

**Final Project Report
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**Mojave Max Education Program
2005-RRCIA-559A-P**

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EXECUTIVE SUMMARY

- The goals of the Mojave Max Education Program have been to 1) educate the public about actions they can take to help protect desert tortoises and their habitat, 2) promote stewardship and foster a sense of community by giving residents an opportunity to get involved with their local schools and local environmental issues, and 2) increase environmental literacy among students by offering an educational program that is engaging, scientifically accurate, and curriculum-based.
- The program includes a classroom program, Emergence Contest and assembly program, and a teacher training program.
- During the four years of the contract period, there have been 50,953 students reached by the classroom program, 13,088 students reached by the assembly program, 2,44 students reached by the teacher training program, and 22,672 Emergence Contest entries.
- Teacher evaluations for education programs have been consistently positive.
- The program has received \$28,236.36 in supplemental funding from grants, donations, and merchandise sales.
- The program has successfully achieved its goals and no major changes are needed. Future recommendations are to continue to increase outside funding sources, to continue to standardize program procedures and policies, and to develop an MOU among regional partners.

INTRODUCTION

The mission of the Mojave Max Program is to raise awareness of the threatened desert tortoise and its habitat, the Mojave Desert. It is a cooperative effort among the Clark County Desert Conservation Program, the Red Rock Canyon Interpretive Association, the Clark County School District, and the federal land agencies. In a rapidly growing community such as the Las Vegas Valley, many residents are unfamiliar with the natural environment that surrounds them. By educating children about the Mojave Desert and its native species, particularly the desert tortoise, the program partners hope to create a sense of stewardship for the land. We also hope to stimulate children's interest in science by providing a program that is engaging, scientifically accurate, and curriculum-based.

The Mojave Max Program currently has two components: the Classroom Program and the Emergence Contest/Assembly Program. The Mojave Max Emergence Contest, first held in 2000, allows Clark County School District students to predict when Mojave Max will emerge from his burrow in the spring. After researching the responses of desert wildlife to Mojave Desert weather cycles, students go online to enter their guesses. The contest is promoted through school assemblies that are held in the winter and include appearances by local weather personalities and a costumed Mojave Max mascot. Winners receive prizes including a digital camera, laptop computer, and an "America the Beautiful" annual pass to federal recreational lands, as well as a field trip to Red Rock Canyon NCA and pizza party for their whole class. Since the Emergence Contest began, tens of thousands of students have submitted entries. In recent years the popularity of the contest has spread to include students in southern California and Utah as well.

In 2002 the Mojave Max Classroom Program was developed by Red Rock Canyon Interpretive Association and BLM staff, with support from the Clark County Desert Conservation Program, to augment the educational value of the Emergence Contest. Volunteers from the community and college interns have been trained to go into classrooms throughout Clark County and teach students about the Mojave Desert, the desert tortoise, and conservation. Educators are provided with teaching kits that contain posters, books, props, and preserved desert tortoises, all of which make the lessons fun and interactive.

To meet increasing demand for programs, a teacher training program was begun in 2007. The two-day course allowed teachers to earn credits while learning how to teach the Mojave Max lessons at their own schools. The course covers Mojave Desert weather and ecology, desert tortoise biology and conservation, and use of interpretive teaching techniques.

Background and Need for the Project

Southern Nevada has experienced explosive population growth in recent years, and the resulting development has had significant impacts on the surrounding desert environment. One species particularly affected has been the desert tortoise, *Gopherus agassizii*. The decline in desert tortoise populations has been attributed to a variety of causes, all of which are directly or indirectly human-related. Much of the tortoise's habitat has been lost to development or degraded by grazing, off road travel, and the dumping of trash. Tortoises have experienced increased predation by ravens, whose populations have increased dramatically in response to increased levels of garbage in the desert. Many desert tortoises have also been found to suffer from a fatal upper respiratory disease; although research is ongoing, the disease is thought to be contracted mainly from former pet tortoises that have been released into the desert. Finally, many tortoises have been removed from the desert to be kept as pets, further reducing their wild populations.

In 1989, the desert tortoise was emergency listed as an endangered species, and a plan was developed to reverse the alarming population trends that were being witnessed. Because public awareness was considered a critical component of desert tortoise protection, the Mojave Max Education Program was created to educate children about ways they could help protect the desert tortoise and its habitat. Mojave Max, a 65-year old tortoise who lived at Red Rock Canyon National Conservation Area (NCA), served as a "spokes-tortoise," spreading the message to "respect, protect, and enjoy our desert."

Goals and Objectives of the Project

The outcome that the program partners are working toward is to create an informed citizenry that acts responsibly toward the public lands that surround the Las Vegas Valley. To that end, the goals of the program are as follows:

- Educate the public about actions they can take to help protect desert tortoises and their habitat. Specifically, 1) leave wild tortoises alone, 2) do not release pet tortoises into the wild, 3) do not litter, and 4) stay on roads and trails.
- Promote stewardship and foster a sense of community by giving residents an opportunity to get involved with their local schools and local environmental issues.
- Increase environmental literacy among students by offering an educational program that is engaging, scientifically accurate, and curriculum-based.

MATERIALS & METHODS

The Mojave Max lessons are based on a curriculum which was developed in consultation with local formal and nonformal educators, interpretive naturalists, biologists, and land managers. They were designed to be fun and interesting to children while communicating the public information goals of all agencies involved and addressing school district curriculum objectives. The lessons are continually updated to reflect the most current knowledge in biology, conservation, and teaching techniques.

All Mojave Max instructors, whether staff, volunteer, or trained school district teachers, undergo a training process. Instructors are introduced to the lesson content through reading materials, lectures, and field trips. When possible, instructors are given the opportunity to view live desert tortoises at Red Rock Canyon NCA and/or the Desert Tortoise Conservation Center. Once potential instructors can pass a test on the essential content, they are introduced to Mojave Max lessons. They then have an opportunity to view an experienced instructor teach a class. Once they begin teaching their own classes, they are reviewed and evaluated by program staff.

The Mojave Max educational programs are advertised by word-of-mouth, at special events for teachers, and through the school district's intranet system. Requests for classroom programs are fulfilled on a first-come, first-served basis, while requests for school assemblies are reviewed by an assembly selection committee. Although programs are taught by a combination of RRCIA staff, program partner staff, volunteers, and teachers, all programs are coordinated by the program manager. The program manager also maintains statistics on all classes that are taught.

All teachers who view a program are asked to submit an evaluation. The questions asked address the level of their students' engagement, the effectiveness of the instructor, and the appropriateness of the content in terms of grade level curriculum goals. A raffle is held each year to encourage high participation with the teacher surveys. Issues that arise from the surveys are addressed immediately, and they are all compiled and reviewed by the program manager annually.

RESULTS

The Mojave Max Education Program has been successful in reaching large numbers of students. A summary of students reached by year and by program is as follows:

	2007-2008	2008-2009	2009-2010	2010-2011	Total
Classroom Program	9,703	9,773	16,972	14,505	50,953
Assembly Program	3,835	3,398	3,370	2,485	13,088
Contest Entries	5,053	5,013	6,353	6,253	22,672
Teacher Training	291	481	365	1,307	2,444

The program has consistently earned positive feedback from teachers. Following are the average scores given by teachers on a scale from 1 to 5:

Survey Question	Avg. Score
My students were engaged in the presentation.	4.9
The instructor had good knowledge of the subject matter.	4.9
The instructor applied interesting strategies to teach the content.	4.8
The lesson addressed CCSD curriculum needs.	4.8
I would conduct follow-up lessons in science based on the content presented today.	4.5

Program staff has been working to supplement funding through solicitation of grants and donations, as well as the development of a line of Mojave Max merchandise. The additional funding obtained is summarized below:

	2007-2008	2008-2009	2009-2010	2010-2011
Grants & Donations	\$3,080.00	\$14,636.50	0	\$400.00
Merchandise Sales	0	\$1,110.38	\$1,924.53	\$7,084.95
Total	\$3,080.00	\$15,746.88	\$1,924.53	\$7,484.95

DISCUSSION

The Mojave Max Program has been extremely successful and is viewed as a model for effective environmental education. The program routinely reaches many thousands of students each year through its partnership with the school district. There is a constant increase in the demand for education programs, and that has been partially alleviated by the development of the teacher training program. Students reached by this program have increased from 291 in its first year to 2,444 during the 2010-2011 school year. Through the program's ability to reach many thousands of students each year, knowledge about protecting the desert tortoise and its habitat in the Las Vegas Valley has increased.

Student surveys have indicated that students come away from Mojave Max lessons with more positive views of desert tortoises and the desert, and with concrete ways to do their part to protect these resources. Surveys also indicated that teachers are satisfied with the quality of the education program. Nearly all teachers agree or strongly agree with the statements that their students are engaged in the program, the instructors are knowledgeable, the instructors use interesting teaching strategies, and that the program addresses their curriculum needs. No major changes to the curriculum are needed, although it is continually updated to maintain accuracy.

The program has also been successful in obtaining supplemental funding from outside sources. Grants applications are routinely submitted by program staff, and donations are solicited from local businesses. In addition, a line of Mojave Max merchandise has been developed and has grown to include stuffed plush toys, bookmarks, activity books, clothing, and other items. 100% of the profits from these sales go to the Mojave Max Program. In addition, the customers at the gift store at Red Rock Canyon NCA now have the option to go without having their purchases placed in bags. Each skipped bag results in a \$0.25 donation to the Mojave Max Program.

Much of the program's success can be attributed to the strong partnership that has been created among participating organizations and agencies. This partnership allows each entity to contribute to the program's success based on its own strengths and available resources. It allows the program to operate in a way that is extremely cost-efficient for each of the groups involved. All involved groups wish to see the program continue to grow and spread the message to "respect, protect, and enjoy our desert."

CONCLUSIONS AND RECOMMENDATIONS

The Mojave Max Education Program is a cost-effective way to distribute information that is vital to conservation efforts. Overall, the program is successful and no major changes are needed. Recommendations for the future of the program are as follows:

1. Continue efforts to increase funding from outside sources. To this end, a database is being compiled that will provide a convenient reference for all program accomplishments. There is also an ongoing discussion about a long-term plan to measure the success of the program in encouraging responsible land stewardship. These data will be necessary in order to secure funding on a large scale.
2. Continue efforts to standardize and document program procedures and policies. As demand for the program continues to grow both within Clark County and regionally, there will be increased need for cooperation among partners to meet that demand. Having information readily available will facilitate the ability of program partners to provide Mojave Max lessons in a manner that is consistent with the quality level of the current program.
3. Develop a regional MOU among the program partners. Partners have begun discussions about ways that we can work cooperatively to better meet our objectives. These discussions should continue and be formalized with an MOU.