
Biological Resource Management Division

**Natural Resource Program Center
National Park Service**

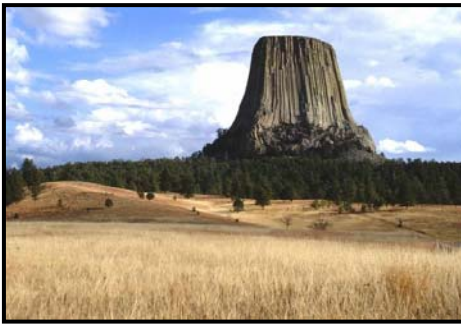
Strategic Plan (2006-2011)



July 2, 2006

Biological Resource Management Division Strategic Plan (2006 – 2011)

Executive Summary



This strategic plan outlines the leadership direction for the Biological Resources Management Division (BRMD) for 2006 – 2011. During this period, the Division will need to respond to major environmental, social, and political challenges. These challenges include changes in the biological resources and ecosystems themselves, in the needs of national parks and the park system, and in human resource and funding constraints.

The Division must be positioned to address specific biological stress factors, such as invasive species and diseases, while maintaining a broad perspective on ecosystem management. It will deliver high value services to individual parks, to the park system, and to the National Park Service leadership. In order to accomplish this, the Division's expertise must be continually updated and expanded. The management and organization of its programs and its human and financial resources must be strategic.

The plan outlines three broad goals: to assist in meeting the Park Service's needs in biological resources, to build expertise, and to foster effective organization and management. These goals contain a total of thirteen objectives, each containing proposed actions. Once the plan is adopted, more specific action plans may be developed to meet these objectives.

Mission

The mission of BRMD is to provide the expertise and leadership needed to protect, preserve, and manage biological resources and related ecosystem processes in the National Park System.

Vision

BRMD provides specialized scientific and technical assistance to three organizational levels of the National Park Service: to individual parks, to the park system as a whole, and to the Park Service leadership. Its staff provides program leadership for the management of biological resources and ecosystem processes. The Division manages important inventories, responds to current biological management needs, and anticipates emerging issues. The Division fills critical gaps in the ability of parks and regions to develop and implement strategies that solve “on the ground” problems in biological resource management. It provides information and policy support for the park system through the Associate Director for Natural Resource Stewardship and Science.

As new risks to biological resources emerge, BRMD identifies and accesses new skills and knowledge needed to address those risks. The Division provides expertise on established, as well as new, tools and approaches appropriate to meet management needs. BRMD is managed as an organization with high productivity and a positive and healthy work environment.

Current and Emerging Challenges

The Division anticipates that five major factors will drive change in biological resource and ecosystem management over the next five years. These challenges will place increasing demands on the parks, the park system, and the Park Service leadership as well as on the Division’s ability to provide assistance. Challenges include:



Impact of global stress factors on parks’ biological resource base. Factors such as climate change, landscape fragmentation, international trade and travel, and human population growth, will increasingly degrade parks’ underlying native biological resource base. These and other factors will cause changes in ecosystem processes. Their impacts will be cumulative and long term. Combined with impacts of historic land use, such as overgrazing and roads, their collective impact will generate increased concern over the coming years.



Increased significance of invasive species and wildlife and plant diseases. A large portion of BRMD's resources is currently allocated to invasive species and wildlife diseases. These biological stressors will increase in importance over the coming years.

The effects of invasive plants and animals on native species and ecosystems are widely documented. The development of mitigation methods and protocols for prevention and control of invasive species is in its initial stages in the Park Service. At the same time, the pace of new invasions appears to be accelerating due to the continued expansion of global trade, travel, and the limited scope of national exclusion efforts.

Likewise, the spread of diseases, such as chronic wasting disease in elk and deer and butternut canker in forest trees, reflect the growing need to protect the health of the parks' biological resources. Public concern over the interaction of disease agents among wildlife, domesticated animals, and human populations will grow. The public's enjoyment of the "park experience" will be increasingly at risk as native species are affected by introduced diseases. Parks will experience an increased need for technologies, protocols, and management strategies to respond to this stress.



Changing Assumptions of Biological Management. Traditional approaches to how parks manage biological resources will be increasingly challenged by new organizational management philosophies. Among the most important factors will be increased emphasis on:

- Management partnerships with States and other agencies,
- Planning efforts that look beyond park boundaries, address global issues, and consider longer time frames,
- Civic engagement and public participation that addresses changing demographics and
- Protecting park biodiversity while enhancing recreational opportunities.
- Managing systems and processes, rather than single species.

Park managers, especially those in urban and suburban locations, will be forced to reexamine the assumptions and current paradigms that underlie the management of biological resources and ecosystems. For example, active management may be necessary to respond to disturbance and climate change. Also, mandates for civic engagement will create the need for greater transparency, information, and public participation in decision making processes.



Accountability, Information Management, and

Technology. Federal laws, such as the National Environmental Policy Act (NEPA), the Government Performance and Results Act (GPRA), and other applicable polices and requirements will place increasing planning, analytical, and reporting requirements upon parks. The Division needs to dedicate resources to facilitate accurate reporting on both resource condition and program implementation. This will require frameworks for consistent and credible field assessment and audience-focused reports. The Division will need to work with parks and other Park Service programs to develop service-wide data collection, management, and information systems critical for meeting these demands. The use of these tools will also enable the Division to meet additional policy needs of the Park Service leadership.



Limited Funding and Administrative Inflexibility.

Annual appropriations to the park system and to scientific support units, such as BRMD, are expected to remain flat or decline. Without relief, BRMD's ability to deliver biological resource support to the parks and to participate in national interagency planning will be constrained by internal policies, such as travel ceilings. Funding increases over the next several years are likely to be tied to specific public and political concerns over high profile issues and performance targets. Effective delivery of services to the parks, park system, and Park Service leadership will require flexibility in funding strategies and administrative policies. Successful competition for future funds will be dependent upon the Division's ability to demonstrate that it is a highly accountable organization that uses funds wisely, effectively, and efficiently.

Goals

In response to these and other challenges, BRMD sets out three major sets of goals and objectives. These focus on meeting Park Service needs, building expertise, and creating effective organization and management. These three goals are closely interdependent. They represent three lines of decision-making and action that the Division can use to fulfill its mission over the next five years.

Goal I: Meet National Park Service needs

Goal Statement: BRMD will anticipate and respond to the current and emerging needs of the parks, the park system, and the National Park Service leadership.



The National Parks, the park system, and NPS leadership face a daunting set of biological resource issues over the next five years. In many cases, these issues require a management response that challenges basic assumptions regarding the role of the Washington office, parks, their boundaries, and their governing policies. Anticipating these issues by developing policies and “on-the-ground” strategies

forms a major role of the Division. The Division will continue to provide national program leadership in select management areas. At the same time, it will create a general framework for biological resource management under which these programs are developed, maintained, or re-directed.

Objective 1.1.

Invest to meet current and emerging needs of the parks and park system.

BRMD’s investments will lay the groundwork for meeting the current and emerging needs of the parks, the park system, and Park Service leadership. The Division’s strategy requires that it anticipate those needs and consciously invest some of its scarce funding and/or positions in that direction. Allowing such areas to wait for new appropriated funding would undermine the Division’s ability to deliver services when and where they are needed. Being able to meet the initial requests for help, however, will greatly enhance BRMD’s ability to attract the funding necessary to grow these activities. Once additional funding is obtained, BRMD should recover the

costs of its initial investment, allowing it to move on and identify further areas of need.

Proposed actions:

- *Identify three areas of unmet or emerging need in biological resource management for the Park Service, and*
- *Fund personnel, contracts, and/or activities to begin to develop a response strategy.*

Objective 1.2.

Anticipate biological resource issues through national interagency and other coordination and planning

Over the next five years, the Division will need to anticipate how resource and ecosystem issues will develop both biologically and in terms of national public policy. Participation on interagency, interdepartmental, and professional society committees provides an excellent opportunity for insight and input on emerging issues. National biological resource policy is heavily influenced by other government agencies, such as the U.S. Forest Service, the Bureau of Land Management, U. S. Fish and Wildlife Service, the Animal and Plant Inspection Service, and their stakeholder groups. Their policies lead to the design of national programs, data management systems, and “on the ground” protocols. The protocols for controlling or eradicating invasive species in forests, for example, are outcomes of such national policy development.

Early involvement of BRMD’s program leads with national planning groups is crucial for influencing the direction of such programs and the funding to implement them. Early involvement allows programs and protocols to be adapted to the conditions and the mission of the National Park Service. The Park Service would benefit by participating more fully in these efforts and for consistently being “at the table.”

Besides these national efforts, international organizations are setting objectives and standards for biological resource management. Such standards when adopted by other countries will eventually influence U.S. Federal policy in such areas as the use of internationally accepted metrics for biological outcomes.

Proposed Actions:

- *Identify key interagency planning groups and involve program leaders as regular group members.*
- *Increase the Division's awareness of the outcomes of international and regional Roundtables on forests and other resources.*
- *Introduce the use of metrics that are used or proposed as international standards as appropriate.*

Objective 1.3.

Develop service-wide products that improve management of biological resources in parks.

Each national park represents a distinct set of ecological, cultural, and managerial factors. In working with individual parks, BRMD has to craft its advice and tools to fit those conditions. The Division should continually strive to make it easier for park managers to make good biological decisions. One way to accomplish this is by developing system-wide products that can be used as guidance and tools across park units. This provides a mechanism for the Division to multiply the impact of its experience with individual parks.

Greater use of such tools can improve the productivity of BRMD specialists who do not need to help each park “reinvent” all the elements of its approach. This approach will result in more consistency in park management which is essential as national interagency planning on biological resource issues and ecosystem management becomes more common.

Proposed Actions:

- *With others in the Park Service, identify and prioritize guidance needs for existing and emerging programs, and*
- *Assign leads for those topics with greatest impact and utility to the parks as a whole, and*
- *Produce the reference tools for service-wide use, and*
- *Evaluate annually the suite of documents to ensure they are available to and used by parks and regions.*

- *Communicate contact information to regions, parks, and other programs so they know who to contact for follow-up technical assistance and policy support.*

Objective 1.4.

Maintain a broad ecosystem framework for park management while working on programs that deal with discrete biological resource issues.

The strategic framework for BRMD's mission sets specific biological resource issues in the broader context of an ecosystem approach to resource management. When BRMD staff provides advice and tools for the solution of specific problems in specific parks, they maintain an ecosystem perspective. During the next five years, park managers will be increasingly challenged to describe their park's goals in terms of "desired future conditions." This is especially true for parks that are already surrounded by urban and suburban development. They will also be challenged to manage biological resources in the context of the broader landscape as, for example, in the Seamless Network Program.

Proposed Actions:

- *Develop an ecosystem-based conceptual model to serve as a framework for integrating programs into the Division Mission.*
- *Use that framework to discuss specific program work with park managers and Park Service leaders.*
- *Promote landscape and ecosystem level planning and management efforts and interdisciplinary restoration projects like those promoted by the Restoration Technical Advisory Group.*

Objective 1.5.

Maintain a creative balance between services to individual parks, to the park system, and to the Park Service leadership.

BRMD provides specialized scientific and technical expertise to three levels of NPS organization: to individual national parks, to the park system as a whole, and to the National Park Service leadership. All the Division's programs devote a portion of their time and resources towards: (1) helping individual parks with biological and information issues (technical assistance), (2) developing service-wide program leadership and guidance, and (3) providing quality scientific and policy recommendations

to National Park Service leadership.

The Division's programs must focus on facilitating management of biological resources and ecosystem processes in parks. With all of their diversity, the parks are where the outcomes of the Division's programs can be seen and evaluated. Because the Division will never have sufficient staff to individually help each park, it must find a way to reach across the entire park system. For example, in regional networks such as exist for integrated pest management and threatened and endangered species. Further, development of system-wide guidance (as in objective 1.3) is crucial. Regional offices play a key role in managing both communications and the application of policy in the parks. Consequently, they need to be engaged in efforts to promote service-wide solutions. Finally, the Division must provide timely information and policy support to the National Park Service leadership. Within any one of the Division's programs, one or more of these levels may be primary. In the Division as a whole, however, the needs of all three – parks, the park system, and the National Park Service leadership – must be addressed and kept in balance.

Proposed Actions:

- *Assess annually the overall balance in meeting the needs of these three audiences and ensure an appropriate balance is maintained.*
- *Have program leads fully involve the regions to promote effective communications and consultation.*
- *Develop an approach to make parks and programs aware of the responsibilities and expertise of the Division in the context of the Natural Resource Program Center.*
- *Conduct annual assessment in conjunction with a review and update of this strategic plan.*

Goal 2. Build Expertise

Goal Statement: BRMD will access a wider range of expertise in developing solutions for current and emerging needs.



Over the coming years, the risks to the parks' biological resources will multiply, intensify, and grow more complex. At the same time, advances in science, technology, techniques, and management practices will provide a wider range of tools that can be applied to Park Service decision making. As a source for such applications, the Division needs to draw on a full roster of available expertise. The current level of programs and expertise should not be diminished. Vacant positions should have knowledge and skills requirements updated and then be filled as soon as practical. Expansion of expertise can be accomplished by hiring additional professional staff, expanding the use of contracts and cooperators, and the professional development of current staff.

Objective 2.1.

Acquire in-house expertise in critical fields.

The most critical needs for new in-house staff are those which (1) fill gaps in current expertise, (2) represent investments in emerging issues, and (3) represent continuity in the Division's commitments. The Division must also determine which skill sets are already present, or better placed, in the parks and in the regions. Division expertise is designed to complement and to add value to skills found elsewhere in the Park Service through greater specialization and system-wide perspective.

Scientific and technical needs of the Park Service are far greater than the Division's limited resources can meet. However four additional skill sets are especially critical for the coming years. In the order of their priority, they are human dimensions, silviculture/forestry, aquatic nuisance species, and toxicology. In addition, significant contributions to BRMD's programs would also be made by the addition of skills in biometrics and quantitative ecology, rangeland ecology, entomology, information management, and landscape ecology. Additionally, existing programs should continue to identify needs and build skill sets and capacity within the program.

Proposed Actions: *BRMD will add in-house expertise in the following four areas:*

- ***Human Dimensions:*** *This position is an investment in the growing need for civic engagement for park management decision-making. BRMD should capitalize on its past investment to demonstrate the utility of this approach within biological resource management. It is expected that this approach will have wide application to Park Service policies for interacting and planning with surrounding communities.*
- ***Silviculturalist/Forester:*** *This position is an investment in the development of a forest health program. The position responds to two major needs. The first is to deal with invasive forest species in cooperation with interagency initiatives. The second is to work more broadly on the conservation of forest resources.*
- ***Aquatic Nuisance Species:*** *This position is an investment aimed at fielding a complete spectrum of invasive species expertise. In particular, this expertise will enhance management of key park resources and improve overall invasive species coordination.*
- ***Toxicologist*** – *This position is an investment in the effective use and application of pesticides. The ability to advise the parks on the types and applications of pesticides to be used in forests and other landscapes represents a major gap in the current IPM program. As BRMD works to implement control strategies for invasive plants and insects, these needs will grow.*

Objective 2.2.

Expand and secure access to outside expertise through contracts, partnerships, and cooperators.

Access to expertise outside of BRMD is crucial to the Division's mission. BRMD must expand and formalize its links to specialized skills and technologies as disciplines develop applications to biological and ecosystem problems. Such services include those provided by

laboratories, by highly specialized scientists and technicians, by specialized associations, and by university departments. Many of the Division's current contacts exist informally or as extensions of the staff's personal networks. While these networks are of great use, contact information within the Division is fragmented and, at times, not readily shared.

Proposed Actions:

- *Complete and regularly update information on a contact list for specialized expertise, and*
- *Include scientific and technical competencies on the staff and responsibilities for contacts.*
- *Secure access to priority specialties such as biostatistics, livestock management, herpetology, etc. through contacts, specialist details, cooperative agreements, and other mechanisms.*

Objective 2.3.

Continually maintain and build expertise through regular professional development.

BRMD's most critical resources are the expertise, energy, and creativity of its staff. The staff's ability to integrate and apply new knowledge and experience is one key to helping find solutions to the parks' biological resource problems. Nurturing human resources requires time and investment and is particularly important for junior staff who are relatively new to the Division. Ongoing professional development is integral to the regular and expected work of the Division, not an addition or distraction from the work. Building a learning environment is central to maintaining the energy and enthusiasm of the staff.

Applying disciplinary expertise in an interdisciplinary fashion to complex biological resource issues requires openness to new learning, flexibility, and clear communication. It is critical that the Division cultivate an environment in which people with different skills and perspectives and of different ages and backgrounds effectively work together on a regular basis.

Proposed Actions:

- *Encourage ongoing education and learning activities through the use of Individual Development Plans (IDPs) and allocate time for*

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professional development. Use IDPs and other tools to agree upon annual investments in training, participation in professional organizations, details (to parks, to the Washington office, etc.), and time for activities such as preparing and submitting publications to professional journals.

- *Conduct at least one annual learning event in which all the members of the Division can participate. Plan an in-house course, a learning experience, or a park-based service event. Use event to build skills, improve communication, and expand understanding of the Park Services' biological resource needs.*
- *Develop internships, student positions, details, and other mechanisms for regularly recruiting individuals with new skills and perspectives on biological resource issues. Use this as a key means of keeping the Division open to new learning and approaches.*

Goal 3. Foster Effective Organization and Management

Goal statement: BRMD will improve its organization and management of human resources, information, and communications.



BRMD is faced with the challenge of organizing and managing a diverse set of programs and individuals. The staff operates at a high level of productivity. They are dedicated to the Division's role in furthering the mission of the National Park Service. They require a degree of autonomy in developing individual programs, but they are dependent upon other disciplinary specialties both within and outside the Division.

The Division has great breadth of mission and great limitations on its financial and human resources. BRMD management must continually strive to find the right incentives and patterns of interaction that characterize positive, productive, and problem-solving work environments.

Objective 3.1.

Manage and organize the Division's human resources and programs to maximize flexibility, cross program communication, productivity, and service delivery.

Management of its human resources is more important to BRMD's service delivery than is the configuration of its internal organization. The application of good management practices in BRMD is critical to the Division's success. These practices can make any organizational configuration work well and can minimize the number of staff in managerial positions.

An adaptive and flexible organization allows structures to be updated from time to time to meet changing needs and conditions. These may include changes in the nature of leadership positions or expectations around cross-program communication, addition of new programs, and modifications to build and maintain a healthy and productive work environment.

Proposed Actions:

- *Adjust the Division's organization to a framework that best meets its mission.*
- *Effectively integrate all programs into the Division framework.*

- *Conduct an annual “organizational climate” survey of its staff to measure its effectiveness in promoting a healthy and productive work environment.*

Objective 3.2.

Improve the ability to fund programs that address emerging biological resource issues.

In recent years, the Division has had clear examples of major funding coming to programs and projects that respond to issues of important public and political concern, such as invasive species. Contacts with interagency groups outside the National Park Service have proved to be of critical importance for identifying emerging issues and funding mechanisms. With general appropriations expected to remain low, project funding has become critically important to the Division’s mission. Building expertise and the expanding funding opportunities are inextricably tied together.

At present, knowledge of funding opportunities, funding patterns, and feedback from application processes is unevenly understood within the Division. This has limited BRMD’s ability to link identification of needs “on the ground” with successful competition for funds to address those needs.

Proposed Actions:

- *Hold quarterly meetings with the Washington liaison and other individuals familiar with funding streams, and*
- *Use these meetings to update programs on current activities, share approaches to issues and develop the Division’s strategies for funding opportunities, time frames, formats, and priority topics.*
- *Provide regular feedback on funding proposals and their relative success in order to improve future applications.*
- *Prioritize actions to secure permanent base funds for nationally-based programs for data management (e.g., APCAM, PUPS, etc.).*

Objective 3.3.

Encourage cross program interdisciplinary communication and learning.

Given the mandates of BRMD's programs and the breadth of its mission, the pressure on the BRMD staff's time is enormous. As issues emerge, however, the different perspectives and expertise are a key resource. Dialogue within the Division for developing tools and approaches can improve its response to the Park Service needs. For example, a program on avian influenza in Wildlife Health could greatly benefit from the knowledge of migratory birds resident in the Park Flight Migratory Bird Program. Protocols developed by the Chihuahuan Desert EPMT for working with fire management teams may have applications for other programs. Such regular communication and contact would also provide the "nimbleness" required to respond rapidly to new situations.

Restricting access to one another's views through omission, rules of hierarchy, or lack of interest will negatively impact the Division's ability to create broad-based solutions to biological resource and ecosystem issues. Enhanced communications will result in better assistance to all three levels the Division serves.

Proposed Actions:

- *Use staff meetings to identify issues around which dialogue is needed.*
- *Use face-to-face interaction to discuss the issue (within a limited time period).*
- *Develop interdisciplinary teams for specific projects.*
- *Manage to ensure free flow of communications across whatever organizational structures may be in place.*

Objective 3.4.

Integrate new and recently created programs into the Division.

The 2005 reorganization of the NRPC transferred the Vegetation Mapping and Biological Inventories programs to BRMD. These two programs bring with them significant responsibilities and opportunities. The BRMD must maintain and enhance these programs so that NPS

units have rapid access to current data on vegetation and species presence, absence, distribution and abundance. The Division needs to fully integrate these programs into BRMD operations, while continuing to work with related programs located in other divisions and the NRPC Director's Office. As new programs are added in the future, those programs also need to be fully integrated into the division. Division leadership needs to place special emphasis on this integration.

Proposed Actions:

- *Include new programs in all Division meetings.*
- *Conduct Division-wide presentations to showcase new programs .*
- *Include new programs on Division website.*
- *Undertake at least three (3) collaborative projects between existing and new programs.*

Objective 3.5.

Improve employees' ability to be free from accidents, injuries, or occupational illness.

BRMD staff faces a number of physical risks in the conduct of their work. The members of the Exotic Plant Management Teams must handle and apply pesticides while those in Wildlife Health with wild animals. All deal, at one time or another, with rough terrain, power tools, poor driving conditions, and long hours. While positive safety practices may be different from one program activity to another, the Division recognizes a collective responsibility for safety. Healthy productive employees are the Division's most important resource and safety needs to be a daily mindset.

Proposed Actions:

- *Hold safety and occupational wellness briefings on a regular basis.*
- *Encourage employees to analyze safety risks in specific tasks and suggest remedies.*
- *Update training and certification on use of specialized equipment.*
- *Recognize positive safety practices, conduct workplace audits for safety.*
- *Review SOPs related to any accidents and injuries that may occur.*

Appendix 1. Additional priorities for Division expertise.



In addition to the four specialties identified in the plan as priorities necessary to meet current and emerging Division needs, additional gaps in Division expertise were identified. The Division could improve its capacity to serve parks, the park system, and Park Service leadership by adding expertise in the following disciplines:

- **Rangeland ecology** – Parks have major issues with grazing by both domestic and wild ungulates. The Division has relied upon part time support and outside partnerships to date. A rangeland ecologist would focus on the range ecosystems themselves in addition to issues such as carrying capacity.
- **Information management** – This position would provide support for the BRMD's programmatic needs in tracking, reporting, and database management. A number of the Division's programs make heavy use of information and data management. The quality of this information and its analysis are significant factors in program development for Park Service leadership. This position was not considered in selection of priority positions because it relates more to general support for the Division itself rather than to providing services directly to the parks. However, the position does provide support in the form of data and analysis for upper management and compliance with GPRA.
- **Quantitative ecology/biometry** – The parks have an increasing need to gather data and to use its analysis for decision making. At the national level, the same need exists for policy making regarding biological resources. BRMD can serve both types of needs with biostatistical skills that may focus on plant or animal populations, evaluation of management actions, trend analysis, and other applications.
- **Entomology** – A need exists for assistance on issues of invertebrate ecology and entomology as related to invertebrate conservation and pest control in the landscape.
- **Park Flight/Migratory Species** – The Park Flight and migratory bird expertise is currently available to the Division through a partnership agreement. The Division should make efforts to more fully incorporate this expertise and integrate the activities into Division function.

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Appendix 2. BRMD Strategic Planning Committee.

The BRMD Strategic Planning Committee consisted of:

Rita Beard
Karl Brown
Terry Cacek
Greg Eckert
Margaret Wild
Mark Wotawa

Rob Werge served as the facilitator.

Appendix 3. BRMD Organization Chart.

