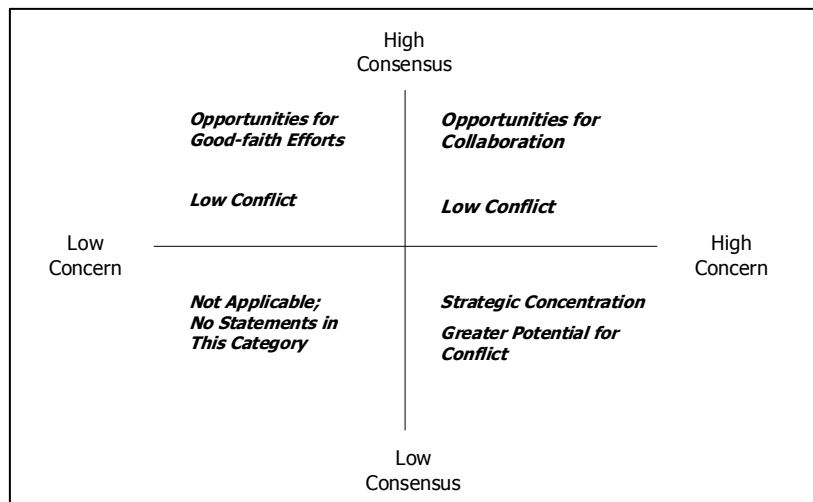


Figure 2. Model of consensus and concern for Canaan Valley National Wildlife Refuge stakeholder evaluation.

Areas of High Consensus/Low Concern

The statements in Table 10 are “high consensus” because each perspective rated them similarly. They are “low concern” because the average stakeholder rankings were low (between +2 and –2) across perspectives. Thus, stakeholders tend to have consensus on these statements, but they are not ranked as very important by any perspective. Conflict is likely to be relatively low, because stakeholders may divert their energy to more important issues. In some cases it is possible to take management actions that satisfy the needs articulated in the statements. If they are low-cost and noncontroversial, there can be benefit in addressing some of these as a sign of good faith. However, they must be prioritized so that things considered truly unimportant are not allocated resources that would be better used elsewhere. While managers may choose not to devote substantial resources to the high-consensus/low concern issues, it is helpful to understand the areas of agreement among the different perspectives. In some cases, “low concern” may indicate not a lack of interest, but a belief that current management practices are adequate and should be continued.

During our conversations with stakeholders following the Q-sort exercise, we learned the reasons for high or low rankings of statements. For the watershed/habitat statements in this category (#20, #37), stakeholders indicated that they were not opposed to protection of grassland birds or certain endangered species, but that many other issues were more important to them, thus the relatively low rankings. Some noted that they did not think the Refuge needed to do “more” to protect threatened and endangered species; keeping management attention at the current level was adequate. Not surprisingly, those in the Ecological Preservation and Traditional Wildlife Management perspectives were somewhat more supportive of increased protection of these species.

Access was a high-priority issue for many stakeholders, but not all of the access statements were of high concern. Recreational Access and Economic Development perspectives were more interested in low impact mountain biking than the other groups.

The environmental education statement elicited reactions similar to the endangered species item. People either thought the Refuge was doing an adequate job of providing these services or did not believe it was an important issue, given the range of concerns in the planning process.

One way of interpreting this category is to suggest that stakeholders agree that they are not concerned about these issues. However, as noted above, it is equally likely that respondents ranked these statements low because they believe the refuge is taking, or will take, specific management actions. These actions are important as stakeholders are satisfied with current management practices and may object to changes.

Areas of High Consensus/High Concern

Statements in Table 11 are “high consensus” because each perspective rated them similarly. They are “high concern” because the stakeholder rankings were high across perspectives. Specifically, statements were considered in this category if scores were between +3 and +5 with no score lower than -1 or conversely, between -5 and -3 with no scores higher than +1. In some cases the statement was rated as neutral (-2 to +2) by a perspective, but was high (+3 to +5 or -3 to -5) for one or more perspectives. We included those statements in this category because while not all perspectives may have rated the statement as high, there was no outright dissent across perspectives.

Eighteen statements representing five of the seven issue areas were categorized as high consensus/high concern. Stakeholders have strong opinions about these statements and it is likely that many will be attentive to how these issues are addressed in the CCP process.

Table 11 shows that some of the statements were strongly supported or opposed across perspectives while others were less uniformly ranked. For most of the statements in the “high consensus/high concern” category, two or more perspectives show similar rankings. All perspectives disagreed with statement #8 (“The control and eradication of invasive species should not be a high management priority for the Refuge”), and all but one disagreed with #31 (“Development, rather than preservation, would be in the best interest of the valley”). For statement #31, Perspective 5 (Economic Development) was somewhat of an outlier, ranking that statement as +1.

Several statements in this category stand out because, although they meet the rule for inclusion as high consensus, only one perspective ranked them highly. These are statements #6, #12, and #29. Each of these relates to some aspect of access to the Refuge, and was highly ranked only by the Recreational Access perspective. Thus, support may not be broad, but those with an interest in these access issues appear to be intensely interested and may work to advance their cause. The dynamics of the discussions around those issues may be determined by the level of opposition by other perspectives. It is not possible to determine whether those who ranked the statements lower are opposed, or simply indifferent, about these issues.

Statements in this category suggest several approaches. First, some of the statements highlight areas that the Refuge already views as high priorities. In these cases, it is useful to know that there is consensus across perspectives that these issues are important. For example, statements relating to watershed and habitat protection concern the fundamental mission of the Refuge and appear to be important across perspectives. Some statements might indicate actions that the Refuge is already taking or could consider taking. In these cases, it is possible to communicate with the stakeholders that the Refuge is acting on what is viewed as important. Second, some issues are highly important to only one or two perspectives with others seemingly neutral. In these cases the Refuge can use this information to understand which perspectives are most interested and may be able to better understand motivations behind specific recommendations. Finally, there may be statements in this category that suggest actions that the Refuge cannot take, or that will not be high priorities despite their importance to some stakeholders.

Table 10. Statements of High Consensus/Low Concern by Perspective (Statements appear in this category if scores were between +2 and –2 across perspectives.)

		Average Scores for Perspectives				
Statement Number	Statement	Ecological Preservation	Recreational Access	Traditional Wildlife Management	Wildlife First, Recreation Second	Economic Development
Watershed/Habitat						
20	The Refuge should help grassland bird populations recover and ensure their success in the future.	1	0	2	1	0
37	The Refuge should do more to protect threatened and endangered species such as the Cheat Mountain salamander and the West Virginia northern flying squirrel.	2	−2	2	1	−1
Access						
24	I support low impact mountain biking on the Refuge.	0	2	0	−2	2
42	We need better access for all people (handicapped, families, elderly, and mainstream people) not just die-hard fitness types.	−1	2	−1	−1	0
Environmental Education						
34	The Refuge should provide more education about its unique habitats through self-guided and guided trail walks.	1	1	−2	2	−1

Table 11. High Consensus/High Concern by Perspective. (Statements appear in this category if scores were between + 3 and +5 with no score lower than –1 or conversely, between –5 and –3 with no scores higher than +1.)

Statement Number	Statement	Ecological Preservation	Recreational Access	Traditional Wildlife Management	Wildlife First, Recreation Second	Economic Development
Watershed/Habitat						
8	The control and eradication of invasive species should not be a high management priority for the Refuge. ^a	–4	–1	–4	–5	–2
11	It is important to ensure the continued protection of the diverse wetland complex on the Refuge.	4	1	2	5	3
17	Since the Refuge comprises the largest wetland in West Virginia, monitoring and protecting water quality is of primary importance.	4	1	0	4	3
33	Minimizing the impact to wetlands should be the driving factor in determining access to the Refuge.	3	0	0	2	–1
Access						
2	It is unfair that hunters using the Refuge have off-trail access, while other users must stay on the trails.	1	1	–3	–1	–3
6	In some cases there are sections of trails that have been degraded to the point where use of mountain biking just shouldn't continue.	1	–4	–2	0	0
12	Continuous, looped, and easy trails should be provided on the Refuge.	0	5	1	1	2

^a This is a negative statement.

Table 11 (Continued). High Consensus/High Concern by Perspective. (Statements appear in this category if scores were between + 3 and +5 with no score lower than –1 or conversely, between –5 and –3 with no scores higher than +1.)

Statement Number	Statement	Ecological Preservation	Recreational Access	Traditional Wildlife Management	Wildlife First, Recreation Second	Economic Development
14	A trail that crosses the valley is important because the close contact with our wetlands would be a moving experience that would help visitors care more for the resource.	–1	4	–1	–1	–1
21	Access to the Refuge should be improved through the restoration of historic railroad grades. These would allow a great variety of habitat to be seen without leaving the trail system, thereby avoiding damage to the bogs.	0	4	3	–1	4
22	Bicyclists don't need access to the Refuge because they have plenty of other places in the county to ride--highways, roadways, state parks, national forests, and taxpayer-funded bike trails. ^a	–1	–5	0	–2	–3
29	I believe access through the Refuge creating a connected trail system will support exceptional recreational opportunities and will provide economic benefits to local businesses.	–1	5	0	0	0
38	I support a hiking trail crossing the valley that would connect Forest Service lands to Dolly Sods Wilderness Area.	0	3	–1	0	2
45	I support new ideas for providing reasonable access while protecting fragile ecosystems, for example, guided hikes by experts, fencing fragile areas near trails, building boardwalks, and(or) a permit system for backcountry use.	1	0	1	3	2

^a This is a negative statement.

Table 11 (Continued). High Consensus/High Concern by Perspective. (Statements appear in this category if scores were between + 3 and +5 with no score lower than –1 or conversely, between –5 and –3 with no scores higher than +1.)

Statement Number	Statement	Ecological Preservation	Recreational Access	Traditional Wildlife Management	Wildlife First, Recreation Second	Economic Development
Economic Development						
4	It is important to minimize development pressures in and around the Refuge to prevent loss of wildlife and plant habitat.	3	–1	1	1	1
31	Development, rather than preservation, would be in the best interest of the valley.	–5	–4	–5	–5	1
Hunting						
5	Woodcock hunting should be banned on the Refuge.	–1	–3	–5	–4	–2
13	I would like to see more areas within the Refuge designated as nature viewing areas, with no hunting, fishing, or dogs allowed.	0	–2	–3	–2	–2
Environmental Education						
7	One of the most important Refuge issues is the lack of an adequate visitor center and the lack of available Refuge personnel to present programs or answer questions.	–2	0	–2	0	–4

Areas of Low Consensus/High Concern

Statements in this category are “low consensus” because they were ranked differently across perspectives. They are “high concern” because the stakeholder rankings were high (whether stakeholders agreed or disagreed) across perspectives. Statements were assigned to this category if scores were between +3 and +5 with at least one score lower than –1 or conversely, between –5 and –3 with at least one score higher than +1 (table 12). The issues represented by these statements are those that may be most difficult to resolve because there is high potential for conflict. In some cases a statement was rated differently by only one perspective. We included those statements in this category because it is possible that one dissenting view will make an issue controversial and difficult to resolve even if broader stakeholder opinion is unified in another direction.

One way to evaluate these results is to examine the difference between the highest and lowest scores, by statement, to see where the largest differences are found. The highest possible gap between high and low is 10, which would occur if one perspective ranked a statement at +5 and another ranked it at –5. No statements were in this category. However, three statements show a gap of 9 between highest and lowest ranking (highlighted in orange), and several others have gaps of 8 (highlighted in purple) or 7. The size of the gap is shown in the far right column of table 12. While there are limitations on what can be surmised from the gap, it may be a rough estimate of the potential for conflict for specific issues, and between specific perspectives.

Several of the statements with the largest gaps are those that propose a specific Refuge management action. One interpretation is that while most perspectives are generally supportive of core Refuge principles—as indicated by the “high consensus/high concern” statements—there is much less agreement about the specifics.

The theme of appropriate levels of involvement in the CCP process is evident, with some advocating much higher levels of community involvement than others. Those who ranked these statements highly feel strongly that local involvement in the decisionmaking process is key to obtaining public support, while those ranking these statements lower seem more confident that the Refuge has the necessary expertise to make what are, in their view, scientific judgments.

For the three Economic Development statements in this category, the general pattern is that Perspectives 1 through 4 indicate similar views and Perspective 5 has a starkly opposite point of view. Combined with Perspective 5’s strong desire to be involved in the Refuge’s decisionmaking process this may be an indication of an influential point of view that will ask the Refuge to explain how it benefits the local community. At the very least, this Perspective might be expected to elevate this conversation in the planning process.

Table 12. Low Consensus/High Concern by Perspective. (Shaded rows indicate statements with the lowest levels of consensus across perspectives.)

Statement Number	Statement	Ecological Preservation	Recreational Access	Traditional Wildlife Management	Wildlife First, Recreation Second	Economic Development	Gap between highest and lowest score
Watershed/Habitat							
1	The Refuge should manage for recovery and restoration of the great forests that once covered the area.	4	0	-3	-1	-1	7
23	The thing I value most about the Refuge is knowing the area will be preserved and better managed for grouse/woodcock.	-3	-2	5	-2	0	8
25	The Refuge should be for wildlife and not a playground for tourists lured by the promise of being able to hike, bike, backpack, or ski on land that once upon a time could be used by anyone.	0	-5	3	0	0	8
27	It is important to maintain plant and animal habitat connections between Refuge lands and neighboring Monongahela National Forest and Canaan Valley State Park lands.	5	2	3	3	-2	7
40	By preserving wildlife resources the Refuge maintains the scenic beauty and quality of life valued by those who live, visit, or vacation in the area.	3	1	4	3	-2	6
41	I value the role the Refuge plays in conserving and restoring West Virginia's streams and rivers.	5	1	1	2	-3	8
44	Wilderness designation should be obtained for portions of the Refuge to protect fragile environments and allow natural processes to restore the area.	2	-3	-4	0	1	6
Hunting							
3	The Refuge should increase the deer harvest by developing trails to make it easier for hunters to access the Refuge interior.	-3	0	2	-3	1	5
18	It is imperative that the Refuge find ways to increase deer harvesting to protect the fragile, significant, and in some cases rare plant communities.	-2	-1	4	1	3	6
32	The thing I value most about this Refuge is that it is one of few places in the state to hunt woodcock.	-4	-2	5	-3	-3	9

Table 12 (Continued). Low Consensus/High Concern by Perspective. (Shaded rows indicate statements with the lowest levels of consensus across perspectives.)

Statement Number	Statement	Ecological Preservation	Recreational Access	Traditional Wildlife Management	Wildlife First, Recreation Second	Economic Development	Gap between highest and lowest score
Economic Development							
9	The Refuge is a key part of the economic development picture for the Canaan Valley, Tucker County, and the West Virginia Highlands because it supports local businesses and draws tourists from all over the world.	1	3	1	1	-5	8
10	Tucker County should not rely on tourism for all of its business; tourism should be balanced with industry.	-2	-1	-1	-2	4	6
39	We will never have a decent tax base in our county if the government is not stopped from grabbing up all our land.	-5	-3	-4	-4	4	9
Process							
28	The most important issue in this planning process is to establish a meaningful method of creating dialogue between the Refuge and the local community.	-2	2	-3	4	5	8
36	Refuge staff should meet with a committee of local interests on a regular basis to discuss and recommend solutions to issues before decisions are made so that local perspectives are integrated into the planning process.	-3	3	-2	0	5	8
47	It is important for the Refuge to provide the research, evidence, or logic behind management decisions.	2	2	-2	3	0	5
Access							
16	I support biking corridors through the Refuge. These corridors are vitally important links in the recreational trail system that connects Tucker County's communities, parks, and forests.	-1	4	-1	-3	2	7

Table 12 (Continued). Low Consensus/High Concern by Perspective. (Shaded rows indicate statements with the lowest levels of consensus across perspectives.)

Statement Number	Statement	Ecological Preservation	Recreational Access	Traditional Wildlife Management	Wildlife First, Recreation Second	Economic Development	Gap between highest and lowest score
19	It is important that any new trails the Refuge creates are compatible with the "wildlife first" mission of the National Wildlife Refuge system.	2	-2	3	4	1	6
30	I strongly support the Refuge's purpose. It is important to continue to resist the desire of some locals to expand human activity on the Refuge and turn it into a National Forest "land of many uses."	3	-4	2	2	-1	7
Land Acquisition							
46	I support the Refuge acquiring lands within the acquisition boundary to help protect wildlife habitats.	2	-1	4	5	-4	9

In an effort to understand which perspectives are likely to have the most conflict with one another, we looked at each statement in the low consensus/high concern category to better understand the pattern of low consensus scores by perspective. For each statement in Table 12, we marked the highest and the lowest score, and then totaled the number of times that each perspective had either the highest or the lowest score. We then evaluated the pairs of highest and lowest (that is, for each statement on the list, which perspective ranked it lowest, and which ranked it highest?).

Table 13 shows the distribution of the extreme scores. As shown in the TOTAL row, Perspective 1 (Ecological Preservation) ranked 12 statements in the low consensus/high concern list as either the highest or the lowest of the five perspectives. Perspective 2 (Recreational Access) was the extreme score for 5 statements; Perspective 3 (Traditional Wildlife Management) 11 statements; Perspective 4 (Wildlife First, Recreation Second) 6, and Perspective 5 (Economic Development) 10.

Table 13 shows multiple areas of potential conflict between perspectives 1 (Ecological Preservation) and 3 (Traditional Wildlife Management) because of strongly different ratings for 6 statements in the low consensus/high concern list. Another area of potential conflict is between perspective 1 (Ecological Preservation) and perspective 5 (Economic Development) with 5 statements showing a broad range of scores.

As Table 13 shows, Perspectives 1, 3, and 5 are more often associated with the highest or lowest rankings of statements than are the other two perspectives. Perspective 2 weighed in most strongly on statements regarding access or local recreation and Perspective 4 on those focused on wildlife protection, with some emphasis on the importance of developing an open process for stakeholder involvement.

Some of the statements in this category are reflections of values and do not necessarily express an opinion about specific management actions. For example, the statements show differing

opinions about appropriate uses of the Refuge (Is it for hunting? Wildlife protection? Water quality protection?), the role and reach of the federal government, and the benefits of the Refuge to the local and regional economy. It is not surprising that the areas of highest disagreement are centered on values, and it is generally believed that negotiating about values is difficult. Three general approaches may be appropriate for resolving these differences. First, seek the areas of low consensus where the level of disagreement and the attachment to values seem relatively lower, and attempt to work on these issues. Success in resolving even one contentious issue may build trust among parties and lead to a willingness to negotiate other issues. Second, recognize the values that underlie these areas of contention and attempt to develop solutions that support a variety of values. It may be necessary to explain to stakeholders how proposed solutions support or express a specific value, and it is possible to craft solutions that satisfy a range of values. Third, consider how to work on issues where several perspectives seem aligned and one or two are in opposition. There may be potential to learn about the origin of the opposing points of view with the goal of mutual learning and, perhaps, diminish levels of conflict.

Table 13. Low Consensus between Perspectives. Numbers in TOTAL row show the number of Low consensus/High concern statements for which the perspective (indicated in the row heading) had either the highest or lowest score. Numbers in cells show how the pairs of highest and lowest statements were distributed for each statement.

Perspective	1- Ecological Preservation	2-Recreational Access	3- Traditional Wildlife Management	4- Wildlife First-Recreation Second	5- Economic Development
1- Ecological Preservation		1	6	0	5
2- Recreational Access	1		1	2	1
3- Traditional Wildlife Management	6	1		2	2
4- Wildlife First-Recreation Second	0	2	2		2
5- Economic Development	5	1	2	2	
TOTAL	12	5	11	6	10

Suggested Solutions

After stakeholders completed the Q-Sort, we asked them, “For those issues of most concern to you, what solutions do you see to addressing those?” Additionally, throughout the followup discussions, solutions were suggested by stakeholders. We summarized these by categorizing them by the key issues used throughout this assessment: land acquisition, hunting, watershed/habitat, environmental education, access, development, and process. For each issue, we identified themes of solutions and the specific perspective that suggested the solution. The specific solutions are summarized in tables 14–20. Some of these solutions were offered by one stakeholder and others were mentioned multiple stakeholders across perspectives. We did not evaluate these solutions in terms of feasibility, but present them without analysis. They may be helpful in stimulating

thinking, identifying areas of common concern, initiating dialogue between managers and stakeholders, and providing input to decisionmakers about stakeholders' ideas and points of view.

Watershed/Habitat

Solutions related to watershed and habitat management focused on improving coordination and partnerships and species management (table 14). Specifically, stakeholders feel that coordinating with other agencies to address wildlife and habitat issues and relying on outside experts is beneficial.

Table 14. Suggested solutions offered by Canaan Valley stakeholders regarding watershed/habitat.

Theme	Solution	Perspective(s) Suggesting Solution
Species Management		
	Use contraceptives on deer	Ecological Preservation
	More beaver control at Freeland Road	Ecological Preservation
	Minimize single species management	Ecological Preservation
	Get rid of introduced spirea* by cutting twice in a season so alder and aspen will come back.	Traditional Wildlife Management
Coordination with Others		
	The refuge should rely on outside assistance for woodcock habitat management (research help to determine how to provide appropriate habitat)	Traditional Wildlife Management
	Refuge should work more with other regional and local landowners/land managers to manage the entire watershed	Wildlife First, Recreation Second
	Work with different groups in the valley to help ensure protecting water quality of the wetlands (for example, county commission hearings)	Wildlife First, Recreation Second
	Coordinate with other resource agencies to help address wildlife and habitat issues. U.S. Forest Service and West Virginia Department of Natural Resources have recently completed planning projects of their own which can help guide species and habitat priorities from a local and state perspective	Wildlife First, Recreation Second
	Hire more expert biologists to gather needed information for managers	Ecological Preservation
	Gather input from experts, habitat mapping and literature, then have the discussions needed to determine how to balance habitat needs and where to manage for what.	Wildlife First, Recreation Second

* Authors' note: Meadowsweet spirea is a native plant in Canaan Valley.

Recreational Access

The largest number of suggested solutions relates to access (table 15). During followup discussions, 14 of the 63 participants described and then marked exact locations for their access solutions on refuge maps (fig. 3). It was evident that those who chose to use maps to pinpoint their solutions were familiar with the landscape of the refuge and were comfortable using maps. Researchers offered a full-color map that was provided by the refuge staff (1:54,000 scale). Colored magic markers and pens were provided so notes describing solution were written on maps along with marking location, for example: "Extending Swinging Bridge Trail with CVI collaboration so to connect with State Route 32. Would be nice loop out of Davis and back in." In table 15 participants' identifying number for map and associated perspective are noted with solution:

Wildlife First, Recreation Second (M85, 104.) All mapped solutions are included in table 15. Looking at all solutions two prominent themes surfaced:

- Ways to protect resources while increasing access and increasing the variety of trails
- Need for outside expert feasibility studies

Recognizing the need to protect the fragile wetlands, solutions included using innovative combinations of existing railroad grades, existing roads/trails, and new trails or boardwalks along with the desire by some for reasonable off-trail use for all (not just hunters). Connectivity to other public lands was paramount to many. Others asked for shorter looped trails for the elderly, disabled, and young families. To ensure that the refuge creates well-planned sustainable trails that recognizes the fragile wetland resource, however, it is necessary that feasibility studies by experts be conducted to determine the best way to move forward with increasing access.

Table 15. Suggested solutions offered by Canaan Valley stakeholders regarding access. (M) indicates referenced map.

Theme	Solution	Perspective(s) Suggesting Solution
General Access		
	More access will provide unique experiences giving the public the ability to enjoy more interesting and unusual places on the refuge so appreciation of resource can occur.	Recreational Access Traditional Wildlife Management
	Use combinations of existing railroad grades, existing roads/trails, and new trails or boardwalks in sensitive areas.	Wildlife First, Recreation Second
	Open some parts of the uplands to all and increase number of trails around periphery of refuge.	Wildlife First, Recreation Second
	Open areas where anyone can go off-trail at certain times of year.	Wildlife First, Recreation Second
	Provide more and better handicapped access.	Wildlife First, Recreation Second
Protecting Resources		
	I support new ideas for reasonable access while protecting fragile wetlands.	Ecological Preservation Recreational Access Traditional Wildlife Management Wildlife First, Recreation Second
	Wildlife first, but not wildlife only. Need to provide access. It is so important to community, even if there are minimal impacts in a particular area. These solutions may not be cheap	Wildlife First, Recreation Second
	Keep the northern part undeveloped both in terms of trails and development because of intact undeveloped habitat	Wildlife First, Recreation Second
	Open some trails to low impact mountain biking but close trails when weather dictates or to restore damaged trails.	Traditional Wildlife Management
	Evaluate opportunities for dispersed access for nonconsumptive use. May be ways to minimize impact through restricted areas, certain times of the year, less sensitive areas.	Wildlife First, Recreation Second Economic Development
Hunter Access		
	Provide better hunter access either through opening some old roads seasonally OR providing a shuttle to drop off/pick up hunters	Recreational Access Traditional Wildlife Management Wildlife First, Recreation Second
	Improve access for hunting by improving roads (use materials that don't promote spread of invasive species) and then gating the road—only open it during hunting season;	Traditional Wildlife Management

Table 15 (Continued). Suggested solutions offered by Canaan Valley stakeholders regarding access. (M) indicates referenced map.

Theme	Solution	Perspective(s) Suggesting Solution
Connectivity		
	Have one central trail to go across the valley and linkages or loops off of that. Loops to create circuits.	Recreational Access
	Provide cross-refuge trails both N–S and E–W.	Wildlife First, Recreation Second
	Trail to get up to Dolly Sods.	Wildlife First, Recreation Second
	If you could put in a trail that provided access to Big 6 uses and could connect it to adjoining lands that would be great. But not ok just to make a trail simply for the purposes of connecting up different lands. Not a good enough reason.	Wildlife First, Recreation Second
Research on Feasibility		
	Contract for a feasibility study to look at restoring old rail grades as trails.	Wildlife First, Recreation Second Economic Development
	Research mountain biking impacts relative to hiking impacts on trails.	Economic Development
	Research new techniques for trail sustainability. Work with experts.	Recreational Access Traditional Wildlife Management Wildlife First, Recreation Second
	Refuge should look into the feasibility of providing trail connectivity and off-trail access. It is important to the community.	Wildlife First, Recreation Second
	Investigate feasibility of building a walkway through the wetlands.	Wildlife First, Recreation Second
Work on Trails		
	Local community will work with refuge staff on trail building, monitoring, and maintenance.	Recreational Access Traditional Wildlife Management Wildlife First, Recreation Second
	Volunteer organizations could help fund trail work projects and conduct maintenance on trails.	Recreational Access
	Hire professionals to build mountain bike multi-use trails and use locals.	Recreational Access
	Use T21 (State Alternative Transportation) funds for building trails	Traditional Wildlife Management
Signage		
	Well signed trails needed. This is critical when allowing seasonal restrictions.	Recreational Access Wildlife First, Recreation Second
	Have refuge designate and clearly mark trails and roads that are easy access for disabled hunters or elderly; such as Cortland Road where it crosses over the river and also Timberline Road where it crosses over the river.	Wildlife First, Recreation Second
	Improve signage for boaters entering Upper Blackwater by Swinging Bridge.	Wildlife First, Recreation Second
Boardwalks		
	Build boardwalks to provide access to elderly, disabled, and young families.	Wildlife First, Recreation Second Economic Development Traditional Wildlife Management
	Make Freeland boardwalk the public face of the Refuge	Ecological Preservation
	Enhance access and the ability of the public to enjoy the refuge more than they can now. Places along Cortland Rd. and Timberline Rd. could be made into interpretive trails with boardwalk.	Wildlife First, Recreation Second Recreational Access (M23)

Table 15 (Continued). Suggested solutions offered by Canaan Valley stakeholders regarding access. (M) indicates referenced map.

Theme	Solution	Perspective(s) Suggesting Solution
Railroads		
	Restore railroad grades.	Recreational Access Traditional Wildlife Management (M56) Wildlife First, Recreation Second, (M102) Economic Development
	Permit hiking and cross country skiing over old railroad grades, I like this because you are not creating a new trail; using what is there is good.	Economic Development (M101)
	Upgrade northernmost railroad grade to get access to A Frame road.	Recreational Access (M56) Traditional Wildlife Management (M85) Wildlife First, Recreation Second (M48, 102,104)
	Rail grade across big bog at Jack Mills Ford	Recreational Access
	Jeep Trail that is close to cotton grass bogs would make a nice trail to open. Railroad bed or pontoon boardwalk could be handicap accessible. If refuge OK'd, money could be raised.	Recreational Access
	Connection on old rail grade at very north end. If money was not a problem, solution could be found easily—a raised walkway above the bog that would provide foot access showing the biggest bog in West Virginia.	Wildlife First, Recreation Second (M48)
	Rail Trail Corridor from Camp 70 to Freeland Road.	Recreational Access (M43)
Trails		
Timberline		
	Build a trail from the back entrance of Timberline (along the river).	Traditional Wildlife Management
	Have road going across fields to Timberline Rd when it's not a sensitive time.	Recreational Access
	Provide access through Timberline.	Recreational Access (M56)
Beall		
	Would support building bridge to connect Beall and Blackwater View Trail	Ecological Preservation (M60,85) Traditional Wildlife Management (M84) Wildlife First, Recreation Second (M48,104)
	Access needed at Old Carwell place behind Beall's	Wildlife First, Recreation Second
Camp 70		
	Consider connecting Camp 70 Loop with Brown Mtn. Overlook trail	Recreational Access (M106)
Cortland		
	Need a trail from Cortland Rd. to the Beall access.	Wildlife First, Recreation Second
	Places along Cortland Rd. and Timberline Rd. could be made into interpretive trails, maybe with boardwalks.	Wildlife First, Recreation Second (M1,23)
	Have refuge designate and clearly mark trails and roads that are easy access for disabled hunters or elderly; such as Cortland Road where it crosses over the river.	Traditional Wildlife Management
	Provide reasonable biking access on Cortland Road or Freeland tract. Provide a low-key experience for families, not extreme sport experience.	Wildlife First, Recreation Second (M1)

Table 15 (Continued). Suggested solutions offered by Canaan Valley stakeholders regarding access. (M) indicates referenced map.

Theme	Solution	Perspective(s) Suggesting Solution
Middle Ridge		
	Upgrade Middle Ridge Trail to allow for better deer harvest.	Traditional Wildlife Management (M103)
	Need alternative to get to Middle Ridge without going through emergency gate.	Wildlife First, Recreation Second
	Ridge trail development is OK but not down in the wetlands.	Traditional Wildlife Management
	Repair degraded Sand Run Trail at Middle Valley	Recreational Access (M56)
Swinging Bridge		
	Extending Swinging Bridge Trail with CVI collaboration so to connect with State Route 32. Would be nice loop out of Davis and back in.	Wildlife First, Recreation Second (M85, 104)
	Add trail to east of Swinging Bridge Trail	Traditional Wildlife Management (M103)
White Grass Cross Country		
	Encourage more education by refuge on trails here. Continue White Grass Agreement. Very positive relationship	Ecological Preservation M60
	Look at ways to lessen impacts on T and E habitat, dispersed use	M106
Concern for Wetlands		
	No trails in wetlands	Traditional Wildlife Management (M48,101,84)
	No new trails over wetlands in north 1/3 of refuge	Ecological Preservation (M60,101)
Acquisition Boundary		
	Extend acquisition boundary	Traditional Wildlife Management (M85) Ecological Preservation (M85) Wildlife First, Recreation Second (M48,104)

Hunting

Two themes emerged for solutions to hunting issues:

- habitat management as it relates to hunting, and
- modifications or additions to current hunting programs (table 16).

In particular, some stakeholders would like to see an increase in deer harvest in areas adjacent to the Refuge. They feel this could be achieved through working with Canaan Valley State Park and Timberline Homeowners to allow hunting in those places. Additionally, some stakeholders suggested designating the Refuge as a special hunt area (for example, youth hunt, archery, “earn a buck”) to further control deer populations.

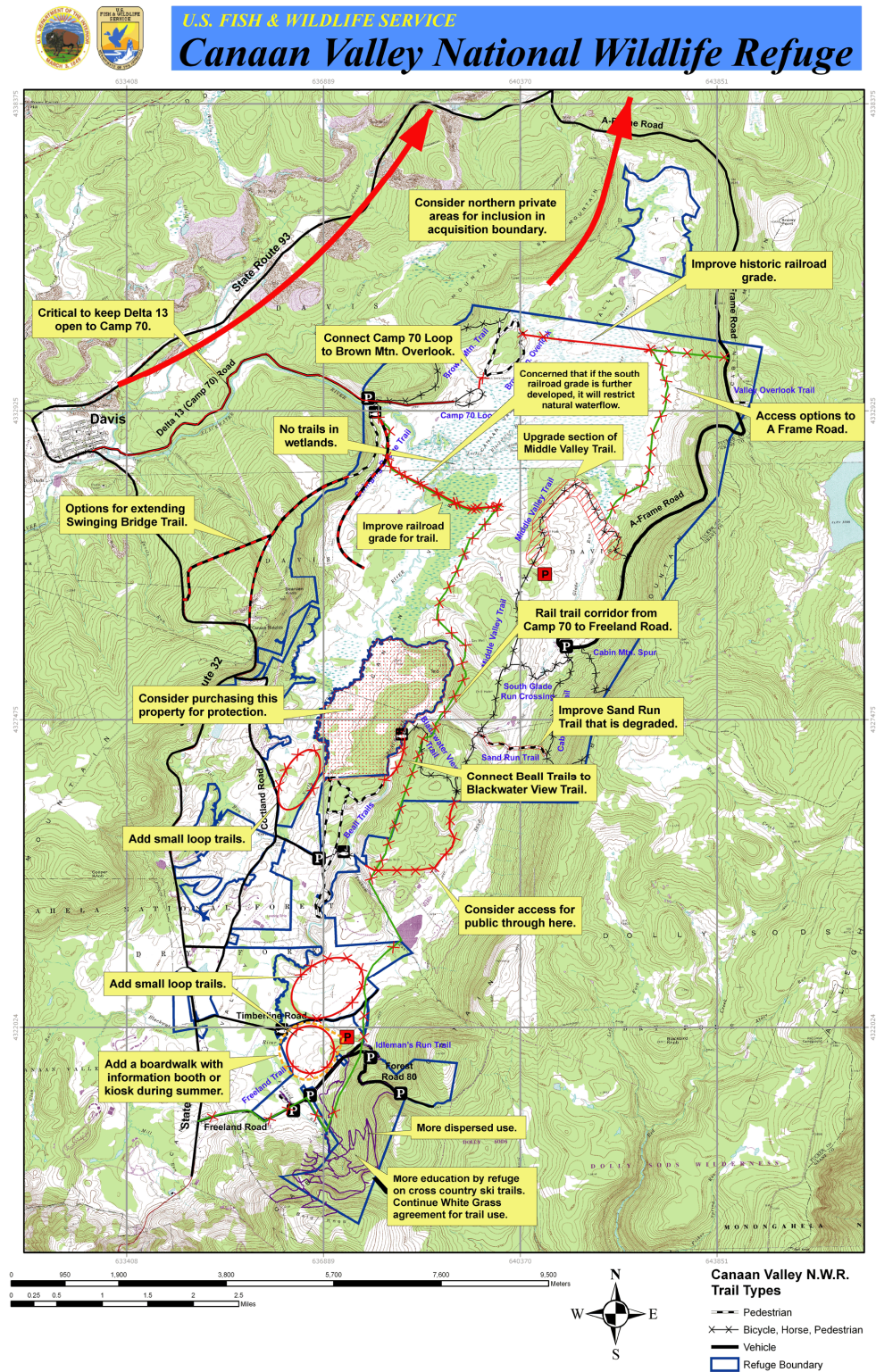


Figure 3. Map showing access solutions and locations provided by 14 stakeholders.

Table 16. Suggested solutions offered by Canaan Valley stakeholders regarding hunting.

Theme	Solution	Perspective(s) Suggesting Solution
Habitat Management		
	Develop food plots on the refuge to lure deer in so they can be hunted (plant annual grasses that won't persist).	Traditional Wildlife Management
	Manage for woodcock by burning, cutting, and disturbing soil to guarantee early successional habitat.	Traditional Wildlife Management
Modify Hunt/Special Hunt		
	Stop bear dog use. It is unnecessary, inhumane and unsporting.	Ecological Preservation
	Increase the deer harvest by working with Canaan Valley State Park and Timberline Homeowners to see if they will allow hunting;	Traditional Wildlife Management Wildlife First, Recreation Second
	For safety sake consider drawings for hunting permits for a certain week because too many woodcock hunters make it unsafe.	Traditional Wildlife Management
	Consider an antlerless deer season to increase deer harvest	Wildlife First, Recreation Second
	Work to designate refuge as a special hunt area. Refuge could then have more control over harvest and increase harvest.	Wildlife First, Recreation Second
	Establish special hunts on refuge (for example, youth/archery/muzzle); earn a buck program (kill a doe and then can get a buck)	Wildlife First, Recreation Second

Land Acquisition

There were three themes that emerged from the suggested solutions regarding land acquisition:

- administrative boundary,
- partnerships, and
- Acquisition details (table 17).

Some stakeholders feel that the administrative boundary should be expanded to include additional lands, particularly to the north of the current boundary. Stakeholders suggested increased partnerships with nonprofit organizations to work on land deals and land exchanges. Finally, some specific recommendations were made regarding the types of land that could be the focus of acquisitions, in particular an emphasis on wetlands rather than uplands.

Six of the fourteen suggested solutions were contributed by individuals representing Perspective 4 (Wildlife First, Recreation Second). This is not surprising, because land acquisition potentially benefits wildlife and provides more areas for recreation. Another feature of the suggestions from Perspective 4 is that several mention the importance of partnering with other organizations to acquire additional lands.

Perspective 2 (Recreational Access) is the only perspective that did not provide specific land acquisition suggestions. Acquisition may be an issue of secondary importance to this perspective—more land without increased access may not be attractive.

Table 17. Suggested solutions offered by Canaan Valley stakeholders regarding land acquisition.

Theme	Solution	Perspective(s) Suggesting Solution
Administrative Boundary		
	Consider pursuing legislation to expand "possible" boundaries to include watershed boundaries. North area has wilderness potential but not within boundaries.	Ecological Preservation
	Purchase additional large acreage from Forest Service and private sector to increase size of refuge acquisition area so future use by so many can be accommodated	Traditional Wildlife Management
	Consider addition of property north of current acquisition boundary up to A Frame Road as new official acquisition boundary. It is important that this area be protected.	Traditional Wildlife Management
	Work to have Dobbins Slashings Bog (65 acres) included in refuge acquisition area so it can be purchased by Refuge if it goes on the market.	Wildlife First, Recreation Second
Partnerships		
	Increase conservation easements; Trust for Public Land is active on Monongahela National Forest. Is there more opportunity for this on refuge whereby land can be acquired at a future date?	Wildlife First, Recreation Second
	Partner more with Sierra Club (c4 groups) and other NGO's; they can lobby and try to get \$ for land acquisition	Wildlife First, Recreation Second
	Work with Conservation Fund, TNC, private land owners (for example, Bob Orders and other Timberline residents) so that land can be purchased immediately until refuge can purchase.	Wildlife First, Recreation Second
	Consider making some land exchanges, for example, a) acreage next to ski area intended for a golf course and b) land on Cortland Road	Economic Development
Acquisition Details		
	Protect enough unique habitat to make a difference	Ecological Preservation
	Purchase property that is dead center on the refuge map that is west of Blackwater View Trail.	Traditional Wildlife Management
	Work to acquire top four acquisition priorities as this will solidify the refuge	Wildlife First, Recreation Second
	Purchase land if it comes available, regardless of the priority	Wildlife First, Recreation Second
	Stop growth of refuge	Economic Development
	Acquire low wetlands, but let the higher desirable uplands be developed.	Economic Development

Environmental Education

Four themes emerged from suggested solutions related to environmental education:

- staffing,
- message,
- programs, and
- interpretive materials and information (table 18).

Some stakeholders feel that there should be more reliance on refuge staff and less reliance on volunteers to staff the visitor contact station and to provide education and interpretation. As far as

the environmental education messages that are delivered to visitors, some stakeholders feel that an emphasis on the mission of the refuge system (and how this differs from other land management agencies) is important. They also feel that educating children on the uniqueness of the refuge resources is important, not only so they recognize the value of the refuge, but also that they understand that the refuge is accessible and “open” to visitors. Several suggestions were made about new program opportunities, similar to ones that have been offered in the past (for example, Rachael Carson plays, photography class, etc.). Along those lines, stakeholders made suggestions for interpretive materials and signage ranging from working with real estate offices and local establishments to provide brochures, to erecting interpretive signs in specific areas.

Table 18. Suggested solutions offered by Canaan Valley stakeholders regarding environmental education.

Theme	Solution	Perspective Suggesting Solution
Staffing		
	Hire additional refuge staff for outdoor education programs	Wildlife First, Recreation Second
	Rely more on staff (not volunteers) to provide education and interpretation and staff visitor contact station	Traditional Wildlife Management Wildlife First, Recreation Second
	Staff visitor contact station on weekends, holidays, and during hunting season with refuge staff	Traditional Wildlife Management Wildlife First, Recreation Second
	Hire staff with more sympathy for recreation	Wildlife First, Recreation Second
	Hire an ORP for the refuge who will comply with FWS visitor and economic projections of the 1993 WVU Economic Report	Recreational Access
Message		
	Show community uniqueness of the resource through more outreach and programs.	Wildlife First, Recreation Second
	Educate people about the refuge mission and its uniqueness and how it differs from other land management agencies.	Recreational Access Wildlife First, Recreation Second
	Increase outreach programs with kids so they can see/know that they can come to the refuge and that visiting is not forbidden	Wildlife First, Recreation Second
	Educate community about water quality and refuge’s role in that	Wildlife First, Recreation Second
	Educate people about why they should stay on trails (as opposed to a heavy regulatory hand)	Recreational Access
	Consult with local mountain bikers, especially those known to have an environmental focus, to learn more about environmentally sensitive recreation.	Wildlife First, Recreation Second

Table 18 (Continued). Suggested solutions offered by Canaan Valley stakeholders regarding environmental education.

Theme	Solution	Perspective Suggesting Solution
Programs		
	Provide guided refuge walks at a greater variety of times	Wildlife First, Recreation Second
	Provide more opportunities for the community to come to the refuge (for example, like the photography class)	Wildlife First, Recreation Second
	Work with schools and CV State Park to run multi-day school environmental education events (the students could lodge at the Park)	Wildlife First, Recreation Second
	Consider a Refuge information night at Highland Prospects.	Wildlife First, Recreation Second
	Additional programs like Rachael Carson plays in schools	Wildlife First, Recreation Second
	Encourage more education by refuge on White Grass cross county trails. This is a great opportunity to educate.	Recreational Access
Interpretive materials/information		
	Provide maps that show access for all federal and state lands in the area so people know where to go and have information about the trails	Wildlife First, Recreation Second
	Erect an interpretive sign overlooking the wetlands/beaver pond areas	Recreational Access
	Put up more kiosks to educate public because education leads to love of resource and then public will want to protect resource	Wildlife First, Recreation Second
	Put up a sign near the office on the road that tells whether the visitor center is open or not	Wildlife First, Recreation Second
	Consider a double entrance into the office, so that if people see the sign, they can enter in	Wildlife First, Recreation Second
	Work with real estate agencies to put refuge brochures in the houses that are being shown.	Wildlife First, Recreation Second
	Put Refuge brochures in the local establishments	Wildlife First, Recreation Second
	Build a new interpretive center with more interactive elements (like Cranberry Glades Nature Area)	Wildlife First, Recreation Second

Economic Development

Three themes are apparent in the solutions offered on development:

- “smart” development,
- estimating and communicating the economic benefit of the Refuge, and
- community issues (table 19).

When stakeholders mention smart development, they focus on both economic issues and on environmental concerns. One suggestion is that the Refuge be an active participant in monitoring water quality effects of increased development. Other participants indicate that they would like to know how much tourism contributes to the local economy so that there is a better sense of whether, and how much, to promote tourism. Some feel that the Refuge could do a better job of promoting itself, and might work more closely with local and county economic development agencies to do

so, as it could increase the tourism from which many local businesses could benefit. These thoughts are a reflection of the ongoing discussion in the community about what type of development will likely bring economic health to the Valley. Some believe that the Refuge brings economic benefits to the valley, while others are not convinced and urge an emphasis on industrial and commercial development.

There is some concern about maintenance equipment purchased by the Refuge, and suggestions that the Refuge let people know how those purchases benefit the community. Others suggest that local contractors should be hired for Refuge work.

Only Perspective 1, Ecological Preservation, does not provide any solutions related to economic development—but this perspective ranks statements regarding development very low, and approaches questions of Refuge management from an aesthetic, ecological/scientific, and moralistic value orientation.

Table 19. Suggested solutions offered by Canaan Valley stakeholders regarding development.

Theme	Solution	Perspective(s) Suggesting Solution
Smart development		
	If development must occur, do it in a smart way. For example, cottage industries	Wildlife First, Recreation Second
	With new development, ensure water-treatment facilities are high quality and that the Refuge can ensure discharge quality	Wildlife First, Recreation Second
Estimating and communicating the economic benefit of the refuge		
	Determine how much money comes into Tucker County from tourism; this would help the county determine how aggressively to pursue new service industry	Economic Development
	Encourage businesses that promote tourism to help tax base	Traditional Wildlife Management
	Figure out how to work with county economic development people to promote the Refuge. The county could capitalize on the presence of the Refuge by designing special events.	Wildlife First, Recreation Second
	Communicate with local community about the economic benefits provided by the Refuge	Recreational Access
	Address the wastefulness of the equipment; make it known what the Refuge is using the equipment for; explain how it is benefitting the community.	Recreational Access Economic Development
Community issues		
	Hire locals for contracts	Recreational Access Economic Development
	Donate Refuge property along Hwy. 32 for an Urgent Care medical clinic	Economic Development

Process

The second largest number of suggested solutions related to the decisionmaking process. Stakeholders across all perspectives offered solutions around the four themes of:

- the Refuge staff,
- communication with the community
- the research process, and
- interagency coordination (table 20).

In the followup discussions, stakeholders had many comments about the Refuge staff. At the time of our research, the Refuge manager had retired and no decision had been made about a permanent manager. Stakeholders were anxious to see the position filled and were hoping to have a new manager who had good communication skills, would listen to local concerns and ideas, and was interested in being part of the community. They suggested that the manager and other Refuge staff should live in the valley and spend time integrating themselves into the community. There were some suggestions that Refuge staff be trained in communication and public relations, and that the staff rely less on volunteers and be more willing to work weekends when visitation is likely to be highest.

Good communication is very important to stakeholders. Some made specific suggestions such as “go to county commissioner meetings,” and “develop a partners program to work with local landowners.” Many feel that past decision processes have eroded the trust between the community and the Refuge and that much work must be done to repair that trust—with open and frequent communication being the first step. Others urge the Refuge and other federal agencies to find a better way to communicate the policies and rules that guide planning processes.

Some stakeholders talked about their lack of understanding of the research conducted on the Refuge. There were several suggestions that the Refuge be more open in explaining the purpose of research, and that outside contractors be hired to conduct some research because there might be important research questions that are outside of the scope of expertise of current Refuge staff.

Several mentioned that they would like to see more communication and cooperation among the federal, state, and local land management entities in the Valley. Interestingly, most of these suggestions came from those in the Ecological Preservation or the Wildlife First, Recreation Second perspectives.

Finally, we received a few general suggestions to sell unused maintenance equipment and to “move forward, don’t live in the past.”

It is interesting that the Economic Development perspective ranked the statements about process very highly, but did not provide many specific solutions to those problems in the followup interviews despite a reported feeling of dissatisfaction with opportunities for public involvement. This is difficult to interpret.

Several of the suggested solutions are offered by two or more perspectives, and the most common multiple-perspective solutions include the Recreational Access perspective and the Wildlife First, Recreation Second perspective.

Overall, these suggestions provide a snapshot of stakeholder expectations of Refuge staff and the manner in which the planning process is conducted.

Table 20. Suggested solutions offered by Canaan Valley stakeholders regarding process.

Theme	Solution	Perspective(s) Suggesting Solution
The Refuge staff		
	Hire a proactive Refuge manager who is a “gregarious, open, honest, intuitive, person whose primary focus is to infiltrate the community.”	Recreational Access Traditional Wildlife Management Wildlife First, Recreation Second
	Provide Refuge staff with training in communication and public relations.	Wildlife First, Recreation Second
	Refuge staff should understand that by local standards their wages are high; complaints about funding constraints are not well received	Wildlife First, Recreation Second
	Refuge staff should work weekends, when the bulk of visitation occurs.	Wildlife First, Recreation Second
	Refuge staff should live in the valley and be part of the community	Wildlife First, Recreation Second Recreational Access Ecological Preservation
	Move the Refuge to another region; current RO leadership will not take responsibility for past mistakes or future decisions	Recreational Access
Communication with community		
	Local community shouldn’t dictate, but there should be “informed consent” (public understands what you are doing, you provide logic)	Recreational Access Wildlife First, Recreation Second
	Look for common ground between old-timers and new comers	Wildlife First, Recreation Second
	Refuge must respond to public concerns; not just token efforts at public involvement with no follow up.	Recreational Access
	Involved staff should pay attention to history so that the long-term involvement of the community can be honored	Wildlife First, Recreation Second
	Go to county commissioner meetings once a year or so—give presentation; offer Refuge tours.	Wildlife First, Recreation Second
	Hold a Refuge information night at Highland Prospects	Wildlife First, Recreation Second
	Use the public input from the 2002 Compatibility Determinations in this planning process—many letters were received.	Recreational Access
	Real estate agencies could put Refuge brochures in houses that are being shown. Also brochures should be in local establishments.	Wildlife First, Recreation Second
	Have a refuge representative on the steering committee for the strategic planning team for the community visioning process	Economic Development
	Survey skiers at White Grass for their input. There are thousands of skiers every year that are important users of the refuge.	Ecological Preservation
	Hire local high school students to work on trails; would be a great way to have positive impact on community. Having photos of kids working in local papers is important	Economic Development
	Refuge staff should connect with Rotary and Lions clubs; if key people are informed they can help community understand.	Wildlife First, Recreation Second
	Refuge should develop a partners program to work with local landowners.	Wildlife First, Recreation Second
	Interact more with the Friends group; to ease mistrust hold more stakeholder meetings	Wildlife First, Recreation Second
	Access and habitat management will be framed by Refuge’s policy and management decisions, but must include proper involvement with refuge users and local businesses. So meet with local committee on a regular basis.	Traditional Wildlife Management
	Communicate refuge responsibilities, beyond refuge decisionmaking, but long standing regulations and guiding legislation. Do this through electronic media and one-on-one discussions.	Wildlife First, Recreation Second Ecological Preservation

Table 20 (Continued). Suggested solutions offered by Canaan Valley stakeholders regarding process.

Theme	Solution	Perspective(s) Suggesting Solution
Research process		
	Critical to provide the logic and research behind decisions and make things as transparent and clear as possible. Some ways to do this include having research done by outside parties and publish it to the public	Recreational Access Wildlife First, Recreation Second
Inter-agency coordination		
	Communicate and partner with other land management agencies (Federal, State, local, NGOs) on common issues	Ecological Preservation
	For special-use recreation events, need more “federal agency” management; work together and more coordination to ensure habitat protection across administrative boundaries	Ecological Preservation
	The Refuge should compromise a little since they are in the middle of a major tourist destination—all the federal and state land managers should work together to reach some agreement on public use and access issues.	Wildlife First, Recreation Second
	Co-planning with other groups (for example, Tucker County Trails grant to work on Refuge roads and trails); blowing their own horn on these “successes” would go far. Maybe have others write things about the good works they are doing.	Wildlife First, Recreation Second

Discussion

Use of Q-Methodology in Public Participation Decision Processes

We chose Q-methodology in concert with followup discussions and solution maps for the stakeholder evaluation as a way to enhance the public participation process for the Canaan Valley NWR CCP planning process.

Q-methodology is a stakeholder evaluation method aimed at prioritizing key issues, identifying prevailing perspectives that exist among stakeholders, and identifying areas of consensus (general agreement) and conflict (general disagreement). What makes Q-methodology an effective tool for evaluating stakeholder perspectives is that it is not necessary to engage a large number of individuals, so long as the group represents the diversity of stakeholder perspectives.

During the Q-sort exercise, many participants recognized their own words or other community members’ jargon in the deck of statements that they ranked. There was general agreement that the statements represented the “full conversation” of values, interests and concerns. The followup interviews further allowed participants to develop trust that the process was a competent way to document their concerns.

The solutions maps added a hands-on approach for visualizing specific solutions, in particular regarding access concerns. Those who chose to mark their solutions on a map clearly favored this medium. As the conversations continued in the followup discussions with maps in hand, many creative solutions were suggested.

One objective of this stakeholder evaluation was to provide a means for stakeholders to become more engaged in the planning process. From anecdotal feedback from stakeholders and refuge staff, it appears this specific process may have encouraged increased communication and a sense of legitimacy.

Implications of the Stakeholder Evaluation Results

Areas of Likely Consensus are Opportunities for Collaboration

A strong thread of consensus appeared during followup discussions. These areas of consensus are good starting points for moving forward. It was apparent that there was broad support across perspectives on some key issues even though the reasons for the importance of the issues may be different.

The high consensus on key aspects of watershed and habitat protection included: controlling invasive species, wetland protection, and water quality monitoring and protection. This is because both those with a utilitarian value orientation and an ecological or aesthetic orientation understand the importance of a healthy ecosystem. Whether the primary interest is in human uses of ecosystem services or the needs of a broader array of species, protecting water quality is a high priority for many.

There is also high consensus on some aspects regarding access. While some perspectives favor more access than others, there is much agreement about improving basic access, by building a more connected trail system or restoring historic railroad grades. In particular, there was a strong thread of consensus revealed during followup discussions regarding the restoration of the railroad beds.

Areas of Potential Conflict are Opportunities for Strategic Concentration

There are some issues for which consensus is not high and resolution will be more challenging, requiring a more strategic approach. For example, while there is general agreement that increased access to the Refuge would engender appreciation and support, there is less agreement on the extent of that access. Some participants suggested feasibility studies to assist with access decisions. At the time of our research, a feasibility study had not been conducted. Since that time, the refuge contracted for an access feasibility study regarding upgrading the northern and(or) southern railroad grade. The refuge will consider the results of the access study as they develop the CCP.

There is not consensus about the degree to which the Refuge affects (or could affect the local economy). Strong beliefs on both ends of this discussion may benefit from suggestions made by a few participants to conduct an economic analysis of the Refuge's input to the local and regional economy.

While most agree that improved communications and interactions by Refuge staff throughout the planning process are important, opinions on the nature and extent of community involvement in Refuge decisions were diverse. There was much concern about process, but little agreement on how public involvement should be structured. Across perspectives, most agree that public input is important and that good communication is essential. The differences among perspectives revolve around how the public might be involved, and the degree to which their input will be relied upon in the decisionmaking process. Because there is high interest in these questions, it is important to develop a shared understanding of the process that includes detail about when and how public involvement can occur and how input will be used. This includes discussion of the opportunities and constraints of the planning process. Table 1 in this report could be used as a resource for further discussion and public participation planning. Another reference that could be used is a timeline developed by the Refuge that depicts planning stages and shows when public involvement is needed (see Appendix). The important point is to design a process that is as transparent as possible to promote high-quality participation and develop trust among stakeholders.

There is an opportunity for more indepth exploration where lack of consensus is apparent. This is the place where strategic concentration is most needed in order to understand the differences in opinion and the underlying values associated with those differences.

Values are Important in Understanding Perspectives

Although we did not conduct a structured assessment of values held by the stakeholders, we did evaluate the “whys” behind their Q-sorts discussed in followup interviews. This information provided insight into the predominant values likely held by each perspective regarding natural resources and the environment. Values are an expression of basic beliefs held by an individual (Manfredo, Teel, and Bright, 2003). Sometimes, differences in values across stakeholders regarding land management can be attributed to differences between longtime residents and newcomers to a community (Krannich and Smith, 1998; McCool and Martin, 1994). Canaan Valley is an area that has seen changes in the predominant economic sectors in recent years and in the influx of new residents into the community. Many stakeholders expressed concerns that additional changes in land use and local economy were likely with the construction of Corridor H. These deep seated, difficult to change values will continue to underlie the discussions regarding Refuge management. However, understanding these values and the “why” behind preferences is important. As this evaluation revealed, differing values do not always mean differing preferences. Sometimes stakeholders have consensus on issues for very different reasons (for example, the importance of water quality for the Ecological Preservation and the Economic Development Perspectives or the consensus on some aspects of access across all perspectives). As the Refuge moves forward in this planning process, it is important to continue the discussions that reveal the values and reasons behind stakeholders’ opinions and preferences.

Proposed Solutions Provide “Food for Thought”

We asked participants in the Q-sort to provide solutions for the problems they identified. Many shared their ideas, and some reflected deep involvement and years of history in the area. Although the solutions varied in their substance and level of detail, they came from a variety of perspectives, and some were quite specific. These solutions will be useful both in the planning process and as the new CCP is implemented. While not all of the solutions are possible to implement, they show innovative and creative approaches that may be helpful to the Refuge. When it is time to implement the details of the plan, the solutions may be a resource for providing specific strategies for implementation. By incorporating stakeholders’ ideas into the development of the plan and implementation of changes in management, those stakeholders will be motivated to engage in future decision processes.

It is Important to Understand the Decisionmaking Context

As part of this discussion, it is important to address the decision space of the Refuge. A decision space is the set of possible decisions that are allowed for a community decision process. The decisions that the Refuge makes regarding its management must be in accord with the reasons it was established and the mission of the National Wildlife Refuge System. Canaan Valley National Wildlife Refuge was established to “preserve its unique wetlands and to protect the fish and wildlife resources of the Valley.” The mission of the Refuge System is wildlife conservation. These two aspects clearly shape the decision space for the Refuge. However, there is room for collaboration within this space, since most stakeholders seem to recognize that “Wildlife First”

does not mean “Wildlife Only.” An important part of collaborating within this decision space is good communication and a transparent process.

Conclusion

This stakeholder evaluation provides stakeholders, including FWS planners and Refuge staff, with important information on the diversity of perspectives regarding Refuge management, and the values underlying these perspectives. This detailed information can potentially improve the substantive quality of the CCP, because it clarifies and quantifies stakeholder interests and perspectives, and identifies areas of consensus as well as areas of potential conflict.

The five stakeholder perspectives provide a better understanding of the “conversations” regarding key Refuge issues for all stakeholders. Because human values are the basis for these perspectives, there is no right or wrong perspective. It may be helpful for decisionmakers to understand the value basis of each perspective so that support or opposition to management options can be better understood. Anticipating stakeholder reactions and crafting solutions that satisfy diverse stakeholders may be possible when values are clarified and considered.

The purpose of this study was to provide a more meaningful public participation process that would improve the quality and legitimacy of decisions to be made for the 2010 CCP for the refuge. The continued use of high quality deliberative processes when possible can encourage and enable all involved to stay involved.

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Appendix: Key Output from Stakeholder Evaluation Analysis and Timeline of CCP Development

Table A-1. Unrotated Factor Matrix

	Factors							
	1	2	3	4	5	6	7	8
SORTS								
1 99	0.7319	-0.0985	0.1780	0.1505	-0.1608	-0.1985	-0.1680	-0.1956
2 94	0.8192	0.0093	0.0381	0.1177	0.1785	0.3224	-0.0820	-0.1120
3 97	0.7977	0.1136	0.0392	0.0971	-0.1079	-0.0308	0.1965	-0.0201
4 102	0.6291	-0.5274	0.2127	0.1243	0.0598	0.2061	0.1575	-0.0012
5 103	0.6145	-0.0715	0.3707	-0.3989	-0.1139	-0.2103	0.0916	-0.2039
6 104	0.7771	0.1102	0.1240	0.0523	-0.1374	0.1760	0.0410	-0.0599
7 105	0.6302	-0.3695	-0.2111	0.1294	-0.2988	0.1568	0.0567	-0.0456
8 106	0.7149	-0.3532	0.1726	0.1614	-0.2096	-0.1450	-0.0429	0.1038
9 107	0.6863	-0.4400	0.0816	0.0825	0.0791	-0.2248	-0.0237	-0.1599
10 1	0.7016	-0.0380	0.1788	0.2336	0.1507	-0.2602	-0.1288	-0.0962
11 12	0.2510	-0.1542	0.5465	-0.4850	-0.0702	0.1391	-0.1545	-0.2537
12 15	0.8146	-0.0756	-0.0946	-0.1891	0.1358	-0.2844	0.1018	-0.0788
13 17	0.3976	-0.0718	0.3147	0.5902	0.0927	0.1616	-0.1023	-0.0540
14 19	-0.0928	0.7752	-0.1060	-0.1616	0.1373	-0.0997	0.2298	0.0120
15 21	-0.0386	0.7471	0.2209	0.0989	-0.0512	-0.0441	-0.2226	0.0627
16 23	0.1517	0.6151	0.0657	-0.0701	0.1116	-0.0885	0.4251	0.3073
17 26	-0.2830	0.4149	0.0043	0.5022	-0.0888	0.3448	0.1839	-0.0483
18 27	0.4648	0.7262	-0.1218	-0.0720	-0.1053	0.0074	-0.1097	-0.0918
19 31	0.6303	0.4862	-0.0164	0.4181	0.2207	0.0345	0.0057	-0.0716
20 32	0.0456	0.7214	0.2954	-0.0997	0.2107	0.1205	0.1406	0.1334
21 33	0.5360	0.4494	-0.3663	-0.3325	-0.0771	0.1593	-0.1541	-0.0388
22 38	0.6900	0.0738	0.0566	0.0123	-0.1744	0.1547	0.3680	-0.2060
23 40	0.3622	0.4753	-0.3613	0.0312	-0.0969	0.2195	0.1262	-0.4348
24 41	0.7092	-0.2359	-0.3145	-0.1784	-0.1899	0.1127	-0.0417	0.0503
25 46	0.6309	0.0190	0.1019	0.0721	-0.2841	0.1338	-0.2374	0.3450
26 48	0.5323	0.0997	-0.0715	-0.0063	-0.3529	-0.2167	-0.2783	0.1897
27 53	0.3609	0.6019	-0.0816	0.1777	0.2352	-0.0820	-0.2440	-0.1815
28 55	0.6629	-0.5063	-0.2570	0.0546	0.0285	0.0428	0.0704	0.1149
29 56	0.2188	0.8038	-0.0100	-0.0422	-0.1291	0.0250	-0.1091	-0.2219
30 58	0.6241	0.0751	-0.2656	-0.0251	0.5157	-0.0089	-0.1870	-0.1265
31 59	0.7021	-0.4792	0.2137	0.0777	0.0105	-0.0328	-0.1947	0.0452
32 61	0.6395	0.1969	-0.2738	0.0476	-0.1246	-0.3424	0.2022	0.1539
33 67	0.6686	0.2098	0.2130	0.2780	-0.1682	0.0295	-0.1542	0.0212
34 68	0.5185	-0.6057	-0.2477	0.0638	0.0057	0.1373	0.0152	-0.0647
35 71	0.6214	0.3927	-0.1057	0.0785	-0.2614	-0.0147	0.2166	0.0322
36 72	0.2611	0.7671	-0.0440	-0.1373	0.0869	0.0220	-0.0371	0.1645
37 73	0.7838	-0.1761	-0.3183	-0.0944	0.1435	0.1868	0.0349	0.0744
38 74	0.5007	0.6074	-0.1904	-0.1132	0.1205	0.3122	-0.1139	0.1614
39 76	0.3928	0.6477	0.0955	0.0118	-0.0287	-0.2359	-0.1775	-0.0048
40 79	0.3914	0.3612	0.4214	-0.2555	0.0601	-0.0466	0.3055	0.2853
41 82	0.7498	-0.1147	-0.0576	-0.1073	-0.0833	-0.2680	0.1643	-0.1958
42 83	0.6592	-0.1606	-0.0956	0.0723	0.1783	-0.0652	0.1993	0.1717
43 84	0.2117	-0.2331	0.4077	-0.2181	0.5361	-0.0567	-0.2423	0.0955
44 85	0.1739	0.4297	0.5312	-0.3386	-0.1903	0.1446	-0.0439	-0.1691
45 88	0.5037	-0.4866	-0.1583	-0.2956	0.2663	0.2883	0.0359	-0.0788
46 69	0.6700	0.3133	0.1327	0.1139	0.1033	-0.0237	-0.1720	0.2624
47 109	0.6978	-0.0922	0.4268	0.2147	-0.1638	0.0014	0.0238	0.0793
48 110	0.6412	0.1836	0.3538	-0.0816	0.1106	0.2495	0.1131	0.1527
49 111	0.7622	-0.4131	-0.0336	-0.1035	0.0583	-0.0879	0.1098	0.0875
50 4	0.2962	-0.3620	0.6328	-0.2443	0.0210	0.2018	0.0838	-0.0190
51 57	0.3707	0.7280	-0.1766	-0.2392	-0.0126	-0.1196	-0.1070	-0.1087
52 100	0.7043	-0.0371	0.0087	0.1829	0.0379	-0.1921	0.1861	-0.0659
53 60	0.7420	-0.3389	-0.3277	0.0115	0.3000	-0.0358	-0.0899	0.1083
54 47	0.7909	0.1369	-0.1621	-0.2417	0.1570	-0.0407	0.0878	-0.1273
55 91	-0.1693	0.4734	0.2529	0.5476	0.2869	-0.0516	0.1698	-0.1485
56 101	0.6409	0.1824	-0.2738	-0.0658	-0.1790	0.2072	-0.1965	0.2557
Eigenvalues	18.6257	9.8235	3.5258	2.6730	1.9475	1.6142	1.5562	1.3728
% expl.Var.	33	18	6	5	3	3	3	2

Table A-2. Factor Matrix with an X Indicating a Defining Sort

QSORT	Loadings				
	1	2	3	4	5
1 99	0.2166	0.0731	0.1680	0.7370X	0.0438
2 94	0.5045	0.2481	0.1301	0.5932X	0.1832
3 97	0.2861	0.3192	0.0920	0.6925X	0.0106
4 102	0.4277	-0.3380	0.2537	0.6018X	0.1197
5 103	0.2174	0.1364	0.6157X	0.4478	-0.2162
6 104	0.2326	0.3051	0.1770	0.6889X	-0.0038
7 105	0.3311	-0.1707	-0.1444	0.6828X	-0.2419
8 106	0.2591	-0.1731	0.1664	0.7815X	-0.0135
9 107	0.5063	-0.2157	0.1802	0.5877X	0.0609
10 1	0.3546	0.1301	0.1546	0.5898X	0.2975
11 12	0.0222	-0.0537	0.7520X	0.1562	-0.1797
12 15	0.6275X	0.2321	0.1986	0.4821	-0.1141
13 17	0.0294	-0.0747	0.0014	0.5459	0.5610X
14 19	-0.1341	0.7404X	-0.0458	-0.3101	0.0357
15 21	-0.4079	0.6339X	0.0505	-0.0213	0.2230
16 23	-0.0595	0.6291X	0.0887	-0.0269	0.1232
17 26	-0.4556	0.2058	-0.3729	-0.0359	0.3494X
18 27	0.0169	0.8329X	-0.0415	0.2698	-0.0774
19 31	0.2305	0.5911X	-0.1451	0.4737	0.4576
20 32	-0.1785	0.6810X	0.2744	-0.1399	0.2712
21 33	0.3225	0.6731X	-0.0507	0.2048	-0.3720
22 38	0.2119	0.2565	0.1288	0.6174X	-0.0825
23 40	0.1247	0.5803X	-0.2878	0.2154	-0.1281
24 41	0.5103	0.0500	-0.0327	0.5417X	-0.4098
25 46	0.0975	0.1638	0.1093	0.6611X	-0.0961
26 48	0.0661	0.2367	-0.0157	0.5491X	-0.2467
27 53	0.1391	0.6656X	-0.1137	0.1444	0.2999
28 55	0.6314X	-0.2439	-0.0777	0.5331	-0.1314
29 56	-0.2081	0.8097X	-0.0219	0.1134	-0.0106
30 58	0.7463X	0.3355	-0.0215	0.1695	0.1833
31 59	0.4310	-0.2672	0.2835	0.6580X	0.0632
32 61	0.3058	0.3918	-0.1632	0.4965X	-0.1426
33 67	0.0352	0.3132	0.0890	0.7084X	0.1816
34 68	0.5659X	-0.3844	-0.0967	0.4503	-0.1448
35 71	0.0712	0.5321	-0.0840	0.5642X	-0.1113
36 72	-0.0043	0.8256X	0.0448	0.0061	0.0362
37 73	0.7201X	0.1403	-0.0289	0.4642	-0.1468
38 74	0.2522	0.7664X	-0.0266	0.1773	-0.0124
39 76	-0.0585	0.7045X	0.0863	0.2567	0.1036
40 79	0.0124	0.4527	0.5280X	0.2039	0.0687
41 82	0.4358	0.1408	0.1430	0.5784X	-0.1801
42 83	0.5393X	0.0651	0.0345	0.4512	0.0808
43 84	0.3997	-0.1205	0.5731X	-0.0758	0.3031
44 85	-0.3085	0.4315	0.5847X	0.1352	-0.0808
45 88	0.7247X	-0.2079	0.2022	0.1808	-0.1786
46 69	0.2412	0.4679	0.1485	0.4923X	0.2164
47 109	0.0761	0.0283	0.3214	0.7784X	0.1862
48 110	0.2239	0.3467	0.4394	0.4470X	0.1603
49 111	0.6154X	-0.1243	0.2030	0.5626	-0.1218
50 4	0.0797	-0.2762	0.7193X	0.2783	0.0442
51 57	0.0838	0.8478X	0.0061	0.0811	-0.1536
52 100	0.3682	0.1514	0.0339	0.5970X	0.1273
53 60	0.8271X	-0.0279	-0.0703	0.4160	-0.0046
54 47	0.5994X	0.4402	0.1584	0.3965	-0.1352
55 91	-0.2948	0.2870	-0.1351	-0.0744	0.7112X
56 101	0.3031	0.3938	-0.1051	0.4825X	-0.2542
% expl.Var.	14	18	7	21	5

Table A–3. Correlations Between Factor Scores

	1	2	3	4	5
1	1.0000	0.1002	0.2664	0.7662	-0.2273
2	0.1002	1.0000	0.0819	0.2697	0.2476
3	0.2664	0.0819	1.0000	0.4435	-0.1166
4	0.7662	0.2697	0.4435	1.0000	0.0380
5	-0.2273	0.2476	-0.1166	0.0380	1.0000

Table A–4. Statements used in the Canaan Valley National Wildlife Refuge stakeholder evaluation and the average rankings by Perspective.

Statement Number	Statements	Perspectives				
		Ecological Preservation n=10	Recreational Access n=14	Traditional Wildlife Management n=6	Wildlife First, Recreation Second n=22	Economic Development n=3
1	The Refuge should manage for recovery and restoration of the great forests that once covered the area.	4	0	-3	-1	-1
2	It is unfair that hunters using the Refuge have off-trail access, while other users must stay on the trails.	1	1	-3	-1	-3
3	The Refuge should increase the deer harvest by developing trails to make it easier for hunters to access the Refuge interior.	-3	0	2	-3	1
4	Important to minimize development pressures in and around the Refuge to prevent loss of wildlife and plant habitat.	3	-1	1	1	1
5	Woodcock hunting should be banned on the Refuge.	-1	-3	-5	-4	-2
6	In some cases there are sections of trails that have been degraded to the point where use of mountain biking just shouldn't continue.	1	-4	-2	0	0
7	One of the most important Refuge issues is the lack of an adequate visitor center and the lack of available Refuge personnel to present programs or answer questions.	-2	0	-2	0	-4
8	The control and eradication of invasive species should not be a high management priority for the Refuge.	-4	-1	-4	-5	-2
9	The Refuge is a key part of the economic development picture for the Canaan Valley, Tucker County, and the West Virginia Highlands because it supports local businesses and draws tourists from all over the world.	1	3	1	1	-5
10	Tucker County should not rely on tourism for all of its business; tourism should be balanced with industry.	-2	-1	-1	-2	4
11	It is important to ensure the continued protection of the diverse wetland complex on the Refuge.	4	1	2	5	3
12	Continuous, looped and easy trails should be provided on the Refuge.	0	5	1	1	2
13	I would like to see more areas within the Refuge designated as nature viewing areas, with no hunting, fishing or dogs allowed.	0	-2	-3	-2	-2
14	A trail that crosses the valley is important because the close contact with our wetlands would be a moving experience that would help visitors care more for the resource.	-1	4	-1	-1	-1
15	It is critical, as part of the Refuge planning process, to repair the deep-rooted mistrust of the U.S. Fish & Wildlife Service.	-2	3	0	2	3
16	I support biking corridors through the Refuge. These corridors are vitally important links in the recreational trail system that connects Tucker County's communities, parks, and forests.	-1	4	-1	-3	2
17	Since the Refuge comprises the largest wetland in West Virginia, monitoring and protecting water quality is of primary importance.	4	1	0	4	3
18	It is imperative that the Refuge find ways to increase deer harvesting to protect the fragile, significant and in some cases rare plant communities.	-2	-1	4	1	3
19	It is important that any new trails the Refuge creates are compatible with the "wildlife first" mission of the National Wildlife Refuge system.	2	-2	3	4	1
20	The Refuge should help grassland bird populations recover and ensure their success in the future.	1	0	2	1	0

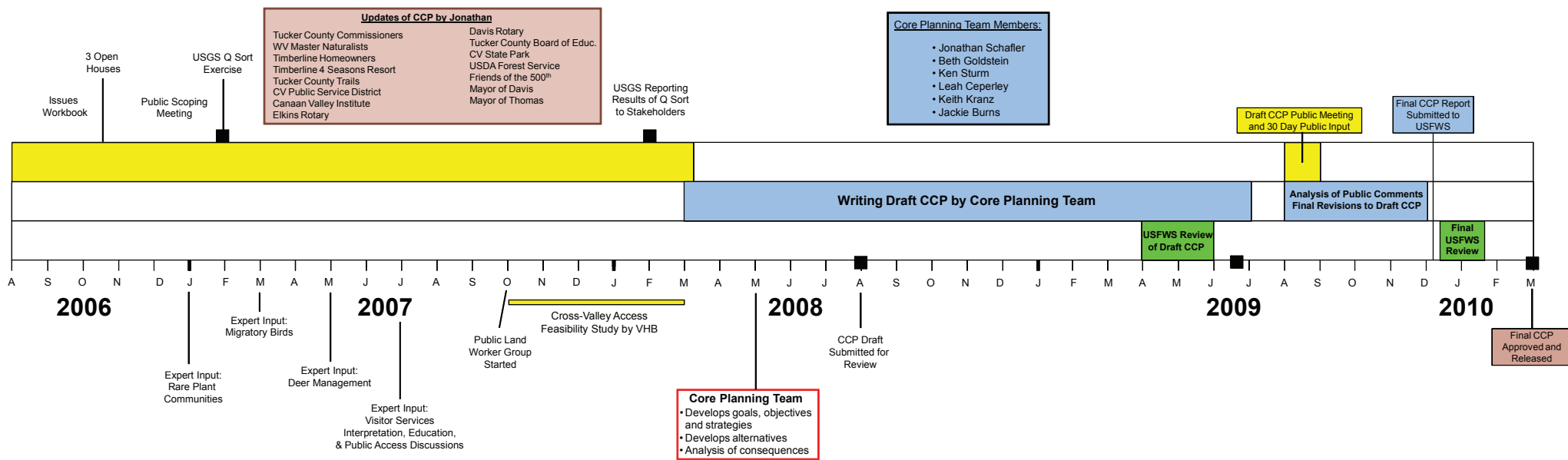
Table A-4 (Continued).

Statement Number	Statements	Perspectives				
		Ecological Preservation n=10	Recreational Access n=14	Traditional Wildlife Management n=6	Wildlife First, Recreation Second n=22	Economic Development n=3
21	Access to the Refuge should be improved through the restoration of historic railroad grades. These would allow a great variety of habitat to be seen without leaving the trail system, thereby avoiding damage to the bogs.	0	4	3	-1	4
22	Bicyclists don't need access to the Refuge because they have plenty of other places in the county to ride--highways, roadways, state parks, national forests, and taxpayer-funded bike trails.	-1	-5	0	-2	-3
23	The thing I value most about the Refuge is knowing the area will be preserved and better managed for grouse/woodcock.	-3	-2	5	-2	0
24	I support low impact mountain biking on the Refuge.	0	2	0	-2	2
25	The Refuge should be for wildlife and not a playground for tourists lured by the promise of being able to hike, bike, backpack, or ski on land that once upon a time could be used by anyone.	0	-5	3	0	0
26	The most important problem facing the Refuge is lack of funding to provide services.	0	-1	0	-1	-5
27	It is important to maintain plant and animal habitat connections between Refuge lands and neighboring Monongahela National Forest and Canaan Valley State Park lands.	5	2	3	3	-2
28	The most important issue in this planning process is to establish a meaningful method of creating dialogue between the Refuge and the local community.	-2	2	-3	4	5
29	I believe access through the Refuge creating a connected trail system will support exceptional recreational opportunities and will provide economic benefits to local businesses.	-1	5	0	0	0
30	I strongly support the Refuge's purpose. It is important to continue to resist the desire of some locals to expand human activity on the Refuge and turn it into a National Forest "land of many uses."	3	-4	2	2	-1
31	Development, rather than preservation, would be in the best interest of the valley.	-5	-4	-5	-5	1
32	The thing I value most about this Refuge is that it is one of few places in the state to hunt woodcock.	-4	-2	5	-3	-3
33	Minimizing the impact to wetlands should be the driving factor in determining access to the Refuge.	3	0	0	2	-1
34	The Refuge should provide more education about its unique habitats through self-guided and guided trail walks.	1	1	-2	2	-1
35	While the community wants the Refuge to be a shining example of why we need to protect and conserve our wildlife resources, the decisions and implementation of decisions has been contrary to this process.	-3	0	-1	-3	1
36	Refuge staff should meet with a committee of local interests on a regular basis to discuss and recommend solutions to issues before decisions are made so that local perspectives are integrated into the planning process.	-3	3	-2	0	5
37	The Refuge should do more to protect threatened and endangered species such as the Cheat Mountain salamander and the West Virginia northern flying squirrel.	2	-2	2	1	-1

Table A-4. (Continued).

Statement Number	Statements	Perspectives				
		Ecological Preservation n=10	Recreational Access n=14	Traditional Wildlife Management n=6	Wildlife First, Recreation Second n=22	Economic Development n=3
38	I support a hiking trail crossing the valley that would connect Forest Service lands to Dolly Sods Wilderness Area.	0	3	-1	0	2
39	We will never have a decent tax base in our county if the government is not stopped from grabbing up all our land.	-5	-3	-4	-4	4
40	By preserving wildlife resources the Refuge maintains the scenic beauty and quality of life valued by those who live, visit, or vacation in the area.	3	1	4	3	-2
41	I value the role the Refuge plays in conserving and restoring West Virginia's streams and rivers.	5	1	1	2	-3
42	We need better access for all people (handicapped, families, elderly, and mainstream people) not just die-hard fitness types.	-1	2	-1	-1	0
43	The most important problem facing the Refuge is keeping the "tree-huggers" from taking it over.	-4	-3	1	-4	-4
44	Wilderness designation should be obtained for portions of the Refuge to protect fragile environments and allow natural processes to restore the area.	2	-3	-4	0	1
45	I support new ideas for providing reasonable access while protecting fragile ecosystems, for example, guided hikes by experts, fencing fragile areas near trails, building boardwalks, and/or a permit system for backcountry use.	1	0	1	3	2
46	I support the Refuge acquiring lands within the acquisition boundary to help protect wildlife habitats.	2	-1	4	5	-4
47	It is important for the Refuge to provide the research, evidence, or logic behind management decisions.	2	2	-2	3	0

Figure A–1. Timeline of CCP Development



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