

Strengthening the Backbone of Park Natural Resources Management

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Background

The National Park Service has long recognized the importance of planning, monitoring and assessment as essential constituents of the “backbone” of park natural resources management – *If park planning makes up the vertebrae of the backbone, monitoring and assessment is the nervous system providing the feedback on how well our planning is working.* However, the well established NPS planning framework evolved in the absence of service-wide natural resources condition assessment and monitoring programs. It was only recently in 1999 that the Natural Resources Challenge provided funding specifically for ecological condition assessments of park natural resources (the WCA program) and ecological monitoring (the I&M program).

The implementation strategy for the Natural Resources Challenge requires these three programs to become fully integrated to support science-based management of park natural resources. Integrating the planning, monitoring and assessment processes will form functional links that will improve our ability to: 1) incorporate knowledge gained through research, monitoring, and assessment into park resource planning, management, and decision processes; 2) incorporate the information needs of planning and management into the design and implementation of our ecological assessments and monitoring; and 3) improve our processes for reporting on progress toward achieving management goals and objectives.

Presently, park planning, ecological condition assessments and monitoring share a common vision - ensuring effective and efficient implementation of the NPS mission - but are functionally and operationally separated. This separation directly impacts our ability to perform science-based natural resources planning and management, and informed condition and performance reporting. It also promotes significant barriers to communication and basic information sharing. The resource planning, monitoring and assessment programs are in place, but lack integration. In other words, the vision is correct, but the model needs changing.

The time is right for actively pursuing improved integration of NPS planning, condition assessment, and monitoring programs. The 32 I&M networks are now funded and all are scheduled to implement by 2009. The WCA program began implementing in 2006 with prototype assessments at 17 park units distributed across 5 NPS Regions. Twenty-two additional assessments will be initiated in 2007. Another key consideration is that NPS planning has new program leadership, and is currently evaluating ways to assess the efficacy and performance of the planning program. Additionally, members of the planning leadership group have recently expressed interest in working more closely with the Natural Resources Program Center. It is essential that we seize the moment to define the future for integrated resource planning, assessment and monitoring, and map a strategy for getting there.

Integration goes beyond sharing information products - it should focus on identifying opportunities to directly relate the processes, establishing business rules that explicitly link resource planning, assessment, and monitoring. For example, having parks identify their fundamental resources and values prior to, or during, their initial ecological condition assessment would enhance the value of the assessment for the next steps in the planning process - defining desired resource conditions. Subsequent park resource condition assessments could be targeted assessments, triggered by monitoring results, ensuring that they are focused on the most immediate resource management issues. Such linkages will provide numerous benefits that help parks achieve management goals and operate more efficiently. They will improve our ability to demonstrate and communicate progress on performance, incorporate knowledge from current practices to revise and improve management strategies and actions, and respond proactively to emerging resource issues and trends.

The effort should also highlight process barriers to integration. For example, the planning process usually includes zoning based on management boundaries. Typically, these zone boundaries do not correspond well to ecological systems. This can present some significant challenges to our current statistical sampling designs for monitoring. Since the vital signs monitoring is designed around ecological systems, resources may be too limited to expand monitoring to include specific zones for statistical inferences. Some modification of the zoning and/or monitoring process could enhance the relevance of monitoring information.

Following the George Wright Society meeting in April, 2007, Bruce Bingham of the I&M program, Kerri Cahill of the Denver Service Center (DSC) planning staff, and Jeff Albright of the Natural Resources Program Center initiated an interdisciplinary effort to identify opportunities for improving the integration of park planning, ecological condition assessments, and status and trend monitoring. Working with Clifford Hawkes, Jan Harris and Patrick Malone, all from the DSC, we started by conceptually mapping and linking the planning, condition assessment, and monitoring processes (see Figure 1 – “*The Backbone*”).

The backbone figure and narrative below diagrams essential steps and process-flow relationships that should be implemented if parks are to become effective practitioners of science-based management (see narrative for backbone figure). Steps in the planning process are on the left side of the backbone, and condition assessment and monitoring are on the right. The steps and processes all feed into condition and performance reporting, the primary feedback mechanism for improving our planning, management strategies, and implementation actions. Planning, management strategies, and implementation actions in turn provide direct input to the condition assessment and monitoring processes. Although our focus has been on natural resource planning, assessment and monitoring, many of the same steps and process-flow relationships could be suggested for other resource and public use planning and management topics, including cultural resources and visitor use/experience.

Proposal

Our objective in submitting this brief paper is to gain leadership support for continuing with our efforts towards outlining a vision and strategy for integration. We recognize that there are several ongoing efforts among scientists, managers and planners to work more closely together. Dave Vana-Miller is working with the Planning Leadership Group to better integrate new planning program standards with NRPC products. Greg Eckert of BRMD has been working on guidance for better defining desired resource conditions. The Resource Stewardship Strategy effort lead by Gary Mason is providing a process for parks to identify resource indicators and management strategies related to desired resource conditions. Ecological condition assessments and vital signs monitoring are providing information to support the new resource stewardship strategies. The Park Planning and Special Studies Division has been revising the Planning Sourcebook to reflect some of these efforts, along with other updates to the NPS planning framework. These are just a few of the several efforts by groups and individuals working to improve integration of science, management and planning. By focusing on opportunities and barriers to integrating processes, what we are proposing will compliment and enhance these efforts rather than duplicate them.

There are several challenges, or even barriers, to moving from our present organizational, functional and operational structures to the “desired future condition”- fully integrated park planning, condition assessment and monitoring processes. As an interdisciplinary group that understands our current operations and shares a common vision for the future, we, along with other interested participants, propose to complete the following steps:

1. Work with leadership to develop an NPS vision for integrated park resource planning, condition assessment and monitoring processes through program coordination, process links, and information architecture.
2. Analyze and document the requirements for integrating planning, monitoring and condition assessment processes.
3. Analyze our current situation in context to the vision and requirements.
4. Determine the most immediate opportunities for integration – what can we do in the immediate future to put us on the right path?
5. Determine the greatest challenges to long-term integration – what are the real barriers to strengthening links among the planning, assessment and monitoring processes in the long-term?
6. Identify links with other integration efforts such as PRIDE and IRMA and others such as those mentioned in the preceding paragraphs.

Based on our findings we will develop a white paper that provides a blueprint for integration, and a proposed strategy for getting to the future. We would be interested in presenting our findings and ideas for integrated resource planning, assessment and monitoring strategies at some future IMAC, NRAG, and PLG meetings. If leadership supports our proceeding with the proposal, we would ask for a meeting to discuss it in more detail with the appropriate NRPC and planning program leaders. We also seek

leadership's recommendations for including other individuals in our effort. For questions or other correspondence please contact Bruce Bingham - bruce_bingham@nps.gov, Kerri Cahill – kerri_cahill@nps.gov, or Jeff Albright – jeff_albright@nps.gov.

The Backbone of Park Natural Resources Management

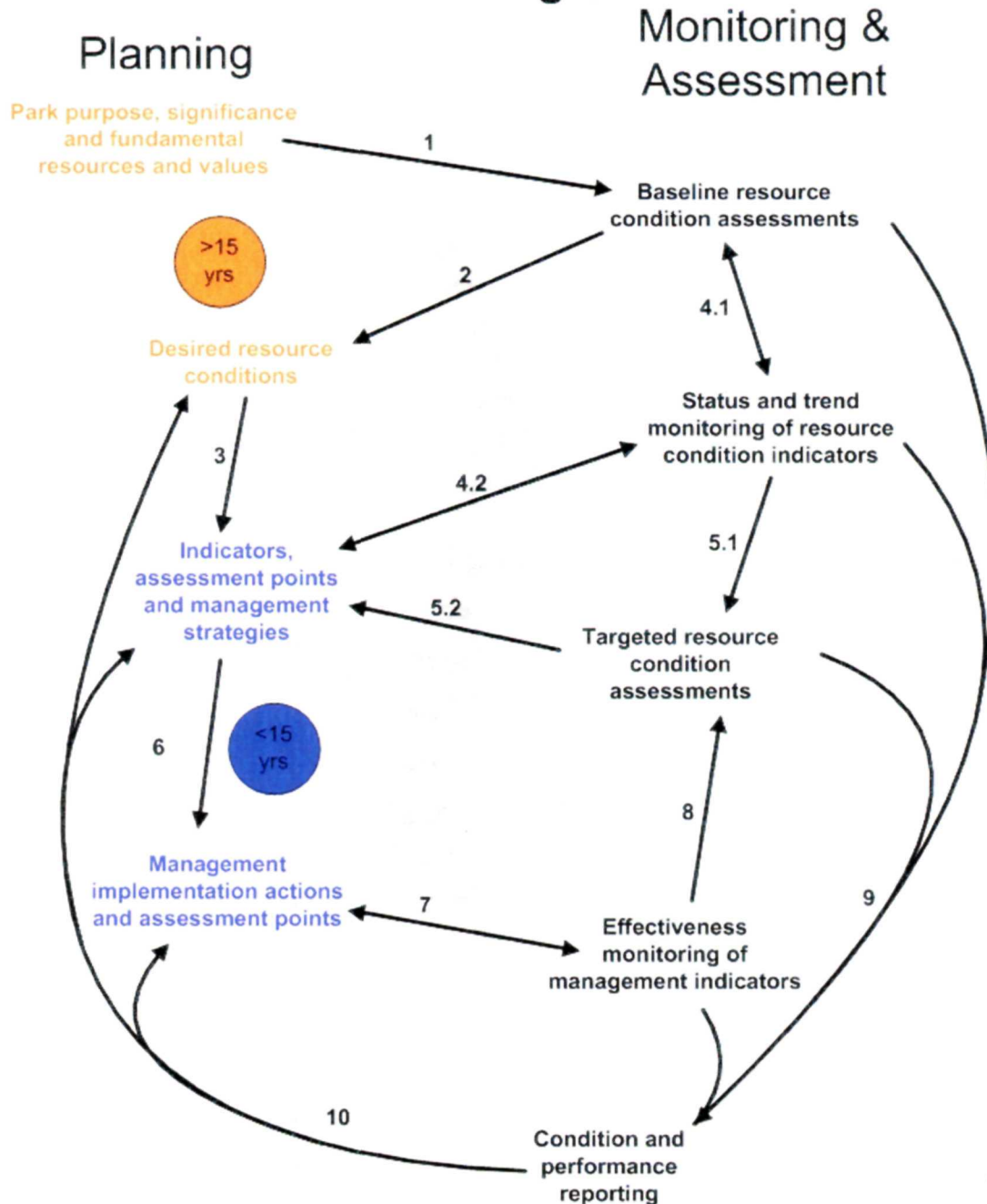


Figure 1. Potential relationships between resource planning, and condition assessment and monitoring. Planning steps are on the left side of backbone and represent processes from the NPS planning framework. Resource condition assessment and monitoring are on the right side of the backbone and represent processes from the ecological condition assessment and inventory and monitoring programs.

Linking Processes to Achieve Integration of Resource Planning, Condition Assessments, and Monitoring: Supporting Narrative for the “Backbone” Figure

Note: Numbered text describes potential rules that link resource planning, assessment and monitoring steps in bolded text. Numbers correspond to process-flow arrows between steps on backbone figure.

- (1) A park’s **purpose, significance, fundamental resources and values, and other important resources and values** will be analyzed and confirmed prior to completion of a **baseline resource condition assessment**. This will ensure that the baseline condition assessment, as well as subsequent planning, is focused on natural resource features, processes, and conditions considered ‘fundamental’ to achieving the park’s purpose and maintaining its significance, or at least deserving of a high level of management attention.
- (2) A **baseline resource condition assessment** will occur prior to formulation of long-term **desired resource conditions**. This allows direct incorporation and integration of science-based assessment findings (existing and potential conditions for fundamental resources, critical data gaps, existing/emerging threats and stressors to resource conditions) in development of desired resource conditions.
- (3) **Desired resource conditions** will be established before more detailed planning on **indicators, assessment points or management strategies** are completed. Desired condition statements provide a roadmap for the desired outcome of resource management strategies and actions.
- (4.1) The **baseline condition assessment** provides an opportunity to link existing **status and trend monitoring data** with other sources of inventory, monitoring and research data to evaluate and report on conditions for a park’s fundamental and other important resources and values. In turn, baseline resource condition assessments provide information for adjusting status and trend monitoring efforts.
- (4.2) **Status & trend monitoring data** and analyses inform development of **indicators, assessment points, and management strategies**. In addition, the process of selecting indicators, assessment points, and management strategies may define new needs for status and trend monitoring efforts.
- (5.1) **Status & trend monitoring data** and analyses will alert parks to conditions of potential management concern (e.g., a target or assessment point has been triggered). This will result in a **targeted condition assessment** that is focused on the resource or issue of concern.
- (5.2) Findings from the **targeted condition assessment** will provide feedback and recommendations to park managers, so they can formulate appropriate **management strategies and implementation actions**.
- (6) Resource **indicators, assessment points and management strategies** will be established prior to the development of specific **implementation actions**. Indicators, assessment

points and management strategies are the strategic “bridge” between qualitative statements of desired conditions and more specific implementation actions for parks.

- (7) **Management implementation actions** are evaluated through **effectiveness monitoring**. Effectiveness monitoring provides information to evaluate the success of specific management actions in making progress toward desired conditions, and to provide feedback for adaptively adjusting management strategies and actions.
- (8) **Effectiveness monitoring** may also trigger the need for a **targeted condition assessment** by alerting parks to conditions of potential management concern.
- (9) Monitoring data and analyses (**status & trend, effectiveness monitoring**) and condition assessments (**baseline, targeted condition assessments**) provide scientific information that is needed for **condition and performance reporting**. Assessing and documenting the effectiveness of management strategies through performance reporting supports the iterative learning process that is critical to adaptive management, as well as increases management accountability.
- (10) **Condition and performance reporting** provides feedback to inform the park manager’s progress relative to achieving **desired resource conditions**, and the effectiveness of related **management strategies** and **implementation actions**. The lessons learned that result from performance reporting may also support the refinement of desired conditions, and supporting indicators, assessment points and management strategies and actions – a key element of the iterative learning process that is vital to adaptive resource management.