

**Biological Monitoring Committee
Meeting Minutes of November 15, 2007 (DRAFT)**

Attendees: Jamie Brown, Linwood Smith, Dennis Dickerson, Julia Fonseca, Andy Hubbard, Miguel Villarreal, Cheryl McIntyre, Sherry Ruther, Russ Scott, Neva Connolly, Gita Bodner, Andrea Litt, Bill Shaw, Dale Turner, Carianne Funicelli, Scott Richardson.

Phase I review (presentation by Brian Powell)

Brian gave a brief overview of the Sonoran Desert Conservation Plan (SDCP) and the processes applied to develop the biological component of the plan. The Multiple-species Conservation Plan (MSCP), a permit issued by the U.S. Fish and Wildlife Service, is a component of the broader-reaching SDCP. The MSCP must anticipate and account for impacts to covered species. Currently, the Pima County MSCP is in its fourth draft and will be finalized in December 2008 when the monitoring plan is complete.

All multi-species conservation plans require a monitoring plan, and to date, most MSCP's have been heavily criticized for having an insufficient monitoring plan. Some monitoring plan downfalls include a heavy focus on monitoring rare and/or elusive species (expensive) and a reliance on a few vertebrate species that have limited value for landscape-level management.

Brian then summarized the Phase I process of the Pima County Ecological Effectiveness Monitoring Plan. Phase I was completed in Spring 2007, and is available online at: <http://www.pima.gov/cmo/sdcp/reports.html>. To inform this effort, Pima County and RECON Environmental Inc. hosted a series of expert workshops in the fall of 2006.

Seven workshops were attended by subject-matter experts and managers who provided important perspectives on what ecosystem components hold the most promise for inclusion into the program. From these workshops emerged a prioritized list of parameters, substantial narrative, and discussion points that will be used in the next phases of the program's development. The Figure 1 summarizes the Phase I development.

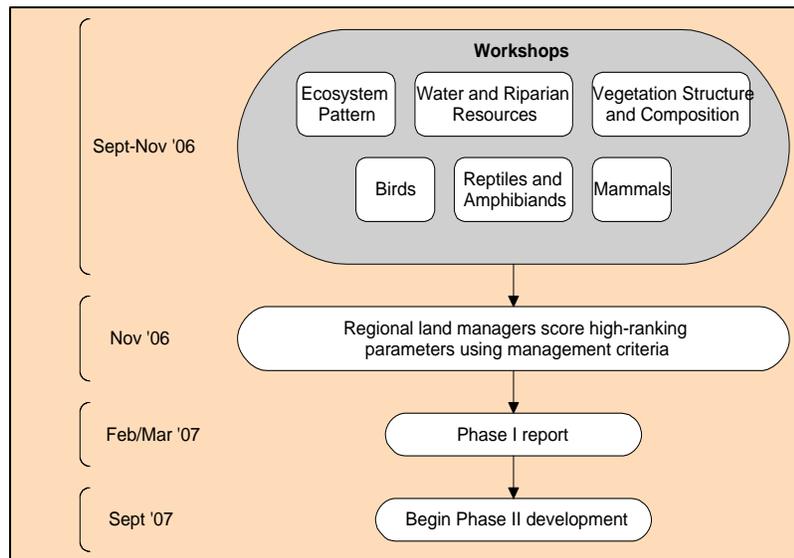


Figure 1: Summary of Phase I development.

Phase II Planning

Like most MSCP monitoring programs, the Pima County monitoring plan will include monitoring a subset of species covered under the MSCP permit. However, there is a growing recognition that monitoring a small suite of species is less informative to managers than monitoring key structural and functional ecosystem parameters. What sets Pima County's approach apart from other MSCPs is that we are proposing to monitor "indicators" of species constraints (examples include vegetation, water, land cover), chosen through the development of conceptual models, estimates of cost and application to management.

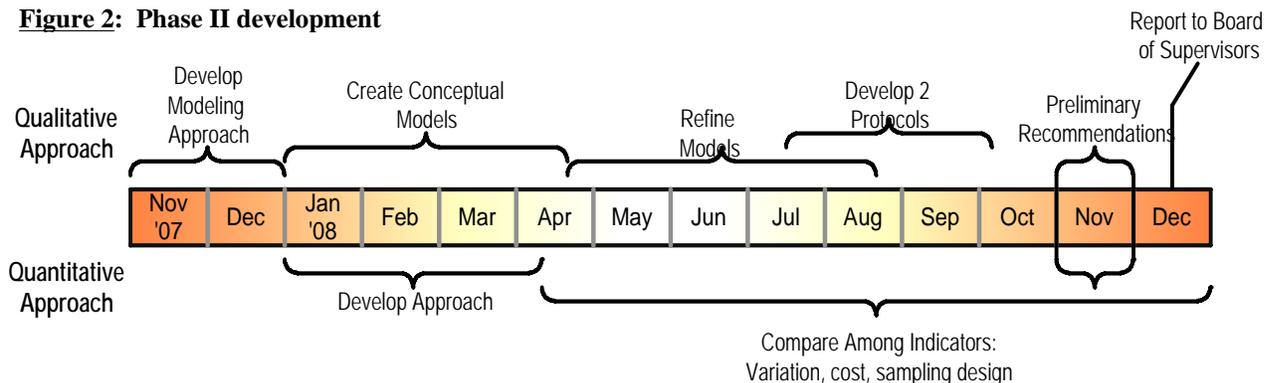
The goals for Phase II are to choose a suite of indicators that are ecologically relevant, relatively inexpensive, and informative for adaptive management, and to design a fundable program framework.

Phase II will be approached both qualitatively and quantitatively (two "tracks" of development, see Figure 2). The qualitative approach will include the development of conceptual models that will show the connection of select priority vulnerable species to their environmental indicator. Draft protocols will be developed for two to three indicators, followed by a series of white papers that will describe current methods of data collection, its cost, and its application to a broader monitoring program.

The quantitative approach will include a statistical evaluation of proposed monitoring indicators.. Multiple indicators will be quantitatively compared based on cost. Each proposed indicator from Phase I will be evaluated to determine key design elements including establishing appropriate sampling frames, spatial and temporal designs, and measurable objectives. This process will lead to estimates of overall program cost and provide tools for reducing the cost. This will culminate in a ranked list of parameters and initial estimates of cost and breadth of program coverage.

The timeline for Phase II completion is December 2008, where the monitoring plan will be presented to the Pima County Board of Supervisors for approval. The project team includes Brian Powell, Julia Fonseca, Neva Connolly, Andrea Litt, Gita Bodner, and advisors Drs. Bob Steidl, Bill Shaw, Barry Noon and Maeveen Behan.

Figure 2: Phase II development



Meeting Discussion

During the course of the meeting, the question of stressors and stressor-based monitoring was brought up. Certain stressors will certainly be tracked, such as development and climate, and possibly select non-native species. The question is whether the sampling design will be based on some kind of anticipation of how stressors, particularly urbanization, may affect the species. For instance, sample sites could be arranged so as to capture a gradient of urbanization, but as Sherry Ruther pointed out, "You better guess right." Staff will evaluate the advantages and disadvantages of stressor-based monitoring as compared to species and community based monitoring and develop a recommendation. This will be a point of further discussion at the next meeting.

A third course of action was identified (in addition to the qualitative and quantitative approach). There will be a need to communicate information obtained from monitoring results in a timely and effective manner to land managers. As the monitoring plan develops, this "third track" of development will need to be incorporated accordingly.

Dennis Dickerson, with Pima Association of Governments, mentioned that PAG may be able to offer resources to assist with monitoring efforts by providing orthophotography or other historical data.

Role of the Monitoring Committee

The role of the monitoring committee will be to act as a sounding board for staff recommendations at major decision points. In between meetings at those key decision points, individual committee members or groups of members may be consulted on specific questions. Staff will provide regular updates to the full committee (and the interested public) via email and webpage maintenance on what is happening with the small group meetings.

Next Meeting

The next meeting will be in January or early February. Exact date will be determined soon and announced to committee members via email. The main topic will be what conceptual model approach will be chosen: species, communities, or stressors, or some combination.