

**Final Report for the Project:**  
**Lowland Leopard Frog Habitat Assessment and Monitoring**  
**Protocol for the Rincon/Catalina Mountain Complex**



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Report to:

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This final report is for the project entitled “Lowland Leopard Frog Habitat Assessment and Monitoring Protocol for the Rincon/Catalina Mountain Complex.” The project provided the first-ever comprehensive survey of the little-known populations of lowland leopard frogs in the Catalina and Rincon mountains of southern Arizona. More traveled drainages of this large area have been surveyed repeatedly in the last few decades, but less known was a large area in the east side of the complex that is difficult to access. We targeted our surveys there and in a few locations found some of the largest populations of the lowland leopard frogs known from southern Arizona. Other key outcomes of this project include a long-term monitoring protocol and plan for the target areas as well as an increased awareness of the need to focus more attention on the conservation needs of the species. Below we summarize and draw reference to activities and/or products that address each of the eight elements in the original Scope of Work for this project.

### **1) Updating Current State of the Knowledge**

Prior to surveys, Phil Rosen and David Hall (University of Arizona partners for this work) compiled an extensive database of over 800 historical lowland leopard frog observations from the Catalina and Rincon Mountains and surrounding areas (Appendix B). To compile this database they queried natural history museum records and other data sources, including various survey efforts over the years, including at Saguaro National Park.

### **2) Prioritize Survey Locations**

After the historical data were collected, we hosted a meeting in Tucson in November 2011 that was attended by experts familiar with lowland leopard frog habitat in the region. Attendees included Brian Powell, Kerry Baldwin, and Don Carter (Pima County), Phil Rosen and David Hall (University of Arizona), Michael Sredl (Arizona Game and Fish Department; by phone), Eric Wallace (Biological consultant), Dennis Caldwell (Biological Consultant), and Don Swann (Saguaro National Park). Prior to the meeting we produced a series of maps for the area and received input from attendees on 1) specific sites where lowland leopard frogs had been found in the past, 2) sites where frogs might be located based on historical information, and 3) areas that had never been visited but contain potential habitat. As noted in the methods section of Appendix A, David Hall interviewed other experts and, based on this information, identified potential sites using USGS topographic maps and the Google Earth “history” function, which is particularly useful to find larger areas of open water that retained water over time.

### **3) Field Surveys**

A total of 59 sites were surveyed for lowland leopard frogs and the survey methods, results, and discussion can be found in Appendix A. (Note, the number of sites visited was greater than twice as many as was originally identified in the proposal) The report, written by David Hall, also includes maps of areas that were surveyed and a complete and detailed description of areas where frogs were and were not found.

The surveys resulted in an excellent overall picture of the current status of the species in the Catalina-Rincon mountain complex and an understanding of how the species’ current distribution compares to past time periods. A primary finding of the study was the

identification of a number of large, important, and mostly unknown populations of lowland leopard frogs. These populations (Youtcy, Edgar, Buehman, and Alder) occur in relatively close proximity to each other and as such, represent the largest metapopulation for the species in the Catalina-Rincon complex. These sites are also among the most remote and isolated in the complex. The importance of these populations was brought into focus as a result of this survey effort. Given the large geographic area under consideration for this study, it is possible that one or more populations of lowland leopard frogs exist but were not found. For example, there is a remote private ranch in the Paige Creek drainage that appears (based on Google Earth images) to have lowland leopard frog habitat. We could not gain access to that site, so its status remains unknown. Despite a few unknown areas, we are confident that the general status of the species in the Catalina-Rincon mountain complex is now known.

The intent of this work was not to provide a detailed examination of the extent of change in the distribution of the species within the Catalina-Rincon mountain complex over time. However, some overall patterns in site occupancy have become clear. Most notably, the species is no longer found some of the larger southern and western drainages of the Santa Catalina Mountains, including Montrose and Sabino canyons. Most discussion of these changes can be found on page 15 of Appendix B.

#### **4) Meet with Experts to gain input on Monitoring and Conservation Actions**

A meeting was convened in April 2013 with a host of experts, researchers, and managers to discuss the results of the surveys, gain their input into a monitoring strategy, and discuss possible conservation actions. Minutes from the meeting are found in Appendix C. A follow-up meeting was held with personnel from the USDA Forest Service because they were unable to attend the April meeting. The primary outcomes of these meeting were related to conservation and monitoring. For conservation, there was general agreement that conservation attention should be focused on lowland leopard frogs in the Catalina-Rincon mountain complex. Potential actions include transplanting frogs into drainages that historically held the species and/or habitat restoration projects. In talks with the Forest Service personnel, they will now begin long-term planning for lowland leopard frog restoration actions. Their response was a direct result of the findings and outreach from this project.

With regards to monitoring, the group believed that because it seems unlikely that funding will be available for formal long-term monitoring of abundance in the many sites identified in this project, a simple, easy-to-use and cost effective monitoring approach should be undertaken to monitor populations of lowland leopard frogs in the complex. This approach is given more consideration below.

#### **5) Develop Long-term Monitoring Plan and Protocol**

The monitoring protocol that was recommended by the experts was further developed and can be found in Appendix D.

#### **6) Distribution of Results**

The results of the survey effort for this project have been distributed to the Pima County Board of Supervisors (Appendix E). The County is currently undergoing a major revision of its website content management system and when that is complete (in October 2013), the final report and a summary (targeting a variety of audiences) will be posted to the [pima.gov](http://pima.gov) website.