

**LESSONS LEARNED:  
SONORAN DESERT ECOSYSTEM INITIATIVE**

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## **LESSONS LEARNED: SONORAN DESERT ECOSYSTEM INITIATIVE**

The U.S. portion of the Sonoran Desert is dominated by federally managed lands. Collectively, these lands are adversely impacted by human population growth-related impacts of increased development and fragmentation of natural landscapes. Because it is a rapidly growing region, the extent of these impacts on the region's biological resources is likely to intensify. These human-related disturbances also accelerate the spread of invasive plants, which is one of the most serious threats to the persistence of Sonoran Desert native ecosystems. In addition, as the landscape becomes fragmented and otherwise degraded by incompatible human activities, the effects of long-term drought on desert species are exacerbated.

To address the above challenges, the Sonoran Desert Ecosystem Initiative (hereafter the Initiative) was designed by The Nature Conservancy (Conservancy) and Sonoran Institute (Institute) and funded by the Department of Defense (DoD) Legacy Resource Management (Legacy) Program and Bureau of Land Management (BLM). The principle objectives of the project were to:

- provide a proactive approach to conservation planning that focuses on conserving native biodiversity and ecological processes within a federal land management context;
- encourage coordination of management activities across jurisdictional boundaries to address mutual resource management objectives; and
- facilitate partnerships to increase each agency's ability to accomplish its mission while meeting its stewardship mandates.

The Initiative was based on regional ecological and socioeconomic perspectives, which provided an appropriate context and incorporated the needs and opportunities identified by all the partners. The common threads to the project included multi-partner collaboration and activities soundly based in science. The regional perspective was provided by a Legacy-funded ecological analysis of conservation priorities, completed in 2000, that identified a network of 100 large conservation areas and primary threats to biodiversity within the Sonoran Desert Ecoregion. From that analysis, three main program areas were identified as the thematic focus for the Initiative:

- site-based conservation planning using a biodiversity management framework,
- ecosystem monitoring and coordinated management, and
- invasive plant management.

Efforts directed toward each of the program areas have resulted in a number of products and accomplishments (see Appendix A) and involved a large number of agencies and organizations as partners. Some of these accomplishments include the formation of regional, multi-agency partnerships for coordinated monitoring and invasive plant management and, completion of technical reports and interactive technical tools, facilitation of public involvement, and production of public outreach and educational materials. This project's relatively long timeframe (1998 to 2005), large geographic scope (Sonoran Desert Ecoregion's 55 million acres), and diverse partnerships (involving many federal and state agencies, universities, and nonprofit conservation organizations) make it particularly rich in lessons that can be applied to future work. The following are a synthesis of these lessons, which were compiled through a survey of our partners (see Appendix B for the survey, and Appendix C for survey responses and participants) and our own reflections.

## LESSONS

Lessons are organized below into three main categories: (1) partnerships, (2) results, and (3) public involvement. Within each category, we describe lessons first in general terms and then provide examples from the Initiative.

### **1. Partnerships provide benefit to a variety of agencies and organizations by building a foundation for achieving mutual land stewardship goals.**

This first set of lessons discusses the many factors relevant to successful partnerships. Partnerships are useful both as a forum for information exchange and as a mechanism to accomplish outcomes. The basic component of partnerships is mutual benefit, so they need to focus on a geography or topic that is equally important to all partners. Effective partnerships are productive and create small but tangible benefits quickly. To be useful meetings must have a definite focus. For partnerships involving multiple and diverse institutions having a part- or full-time coordinator can increase productivity. The ability of institutions or individuals to collaborate in partnerships is strengthened by the support of their leadership. The capacity of contracting officers to understand partnership agreements is also very important. And lastly, collaborative partnerships can exceed the mandates and expectations of institutions by being flexible and innovative and thus responsive to opportunities and needs. Following is a consideration of how these factors can strengthen partnerships.

***Partnerships provide the mechanism and forum to resolve or address issues collaboratively.*** Through partnerships and group meetings, critical information is shared, divergent viewpoints are raised and discussed until the group can come to mutual agreement, and actions are planned to meet common goals.

Bringing different groups together and providing a forum for information exchange is an effective strategy that the Initiative pursued in multiple instances. For example, the collaborative efforts for invasive plant management were initiated through a series of training workshops that included group discussion and problem solving. These discussions eventually led to the formation of the Sonoran Desert Invasive Species

Council. This group, codified through a Memorandum of Understanding among 22 signatories, meets on a semiannual basis and helps to coordinate the activities of two associated Cooperative Weed Management Areas (CWMA). In addition, the Regional Monitoring Partnership was formed in a similar manner among land managers focused on a specific landscape and interested in creating a forum to coordinate efforts and exchange information about ecological monitoring. This group continues to maintain its emphasis on information exchange and focuses each meeting on a specific management topic and monitoring strategies that can inform management decisions.

***Building partnerships takes effort and commitment.*** Partnerships are not built quickly. In the early stages of forming partnerships, a significant investment of time and energy is a prerequisite. Once partnerships are formed and functional, however, the benefits and efficiencies they create should pay back the effort many times over. The obstacle at times is getting to that point and convincing participants that ultimately a time savings will accrue. Key to success is creating small but tangible benefits quickly and building upon success rather than going for a more difficult goal that takes too long to reach. A part- or full-time coordinator dedicated to meeting facilitation, planning, and fundraising greatly helps partnerships get off the ground.

In the case of the Sonoran Desert Invasive Species Council, more than a year of effort was invested in training, bringing interest groups together, discussing strategies, and ultimately forming the Council and two cooperative weed management areas. One of the most successful steps in the formation process was hiring a part-time coordinator for a year. The coordinator planned and facilitated meetings (which produced tangible outcomes), assisted in drafting a five-year strategic plan for the Council and annual operational plans for the cooperative weed management areas, and researched and communicated references and resources that provided benefit to all partners.

***Capacity for partnership must be built at institutional and individual levels.*** The capacity for entering into collaborative partnerships—among institutions as well as among individuals—exists over a wide range. Not all institutions or people can participate in the same way or to the same degree. Collaboration works best if it is seen as a way to accomplish mutual goals and institutional missions, is supported by those in supervisory positions, and if individuals have the abilities and interest to work together.

In this project the agencies differed in their abilities to provide funding, staff time to participate, and technical expertise. Organizational culture and leadership contributes greatly to the ability to collaborate. If leadership does not encourage or reward collaboration, it will be much less likely to occur. Capacity also rests within individuals. Individual interest and capacity to collaborate is probably the greatest determinant of success. In this project, several strong and capable individuals kept partnerships moving forward. To be lasting, however, collaborative partnerships must become integral to the institutional mission otherwise they will be lost with personnel changes. In cases where more than one person from an agency or non-governmental organization was involved, a higher degree of partnership stability was achieved.

It was clear during the course of this project which institutions valued and rewarded collaboration and which ones did not. Individuals in supervisory roles who encouraged their staff and empowered them to become leaders had tremendous influence. In some cases, it was a key individual or a small group of individuals that made partnerships successful. For example, the Borderlands CWMA was established at the same time as the King of Arizona CWMA. The King of Arizona CWMA, however, has far outpaced the Borderlands CWMA in collaborative projects implemented, grants received, educational materials and programs produced, and sustained organizational structure and function. This is due to a handful of dedicated people, and it is largely due to one leader who has helped make the group self-sufficient. Another example relates to ecosystem monitoring, in which leadership from one agency, the National Park Service, has fostered the participation of and benefit to a number of other agencies.

***A difference exists between a partnership and a contractor relationship.*** Projects are most successful when true partnerships are formed. Each partner then receives benefit from the relationship, trust and respect are fostered, and the products are perceived to be useful. Although contractors may help agencies meet their mandates, partnerships enable agencies to exceed their mandates. Flexible and innovative approaches that can nimbly respond to agency needs and opportunities provide the impetus for product development to extend beyond expectations.

Obstacles or missed opportunities occurred in this project in situations in which relationships were more similar to a contract for services rather than a true collaborative partnership. In these cases, one party made specific requests of another, less mutual understanding was fostered, and the resulting products were less useful. Levels of collaboration, trust, and communication were associated with institutional and individual capacity (as discussed above).

A primary motivation for a nonprofit partner is to achieve its mission. The primary motivation for agency partners is to meet their mandates through accessing external perspectives or capacities they lack but realize they need to incorporate into their planning processes and decision-making considerations. In a collaborative partnership, versus a contract relationship, both entities also are motivated to serve a public interest. Partnerships should provide new data or information, new ways to look at the data or information, and new concepts beyond what the agency would have requested from a contractor. A contractor is provided a scope of work with products, methods, and timeline specified by the agency, whereas a partner in a cooperative relationship works closely with the agency to provide skills and expertise in a way that satisfies the agency's intent and also meets mutual goals in ways that go beyond what the agency might have anticipated. For nonprofits, such as the Conservancy and Institute, a partnership (for example, through a cooperative agreement) is more often than not the preferred relationship over a contract as it provides the necessary flexibility to be innovative and to expand the reach of the work.

Some opportunities to take full advantage of partnerships were missed by the Initiative because of at least two barriers. First, some reluctance may have been present on the part

of agencies to enter into a partnership role with nonprofits because they desired narrowly defined products and accountability. Second, some agencies were sensitive to the external perception that by partnering with nonprofits the agency was providing unfair favoritism or access to inform decision making denied other stakeholders. The external perception is at times that the Conservancy and Institute are functioning in an advocacy role rather than the role of subject matter experts with recognized public missions. Although both of the preceding barriers may pose some legitimate concerns to the agencies that should be explored, neither need become insurmountable to engaging in successful future partnerships. Increased transparency and communication, as well as mutually defined and agreed upon goals, can increase the likelihood of success.

A good example of where an Initiative-supported partnership worked was the efforts of the Arizona Wildlands Invasive Plant Working Group to develop a categorized list of invasive non-native plants that threatened Arizona's wildlands. Rather than one group proposing a list based on its own technical expertise, the Working Group brought together over 20 stakeholders as equal partners in a transparent process that supplemented the regulatory process to identify the most comprehensive and defensible list possible of non-native plants that have significant ecological impacts. Participants focused on a common problem, followed a process that emphasized the objective use of information, and were inclusive of those interests that potentially could be adversely affected by project outcomes.

***Clear and open communication is absolutely essential for partnership.*** Partnerships are based on trust, and effective communication is absolutely necessary to foster and reinforce trust. At the onset, expectations, roles, and responsibilities among the partners must be clearly articulated. Participants must develop a clear and mutual understanding of the partnership's organizing principles, process and methods, mutual goals, and expected outcomes. Organizing concepts must be agreed upon and understood by all partners prior to initiation of the partnership effort. Each partner must be responsive to and honest with the others to ensure integrity of the group. In cases in which a lack of trust and open communication exists, partnerships can be undermined to the point of being dysfunctional.

Partners in the Initiative at times did not consistently agree on, or at least even clarify between themselves, roles and expectations, especially in how provided information would be used. In part, this can be attributed to how each partner assigned the role of various ways of communicating expectations: for example, through written proposals and agreements versus verbal communications at different levels of the respective institutions. Such confusion might be overcome in the future if the partners agree up-front how information will be used, especially in a planning context. In addition, more frequent face-to-face discussion among all partners would have improved communication. A conscious effort should be applied to making a partnership work as well as to completing products. Expectations may change over time, and it is important to check in and adjust or clarify roles throughout the collaborative process.

***Time constraints or inopportune timing can undermine partnerships.*** Partnerships are most successful if left to their own pace to develop. It is important that partners agree on project timeframes and a schedule of outcomes; however, it is often difficult to coordinate the best timing among different groups. Ideally, partnerships should address immediate and pragmatic needs, as well as consider the big picture to anticipate more long-term needs.

Partnerships are more difficult to foster within the confines of an agency planning schedule. Planning schedules inherently include stalls and rushes that make it a challenge to provide information at the right time. Partnership efforts that are disassociated from formal planning efforts can have the advantages of:

- enabling sufficient time to consider and use ecological boundaries and associated data rather than solely administrative boundaries and providing a regional, more big-picture context within which planning or other efforts may fit;
- minimizing the political nature of participation (participation within an agency planning process can often become politicized as each stakeholder group jockey for influence); and
- minimizing the role of intermediaries (contractors) so partners can take full advantage of partnership roles so that the missions of each partner are met in the best interest of the public.

Unfortunately, the best time to allocate or receive funding for these projects is connected to the planning effort. Therefore, other funding mechanisms need to be explored, funding allocation needs to be adjusted to accommodate this important pre-planning phase, or the planning cycle needs to include a non-formal (non-National Environmental Policy Act [NEPA]) information collection and analysis phase—perhaps three years prior to the start of the formal planning process. Ideally, planning would be seen as a continuous loop with aspects of partnership, information gathering, and outreach occurring throughout pre-planning, planning, and implementation.

The preliminary assessment of biodiversity values and management framework adaptation provided for the Expanded Kofa Complex is a good example of useful, regional and local information provided to multiple agencies outside of formal planning processes. The timing and disassociation from any specific planning process enabled all partners to define the issues they were interested in, collect the information needed, and extend the data collection and analysis scope beyond any one planning boundary. This product was favorably received by all partners and will likely be used in multiple planning processes over the next few years.

***Partnerships can present administrative and logistic challenges that must be overcome.*** Some administrative and logistic challenges can be faced in complex projects because of the involvement of multiple funders, implementers, and contractors. Multi-party agreements are often challenging depending on the individuals responsible for overseeing



the tasking and “contracting” aspects of the agreement and their experience and knowledge of collaborative efforts. Some government contracting offices are not necessarily familiar with cooperative agreements or the authority to enter into these types of agreements may not be vested at the level at which the tasks are implemented. Training for contracting officers on a full range of fiscal mechanisms would be beneficial.

Collaboration also occurs at a number of levels within an institution and conflicts can arise dependent upon different perceptions of where goals are set and partnerships initiated. This could lead to a lower degree of investment at the local level if agreements are viewed as external arrangements. These considerations should be anticipated and addressed to facilitate efficiency within the partnership.

This project was complex with multiple, leveraged funding sources, multiple agreements and timeframes, multiple partners and products, and different expectations of partners. Most of the time, this complexity was no more than a minor challenge to the nonprofit partners managing the project. Sometimes, however, this complexity and the inability of some agency partners to understand it created obstacles to advancing the work. As an example, the Desert Southwest Cooperative Ecosystems Studies Unit (DSCESU) is a partnership of agencies, universities, and nonprofit organizations—including the DoD through the Legacy Program, BLM, Conservancy, and Initiative—all under a single cooperative agreement. Some agencies take full advantage of the cooperative agreement to accomplish its mission, while other agencies have limited knowledge or ability to use the agreement to engage in multilateral projects. This has created at least missed opportunities and at times barriers to leverage funding and accomplish mutual goals. The Conservancy and Institute recently attempted to further the invasive species work of the Initiative by proposing a DoD Legacy project that would be collaborative with the other DSCESU agencies and receive leveraged funding from them. Because the other agencies in the DSCESU were not able to collaborate on this project—due to differences in funding cycles, different levels of decision making and budget authority among the members, and lack of experience (or interest?) in doing this kind of collaborative project—this led in part to the Legacy Program’s decision not to fund the proposal.

***A premature focus on authorities and responsibilities within a partnership can undermine attempts at holistic resource management.*** Authority and responsibility for natural resource management is either split or shared between federal and state agencies depending on the resource under consideration. A holistic approach to resource management is best served if agencies first focus on the appropriate ecological contexts for planning and management before implementation authorities and responsibilities, and the contention they generate, become the focus.

The conceptual approaches to planning and management encompassed by the biodiversity management framework seemingly posed a challenge for federal land management agencies to incorporate into their management plans in two specific types of situations. One situation is when the responsibilities for resource management are not necessarily the sole responsibility of the federal land manager. For example, for non-

listed species, such as desert bighorn sheep, the applicable state resource agency has the responsibility for species management, whereas the federal land management agency is responsible for the habitat needs of the same species when it occurs on federal land. The second situation is when resources (and associated ecological processes) cross administrative boundaries. The responsibilities for resource management must then take into account the land uses and management activities occurring outside the land management unit.

We contend that the preceding challenges are not insurmountable and that management responsibility—which ultimately must be shared and coordinated between those with appropriate authority—and actions are best based on a holistic view of the resource within its appropriate ecological context. That is, although an agency’s authority may be limited to act, the contexts in which its management decisions are made should be as inclusive as is necessary to ensure that those with responsibility for shared natural resources understand the dimensions of the conservation challenge and work in a unified way to overcome obstacles to success.

## **2. Focus on results: Create innovative products and provide useful information.**

Partners in this project generally found the products of high quality and utility. Successful products should involve the end user early and throughout the product development process and include training and follow up so that tools are used to their full capacity. Products that are innovative, creative, and attractive are more successful at getting messages out to a wide audience. Innovative technical reports that have application at multiple scales (site, region, etc.) are also often used by a more diverse audience.

*Ensure information is practical and useful.* The more recipients of project information can be involved in the early stages of project design to identify information sources or scope, the more project products and conceptual innovations will be used. Involving the people who will ultimately use the information in its collection and synthesis helps ensure they will know what to do with it.

In this project, contextual information provided at the regional spatial scale was linked to information needed at the site scale to ensure practical application or make recommendations. To make information useful, it needs to be clear what management question the information is addressing. The Initiative, and the Legacy-funded project that preceded it, provided information at various spatial scales to address different questions. The ecoregional assessment provided the “blueprint” for conservation of the Sonoran Desert by identifying landscape-scale conservation areas that if appropriately managed could conserve the biological diversity contained within. The Expanded Kofa Complex preliminary assessment focused on an expanded version of one conservation area identified in the ecoregional assessment but included multiple land management units in its assessment of biodiversity values. The Barry M. Goldwater Range biodiversity management framework scaled information primarily to one land management unit that was a portion of a larger conservation area—though it did indicate ecological linkages with surrounding landscapes. The Sonoran Desert National Monument (SDNM) biodiversity management framework considered the biological resources and ecological

processes associated with multiple conservation areas and the monument itself in deriving a resource-based boundary—that defines the Sand Tank Mountains Complex—intended to maintain the long-term ecological functionality of the area.

***Start with sound science.*** Recipients or users of information must find it unbiased, credible, and useful. Generally, when agencies are faced with making process-driven decisions that may be controversial more success can be gained from filling specific data needs than by providing new conceptual frameworks or big-picture context. Despite this, this does not mean the latter are not of value; rather, it indicates conceptual shifts in thinking are hard to achieve in the midst of a formal planning process.

The Initiative attempted to operationalize ecosystem management concepts and principles through the biodiversity management framework. The conceptual underpinnings of the framework are contemporary in nature, yet little empirical data have been collected that demonstrate the effectiveness of this approach over more traditional single-species management approaches. Moreover, in issue-driven planning exercises it seemingly is easier for the agencies and public alike to focus on problems and immediate solutions at hand rather than consider the long-term sustainability of biological resources in general, some of which may not appear to be presently at risk. Current agency planning structures and contexts tend to foster more reactionary than pro-active decision making and do not reward risk-taking and innovation. For these reasons, we would conclude that specific pieces of information collected and analyzed as part of the framework were more often used by the agencies rather than the framework as an entire conceptual approach to managing biological diversity on public lands. To the extent framework information—be it the ecological characteristics of particular natural communities or species, specific elements of the socioeconomic information provided, or the conclusions from the livestock grazing literature review—was or will be used by the agencies to support planning and subsequent management decisions, then the effort expended is worth it to all parties; however, it is clear the full potential of framework application was not achieved during this project in all of its different uses.

***Include social science when considering natural resource issues.*** Integrating social and economic information into natural resource management planning and decision making helps focus attention outside of jurisdictional boundaries and makes appropriate partners more apparent. By looking at human communities surrounding public lands and who uses the associated natural resources, potential allies and partnership strategies are more easily identified.

Often, biological data are presented and analyzed separate from social and economic data. This project attempted to integrate these different kinds of data with mixed success. The best example of successful integration was the recreation impacts study that considered a particular human use activity on the SDNM, quantified its impacts spatially, and connected these impacts to their effect on biological resources. In the planning of this study, a team of all partners involved discussed the study design and methods to ensure the most overlap of social and biological information possible. As a result, physical

impacts to biological resources due to human recreation activity were documented and a better understanding of how people use the landscape was developed.

The population growth model is another example of social information that was provided and that focused on one of the main threats to the monument—population increase on the borders of the SDNM and the pressures associated with it. Through the application of this model, the areas experiencing most growth were identified and potential impacts to the monument became clear. These impacts included fragmentation and loss of wildlife habitat and movement corridors, direct land conversion, and increased human use of the area around and within the monument. Potential strategies also became apparent, such as the need to work more closely with city and county planners and developers, particularly in high-growth areas, to mitigate these impacts.

Other social and economic data were provided with various levels of integration. Community values about the monument were compiled from a number of community workshops, and extensive social and economic data were compiled at various scales (community, county, regional). While interesting, it is sometimes unclear how these data can inform the development of biological resource management alternatives—if indeed they do. The integration of social and biological data could have been strengthened in this project if there had been more explicit planning goals and implementation strategies regarding the use of social science in informing resource management decisions.

***Ensure the level of technology is appropriate to the intended user's capability.*** A certain learning curve should be anticipated to get people up-to-speed and comfortable with new concepts and new ways of looking at or managing information. Utility, accessibility, compatibility with other tools, and ease of use and application are the primary considerations that determine the ultimate success of new technological innovations.

The development of new technological tools and applications had mixed results during the project. For example, the growth model might be a useful tool, but it was not readily useable by agency staff perhaps because they were not involved in the development of assumptions and models used or did not have the needed background for appropriately using the technological applications. Even attendance at the training session was poor, which indicates little interest or connection to the product.

Another example was the Initiative partnership with the U.S. Geological Survey to develop an invasive plant data management system, and associated computer-based tools, applicable to the southwestern U.S. and to a wide range of user capability. Despite numerous attempts to engage members of the Sonoran Desert Invasive Species Council, we didn't, at least to date, observe the level and extent of engagement needed to be confident the system and individual tools will be used to their full potential. In this instance, development of data management tools for invasive plants in particular were identified as a high priority by partner organizations. System development may yet lead to wide-spread use that extends beyond Council member institutions and, indeed, recent developments suggest that system components are already providing the building blocks for additional data management innovations. The weak link here seems to be the training

component: that is, although this project task addressed incorporating partner feedback as part of system development, it did not provide for post-development training by users that would overcome the inertia of applying new technology by time-strapped agency staff. We did attempt to address the training component in a FY05 Legacy proposal that was not funded.

In sum, when provisioning new technological innovations, post-development training should be considered a critical element in project design. In addition, tools that (1) are broadly applicable (transferable) beyond the immediate application—though this is not necessarily always achievable or even desirable, (2) can provide a building block toward the next technological innovation (see below), or (3) can address a significant barrier to management implementation are those that in the long run will provide the most useful products to resource management agencies.

***Project outcomes should spur new applications or build additional knowledge rather than be static tools and documents.*** Products that are limited in their application or do not build a foundation of knowledge are destined to gather dust on the shelf of well-intentioned but small ideas.

Many of the products resulting from the Initiative were intended to apply new ways of thinking and technological advances to management issues. Products were developed to address critical information gaps and produce building blocks managers could use in different applications. The value of products are greatly expanded if they ensure broad transferability across the region, spur new research or new applications of existing knowledge, and are otherwise dynamic, living documents. For example, the development of the invasive plant data management system has led to a new research partnership between U.S. Geological Survey and University of Arizona Cooperative Extension that will add new spatial data layers to further assist land managers in making resource management decisions involving invasive non-native plants and fire risk.

**3. Public involvement is critical for building public support for resource management decisions.** Transparency in what and how information will be used in planning and implementation decisions mitigates to some extent public apprehensions about how agency resource management decisions are made. Interactive workshops can provide the public an opportunity for input into the planning process versus one-directional briefings or requests to simply provide comments. Well-crafted and targeted outreach materials can both inform the public about significant natural resource issues and encourage action.

***Effective public involvement is more than providing opportunities to comment.***

The way public involvement is often conducted as part of the NEPA process is to provide a forum for input and to request comments at different stages of planning. Although this may meet minimum requirements, it is likely insufficient to be considered effective public involvement. Creative strategies for structuring public meetings can provide more meaningful information to the agencies as well as provide a more meaningful engagement of the public.

Although public involvement occurred throughout this project, this area could have been improved. The public could have been more involved in the biological issues if more attention was paid to making available to the public the biological information that was provided during the course of the project, asking for direct input (including on the information provided), discussing issues, and identifying social and economic implications of the biological information. The Sonoran Institute conducted community meetings early in the SDNM planning (scoping) process, and the planning consultant (BLM contractor) continued similar meetings during the planning process; however, these were largely disconnected efforts and the planning consultant did not necessarily consider information being provided by the Conservancy and Institute. This missed opportunity also did not fully take advantage of partner skills in facilitating these discussions. More work with the communities and public in general throughout any planning process, especially when it includes interactive discussions on information being used to inform planning, would be helpful.

***Outreach is an important communication tool that can encourage public participation.*** Federal agencies often have constraints on outreach material content, design, and printing that make these materials difficult to produce in a collaborative manner. Outreach assistance provided by nonprofit organizations is important to complement agency-focused efforts.

During this project, outreach materials helped create awareness within the public. In addition, public outreach events, such as the wildlife waters meeting, provided an opportunity for land managers to engage in dialogue with the public and a forum to listen to each other.

Most of the outreach materials resulting from this project were focused on invasive plants. This outreach was successful because of the wide range of materials produced, as well as their innovative, creative approaches for different audiences and their overall quality. The goal was to target many different audiences with the materials, so we produced materials for land managers, media, public land volunteers, schools and teachers, and the general public. The quality of the information is extremely important, and technical advisors were used extensively. The appearance and creative delivery of the information was a distinguishing characteristic of our materials. We worked with an excellent graphic designer on the field guides, and the creative approach of using playing cards to spread our message among volunteers contributed to the popularity of the materials. These materials created public demand for the information and media attention and has likely contributed to local citizen groups getting involved in invasive plant projects.

In the case of the wildlife waters meeting, several public involvement strategies were used to get a more complete understanding of this controversial issue. The establishment and maintenance of wildlife waters in the Sonoran Desert (and elsewhere) can be a passionate issue with groups of people holding very different world views and values. To solicit public engagement in such a conflictive situation, strategies designed to encourage

mutual understanding and establish common ground were used. A “listening post” where people could post their points of view pro and con was used to publicly represent all sides of the issue without individuals confronting each other face to face. An anonymous comment box was available so people could express their opinions to decision makers even if they did not want to publicly express these opinions. And lastly, facilitated discussions engaged people in identifying common values and desires for future actions that would address this issue.

### **OVERALL CONCLUSIONS AND ASSESSMENT**

Based on the assessment and feedback we received on the products resulting from the Sonoran Desert Ecosystem Initiative, the project was valuable in providing useful information and strengthening stewardship in the region through partnerships.

General agreement was reached that the project was successful in advancing agencies’ ability to fulfill their missions because of the amount and quality of information generated and provided, public involvement assistance, and partnership efficiencies. This project provided more information and regional context than is usually available to agency planners. Regional partnerships such as the Initiative can draw on expertise that is lacking for just one agency and can increase agency capacity. Such partnerships also can enable agencies to look outside their own administrative boundaries and perspectives to work toward shared goals.

Approaches to federal land-use planning, such as those embodied in the Initiative, ideally require an up-front commitment of time and other resources before formal planning is initiated. They also require engagement in more complex collaborative relationships. The expected payback is lower cost overall and increased public buy-in as issues, and the data necessary to address them, are identified and considered before the constraints of regulatory process trump collaborative engagement. Success of the Initiative overall perhaps was limited primarily because its products came once the regulatory process was underway rather than before it commenced. If provided in a pre-planning context, the information could have been used more effectively to frame the sideboards of planning.

### **RECOMMENDATIONS FOR THE FUTURE**

Responses from partners involved in this project indicated that the original scope of the project was appropriate. Interest was expressed in continuing follow through and support of efforts already started: for example, continued development and sharing of ecosystem monitoring protocols; continued filling of data gaps associated invasive non-native plants; use of technical tools to their fullest potential; and greater involvement of the state of Arizona in these issues (such as the invasive non-native plant list).

Based on resource management issue trends since the beginning of this project, it was suggested that the next emphasis should be on urbanization and its effect on the loss and fragmentation of natural habitats. The issue of growth is integral to long-term land management and needs more focus. The partners we worked with expressed interest in

building diverse coalitions of communities, local governments, developers, and land management and regulatory agencies to create a better understanding of the changing economy of the West and its effect on the patterns of growth and responsive resource protection strategies.



**APPENDIX A: SONORAN DESERT ECOSYSTEM INITIATIVE**  
*Accomplishments of a collaborative, ecoregional approach*  
**October 2005**

The Sonoran Desert Ecosystem Initiative has its roots in a Legacy Program-funded effort initiated in the late 1990s that focused on conservation opportunities within the 55-million acre Sonoran Desert Ecoregion. The interest of the Department of Defense (DoD) was to identify a shared blueprint for allocating conservation responsibilities throughout the ecoregion. In part, this interest was based on DoD's concern with the potential for an increase in the federal conservation burden and associated mission impacts, as human population growth and associated development in the Southwest progress, and continued species endangerment seem more imminent. The ecoregional analysis and subsequent Legacy-leveraged work on a biodiversity management framework for the Barry M. Goldwater Range contributed to an increased awareness among land managers of relative conservation responsibilities within the region and an interest in developing effective conservation strategies. With the designation of the Sonoran Desert National Monument in 2001, its requirement for a management plan, and the need for the Bureau of Land Management (BLM) to update other land-use plans in the region, coordination with BLM became a logical focus. As a result, the initiative was established to include DoD, BLM, The Nature Conservancy, and the Sonoran Institute as its primary partners for purposes of funding and task accomplishment. In its implementation, however, the initiative has included the participation of many other entities.

The initiative considers multiple spatial scales in its approach and is collaborative in nature. It focuses on three interrelated components:

- site-specific biodiversity management
- ecosystem monitoring and coordinated management
- invasive plant management.

The cumulative outcomes of these three components create more effective conservation strategies on the part of land managers throughout the Sonoran Desert Ecoregion. Following are accomplishments to date that directly—or indirectly (leveraged)—result from the work funded by the Legacy Program and the BLM, either under the Sonoran Desert Ecosystem Initiative or the previous Legacy-funded work. The first section identifies products of a general nature with the following three sections arranged by the three primary thrust areas identified above. Where applicable, we identify electronic links to the various document and products prepared.

### ***General Accomplishments***

- 2000 *An Ecological Analysis of Conservation Priorities in the Sonoran Desert Ecoregion* (The Nature Conservancy, Sonoran Institute, and Instituto del Medio Ambiente y el Desarrollo Sustentable del Estado de Sonora). This document is an analysis of the conservation opportunities in the Sonoran Desert and the “road map” for biodiversity conservation in the ecoregion; our subsequent work and, increasingly, others, is based on the findings from this analysis. The document is also available in pdf format at <http://azconservation.org>, and has been translated into Spanish with a revised executive summary specific to Mexico partners’ use.
- 2000 *Human Dimensions of the Sonoran Desert Ecoregion: A summary Report* (Sonoran Institute, University of Arizona, and Universidad de Sonora). Produced in English and Spanish, this document provides an assessment of the regional socioeconomic context of the region.
- 2004 *Technical Note: Sonoran Desert Ecosystem Initiative: Shared Management Framework, Goals, Standards, and Responsibilities* (The Nature Conservancy, Sonoran Institute, and Legacy Resource Management Program). The Conservancy and Institute were asked by the Legacy Program to prepare a technical note (case study from the DoD conservation program) associated with work completed to date on the Initiative. The note was published in late summer 2004 and included an initial set of lessons learned. A more complete discussion of lessons learned will be provided as a Legacy deliverable by the end of June 2005.

### ***Site-specific Biodiversity Management Framework: Accomplishments***

This component integrates biological and social components, is tailored to specific site needs, and provides model lessons to apply to other sites (single or multiple jurisdictions) across the region

- 2001 *Conservation Elements of and a Biodiversity Management Framework for the Barry M. Goldwater Range, Arizona* (The Nature Conservancy). The framework was developed as a model ecosystem-based approach for biodiversity management to support Integrated Natural Resources Management Plan development for the Barry M. Goldwater Range. The document is available in pdf format at <http://azconservation.org>.
- 2002 *Conservation Elements of the Sonoran Desert National Monument: A Preliminary Analysis* (The Nature Conservancy and BLM). This document represented a first step in the development of a biodiversity management framework for the new monument, along with recommendations for coordinated management between the monument and adjoining portions of the Barry M. Goldwater Range.
- 2002 *Socioeconomic Profiles* (Sonoran Institute). Socioeconomic profiles for four counties and twelve communities were provided to the BLM for the Sonoran

- Desert National Monument planning. For more information about the Economic Profile System, go to [http://www.sonoran.org/programs/si\\_se\\_program\\_main.html](http://www.sonoran.org/programs/si_se_program_main.html).
- 2002 *Data for Conservation Planning in Mexico* (Instituto del Medio Ambiente y el Desarrollo Sustentable del Estado de Sonora and The Nature Conservancy). Biophysical and socioeconomic data were mined for deeper understanding of conservation site planning for all sites in Mexico.
- 2002 *Colorado River Workshop* (Sonoran Institute). An experts workshop was held to identify conservation priorities for the Colorado River and delta. This information was compiled and will inform future conservation issues related to the Colorado delta. The technical report detailing conservation and restoration needs for the priority areas was produced in 2005 and will be available on the Sonoran Institute web site at [http://www.sonoran.org/programs/si\\_sdep\\_delta\\_priorities.html](http://www.sonoran.org/programs/si_sdep_delta_priorities.html).
- 2003 *Yuma Proving Ground Integrated Natural Resource Management Plan Update* (Yuma Proving Ground and Sonoran Institute). The Sonoran Institute is partnering with YPG on its Integrated Natural Resource Management Plan (INRMP) update. The Institute's role is to facilitate public involvement, opportunities for coordinated management with adjoining land management units, and to ensure the process is efficient and on-schedule. The INRMP update takes an ecosystem management approach that is informed by a biodiversity analysis and natural community maps produced by The Nature Conservancy (see below).
- 2003 *Preliminary Assessment of Biodiversity Values and Management Framework Adaptation for the Expanded Kofa Complex and Yuma Resource Management Area in Southwestern Arizona* (The Nature Conservancy, Yuma Proving Ground, Bureau of Land Management-Yuma Field Office, Kofa National Wildlife Refuge, and Arizona Game and Fish Department). A compilation of biodiversity management framework-associated data layers for the Kofa Complex area in southwestern Arizona initiated in January 2003. A preliminary analysis of biodiversity values and a management framework for the Kofa Complex was provided to the partner agencies in August 2003 with a revised version provided in February 2004. This information is being applied in Yuma Proving Ground's INRMP as a basis for ecosystem-based management.
- 2003 *The Natural Communities and Ecological Condition of the Sonoran Desert National Monument and Adjacent Areas* (The Nature Conservancy, BLM, Luke Air Force Base, Tohono O'odham Nation, and Pacific Biodiversity Institute). A natural community mapping and condition assessment was completed for the Sonoran Desert National Monument and adjoining portions of the Barry M. Goldwater Range in October 2003. This project included an initial inventory of non-native plants. The mapping and condition assessment provides baseline ecological information for the natural communities present on the monument. This information is an integral part of the biodiversity management framework

- and also provides the BLM with information on those resources that were identified in the monument proclamation as objects requiring protection.
- 2003 *Species Conservation Element Characterization* (The Nature Conservancy and BLM). In association with the natural community assessment above, the Conservancy provided the BLM with information on species and species guilds that were proposed for management consideration as part of the biodiversity management framework for the Sonoran Desert National Monument. This information included ecological characteristics, relationship to the natural communities, conservation status, and potential threats to viability for each species and guilds and was provided to the BLM to support the monument planning process. This information contributes to the overall biodiversity management framework that was provided to the BLM and DoD in June 2005 (see below).
- 2003 *Recreation Impact Assessment* (Sonoran Institute, BLM, and Northern Arizona University) Northern Arizona University provided an assessment of recreational impacts on the Sonoran Desert National Monument to inform land management planning decisions. These data will also serve as a baseline for future monitoring of recreation sites. The final report with data and analysis is available in pdf form at [http://www.sonoran.org/programs/si\\_sdep\\_sdnm.html](http://www.sonoran.org/programs/si_sdep_sdnm.html).
- 2003 *Public Scoping Meetings for the Sonoran Desert National Monument* (BLM, Sonoran Institute, and The Nature Conservancy). Public scoping meetings were held in February in nine communities throughout the BLM Phoenix South Planning Area. The Nature Conservancy and Sonoran Institute attended the meetings and provided informational handouts on biodiversity and socioeconomic trends for these public open houses. The Sonoran Institute also provided a Spanish translation of all informational handouts (since a high percentage of the population in the region is Spanish-speaking). The BLM public newsletter communicating the results of the scoping process was also translated into Spanish.
- 2003 *Socioeconomic Reports* (Sonoran Institute and BLM). A binder and database including economic profiles for four counties and twelve communities, socioeconomic trend reports for six communities, and a regional summary were provided to the BLM for input into the planning process for the Sonoran Desert National Monument. The data can assist the BLM in its understanding of the communities directly on the borders of the national monument and also provide it information it can use for describing the management setting and assessing socioeconomic impacts of its decisions.
- 2003 *Growth Model for BLM's Phoenix South Planning Area* (Sonoran Institute, BLM, and National Aeronautic Space Administration [NASA]-Blueline Consulting). Blueline Consulting (researchers with NASA's program on Global Change and Sustainability) provided a growth model and projections of population change through the year 2030 for the BLM Phoenix South planning area, which includes

- communities around the Sonoran Desert National Monument and Luke Air Force Base. The model and data were provided to the BLM and to the U.S. Air Force, Luke Air Force Base, as well as training in how to use the model, as a tool for planning to address population growth and encroachment issues. A final report on this project can be found at [http://www.sonoran.org/programs/si\\_sdep\\_sdnm.html](http://www.sonoran.org/programs/si_sdep_sdnm.html).
- 2003 *Community Workshops* (Sonoran Institute and BLM). A series of five community workshops around the Sonoran Desert National Monument (Gila Bend, Mobile, Buckeye, Tonopah, Ajo) provided public input into the BLM planning process. The workshops included: identification of local values associated with the community and proximity to federal lands, presentations and discussion on regional and local socioeconomic trends, results from the growth model and potential local impacts, and a discussion on how the community plans to address growth issues and how they might work together with public land managers to achieve mutual goals. Three more community workshops are scheduled for 2005 for alternative development. You can access the final report and results of these meetings at [http://www.sonoran.org/programs/si\\_sdep\\_sdnm.html](http://www.sonoran.org/programs/si_sdep_sdnm.html).
- 2003 *Pilot Project* (BLM and The Nature Conservancy). Through a national assistance agreement between The Nature Conservancy and BLM, a project designed to integrate the Conservancy's ecoregional assessment information and biodiversity management framework with the BLM planning process, the Sonoran Desert National Monument partnership work was identified as a pilot project to identify a potential model approach.
- 2004 *Native Grass Group Characterization* (The Nature Conservancy, BLM, Luke Air Force Base, Tohono O'odham Nation, and Pacific Biodiversity Institute). One of the biodiversity values that was identified as potentially unique to the Sonoran Desert National Monument and adjoining areas, including the Sand Tank Mountains area of the Barry M. Goldwater Range, was the native grass aggregations. This task attempts to better characterize the species richness and abundance of the native grasses on the monument and vicinity to assist management of this unique biodiversity value. Initial work was initiated in 2004 with the development of a spatial model that can be used to predict the occurrence of native grass aggregations. Additional collection of field data will occur in the fall of 2005 and the spring of 2006.
- 2004 *A Literature Review and Synthesis of Grazing Impacts and Management Strategies in the Sonoran Desert* (The Nature Conservancy). The Nature Conservancy, responding to a request from the Bureau of Land Management, prepared a literature review of grazing impacts and management strategies in the Sonoran Desert. The objective of the review was to inform BLM decision-makers about management strategies and the documented impacts of grazing on Sonoran Desert ecosystems and species in the context of Sonoran Desert ecosystem dynamics. A draft report was provided to BLM in July 2004. Comments from 16 external reviewers were incorporated into a final report that was provided to the

BLM in March 2005. The document is available in pdf format at <http://azconservation.org>. Efforts are underway as of October 2005 to publish a portion of the report's findings in the primary literature.

- 2005 *A Biodiversity Management Framework for the Sonoran Desert National Monument* (The Nature Conservancy and Sonoran Institute). This biodiversity management framework describes the biodiversity of the Sonoran Desert National Monument (SDNM) and adjoining lands by characterizing a focused set of representative conservation elements—natural communities, species, and guilds—and their associated ecological processes to guide management of this unique landscape and its regionally and nationally important natural resources. In addition, it provides both a regional ecological and socioeconomic context, the latter of which provides important clues for current and future threats to the SDNM, opportunities for their abatement, and local community perspectives. In addition, the major insight of this framework document is that the biodiversity of the SDNM exists and functions within a larger spatial context. As a result, its long-term management requires attention to ecological and not just administrative boundaries. To capture the appropriate ecological boundary, within which the conservation elements—and hence the overall native biodiversity of the monument—can maintain themselves across their natural ranges of variation—the framework defines a functional conservation landscape that includes the SDNM and the eastern portion of the Barry M. Goldwater Range as part of its core area: the Sand Tank Mountains Complex. Successful management of this functional conservation landscape will require the actions, coordination, and cooperation of numerous parties. The document is available in pdf format at <http://azconservation.org>.
- 2005 *Socioeconomic Workshop* (Sonoran Institute). A socioeconomic workshop was held in Yuma to provide socioeconomic information to the BLM resource management plan for the Yuma Field Office. The workshop included collaboration and participation from the U.S. Army Yuma Proving Ground and other federal and state agencies. The workshop provided an opportunity for the public, including city and county officials, to discuss socioeconomic trends for the region and how they are related to land management decisions. Notes from the workshop can be found in pdf format at [http://www.sonoran.org/programs/si\\_sdep\\_ypg.html](http://www.sonoran.org/programs/si_sdep_ypg.html).

### ***Ecosystem Monitoring and Coordinated Management: Accomplishments***

This component seeks to build common interests and overlapping monitoring and management strategies throughout the region.

- 2001 *Sonoran Desert Ecosystem Monitoring: A Concept in Development* (Sonoran Institute). A white paper describing the concept was developed, which continues to form the basis for discussions on collaborative ecosystem monitoring. Letters of support for this concept were received from state and federal agencies in Mexico, U.S. federal agencies, and nongovernmental organizations.

- 2003 *Ecosystem Monitoring Science Workshops* (Sonoran Institute, The Nature Conservancy, National Park Service, and University of Arizona). A series of ten workshops were held with scientists from Arizona and Mexico to identify potential indicators for a regional ecosystem monitoring framework for the Sonoran Desert. Groups of scientists provided ideas for candidate indicators to monitor: vegetation, climate, vertebrates, invertebrate species, ecosystem or landscape processes, land use and land cover, soils and geomorphology, and human dimensions. The National Park Service used this process to assist them in identifying indicators for their Sonoran Desert park network. Next, a series of workshops with land managers refined these ideas. Together, this information will begin to form a framework for ecosystem monitoring in the Sonoran Desert. A future goal is to link this work with other finer-scale ecosystem monitoring efforts for the Sonoran Desert National Monument and the Las Cienegas National Conservation Area. For an update on the results and progress in this project, go to <http://www.nature.nps.gov/im/units/sodn/conceptualmodels/index.html>.
- 2004 *Research Internship* (Sonoran Institute, BLM, The Nature Conservancy, and National Park Service). A part-time graduate intern, hired and supervised by the Sonoran Institute with funding provided by the BLM, is assisting both the Institute and the Conservancy in data analysis and literature review for the Sonoran Desert National Monument, as well as by participating in the regional ecosystem monitoring framework development. Legacy has funded one graduate student intern working on ecosystem monitoring, and the National Park Service has funded eight additional student interns. For more information on the interns and their projects, go to [http://www.sonoran.org/programs/si\\_sdep\\_interns.html](http://www.sonoran.org/programs/si_sdep_interns.html)
- 2004 *Wildlife Waters* (Sonoran Institute, BLM, and Arizona Game and Fish Department). The Sonoran Institute facilitated public input on the issues of wildlife waters and their management as part of a regional, interagency workshop in Phoenix. The purpose of the workshop was to provide an overview of existing science related to wildlife waters and their management. It also provided a public forum for input and questions. Input will be considered in federal land management planning for the region. You can access the notes from the public involvement sessions of the workshop at [http://www.sonoran.org/programs/si\\_sdep\\_sdnm.html](http://www.sonoran.org/programs/si_sdep_sdnm.html).

***Invasive Plant Management: Accomplishments***

This component uses an inter-institutional, collaborative approach to address one of the most important threats to Sonoran Desert ecosystems.

- 2001 *Invasive Species Management Workshops* (The Nature Conservancy, Sonoran Institute, and Society for Ecological Restoration). A series of three week-long training workshops on invasive species management were sponsored by The Nature Conservancy and the Sonoran Institute and conducted by the Society for Ecological Restoration in the spring of 2001. Participants in the training workshop

represented federal, state, county, and tribal agencies; nonprofit conservation organizations; and universities. The training workshops included classroom training, fieldwork, and group discussion. The result of these training workshops included the commitment to explore the idea of forming a cooperative group to manage invasive plants. These workshops provided the initial ideas for invasive species management activities that could increase the effectiveness of land managers in combating the threat of invasive species.

- 2001 *A Resource Guide for Invasive Plant Management in the Sonoran Desert* (Sonoran Institute and The Nature Conservancy). This document provided a summary of invasive plant management occurring across the landscape by state and federal agencies, cooperative volunteer organizations, and nongovernmental organizations and directory of contacts. This document was prepared in response to a need expressed by land managers and others for resource information at the invasive species management workshops described above. The pdf version is available at [http://www.sonoran.org/programs/si\\_sdep\\_invasivecouncil.html](http://www.sonoran.org/programs/si_sdep_invasivecouncil.html)
- 2002 *Bioinvaders*, a special edition of *sonorensis*, the magazine of the Arizona-Sonora Desert Museum (Sonoran Institute, The Nature Conservancy, and the Arizona-Sonora Desert Museum). The Sonoran Institute and The Nature Conservancy, in partnership with the Museum, initiated a revision and reprint of this publication that presented the issues of invasive species, the impacts they have on natural systems, and the efforts underway in the Sonoran Desert to address them. A pdf version of the publication is available at [http://www.sonoran.org/programs/si\\_sdep\\_invasivecouncil.html](http://www.sonoran.org/programs/si_sdep_invasivecouncil.html).
- 2002 *Taller de Plantas Invasivas* (Instituto del Medio Ambiente y el Desarrollo Sustentable del Estado de Sonora, National Park Service, The Nature Conservancy, and Sonoran Institute). A workshop on invasive plant management was held at Organ Pipe Cactus National Monument. Workshop presentations included initial results from invasive plant field surveys conducted in the Pinacate y Gran Desierto Biosphere Reserve. The results of this workshop have led to invasive plant monitoring and restoration efforts along the Rio Sonoyta, as well as collaborative efforts between the Pinacate Biosphere Reserve and Organ Pipe Cactus National Monument.
- 2002 *Sonoran Desert Invasive Species Council Formation* (Sonoran Institute and The Nature Conservancy facilitated the formation of these groups and their strategic planning process). The Sonoran Desert Invasive Species Council was formed in addition to the Borderlands Cooperative Weed Management Area (CWMA) and the King of Arizona CWMA. These three organizations cover over 7 million acres of the Sonoran Desert in southwestern Arizona and coordinate invasive plant management activities. A strategic plan for the Council and annual operating plans for each of the CWMA were completed. In 2005, an informational and promotional brochure was designed and produced by the Sonoran Desert Invasive Species Council and the Sonoran Institute. For more information about the



- Sonoran Desert Invasive Species Council, go to [http://www.sonoran.org/programs/si\\_sdep\\_invasivecouncil.html](http://www.sonoran.org/programs/si_sdep_invasivecouncil.html).
- 2002 *Invasive Plant Data Management Computer Support Tool* (The Nature Conservancy and U.S. Geological Survey). A project to develop a data management computer support tool for invasive plant monitoring and mapping was initiated. The project is now focused on creating an overall invasive plant data management system for the Southwest that will include a customized data manager, user manual, web-based interfaces, and linkages to a regional database and information clearinghouse. Prototype testing used the above two CWMA's and final products were completed during June 2005. Project materials can be accessed at <http://www.usgs.nau.edu/swepic>. Go to both the "Maps" and "SWEMP" links to view and access project products.
- 2002 *Criteria for Categorizing Invasive Non-Native Plants that Threaten Wildlands* (The Nature Conservancy, Southwest Vegetation Management Association, California Exotic Pest Plant Council [now California Invasive Plant Council], and University of Nevada Cooperative Extension). Work commenced on a three-state effort to develop criteria for categorizing invasive non-native plants that threaten wildlands. Criteria were completed in February 2003. The criteria are available at <http://www.usgs.nau.edu/swepic>. Go to the "AZ-WIP" link and then "Documents."
- 2002 *A Field Guide to Invasive Plants of the Sonoran Desert* (Sonoran Institute and the Environmental Education Exchange led the project with support from the National Fish and Wildlife Foundation). The publication was a collaboration of 17 institutions, including U.S. and Mexican universities, state agencies, federal agencies, and nongovernmental organizations. It was produced as a "flip book" in Spanish and English and was distributed throughout the region in the U.S. and Mexico. Although hard copies are no longer available, the pdf version can be accessed at [http://www.sonoran.org/programs/si\\_sdep\\_invasivecouncil.html](http://www.sonoran.org/programs/si_sdep_invasivecouncil.html).
- 2003 *Sonoran Desert Invasive Species Council Memorandum of Understanding* (The Nature Conservancy coordinated preparation and sign-off of the MOU). A Memorandum of Understanding formalizing the establishment of the Sonoran Desert Invasive Species Council became effective starting January 1, 2003. Current signatories include 12 federal land management units, four state agencies, two natural resource conservation districts, the University of Arizona Cooperative Extension, and three nongovernmental organizations. A pdf version of the document is found at <http://www.sonoran.org/programs/pdfs/MOU.pdf>.
- 2003 *Arizona Wildlands Invasive Plant Working Group Coordination* (The Nature Conservancy provides staff to coordinate the work of the group). The Arizona Wildlands Invasive Plant Working Group (composed of multiple organizational representatives and sponsored by the Southwest Vegetation Management Association) charter is to apply the *Criteria for Categorizing Invasive Non-Native*

- Plants that Threaten Wildlands* described above in a consistent way to develop a categorized list of invasive non-native plants that threaten wildlands for the state of Arizona. An initial list, which was included as part of a final report on the Working Group's efforts, was available as of September 2005 (see below). The list will be an important informational tool for land managers. Supporting documentation associated with the list will be available before the end of 2005. Information about this project can be accessed at <http://www.usgs.nau.edu/swepic>. Go to the "AZ-WIP" link.
- 2004 *Deck of Cards* (Sonoran Institute, King of Arizona CWMA, and Sonoran Desert Invasive Species Council). A deck of cards featuring invasive plants was produced by the Sonoran Institute, King of Arizona CWMA, and the Sonoran Desert Invasive Species Council. The deck of cards (based on the U.S. Army model used in the Integrated Training Area Management [ITAM] Program) educates people about common invasive plants, their impacts on the Sonoran Desert, what individuals can do to limit their impacts, and what native plants are encouraged to be used in landscaping. Although the deck was designed to be used primarily by the King of Arizona CWMA in its education efforts and volunteer program, additional print runs and use of the deck has now spread throughout the region. For more information, go to [http://www.sonoran.org/programs/si\\_sdep\\_cards.html](http://www.sonoran.org/programs/si_sdep_cards.html).
- 2004 *Pollinators of the Sonoran Desert: A Field Guide* (Sonoran Institute, International Sonoran Desert Alliance, Arizona-Sonora Desert Museum, and National Park Service). To follow on the successful and popular field guide to invasive plants of the Sonoran Desert, a second book (in this possible series?) was produced that educates people about the role of animal pollinators (hummingbirds, bats, and insects) in maintaining biodiversity. The field guide encourages people to plant native gardens (rather than non-native or invasive plants) for hummingbirds and butterflies and educates them about the codependence of pollinator species and native plants.
- 2005 *Invasive Non-Native Plants That Threaten Wildlands in Arizona* booklet (The Nature Conservancy, Bureau of Reclamation, and U.S. Fish and Wildlife Service). The invasive plant list prepared by the Arizona Wildlands Invasive Plant Working Group was put into a booklet format that was printed and also made available in pdf format at <http://www.usgs.nau.edu/swepic>. Go to the "AZ-WIP" link.

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## **APPENDIX B: SONORAN DESERT ECOSYSTEM INITIATIVE**

### *Generating Lessons Learned*

The Sonoran Desert Ecosystem Initiative is a joint project of The Nature Conservancy, Sonoran Institute, Department of Defense, and Bureau of Land Management that evolved from an earlier Department of Defense Legacy Program-funded effort, which focused on conservation opportunities in the Sonoran Desert Ecoregion. The purpose of the earlier effort was to identify a shared blueprint for allocating conservation responsibilities throughout the ecoregion. An ecological analysis of conservation priorities, completed in 2000, provided the blueprint by both identifying a network of 100 large conservation areas—that in combination represent the best remaining opportunities to conserve the ecoregion’s biological diversity—and the primary threats to biodiversity within the ecoregion. Based on that initial assessment, three main program implementation areas were identified: (1) site-based conservation planning, (2) ecosystem monitoring and coordinated management, and (3) invasive plant management. To address these program areas, subsequent work focused on conserving native biodiversity and ecological processes within a federal land management context, encouraging coordination of management actions across jurisdictional boundaries, and facilitating partnerships to address mutual resource management objectives.

Since 2000, and most recently under the three-year Sonoran Desert Ecosystem Initiative, efforts directed toward each of the program areas have resulted in a number of products and accomplishments and involved a large number of agencies and organizations as partners (see attached list of accomplishments). At this point, The Nature Conservancy and the Sonoran Institute—and our primary funders, the Department of Defense and the Bureau of Land Management—are seeking feedback in order to compile lessons learned from this body of work. As land management agencies test new management approaches and grapple with new management challenges on federal lands, lessons gleaned from experiences here in the Sonoran Desert may contribute insights and guide future work within the Sonoran Desert and in other ecoregions as well.

Because the scope of activities has been broad and variable in regard to the number and identity of partners involved in each project activity, we have decided to solicit feedback through this survey to enable compiling lessons learned in the most efficient way possible. The survey is organized by the three main program areas and an overall assessment section at the end. Questions are kept relatively general and open to solicit the broadest possible range of thoughts and comments from our partners. Because not all partners were involved in all aspects of the project, we do not expect each person to respond to all of the questions; instead, responders should focus on those program areas and questions that they feel are most relevant to their experiences, and please answer the questions in the overall assessment section.

If you have any questions about this survey, please contact Nina Chambers at the Sonoran Institute at 520.290.0828 or at [nina@sonoran.org](mailto:nina@sonoran.org). The Conservancy and

Institute will compile responses and use them as one source of input into a lessons learned report that will be provided to the Department of Defense and Bureau of Land Management.

**SONORAN DESERT ECOSYSTEM INITIATIVE**  
Survey for Lessons Learned

**Section 1. Site-based conservation planning using a biodiversity management framework.**

The Nature Conservancy has developed a planning framework for conserving and managing biodiversity on federal lands that has been tailored to meet the resource planning needs of different land management units and agencies within the Sonoran Desert. The approach uses information at various spatial scales to encourage holistic and proactive approaches to natural resource planning and management that facilitates the long-term conservation of native species and ecological systems. The framework's concept is based on coarse filter-fine filter methodology, a threat-based planning approach, definitions of a functional conservation landscape, and the application of socioeconomic information. Because ecological boundaries rarely correspond to jurisdictional boundaries, the framework also identifies opportunities for coordinated management. Initial ecological information to provide each framework with an appropriate regional context is taken from the ecoregional analysis.

This approach was used in the Sonoran Desert at various scales:

- As a pre-Initiative project, the biodiversity management framework was applied to the Barry M. Goldwater Range to provide a technical basis for its Integrated Natural Resource Management Plan.
- The biodiversity framework was integrated with socioeconomic information and applied to resource management planning needs for the Sonoran Desert National Monument.
- The initial steps of the framework were applied to the Kofa Complex (corresponding generally to the BLM Yuma Field Office lands, Yuma Proving Ground, and Kofa National Wildlife Refuge lands) to assess and provide a landscape-view of biodiversity values for the region; however, the information was not provided in direct support of any formal agency planning process.

In addition, the Conservancy prepared for the Bureau of Land Management a literature review and synthesis on the impacts of livestock grazing on the natural and cultural resources of the Sonoran Desert and on management strategies. This last work item is an example of a detailed threat and management strategy assessment that can support planning decisions and can be included as part of the framework documentation.

1. For the Sonoran Desert National Monument both biological and socioeconomic information were provided. How well were these two types of information integrated to inform planning?

2. The biodiversity management framework was presented as an organizing principle and integrated with BLM's planning process guidelines as a pilot project. How well do you think that worked? What worked well? What obstacles were encountered? How would you recommend improving this approach?
3. If you are familiar with both, how would you contrast the framework document prepared for the Barry M. Goldwater Range versus the Sonoran Desert National Monument? Was one an improvement over the other? If so, how?
4. The preliminary biodiversity assessment for the Kofa Complex was provided for a larger region and was not connected directly to a formal planning process. Was this useful? What worked well? What obstacles were encountered? How would you recommend improving this approach?
5. Various outcomes and products resulted from the site-specific planning work (see attached list). Which of them did you find particularly useful? Were there any that were particularly not helpful? Please be specific and describe why they were useful or why not.
6. What roles should the Sonoran Institute play in these collaborative projects? What were your expectations? Were they met? Is there anything else you would like to see?
7. What roles should The Nature Conservancy play in these collaborative projects? What were your expectations? Were they met? Is there anything else you would like to see?
8. Partnerships at various levels were key to this work. How well do you think the partnerships you were involved in worked? Why or why weren't they successful?

## **Section 2. Ecosystem monitoring and coordinated management.**

The ambitious vision of this component is to create a regional framework for ecosystem monitoring that will detect and describe ecological and socioeconomic changes that are occurring over time across the region, provide land managers with the data needed to make informed management decisions at the scale of the land management unit, and provide the public and policy makers with information necessary to understand the changes that are occurring and to craft appropriate and adaptive responses.

Much of the initial work has focused on building partnerships, sharing information, and identifying opportunities for collaborative management. Outcomes of the work include:

- workshops with land managers to identify needs for monitoring and adaptive management and sources of available information
- workshops with scientists to identify critical components of a monitoring program



- internships that resulted in literature reviews and draft protocol development in preparation for field testing
  - formation of the Regional Monitoring Partnership to explore information sharing and coordinated monitoring and adaptive management.
1. Was the approach taken toward this ambitious goal valuable? What else would you suggest pursuing to improve progress?
  2. Did anything presented at the workshops change your thinking or get you interested in pursuing this topic?
  3. Was there any product or outcome (see attached list) that you found particularly useful or not useful? How would you suggest these products could be improved?
  4. What roles should the Sonoran Institute play in these collaborative projects? What were your expectations? Were they met? Is there anything else you would like to see?
  5. What roles should The Nature Conservancy play in these collaborative projects? What were your expectations? Were they met? Is there anything else you would like to see?
  6. Partnerships at various levels were key to this work. How well do you think the partnerships you were involved in worked? Why or why weren't they successful?
  7. What do you see as important next steps?

### **Section 3. Invasive plant management.**

Invasive species are one of the main threats to native biodiversity in the Sonoran Desert. Because these species and their impacts are widespread, a collaborative approach is needed to address the threat. Invasive plant management, in particular, requires the integration of a number of strategies including: outreach and education; early detection and rapid response; control, including eradication; restoration; research and data management/sharing; and policy change.

This project focused on the following outcomes:

- training and educational workshops
- production and dissemination of educational materials
- formation of the Sonoran Desert Invasive Species Council and associated cooperative weed management areas to coordinate management efforts

- computer software development to enable data management and sharing
  - prioritization of the most important invasive plants for management attention through explicit criteria and associated development of a categorized list.
1. Was the approach taken toward invasive plant management valuable? What else would you suggest for greater progress?
  2. Partnerships at various levels were key to this work. How well do you think the partnerships you were involved in worked? Why or why weren't they successful?
  3. Various outcomes and products resulted from this work on invasive plants (see the attached list). Which of them did you find particularly useful? Were there any that were particularly not helpful? Please be specific and describe why they were useful or why not.
  4. What do you suggest for next steps in this work?
  5. What roles should the Sonoran Institute play in these collaborative projects? What were your expectations? Were they met? Is there anything else you would like to see?
  6. What roles should The Nature Conservancy play in these collaborative projects? What were your expectations? Were they met? Is there anything else you would like to see?

#### **Section 4. Overall assessment.**

We hope that from your comments we will learn valuable lessons about how these kinds of collaborative projects can be improved in the future. The following are questions not focused on any particular component, but the Initiative overall.

1. Given the types of program areas addressed by the Sonoran Desert Ecosystem Initiative, *why* would (or wouldn't) an agency or organization participate in this kind of collaborative project? *What* are the benefits, drawbacks, and obstacles to engaging in partnerships of this kind?
2. *When* is the best time to engage in this kind of project? (For example, some of this work was associated with agency resource management planning. When is the best time for collaborative engagement in agency planning and management? Should it occur prior to initiation of formal planning? During formal planning? Or should it be timed to assist with implementation of planning decisions?)

3. *What* products are most useful and should be expected from a collaborative project? (Initiative products ranged from technical reports to models to computer software to outreach materials.)
4. What do you think works best or doesn't work about collaborative, partnership approaches to natural resource management among agencies? What do you think works best or doesn't work about collaborative, partnership approaches to natural resource management among agencies and non-agencies? How do you think they can be improved?
5. Do you think the focus on the initiative on site-based conservation, coordinated management and monitoring, and invasive species was appropriate? If a similar project were started today, what management issues would you focus on (e.g., border migration impacts, urbanization/fragmentation)?
6. Has this project materially advanced your agency's ability to fulfill its mission? If yes, how? If no, why not?
7. Has this project materially advanced cooperation and coordination among agencies or among agencies and non-agency partners? If yes, how? If no, why not?
8. Has this project materially advanced your agency's approach, capacity, or priority to managing and conserving ecological systems and biological diversity? If yes, how? If no, why not?
9. Is there anything else you would like to add?

Thank you for your comments! We appreciate your candid assessment and time devoted to this project. For the purposes of following up if there is a need for clarification, and to aggregate comments by similar perspectives, please enter the following personal information. Your name will not be directly associated with your comments in the final compilation of results.

**Name:**

**Title:**

**Agency/Organization:**

**Email/Phone:**

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*Please return the completed survey to [nina@sonoran.org](mailto:nina@sonoran.org)*

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## **APPENDIX C: SONORAN DESERT ECOSYSTEM INITIATIVE**

### **Results from Survey for Lessons Learned**

#### **Section 1. Site-based conservation planning using a biodiversity management framework.**

The Nature Conservancy has developed a planning framework for conserving and managing biodiversity on federal lands that has been tailored to meet the resource planning needs of different land management units and agencies within the Sonoran Desert. The approach uses information at various spatial scales to encourage holistic and proactive approaches to natural resource planning and management that facilitates the long-term conservation of native species and ecological systems. The framework's concept is based on coarse filter-fine filter methodology, a threat-based planning approach, definitions of a functional conservation landscape, and the application of socioeconomic information. Because ecological boundaries rarely correspond to jurisdictional boundaries, the framework also identifies opportunities for coordinated management. Initial ecological information to provide each framework with an appropriate regional context is taken from the ecoregional analysis.

This approach was used in the Sonoran Desert at various scales:

- As a pre-Initiative project, the biodiversity management framework was applied to the Barry M. Goldwater Range to provide a technical basis for its Integrated Natural Resource Management Plan.
- The biodiversity framework was integrated with socioeconomic information and applied to resource management planning needs for the Sonoran Desert National Monument.
- The initial steps of the framework were applied to the Kofa Complex (corresponding generally to the BLM Yuma Field Office lands, Yuma Proving Ground, and Kofa National Wildlife Refuge lands) to assess and provide a landscape-view of biodiversity values for the region; however, the information was not provided in direct support of any formal agency planning process.

In addition, the Conservancy prepared for the Bureau of Land Management a literature review and synthesis on the impacts of livestock grazing on the natural and cultural resources of the Sonoran Desert and on management strategies. This last work item is an example of a detailed threat and management strategy assessment that can support planning decisions and can be included as part of the framework documentation.

- 1. For the Sonoran Desert National Monument both biological and socioeconomic information were provided. How well were these two types of information integrated to inform planning?**

*I'm not sure they really were integrated all that much. I'm not sure what we could have done differently. One thing we might have done was use some of the socio-economic outreach to get the public more engaged in the biological issues. This could have included sharing the biological information, asking for input, discussing issues, identifying social & economic implications of biological data, etc.*

- 2. The biodiversity management framework was presented as an organizing principle and integrated with BLM's planning process guidelines as a pilot project. How well do you think that worked? What worked well? What obstacles were encountered? How would you recommend improving this approach?**

*This issue was a major disconnect between BLM & TNC throughout the pilot. BLM's intent and understanding of the purpose of the pilot was that the framework was not to be treated as an organizing principle of the BLM process but instead the purpose of the pilot was for BLM and TNC to work together to identify how to integrate framework concepts and methods with the BLM planning process. This would include identifying what works well, what would not work, and what needed to be changed or improved in the processes being used (BLM's planning process and TNC's framework process). Instead, the framework was developed and BLM's process proceeded in parallel and there was no attempt at integration. BLM has used the data within the documents provided to the extent it was helpful to inform the planning process. In the future, before initiating a pilot of this type, there must be a very clear understanding on both sides of what the goals are, how the project will be approached, and what the outcomes should be. In addition, a clear understanding on both sides of process, methods, etc. would have been useful. Finally, a method for integration of the two processes needed to be clearly developed with the involvement of all the partners. In addition, these agreements and the data that is included in the framework should be completed outside and prior to the initiation of the BLM planning process.*

- 3. If you are familiar with both, how would you contrast the framework document prepared for the Barry M. Goldwater Range versus the Sonoran Desert National Monument? Was one an improvement over the other? If so, how?**
- 4. The preliminary biodiversity assessment for the Kofa Complex was provided for a larger region and was not connected directly to a formal planning process. Was this useful? What worked well? What obstacles were encountered? How would you recommend improving this approach?**

*I believe it was useful that the Kofa Complex was not directly related to a formal planning process. The Kofa Complex provided for a bigger picture approach and provided us some baseline information that had been lacking for a number of years. However, the Kofa Complex report was at such a high level. We would suggest or recommend follow-up at the field office level that would assist us with management prescriptions.*

*Yes, the information provided has been very useful. The YFO has been using components of the expanded Kofa Complex for our RMP efforts. The office interviews performed by Weinstein were good. It would be helpful to have a list of questions and issues prior to the interviews so that required data gathering could be initiated prior to field office visits. Field visits to specific regions of the F.O. may be helpful to supplement knowledge from office records and literature research.*

*The approach was extremely useful in both indirect and direct outcomes. The assessment afforded us the opportunity to put words into action by scoping the area of interest based on resource value rather than ownership. It's changed the way we look at management and decision-making as shared responsibilities. What's worked well is that it is the transparent undercurrent to how we collectively think and do our Kofa Complex management approach, even if we don't notice that the Initiative was the impetus.*

*As I recall, the obstacle was primarily the learning curve to understand the new concepts and processes needed to change our business process. The approach would have been improved by having the local partners more responsible for the hands-on work involved in producing the assessment. The ones doing most of the work got our input, routed it through us to review and comment, and produced the final report. That spared us the commitment of time and energy, but it cost us by removing us a bit from what we should walk, talk, live and breathe in fulfilling its purpose.*

**5. Various outcomes and products resulted from the site-specific planning work (see attached list). Which of them did you find particularly useful? Were there any that were particularly not helpful? Please be specific and describe why they were useful or why not.**

*I am mainly familiar with the following two reports:*

*(1) An Ecological Analysis of Conservation Priorities in the Sonoran Desert Ecoregion*

*(2) Conservation Elements of and a Biodiversity Management Framework for the Barry M. Goldwater Range, Arizona*

*Both were excellent and were very useful to the Air Force in that they provided useful reference material and planning guidance for the preparation of the Goldwater Range renewal EIS.*

*I have to admit, I was not aware of the numerous projects the Sonoran Institute was involved in. There are a number of projects the field office was not directly involved in. However, after reading the accomplishments summary, we can benefit from the material prepared. The Sonoran Institute has demonstrated full comprehension for the natural resources and regional issues.*

*An Ecological Analysis of Conservation Priorities in the Sonoran Desert Ecoregion – the ecoregional analysis is pertinent to RMP-level planning which focuses on regional and area management priorities. A flaw of course is that it is only as good as the (incomplete) data it uses.*

*Species Conservation Element Characterization – Data on species and communities used by BLM to inform planning decisions within SDNM. Generally included information BLM had available but included some additional information and provided synthesis of that information.*

*Socioeconomic Profiles & Socioeconomic Reports – provided information required for the AMS & Impact Analysis.*

*The Natural Communities and Ecological Condition of the Sonoran Desert National Monument and Adjacent Areas – Data on communities used to inform grazing evaluation and planning decisions. In the future a more narrowed & specific scope would probably be helpful, as developed the data is somewhat difficult to extract & use.*

*Recreation Impact Assessment – provided insight into public use patterns, helpful in day-to-day management as well as to inform RMP recreation decisions*

*Growth Model for BLM's Phoenix South Planning Area – helpful for outreach, but needed to substantially more work for it to be useable in impact analysis – a tool such as this, however, would be useful for any area experiencing significant growth, if fully developed.*

*Community Workshops – These were helpful, but would have been more useful if we had continued them throughout the planning effort to help keep the smaller communities engaged. Perhaps a goal of the workshops would be to identify specific tasks/interests, etc. each community is interested in following up on – either related to the planning or general management.*

*A Literature Review and Synthesis of Grazing Impacts and Management Strategies in the Sonoran Desert & Literature Search for SDNM (from SI although not on this list) – It is very helpful to get the literature for an area or topic. Although BLM staff try to stay up-to-date, it is difficult and an independent gathering of this information was very helpful.*

*A Biodiversity Management Framework for the Sonoran Desert National Monument – Since we received the completed framework in mid-2005, we had already completed the alternatives, so we used the previous piece-meal sections we received, but not the*



*framework document as a whole. In general, I recommend completing the framework as a multi-disciplinary effort that would involved not just BLM & TNC & SI, but also other partners/cooperators and providing public input opportunities. This should be completed prior to initiating planning processes and then this biologically-focused document could be used as input to the planning process and help inform the multiple-use trade-offs BLM needs to make.*

*I'm not sure which list, but if you mean the one above, then all were useful. The first two were building blocks culminating in the Kofa Complex product directly related to our ability to incorporate in our management and implement. The usefulness again is related to the resource context so management is understood in a resource context rather than a boundary one; you can better visualize the big picture and how the pieces and partners fit to meet common goals. If you mean the accomplishments document, then the most important would be the YPG INRMP Update for obvious reasons.*

**6. What roles should the Sonoran Institute play in these collaborative projects? What were your expectations? Were they met? Is there anything else you would like to see?**

*The Sonoran Institute played a very useful role in brining together a wide range of partners, including from Mexico, to participate in the process. This certainly met the Air Force's expectations.*

*Sonoran Institute does a wonderful job hosting, facilitating meetings and distributing information to our partners, cooperators, and public. I would like to see their continued involvement in all aspects of our natural resource management within a federal agency. Our expectations have been fully met.*

*Facilitation of multi-agency process, compilation of data, and distribution of product. The BLM often has data gaps regarding resource condition that require field assessment to inventory (example – plant communities, OHV route proliferation, special soil communities (ex- desert pavement)), it would be great to have more field assessment and inventory assistance from SI.*

*I think SI has a strong role to play in these projects, particularly in helping to bring communities together to discuss these issues and in bringing social & economic data to bear on land management & community development decisions. I think for the specific SDNM project, we did not go as far as we could have in exploring the integration & interaction of the socio-economic issues & biological issues. I'm not sure what we could or should have done, but it is an area that more exploration & thought would be warranted. Also, in a rapidly growing area like Phoenix, we need to figure out how to engage & keep engaged with communities that are changing in character and population at an extremely fast rate. This may also include getting engaged with developers and other organizations.*

*Sonoran Institute should be the facilitator, the impartial referee, and the one sensitive to whether or not all vested interests are represented. This includes sensitizing, educating and empowering vested interests that may not realize their role. Sonoran Institute needs to be the conscience of the Initiative, and SI should document how well we discharge our duties in honoring it. As far as my expectations, they have been overwhelmed: I have learned so much that I needed to know. As far as disappointments, there are partners that for whatever reason have chosen to disengage. All of us are lessened as a result.*

**7. What roles should The Nature Conservancy play in these collaborative projects? What were your expectations? Were they met? Is there anything else you would like to see?**

*TNC focused on providing the science necessary for the project. That included the collection of basic data and the analysis of the data. Yes, they easily met the Air Force's expectations.*

*I do not have any experience with the Nature Conservancy outside the Kofa Complex. I would have liked to have seen more coordination with the agencies affected by the Kofa Complex at the developmental stage. Some staff feel this was a national level task order that was dropped on the field offices to use without further direction or guidance.*

*Facilitation of multi-agency process, compilation of data, and distribution of product. The BLM often has data gaps regarding resource condition that require field assessment to inventory (example – plant communities, OHV route proliferation, special soil communities (ex- desert pavement)), it would be great to have more field assessment and inventory assistance from TNC.*

*I think TNC has a strong role to play, particularly in bringing solid scientific data & new ideas to the table. Our experience though with TNC is that they are more likely to be perceived as having an agenda and/or being biased than SI. This is likely to be region-specific, so all BLM offices need to be sensitive to the specific issues of their area and work with NGO partners accordingly. I think we could do more work on defining and exploring how to use TNCs framework concept beyond simply using the data underlying it, which is what we were limited to in this pilot.*

*TNC should be the science advisor and the partner most effective at setting the context of the Initiative in local, regional and global terms. As the brain of the Initiative, their role includes educating the partners to gain a common set of knowledge, standards, planning tools and management techniques to collectively accomplish the Initiative's objectives. They also have the responsibility of documenting the decision process and hopefully providing adaptive alternatives as warranted. These were my expectations at the onset, and largely they have been met. My hope is that TNC will be able to continue the relationship with us in this role now that we've come this far.*

**8. Partnerships at various levels were key to this work. How well do you think the partnerships you were involved in worked? Why or why weren't they successful?**

*I don't have enough experience with the partnerships to answer this question.*

*The partnerships have helped to distribute information, share viewpoints, and to resolve issues through a collaborative effort.*

*Partnerships developed and fostered by this effort were very successful. It would be beneficial to have more communications with our partners in Mexico facilitated by SI and TNC.*

*I think the partnerships worked pretty well, but could have worked better. Since this pilot was primarily initiated by WO rather than at the field level, the pilot started before the partners had an opportunity to fully discuss it and reach a common understanding of what each partner's role was and what the desired outcome was. Also, I think the partnerships would have been easier to foster outside of the politics and time pressures of the planning effort.*

*Partnerships are pivotal to the day-to-day implementation of the Initiative's intent as manifested in my work. The partnerships are strong and lasting. They will continue to be so even as personnel change or partner missions change because they have become integral to our corporate philosophies and business practices.*

**Section 2. Ecosystem monitoring and coordinated management.**

The ambitious vision of this component is to create a regional framework for ecosystem monitoring that will detect and describe ecological and socioeconomic changes that are occurring over time across the region, provide land managers with the data needed to make informed management decisions at the scale of the land management unit, and provide the public and policy makers with information necessary to understand the changes that are occurring and to craft appropriate and adaptive responses.

Much of the initial work has focused on building partnerships, sharing information, and identifying opportunities for collaborative management. Outcomes of the work include:

- workshops with land managers to identify needs for monitoring and adaptive management and sources of available information
- workshops with scientists to identify critical components of a monitoring program
- internships that resulted in literature reviews and draft protocol development in preparation for field testing

- formation of the Regional Monitoring Partnership to explore information sharing and coordinated monitoring and adaptive management.

**1. Was the approach taken toward this ambitious goal valuable? What else would you suggest pursuing to improve progress?**

*Yes. Bringing the potential partners to the table is always relevant to successful landscape view land management strategies. The exchange of information (current as well as tried and true) begins the process of how to accomplish the greater ambitious goal of conservation and protection of our resources. As is in many cases, unfortunately, the private land owner is often missing from the discussion.*

*Ecosystem Monitoring, General – Although we haven't been all that involved, I see this as very helpful in the long run, especially if we find cost effective ways to accomplish monitoring.*

*It's frustrating that this should ever be so difficult in the first place. I think the best suggestion is to float the draft protocol as soon as possible to allow the hoopla to escalate, then subside and then to be able to really get to put it to work.*

**2. Did anything presented at the workshops change your thinking or get you interested in pursuing this topic?**

*The discussions and presentations provided an expanded knowledge base in which I have become comfortable in bringing to the Agency.*

*Using collaborative tools – internet, GIS – and standards.*

**3. Was there any product or outcome (see attached list) that you found particularly useful or not useful? How would you suggest these products could be improved?**

*I have limited knowledge of the documents, guides, and analysis identified in the General Accomplishment section of the attachment. It is good to know there is current body of knowledge for future needs for land management. Prepared maps are good but having accurate GIS data sets for internal map creation for on site management decision making is even better.*

*The wildlife waters workshop was very helpful in bringing together the various stakeholders & provide an opportunity for them to listen to each other.*

*If I have identified the appropriate list, then it would be the Wildlife Waters project: it could be made more useful by establishing it as a annual or biennial workshop or as a symposium routinely allied with a similar venue such as the AZ/NM TWS meeting or the Research and Resource Management in the Southwestern Deserts conference.*

**4. What roles should the Sonoran Institute play in these collaborative projects? What were your expectations? Were they met? Is there anything else you would like to see?**

*From my experience, SI did exactly what myself and the Research and Science Manager envisioned for a young but more importantly an Agency new at Natural Resource Management; to assist State Parks in engaging in good resource stewardship through awareness and collaboration with other entities. We are actively working with SI on habitat assessment, restoration and rehabilitation within Sonoita Creek State Natural Area (Grant partnership). Some Agency staff have been trained in monitoring techniques to become members of regional monitoring groups as well as coordinating with data collection techniques for better data sharing measures.*

*Monitoring is often the first thing to go in tight budget years. Working on developing a multi-agency, integrated cost-effective monitoring scheme will help us to be able to actually achieve more monitoring. SI can serve an important role in keeping this moving forward, where if the agencies were working alone, we would likely not accomplish as much.*

*Facilitator*

**5. What roles should The Nature Conservancy play in these collaborative projects? What were your expectations? Were they met? Is there anything else you would like to see?**

*All of my contact has been through SI and not with TNC. No Comment.*

*Science and context SME.*

**6. Partnerships at various levels were key to this work. How well do you think the partnerships you were involved in worked? Why or why weren't they successful?**

*All of my attempts to collaborate and coordinate via the contacts made through the regional monitoring meetings have been successful. They are successful because the individuals involved have been responsive...follow through via phone calls, e-mails, snail mail, and implementation have all contributed to the processes of successful relationships.*

*In our area they have been key to date in helping us recognize our difficulties, but we still have a way to go toward solutions. The impressive thing is the attempt to tackle this in the first place. We have a way to go yet to overcome entrenched ideas and practices.*

## **7. What do you see as important next steps?**

*Support of long term obligations to ensuring the success of the initial work completed over the past few years.*

*Deliver the draft protocol. Have meetings or workshops or other feedback mechanisms planned so it gets cussed and discussed – otherwise it may just be tossed in the corner.*

### **Section 3. Invasive plant management.**

Invasive species are one of the main threats to native biodiversity in the Sonoran Desert. Because these species and their impacts are widespread, a collaborative approach is needed to address the threat. Invasive plant management, in particular, requires the integration of a number of strategies including: outreach and education; early detection and rapid response; control, including eradication; restoration; research and data management/sharing; and policy change.

This project focused on the following outcomes:

- training and educational workshops
- production and dissemination of educational materials
- formation of the Sonoran Desert Invasive Species Council and associated cooperative weed management areas to coordinate management efforts
- computer software development to enable data management and sharing
- prioritization of the most important invasive plants for management attention through explicit criteria and associated development of a categorized list.

#### **1. Was the approach taken toward invasive plant management valuable? What else would you suggest for greater progress?**

*Invasive Plant Management, General – Also helpful, additional work in general outreach to local communities would compliment the agency focused effort. In addition, opportunities to get and share funds needs to be pursued.*

*Very helpful. It encouraged us to come together, share information on what our land mgmt. neighbors are actively doing to treat, survey, etc., to share successful and unsuccessful strategies, and to collaborate on larger objectives where possible. For progress to continue in the future, it would be immensely helpful to have a full time coordinator at the regional or state level to assist with planning, grants, and meeting facilitation. This would leave the field units responsible for implementation and dissemination of interpretive materials, community outreach, etc.*

*Many useful products were generated; I wish all CWMA's and associated projects were as productive. A CWMA part-time coordinator would help with the continuity of the group. More hands-on training with the computer tools is needed for the group to incorporate these tools into their daily usage. I am working on a proposal with UofA extension that could help with that.*

*Progress in this arena leads the way for other project elements. It demonstrates how well we can come together to fight a common enemy. I think the Initiative needs to find the wherewithal to staff someone fulltime to work with partners in carrying on all the good work. With any luck such an approach could pay for itself through grants and other fundraising.*

**2. Partnerships at various levels were key to this work. How well do you think the partnerships you were involved in worked? Why or why weren't they successful?**

*Very well. We meet with our local partners to discuss weeds specifically several times per year. We work well together.*

*The partnership with the Sonoran Institute and Sonoran Desert TNC generally worked well. Partnership with the Oregon TNC was not as successful. Synchronization between various updates of the data management tool (WIMS) and the efforts of the USGS CPRS team to make that information available modified for the Southwest was poor. I feel like WIMS and SW-WIMS is a continuing story as the version of WIMS that we modified is currently being modified again so it is hard to put whole-hearted endorsement into training on the current modified version when a new and unknown version is going to be out and widely promoted soon.*

*Our partnerships have been pivotal. Some of our successes such as standard plans, resource sharing and responding to Early-Warning-Rapid-Response threats would have been impossible otherwise.*

**3. Various outcomes and products resulted from this work on invasive plants (see the attached list). Which of them did you find particularly useful? Were there any that were particularly not helpful? Please be specific and describe why they were useful or why not.**

*All products have been extremely useful and well received by the public. These materials were developed collaboratively with the WMA participants and the TNC and SI. They were professionally formatted and published by SI and TNC and then distributed to the field. The database will be useful by the CWMA when it is actively used and contributed to by participants. Ranking is very important to focus our efforts on the greatest threats.*

*Well, of course the computer tools were extremely useful! The formation of the CWMA, the Council, and the work on the AZ-WIPWG was and is very important. I think the list for the Criteria will help guide invasive non-native plant work in Arizona for some time.*

*Sonoran Desert Invasive Species Council Formation and its Memorandum of Understanding and its regular meetings; the Strategic Plan and CWMA annual operating plans; the pollinators and invasive plants booklets; the Deck of Cards and brochure; SWEPIC and the data management tool; the workshops that started it all. Because of these and the other accomplishments listed, the Sonoran has emerged in the lead as the best organized and represented in the state (and south of the border too) as everyone struggles with the invasive species issue. Although we weren't the first, the approach we have taken is perceived as the best and has the capability to influence other projects far from the Sonoran.*

**4. What do you suggest for next steps in this work?**

*If the mapping database shows gaps, potentially a NGO could contract surveys for the area that contains unknowns (weed species). A full understanding of the regional invasive species population would facilitate treatment strategies. Additionally, more funding is needed on an annual basis to reproduce and update the educational outreach materials developed. Secured annual funding will insure that these materials are distributed to the greatest extent possible.*

*I'd like to see the work of the AZ-WIPWG continue to other species.*

*Continue to impact plans and programs that strengthen our combined campaign against invasives – such as the Governor's task force, the SW VEG Management Assoc, efforts in Mexico, and start up councils and CWMAs. Keep supporting standard tools such as SWEPIC and data management. Work with workshops or symposia to get tech transfer/lessons learned accomplished.*

**5. What roles should the Sonoran Institute play in these collaborative projects? What were your expectations? Were they met? Is there anything else you would like to see?**

*SI did a magnificent job with these collaborative projects from facilitation, development, design, layout, production, distribution and advocacy. My expectations were surpassed. I could not ask for a more successful collaborative partnership and am extremely grateful for the efforts of SI.*

*I think the Sonoran Institute serves a valuable coordinating and facilitating role. My expectations were met.*

*As a facilitator and advocate. Continued engagement as a common denominator for Western ecosystems and communities.*

**6. What roles should The Nature Conservancy play in these collaborative projects? What were your expectations? Were they met? Is there anything else you would like to see?**



*TNC facilitated the development of the mapping software and the development of ranking criteria and report. These tools are extremely important and will be used by the BLM to assist with our weed management and strategic planning. The database can be a helpful regional tool, display trends in conjunction with other land use trends (ex. OHV proliferation, grazing) and be correlated with environmental factors such as soil structure and precipitation. My expectations were surpassed.*

*TNC served to facilitate the transfer of funding from DoD to USGS for the computer tools work. I think if I do a similar development again I would work more up-front to do a systems analysis of information flow. While the interviews of CWMA participants were conducted, as requested, I do not think they fulfilled the need for a systems analysis. Systems design and assessment of innovation barriers are two separate activities that should have been conducted as separate activities in this project. However, on the USGS side we are now receiving more higher-end systems support that could help with that level of up-front analysis. I have diverged...these comments do not really reflect the TNC role but rather my retrospections on the project.*

*As an excellent science advisor and avant garde leader/mentor/scout of future directions in meeting the invasive species challenge.*

#### **Section 4. Overall assessment.**

We hope that from your comments we will learn valuable lessons about how these kinds of collaborative projects can be improved in the future. The following are questions not focused on any particular component, but the Initiative overall.

- 1. Given the types of program areas addressed by the Sonoran Desert Ecosystem Initiative, why would (or wouldn't) an agency or organization participate in this kind of collaborative project? What are the benefits, drawbacks, and obstacles to engaging in partnerships of this kind?**

*Speaking for the Air Force, this project was very valuable. It provided very useful general planning information and also demonstrated to many of our partners, as well as critics, that the Air Force was serious about its stewardship mission in the Sonoran Desert.*

*Drawbacks/obstacles: Generally, more time-consuming and expensive  
Benefits: Can draw on expertise that is often lacking in the agency and can integrate other perspectives into the effort*

*From the national planning perspective, partnering on these scales brings a lot of information at the landscape scale into the planning process. It results in a much more informed, collaborative and coordinated planning effort. It allows the agency to look beyond its own administrative boundaries placing the lands we manage into the context of the larger landscape. It also allows us to bring information into the planning process*

*that we wouldn't be able to capture on our own, at least as efficiently. I can't think of too many disadvantages unless there are issues of different data standards that need to be reconciled. In some cases, there may be problems with public perceptions of the adequacy or quality of such data but I don't think that was a factor in this partnership.*

*I think there are tremendous benefits to these type of programs. Even with a science and/or resources basis, the success of these types of partnerships seem to depend on relationships and individual and agency/organization capacity to participate and to be willing to collaborate.*

*Benefits – getting information that, although available, may not be in the most useful & useable format. having an independent organization provide information where the agency may be viewed as biased.*

*drawback – using data from an organization that may be viewed as biased rather than relying on agency expertise, timeliness of data availability*

*obstacles – people, funds, negative perception of partners by other stakeholders*

*The benefits are numerous. You have access to biological and socioeconomic data from your neighboring land managers including international partners. SDEI has done an excellent job of facilitating partnerships and compiling data across management boundaries. The main benefits are facilitation of the organizations coming together and sharing data, recording and compiling the data provided, and then the distribution of a coherent professional document to both participants and funding sources.*

*Agencies benefit from collaboration because of shared opportunities for learning, planning and implementing for mutual desired outcomes. At times a partner's mission or primary interests may be at odds of those of the collaborative project, leaving little choice other than disengagement. As long as partners strive to find common ground they should be able to overcome obstacles.*

- 2. When is the best time to engage in this kind of project? (For example, some of this work was associated with agency resource management planning. When is the best time for collaborative engagement in agency planning and management? Should it occur prior to initiation of formal planning? During formal planning? Or should it be timed to assist with implementation of planning decisions?)**

*In the case of the Air Force, initial participation occurred with the implementation of planning decisions (initially the range withdrawal renewal EIS). That was the easiest point (from the standpoint of obtaining funding) to participate in the effort.*

*There is a role for these types of projects in all 3 of the planning stages described in the question. Ideally, we would have products available in time to be used at the stage where they can be of the most help. For instance, the grazing impacts review is most useful if it can be used prior to and during formal planning process. Other products could be most*

*useful during implementation, so they wouldn't necessarily need to be available before that.*

*As early and as often as possible and continuously throughout the process. There is also definitely a role for continued collaboration into plan implementation, monitoring, and evaluation.*

*There are certainly key opportunities to influence planning and management – there are pros and cons associated with each stage. But keeping with my “theme”, the best time is when there is individual and organizational interest in collaborating.*

*I strongly recommend before initiation of formal planning for regional data & information & outreach. trying to do this kind of work concurrent with planning politicizes it & makes it driven by the planning schedule and/or not driven by the planning schedule in which case the data arrives too late to be readily used or considered. Some activities could also be associated with implementation – including further site-specific data collection, monitoring, working with communities on implementation, etc.*

*It has been useful to have a finished document (ex. Kofa Complex) prior to YFO's formal planning (RMP) process.*

*Collaborative projects are a major shift in corporate philosophy and business processes. They can only work by informal engagement and dialogue prior to standardized agency planning protocols onset. The collaborative approach has to influence thinking before formalities begin in order to influence and ooze into the agency's collective wisdom.*

**3. What products are most useful and should be expected from a collaborative project? (Initiative products ranged from technical reports to models to computer software to outreach materials.)**

*Unfortunately, I'm not familiar with the range of products produced. However the initial documents prepared for the Barry M. Goldwater on an ecological analysis of conservation priorities and the Biodiversity Management Framework were excellent.*

*This depends on who the partners and audiences are for each potential product. The types of products should vary to suit the intended audience and stage of planning. Spatial data and reports are probably most useful for planning purposes.*

*All of the above – each product has an niche and can accomplish certain objectives depending on the partners needs.*

*I would like to see our office look into sponsoring educational forums to increase public involvement and public understanding of natural resource management on public lands. Quite often the field office only goes to the public when they are about to make significant changes to resource management.*

*All products have been very useful. Outreach materials are especially helpful for YFO due to our design and printing constraints. Reports and models will serve users well into the future and provide a record of current conditions, trends across time and facilitate overall strategic treatment.*

*In general technical data (with limited reports – a lot of paper probably won't be read & tends to mean the data are unused) and outreach materials. computer software & models may be useful in specific situations if they are in support of technical data & outreach.*

*Meetings and round table discussions using presentations or abbreviated fact sheets of lessons learned in similar circumstances in order to spark interest and relevance to participants. Follow that up with support tools such as assessments (such as invasives or socioeconomics depending on group's focus), guidelines such as the strategic plan or the monitoring protocol, or the software. The idea here is to alleviate potential partners' fears of having to start from scratch. Follow initial discussions with offers to conduct a training session or workshop on how to partner. Monitor partnership progress recognizing successes and suggesting alternatives when obstacles arise.*

**4. What do you think works best or doesn't work about collaborative, partnership approaches to natural resource management among agencies? What do you think works best or doesn't work about collaborative, partnership approaches to natural resource management among agencies and non-agencies? How do you think they can be improved?**

*Effective communication amongst the partners is absolutely necessary for progress to be made. Each partner should fully understand the goals, objectives, constraints, and capabilities of the other partners to avoid misunderstandings that could potentially derail the effort later in the process.*

*Works best when there are clear expectations, roles, and responsibilities. When everyone can agree to the project timeframes and schedule.*

*See #1. I find most BLM resource specialists to be very pragmatic when it comes to collaboration and partnerships. By asking questions such as "how are we going to use this information now" "what good is that information if we can't apply directly it to the ground" "what are we (the agency) going to get out of this effort", they tend to focus efforts on the here, now and agency benefit. However, the disadvantages can be an unwillingness to really invest in the "bigger" picture approach to natural resource management (ecosystem management with the human an integral part) and collaborative partnerships.*

*Catch 22 – collaboration and partnerships take a great deal of time and commitment from all the parties involved. Issues, management practices, policies all need to be thrown on the table for everyone to hear and to understand in order to create effective solutions that last. Over the long haul, the payoff is invaluable.*

*SI and TNC did an excellent job of bringing all interested parties together, extending a wide reaching invitation for involvement. It helps to have a NGO facilitate the partnerships to ensure equality and make sure all voices are heard. Sharing information informally (via. Meetings) works well. It is important to have a dedicated facilitator and recorder to capture information. Implementation often happens within the individual mgmt. units (ex. YFO or FWS), but can be timed or strategically directed to complement those efforts being undertaken by your regional partners. A well-thought out, regional strategic plan has been successful at attracting funding for weed treatments. Future efforts will require dedicated leadership and collaborative efforts by participants.*

*It works best if started at the field level with people interested & dedicated to the project. these types of projects are inevitably add-ons to an already full workload, so it is critical that the agency field staff are committed & invested. If the focus is on an entire district/field office, I think a regional approach that includes more partners than just the federal agencies are best. These efforts should be independent of a planning effort, although the regional approach would then support RMP level decisions. If the focus is on local implementation, then perhaps the partners would be an agency & local community.*

*Partnerships are built upon trust and mutual goals. Thankfully, natural resources management is an arena where altruistic interests can prevail. It's important to always honor the trust relationships first, keep that forefront. Secondly partnerships must agree upon what they can agree upon and discard what they can't. That's the only way they can arrive at solutions and successes. A partnership needs feedback loops (gee, I guess like this survey!) to reassess its goals, processes and achievements. I think if these things work, then everything else can fall into place.*

**5. Do you think the focus on the initiative on site-based conservation, coordinated management and monitoring, and invasive species was appropriate? If a similar project were started today, what management issues would you focus on (e.g., border migration impacts, urbanization/fragmentation)?**

*I would imagine that urbanization/fragmentation would be among the most important topics today.*

*These seem to be appropriate focus areas. The best focus areas are the ones where the partners can have some impact. While other foci may be interesting and indirectly helpful, where resources are limited, the partnership should focus on those areas they can influence. Thus, the focus areas should vary depending on both the issues a particular region is facing as well as the specific partners involved in the project.*

*Not sure I can address this.*

*Yes, I do – I have confidence that participants appropriately planned the initiative. In today’s environment, I would be interested in the nexus between public land management and urbanization. Topics could include urbanization/fragmentation ☺, building coalitions with communities, developers, homeowner associations; better understanding the demographics of the “changing” west (continuing to build understanding of people’s expectations of public land and public land management).*

*The Yuma, Tucson, and El Centro field offices could probably use some assistance related to border issues and natural resource management. Vegetation seems to be an obstacle for monitoring undocumented immigration. There is a clearly public safety concern. However, vegetation which is sparse within the Sonoran desert region is a critical ecological component. How do we effectively manage for both to be politically and biologically correct?*

*Issues were appropriate. Urbanization and fragmentation are also important issues.*

*I would definitely include urbanization/fragmentation. This issue is integral to long-term land management and needs more focus & effort. I would not work on border migration. There are a ton of groups already working on this issue & another effort would not be all that helpful. Also, there isn’t much that can be done at the land manager level and putting a lot of effort into this is counter-productive. I would think that invasive species, while important, could most easily be treated as a separate entity from site-based conservation. Invasive species management is one piece of an approach to site-based conservation so seems more detailed than the other topics.*

*The focus was appropriate for several reasons: first and foremost this was the recommendation of the Sonoran land management agencies by consensus. Secondly, some of the issues may have been more pressing to one partner or another, but in some cases partners had diametrically opposed missions or views on resolving them. Nothing in the Initiative is preventing a partner from pursuing its most pressing issues unilaterally. The important difference is for the Initiative to tackle those shared issues – not necessarily the highest priority, but limited scope issues - for the common good. I feel we still have a tremendous amount to accomplish given our original goals.*

**6. Has this project materially advanced your agency’s ability to fulfill its mission? If yes, how? If no, why not?**

*Yes, by providing useful information for the range renewal EIS and (eventually!) the Goldwater AFR INRMP.*

*From what I have seen, it appears that a great deal of useful data and information has been made available to BLM for planning purposes, however, the folks on the ground and directly involved could probably answer this best.*

*Yes. Particularly the efforts in developing the Phoenix South/Sonoran Desert NM RMP - the public meetings, the work with “experts”, the grazing literature review.*

*Yes, the assistance either of the agencies provided has helped the BLM to fulfill our mission.*

*Yes. Collaborative protection of natural resources.*

*Yes and no. In some ways it definitely has, in gathering and synthesizing data for our use. However, I think we could have done a lot more to integrate into BLM's process some of the concepts of the framework and this opportunity was not taken advantage of.*

*It has materially advanced our mission by supporting our shared goals such as implementation of an ecosystem based management approach. It has directly supported our planning and implementation of natural resources management. It serves as the means to leverage and share limited resources with our partners to meet common objectives (my favorite example is YPG water in an AGFD water buffalo hauled by Kofa NWR to support a weed control project by ADOT on ROW and adjacent BLM lands with all hands and others as well contributing advice, planning and monitoring support). It has changed our corporate philosophy and business practice. It has given my agency the chance to trust and be trusted in fulfilling its land stewardship responsibilities.*

**7. Has this project materially advanced cooperation and coordination among agencies or among agencies and non-agency partners? If yes, how? If no, why not?**

*I believe it has improved cooperation but I am too far removed from the project to know for sure or specifically.*

*From my perspective, it seems like it has.*

*We have renewed our partnership with ISDA as a result of the networking associated with this project.*

*The invasives species stuff may have, but I don't think the site conservation stuff has. BLM-PFO already has a close working relationship with Luke for BMGR, so there wasn't much to advance there and there were no other agency partners.*

*Yes, encouraged the Kofa CWMA to collaboratively apply for a grant. This grant will require the sharing of labor and materials toward a common goal (BRTO treatment).*

*Yes, see above.*

**8. Has this project materially advanced your agency's approach, capacity, or priority to managing and conserving ecological systems and biological diversity? If yes, how? If no, why not?**

*Yes, it definitely has advanced the Air Force's ability to manage for the conservation of biological diversity.*

*I think it has certainly added to our capacity and approach. The project certainly affected the priority for funding and completion.*

*I don't think it has advanced our approach as I would have hoped it would, as I note above I don't think it has advanced our capacity, although perhaps it is too soon to tell. I don't think it changed our priorities – on SDNM the priority is natural & cultural resources by proclamation and elsewhere our priority is multiple-use management by law, so what could change?*

*Yes, nationally recognized planning, mapping, and outreach materials. Established program components have helped justify annual funding for labor and operations as well as grant dollars.*

*Yes, the tools such as the Kofa Complex report and related products plus the ability the partners now have to understand ways to share responsibilities for shared conservation elements.*

**9. Is there anything else you would like to add?**

*I have heard so much positive feedback on this project, and my impressions from the products I have received and the briefings I have attended have been positive as well. I regret that I am not able to comment on the more specific project areas, as I joined BLM relatively recently, but I hope to become more familiar with this project as I continue work in my current position.*

*All program components have been extremely successful and are appreciated. YFO looks forward to future partnerships and collaborative efforts. Thank-you!*

*This is just the kind of over-arching visional leadership that needs to take place. We will be referencing several of these documents and rationale as we move forward with BMGR monitoring programs and overall management I'm sure. (Comment from email)*

*Next time please make this shorter or consider using a meeting or group discussion format to get this level of feedback. I think it would benefit for airing opinions in a collaborative fashion rather than by individual input from each of us at isolated computer consoles.*



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