

Planning for People? An Evaluation of Objectives for Managing Visitors at Wildlife Refuges in the United States

Jeffrey J. Brooks and Robert Massengale

Abstract—This study evaluates the quality of planning objectives for visitor services as written in Comprehensive Conservation Plans for the National Wildlife Refuge System of the United States. Planners in the U.S. Fish and Wildlife Service are predominantly writing public use objectives that address wildlife recreation and education. Results indicate that planners are writing visitor services objectives that are achievable and results oriented. Overall quality of objectives has improved since the Refuge Improvement Act of 1997. The highest quality objectives identified target audiences, accounted for monitoring, and were accompanied by detailed rationales and literature citations. More work is needed to write objectives that are specific, measurable, time limited, and credible. Implications for refuge planning are discussed, including changes in monitoring strategies and expertise as the focus of visitor services planning potentially shifts from providing opportunities to enabling the experiential outcomes that are desired for refuge visitors.

Introduction

We believe that in its broadest sense, conservation planning has three main purposes that are equally important: planning for the maintenance of ecological function, biological diversity, and visitor services for the indefinite future. This paper is about visitor services planning, which generally addresses people's access to, enjoyment and use of, and learning about conservation areas. Effective project planning in general and conservation planning in particular require knowing specifically what our goals and objectives should be and how to measure progress in reaching them

Jeffrey J. Brooks is a Social Scientist, U.S. Department of Interior, Fish and Wildlife Service, National Wildlife Refuge System, Division of Conservation Planning and Policy, Anchorage, Alaska 99503 U.S.A. Fax: 907.786.3965. E-mail: jeffrey_brooks@fws.gov.

Robert Massengale served as Planning Assistant and Intern, Student Conservation Association, U.S.A.

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(Lewis 2002; Meretsky and others 2006; Salafsky and others 2002; Schroeder 2006; Tear and others 2005). Likewise, an important part of visitor services planning is writing specific objectives to guide how we provide and manage opportunities and enable experiences for people who visit wildlife refuges and other conservation areas (Adamcik and others 2004; Schomaker 2008). Attaining our objectives for visitor services is important because successfully doing so can enable visitors to understand their roles in conservation and the value of wildlife refuges (Meretsky and others 2006). The purpose of this paper is to examine how well conservation planners in the United States Fish and Wildlife Service (FWS) are writing planning objectives for visitor services.

Planners in the FWS are directed by laws and policies to plan for visitor services and recreation activities such as hunting, fishing, wildlife viewing, and education. The Refuge Improvement Act of 1997 states that recreation activities that are compatible with refuge purposes and focused on wildlife resources are legitimate and appropriate public uses of refuges. The overarching goal of the FWS policy on visitor services is to enhance access to quality experiences and opportunities for recreation that is based on wildlife resources (FWS 2006). The FWS uses a planning process to develop a Comprehensive Conservation Plan (CCP) for each refuge. The CCP is the official document used by FWS to fulfill the mission of the National Wildlife Refuge System (NWRS), describe the desired future conditions or goals of refuges, and provide long-term guidance and direction to achieve the purposes for which the refuges were established. Planners are directed to write goals for visitor services and develop objectives to address each goal in each refuge's CCP. Planners need to articulate objectives so that what the FWS should measure to assess progress toward attainment (FWS 2000) is clear.

The purpose of writing high quality objectives for visitor services is to have more effective and successful visitor management plans and, ultimately, citizens who better understand their roles in conservation at wildlife refuges. Publishing planning objectives that are specific and measurable allows the FWS to document its progress and defend its conservation practices when it is challenged on contentious issues (Meretsky and others 2006). To be competitive with the many other goals and objectives of a political society, conservation objectives, including those for visitor services, must be evaluated against and meet established principles and criteria (Schroeder 2006; Tear and others 2005). Evaluating planning objectives allows planners and policy makers to

track effectiveness and improvement over time and allocate limited resources to well-designed conservation strategies and visitor services programs that have been successfully implemented in the field.

To assess the condition of visitor services planning for the FWS, we evaluated the quality of visitor services objectives published in 1997 through 2009 as part of the CCP process. We focused on objectives written to address public recreation, education, and enjoyment and use of wildlife resources at refuges across the NWRs. We adapted an evaluation tool from the literature for the analysis.

Methodology

Evaluation Framework

To understand the essential properties of effective objectives for visitor services planning and determine the appropriate criteria for evaluation, we conducted an Internet search for previously published work using <http://www.google.com>. We found scant literature that specifically evaluated visitor services goals and objectives for planning at national

wildlife refuges. However, a number of authors, writing in both academic and applied outlets, described frameworks for writing and evaluating planning objectives for biological and ecological conservation goals. For example, Schroeder (2006) evaluated conservation objectives in refuge CCPs that address ecological restoration, and Tear and colleagues (2005) used case studies to highlight fundamental principles and standards for setting conservation objectives.

Project managers, planners, and analysts have used various adaptations of a common framework to judge the essential qualities of planning objectives (table 1). The framework is called SMART, and the acronym generally denotes five criteria that characterize objectives that are well written: Specific, Measurable, Attainable, Realistic, and Time Limited (Lewis 2002). Margoluis and others (1998) defined effective planning objectives as detailed statements that describe the specific outcomes or accomplishments of a project and possess the SMART qualities. Tear and his colleagues (2005) outlined five fundamental principles for setting effective, science-based objectives in the field of conservation biology, including writing planning objectives that are measurable by some standard scale.

Table 1—Summary of evaluation frameworks found in the literature and used by conservation professionals to judge the quality of effective planning objectives.

Source and arena	Objective defined	Principles, standards, and criteria
<p>Lewis 2002 Corporate project management</p>	A statement that tells a manager what result is to be achieved; it defines the desired end state.	The desired result must be valid for the person or group that will work toward meeting the objective. Objectives must be Specific, Measurable, Attainable, Realistic, and Time Limited .
<p>Margoluis and Salafsky 1998 International development and conservation biology</p>	A detailed statement that describes the specific accomplishments of a project.	<p>Specific: The objective is defined so that all project participants have the same understanding of what the terms in the objective mean.</p> <p>Measurable: The objective is defined relative to a certain standard scale such as a number, percent, ratio, or fraction.</p> <p>Practical: The objective is clearly achievable and appropriate within the context of the conservation area.</p> <p>Impact Oriented: The objective is written so that it is clear that its attainment will produce a change or impact in the target condition.</p> <p>Time Limited: The objective will be attained within a specific period of time.</p>
<p>Adamcik and others 2004; Schomaker 2008; Schroeder 2006 Conservation planning in a federal land management agency</p>	A concise statement of what a manager wants to achieve.	Objectives are derived from planning goals and are used to determine and evaluate the success of management strategies. Objectives must be Specific, Measurable, Achievable, Results Oriented, and Time Fixed ; based on sound, documented science; and supported by a clear rationale.
<p>Tear and others 2005 Conservation biology and ecology</p>	A statement that specifies a quantifiable area or number of individuals/populations identified in a conservation plan or vision.	Conservation planners must state clear but general goals, define measurable objectives, separate science from feasibility, use the scientific method, and anticipate change.

Planners in the FWS are directed to write measurable objectives based on scientific and expert knowledge, cite appropriate literature, write detailed rationales, and develop implementation strategies to explain and support their objectives (Adamcik and others 2004; FWS Manual 2000). The FWS published a handbook in 2004 for planners in the NWRS titled *Writing Refuge Goals and Objectives* in which it defined objectives as concise statements derived from planning goals of what we want to achieve, how much we want to achieve, when and where we want to achieve it, and who is responsible for the work (Adamcik and others 2004). The FWS handbook outlined a variation of SMART to define the essential properties that CCP objectives should possess, and Schroeder (2006) applied the framework in an evaluation of FWS planning objectives for ecological restoration. Based on this literature, we developed an adaptation of the SMART framework as our core evaluation tool and crafted appropriate definitions for each criterion to guide this analysis (table 2).

Sampling

We used a cluster sampling design, proportionate to size, with stratification (Scheaffer and others 1996; Watson and others 2000). We randomly selected 54 CCPs as clusters of objectives, and within CCPs, we evaluated all objectives

($n = 352$) that addressed visitor services. We sampled from a list of all CCPs ($n = 196$) that were finalized and published in 1997 through 2009, 1997 being the year that the Refuge Improvement Act became law. We stratified the sample proportionately to account for different numbers of refuges within regions and urban and rural areas in the NWRS. In other words, we selected a number of CCPs from each of eight regions (strata) proportionate to the total number of CCPs that were finalized in that period for each region. To account for differences in population size near refuges, we selected CCPs proportionate to the total number of urban and rural refuges in each region that had published a final plan in that period. Urban designations were given to refuges that were within 10 miles of a centralized population of 50,000 people or greater (U.S. Census Bureau 2002). Approximately 20 percent of the CCPs sampled came from urban refuges.

Analysis

To ensure consistency in judging the quality of objectives (Schroeder 2006), one investigator independently reviewed the appropriate sections of the CCPs and read and scored each objective that pertained to visitor services against each SMART criterion in table 2. The analyst independently coded the content of each objective either “yes,” “partial,” or “no”

Table 2—Evaluation framework, based on the SMART criteria, with definitions used to judge the quality of visitor services objectives for refuge Comprehensive Conservation Plans, and supporting information examined in relation to quality.

Essential quality	Conceptual definition	Applied definition (Yes/Partial/No)
Adaptation of SMART		
Specific	A well defined, targeted objective that clearly states the issue at hand in an unambiguous manner.	Objective provides a clearly defined target issue to be addressed by an understandable course of action.
Measurable	A quantified target for managers to achieve.	Objective provides a numerical benchmark, standard, or tangible product envisioned as an outcome.
Achievable	Establishes realistic and reasonable expectations for meeting the objective.	Objective communicates a reasonable, practical action that makes sense in the context of the goal and rationale.
Results Oriented	Outlines a specific outcome as a result of an action or response to an existing issue.	Objective presents a clear outcome resulting from the proposed action on the target issue.
Time Limited	Establishes a defined time line or benchmark for achievement of the objective.	Objective specifies a date or time limit for initiation, implementation, or completion.
Supporting Information		
Visitor Target	What public group is being addressed?	Objective specifies a defined type of visitor or audience such as children, adults, hunters, or anglers.
Citations	Is objective based in credible academic, management, or policy research?	Objective contains citations of previous work for support.
Monitoring	How do we know if we met the objective?	Objective discusses some means of evaluating progress toward attainment.
Rationale	Why is the objective important and necessary?	Objective is supported by a discussion that provides background and justification.

based on the extent to which it satisfied each criterion. “Yes” signified that an objective clearly and adequately satisfied a criterion based on our definitions in table 2. A partial score signified that an objective had met some of the property of the criterion but was incomplete or inadequate. “No” was coded for objectives that did not meet the definition of the criterion in any way. That is, a score of “no” meant that the essential quality was altogether missing from the objective. The analyst also independently examined each objective, with its underlying strategies, for the documentation of supporting information such as citations and monitoring strategies (table 2).

Results and Discussion

Wildlife Recreation

We evaluated a total of 352 planning objectives. We found that 79 percent of these addressed one of six activities directly related to wildlife on refuge lands, including hunting, fishing, wildlife viewing, photography, education, and interpretation of wildlife resources. These activities are priority public uses of the NWRS as identified in the Refuge Improvement Act of 1997. Our analysis indicated that planners in the FWS are publishing a majority of visitor services objectives that address wildlife recreation and related activities.

The SMART Criteria

Overall results for the SMART evaluation of visitor services objectives are presented in figure 1. We found nearly all objectives (97 percent) to be achievable in that they communicated a realistic and reasonable expectation for attainment. We found over 60 percent of the objectives to be results oriented in that doing the proposed action would produce a clear outcome relevant to the target issue. An additional 20 percent were judged to partially meet the Results Oriented criterion. We found over 40 percent of the objectives to be time limited in that the wording of the objective defined a timeline or benchmark for attainment. We found 37 percent of the visitor services objectives to be measurable and 30 percent to be specific as judged against the definitions in table 2. Our results indicated that more work is needed on the part of FWS planners to write visitor services objectives that provide a clearly defined target to be addressed by specific management actions and that can be measured using standard metrics. We suggest, however, that FWS planners are paying attention to the level of specificity with which they write objectives for visitor services as evidenced by our finding that 33 percent of the objectives partially satisfied the Specific criterion (fig. 1).

Initially, we used the SMART criteria to evaluate the wording of each objective in combination with the wording of any implementation strategies that were written in support

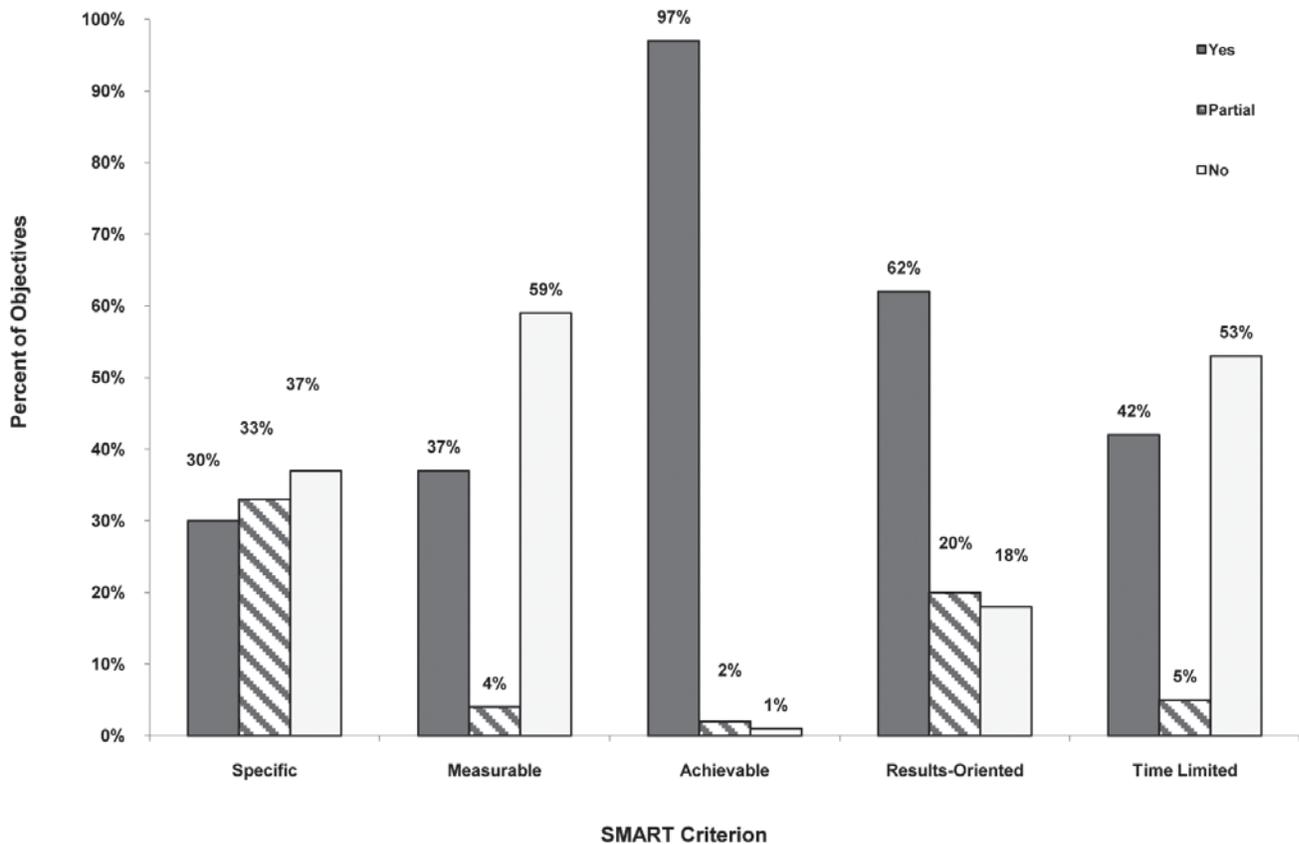


Figure 1—Overall results of the SMART evaluation for visitor services objectives for refuge Comprehensive Conservation Plans (n = 352).

(Schroeder 2006). We believe that including the strategies in the evaluation resulted in an overly optimistic estimate of quality for visitor services objectives. That is, we initially found a higher level of positive outcomes on the SMART criteria than was reflected by reading only the wording of the objectives. Although we would recommend writing strategies as an important part of CCPs, it may often be the case that policy decision makers and other stakeholders only have time to read the objectives apart from the accompanying strategies. Executive summaries, for example, usually do not include such details, and some CCPs do not include strategies. For these reasons, we decided to evaluate the wording of each objective by itself on the SMART criteria. When we compared results, we found substantial differences for all criteria except Achievable (fig. 2). When strategies were included in the SMART evaluation, we judged a greater number of objectives to meet the criteria of Specific, Measurable, Results Oriented, and Time Limited. We suggest that this finding highlights the need to write higher quality, stand alone objectives for decision makers and other stakeholders who may never see or read strategies.

Supporting Information

To provide a broader understanding and deeper description of the qualities of effective objectives for visitor services, we examined the relationship between quality, based on the SMART criteria, and the presence of four types of supporting information described in the literature and FWS policy

directives. These included visitor or audience target, cited references, an account of monitoring, and a rationale used to explain and justify the objective (table 2). We used figure 3 to show the relationship between the quality of objectives and the presence of this supporting information. We determined that 14 percent of the sample of objectives that we evaluated satisfied all five SMART criteria (n = 49). These are the highest quality objectives. All 49 identified a type of visitor or group of people as the target of or audience for the proposed action (fig. 3), which contributed to the specificity of these objectives. All of the top SMART objectives were accompanied by a rationale that explained or justified the objective. A substantial number of the highest quality objectives (82 percent) documented a plan or strategy for monitoring progress toward attainment. Only 39 percent of the objectives cited references, indicating a need for planners in the FWS to write visitor services objectives that are more clearly linked to academic, management, and policy research.

Improvement Over Time

We suggest that one purpose of conducting evaluations of planning objectives for visitor services is to track progress or improvement through time. We examined improvement over time in this study by comparing the percentage of objectives that satisfied all five SMART criteria by year of CCP publication (fig. 4). No objectives published in 1997 through 2001 completely satisfied SMART.

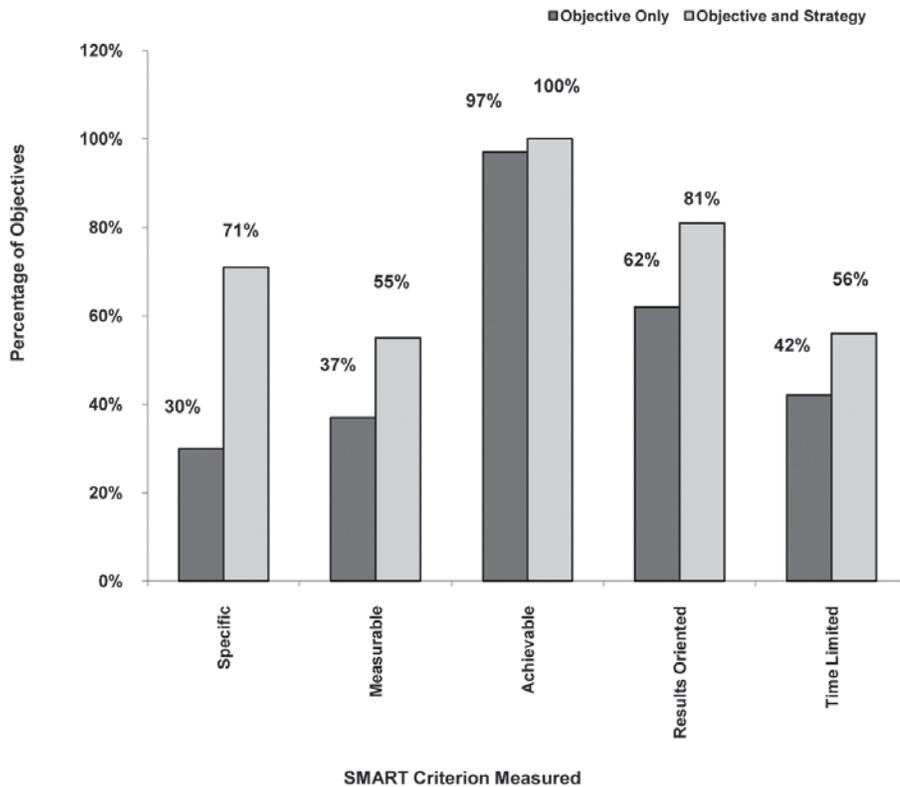


Figure 2—Comparison of results of SMART evaluation for visitor services objectives, wording of objectives only and objectives combined with supporting strategies (n = 352).

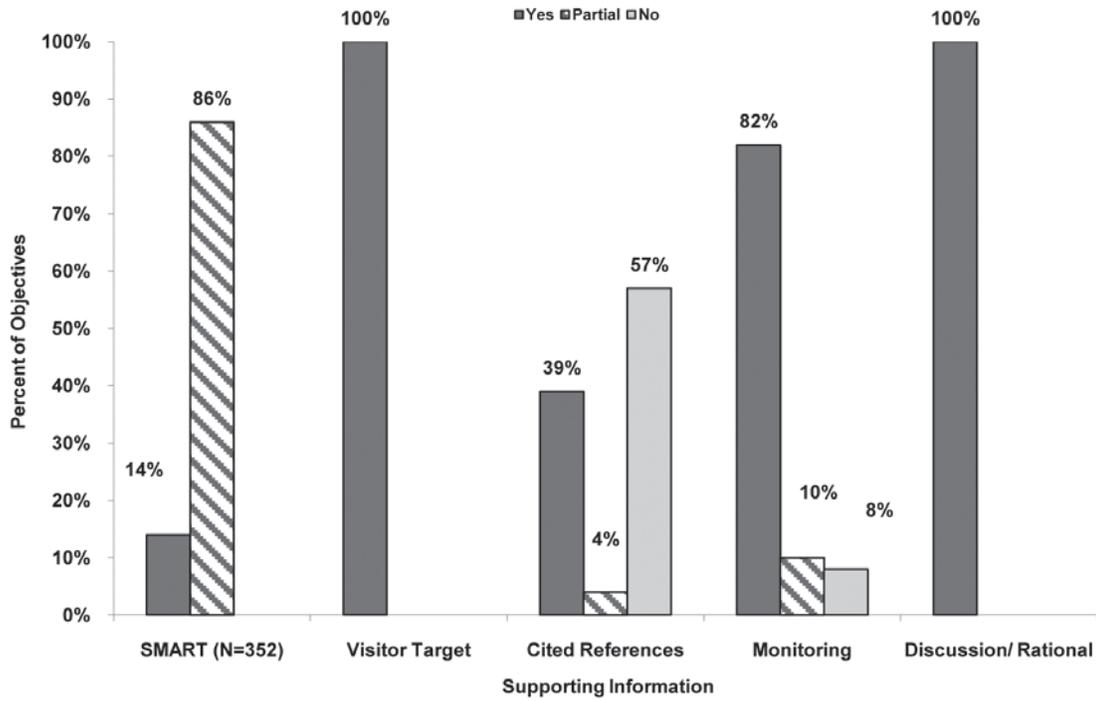


Figure 3—Documentation of supporting information to accompanying visitor services objectives for objectives that satisfied all five SMART criteria (n = 49).

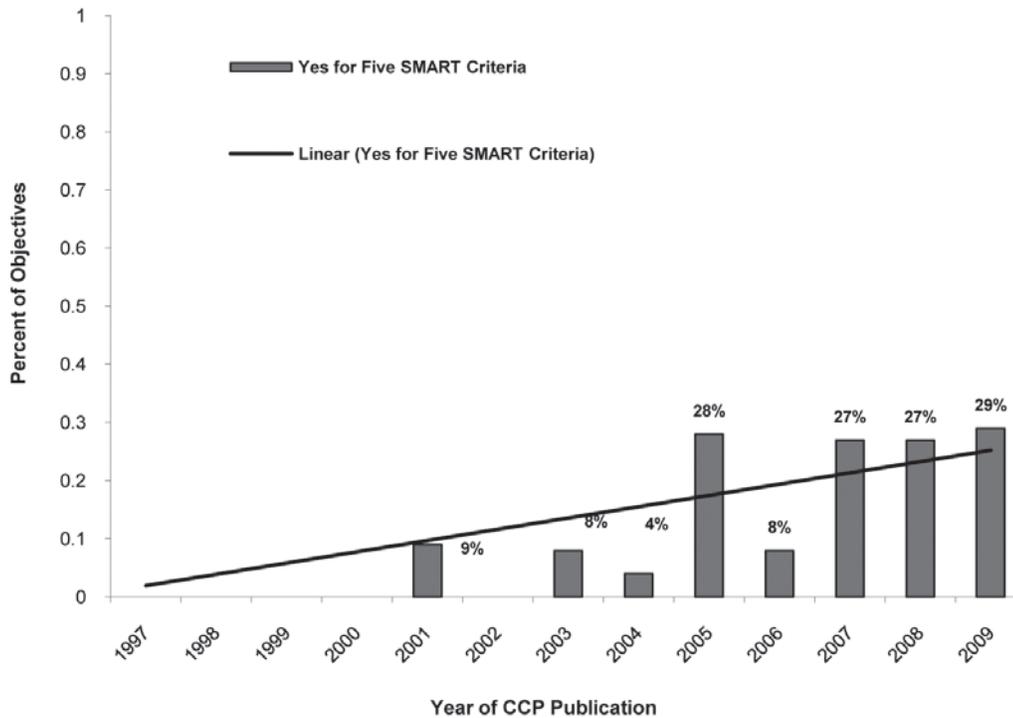


Figure 4—Increase in the percentage of visitor services objectives that satisfied all five SMART criteria, showing a linear trend of improvement over time in quality for objectives in refuge Comprehensive Conservation Plans (n = 49).

For 2002 to 2009, the percentage of highest quality objectives meeting all SMART criteria varied somewhat but showed an overall trend toward improvement with a range of 9 percent in 2002 to 29 percent in 2009. We found this trend in improvement to be consistent with Schroeder (2006) who documented similar improvement over time for biological objectives published in refuge CCPs in 1997 through 2004.

Opportunities and Experiences

Visitor services management generally involves providing and maintaining opportunities and facilities for visitors; managing the settings in which visitors interface with the landscape; and working to understand, provide, and facilitate the experiences that visitors desire and find satisfying. We examined each objective to determine if it identified a target facility, opportunity, or setting to be developed or managed for visitor use. We also checked each objective to see if it identified an experiential outcome for visitors in which an impression, knowledge, or experience could be gained by visitors as a result of doing the proposed action. We found that 56 percent of the objectives that we evaluated focused on providing opportunities or facilities for visitors, and only 10 percent focused on experience outcomes for visitors (fig. 5). We suggest that this result indicates that planners in the FWS need to pay more attention to the types of experiences that people are having at refuges. The FWS also needs to track whether or not visitors are having the kinds of experiences that FWS expects them to have as a result of implementing planning objectives. Finally, it is important to point out that 21 percent of objectives were coded partial for identifying an experience outcome as a target of management (fig. 5).

Implications and Conclusions

Overall, these results indicate that planners in the FWS are doing well at writing visitor services objectives that are achievable and results oriented. However, planners in FWS need to continue to improve the writing of their objectives to be more specific, measurable, and time limited. We presented evidence that the quality of visitor services objectives in refuge CCPs has improved since the Refuge Improvement Act became law in 1997. The greatest amount of improvement in quality occurred after 2004, which was the same year that FWS published guidance for writing planning goals and objectives (Adamcik and others 2004). Figure 4 shows evidence of a correlation between improvement in quality of objectives and year of CCP publication. We recommend that more research be done to investigate this correlation and to better estimate the impact of the guidance handbook and other policy directives on the quality of visitor services objectives in refuge CCPs.

The SMART evaluation framework that we applied in this study can serve as a useful method for evaluating the general quality of planning objectives for visitor services. We believe that more work needs to be done to refine SMART for use with refuge CCPs. The individual criterion used in SMART may not indicate quality for objectives in an equal manner. In other words, some of the criteria are most likely not independent or mutually exclusive. For example, we suspect that the criteria Specific and Results Oriented are closely related. In this study, the Achievable criterion did not differentiate well among objectives; 97 percent of the objectives were judged to be achievable. We found little variance across the sample of objectives on the Achievable criterion. We suggest that planning objectives that are specific, measurable, focused on results, and that have a completion

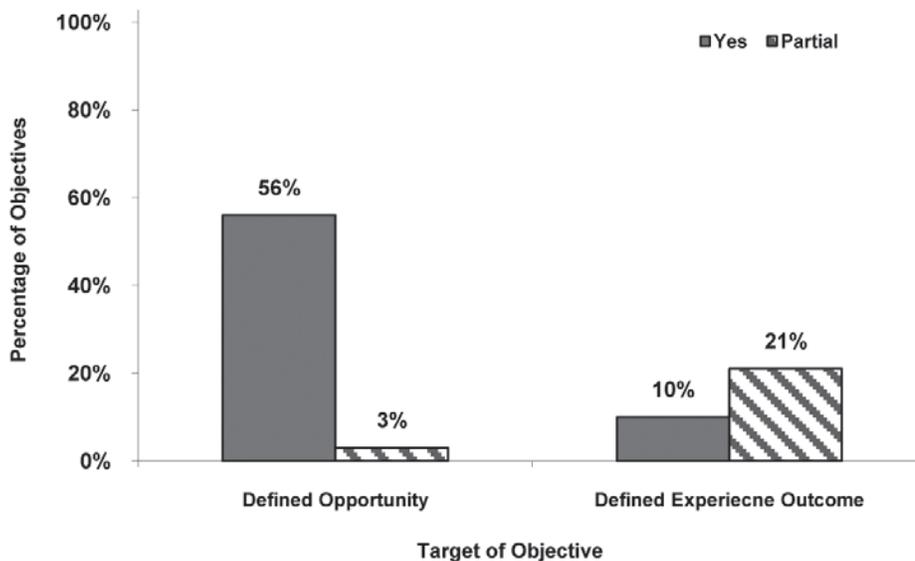


Figure 5—Percentage of visitor services objectives that addressed visitor services opportunities or facilities compared to objectives that addressed experiential outcomes for visitors (n = 352).

date should almost always be achievable given adequate resources. For refuge CCP objectives, we recommend that the Achievable criterion be replaced with a criterion used to indicate accountability to refuge purposes and goals and to the mission of the NWRS. This criterion could be labeled “Accountable” and the SMART acronym would be retained.

To further refine the SMART framework for evaluating the quality of visitor services objectives written in refuge CCPs, we recommend that the analyst define the five criteria at a level of specificity appropriate for the long range, comprehensive, and often general nature of refuge CCPs. The tool used to measure quality of planning objectives must match the context and purposes of the planning document in which the objectives appear. In addition, we recommend that analysts apply the SMART framework to the wording of the objectives apart from their underlying strategies for implementation and other information used in support of the planning objectives. We suggest that doing this will minimize cases in which analysts overestimate the quality of visitor services objectives and their potential impact on the reader. Finally, we recommend that planners create and use a consistent document format to present visitor services objectives in sections of their conservation plans. We found that document sections that used bullets and clear headings and subheadings were easier to review, understand, and evaluate. We advise that readability and a concise presentation style are of great importance to busy decision and policy makers and others who have a stake in conservation.

Figure 3 shows evidence that the objectives of highest quality identified target audiences or specific types of visitors, accounted for monitoring progress, and used rationales to explain and justify objectives. We suggest that investing the time in developing information to support visitor services objectives is related to writing quality objective statements. This includes reading and summarizing relevant literature that has been published about visitor services planning and management. We found that only 7 percent of the objectives that we evaluated cited references. However, we found that nearly 40 percent of the objectives that met all SMART criteria included citations (fig. 3). Effective visitor services objectives written for conservation plans must be scientifically and professionally credible, where expert experience and opinion are corroborated by appropriate scientific procedure and knowledge (Adamcik and others 2004; Schomaker 2008; Schroeder 2006; 2008; Tear and others 2005). We recommend that visitor services planners in the FWS write a detailed rationale or narrative in support of each objective to explain their assumptions and reasoning and cite the available literature or data that they use to develop and write each objective. We understand that it takes effort and time to find what information is available for a specific issue or proposed management action, but we suggest that making the investment to find and use relevant sources can improve the quality and credibility of visitor services objectives.

For decades, social science researchers have been conducting studies and theorizing about the relationship between recreation settings and the experiences of people who visit and recreate in those settings (Borrie and Birzell 2001; Williams 2007). Our results suggest that planners in the FWS are writing more objectives that target opportunities, facilities, and settings for visitors than objectives that address

the experiences of visitors (fig. 5). We suggest that planning and managing for both opportunities and experiences is important and necessary for effective conservation at refuges. Moreover, we believe that it is critical that conservation planners and managers within FWS work toward better understanding the relationships between opportunities and visitor experiences across the NWRS, which will require more training and hiring of staff who possess expertise in the social sciences.

We found that 21 percent of these objectives were written to partially address visitor experiences (fig. 5). We suggest that this finding is evidence that planners in FWS are beginning to invest more effort in planning for visitor experiences but not yet at the same level as for opportunities and facilities. The implications of a shift to planning for experiences are substantial in regard to monitoring attainment. The emphasis in monitoring will need to shift from counting visitors to talking with visitors using surveys, interviews, and focus groups to determine the nature of their experiences and the extent to which visitors are gaining the experiential outcomes that the FWS desires (Adamcik and others 2004). For example, objectives that target school aged children for education on wildlife species or populations can only be monitored by somehow measuring how much the children have learned as a result of participating in the education programs outlined by such objectives. Likewise, the FWS will need to periodically define and measure satisfaction levels for hunters and anglers to monitor success in planning for these activities at refuges.

Over time, researchers developed diverse approaches that have been used to define and monitor the quality of visitor experiences (Borrie and Birzell 2001; Williams 2007). We echo these authors by reminding planners and managers in FWS that visitor experience is multidimensional, complex, and often highly meaningful for individuals. We concur that no one approach to defining and monitoring the experiences of visitors across the NWRS will be adequate. Those who monitor attainment must understand what models and methods are appropriate for specific planning targets and desired outcomes. We recommend that the FWS recommit to and reinvest in training and hiring personnel as a strategy to increase its expertise in the social and economic sciences across the NWRS.

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