

# National Landscape Conservation System FY 2010 Annual Manager's Report



## Las Cienegas National Conservation Area

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**Approved by: Mark Rekshynskyj, Manager Las Cienegas Natl. Conservation Area**

## I. Introduction

a. **Period of Report:** October 1, 2009 through September 30, 2010.

**b. Unit Name and Contact Information:**

Las Cienegas National Conservation Area (LCNCA)

12661 E. Broadway Blvd.

Tucson, AZ 85748

(520) 258-7200

[http://www.blm.gov/az/st/en/prog/blm\\_special\\_areas/ncarea/lascienegas.html](http://www.blm.gov/az/st/en/prog/blm_special_areas/ncarea/lascienegas.html)

c. **Manager's name:** Markian Rekshynskyj

**d. Associated Field, District, and/or State Offices:**

**Field Office:** Tucson Field Office

**District:** Gila District

**State:** Arizona State Office

e. **Establishing authority:** Public Law 106-538, Dec. 6, 2000

**f. Resources and Values:**

- Cienega Creek Riparian Area
- Native Grasslands
- Empire Ranch Historic Site
- Appleton-Whittell Research ACEC
- Outstanding Biological, Ecological, Cultural, and Paleontological Resources

g. **Acreage of public land:** 41,972 acres of Public Land in Las Cienegas NCA

h. **Estimated annual visitation:** FY 10 : 26,000 visits

i. **Map of the NM/NCA:** Please see following page.

## II. Land Use Planning

**a. Overview**

The Approved Las Cienegas Resource Management Plan was signed on July 25, 2003, following an eight-year collaborative planning process. Plan maintenance to clarify the boundaries of the Empire-Cienega Area of Critical Environmental Concern was completed on March 11, 2004. The initial Implementation Strategy for the Resource Management Plan



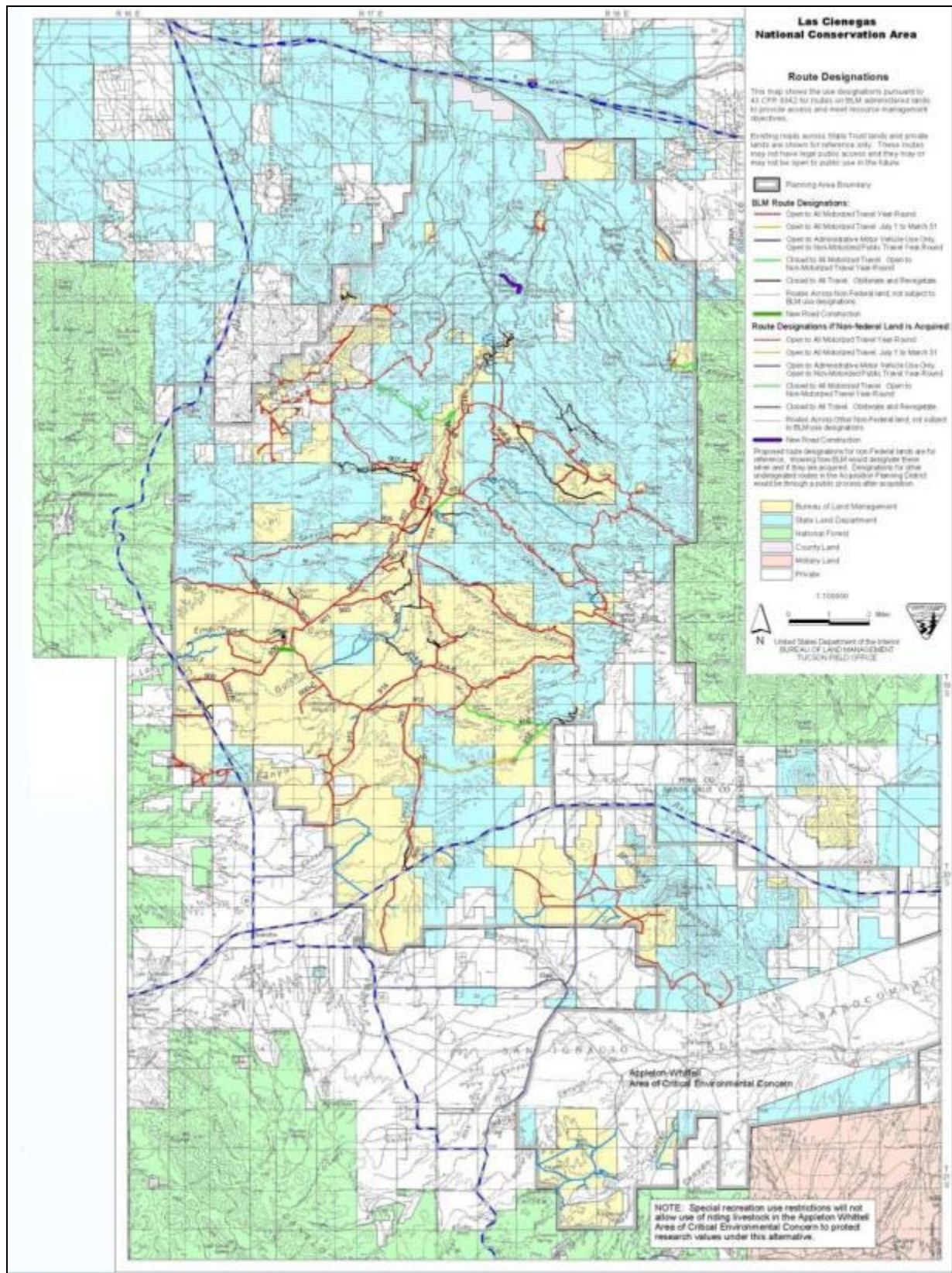


Figure 1- Las Cienegas National Conservation Area Surface Ownership and Route Designation Map

was completed in 2004 as one of the pilot projects for RMP Implementation Strategy development and included extensive stakeholder collaboration in its development. The first land use plan evaluation was completed in 2010 and updates to the Implementation Strategy will be an outcome of the evaluation process.

### **b. Implementation-Level Planning**

The Approved Las Cienegas Resource Management Plan was developed to include both RMP and Implementation level planning decisions reducing the needs for additional implementation-level planning. An Adaptive Reuse Plan was developed for the historic Empire Ranch headquarters concurrent with the RMP planning effort. An Interpretive Plan has been completed. Both a Cultural Resource Management Plan and a Coordinated Resource Management Plan are being initiated in FY2011.

### **c. Land Use Plan Implementation**

Land Use Plan Implementation in 2010 included major efforts at grassland restoration through removal of mesquite - a project funded by the American Recovery and Reinvestment Act (ARRA). Other important implementation projects, which are described in more detail later in this report, were preservation work at the historic Empire Ranch headquarters, construction of the Heritage Discovery Trail, reintroduction planning for native fish and frogs, completion of a Chiricahua leopard frog rearing facility, and reintroduction of black-tailed prairie dogs.

## **III. Protecting America's Natural Resources**

### **a. Notable Natural Resources**

#### **i. Description of Resources:**

Special Status Species: The LCNCA supports six federally listed threatened and endangered species including the endangered Huachuca water umbel, the endangered Gila topminnow and Gila chub, the threatened Chiricahua leopard frog, and the endangered Southwestern willow flycatcher and lesser long-nosed bat. Overall the NCA supports over 230 birds, 60 mammals, 43 reptiles and amphibians, and 3 fish.



**Figure 2- Huachuca Water Umbel**

Two additional populations of the diminutive riparian plant, Huachuca water umbel, were discovered during monitoring in 2010 bringing the total to 18 known populations on the NCA.

Las Cienegas NCA supports some of the largest and most significant natural populations of Chiricahua leopard frog, Gila topminnow and Gila chub.

Upland Habitats: Of the five rare vegetation community types found at Las Cienegas NCA, semi desert grassland is the most abundant and covers about 94% of the total area. This grassland is part of a larger complex of semi desert grasslands within the Apache Highlands Ecoregion which includes central and southern Arizona, southern New Mexico and northern Mexico. Over the past 130 years grasslands in this borderland region have experienced dramatic changes including a reduction in perennial grass cover, shrub and tree encroachment, soil erosion, and fragmentation. The causes for these changes are debated, but experts have implicated regional climate change, suppression of wildfire, poorly-managed livestock grazing, and land cover conversion for agriculture and exurban development. More than 36% of the historic grasslands in the region have been lost due to shrub encroachment. Of the remaining extant grasslands, 50% are shrub-encroached but restorable with fire while only 26% are open native grasslands. The grassland at LCNCA makes up a total of 4% of these open native grasslands.

Riparian Habitats: Riparian habitats on Las Cienegas NCA include cottonwood-willow riparian forests, cienegas, sacaton grasslands, and mesquite woodlands or bosques. Las Cienegas NCA's riparian habitats support at least five of the federally listed species and three other species of concern (Western red bat, Western yellow-billed cuckoo and Gray hawk).



**Figure 3- LCNCA Riparian Habitat, and Whetstone Mountains in the background**

Half of the 38 reptiles and amphibians documented within the NCA and a large proportion of the area's mammals and bird species also depend on the NCA's streamside forest. BLM has implemented three major management actions since 1989: fencing the creek from livestock, closing wet road crossings, and returning natural flow to 2 miles of natural streambed by

removing dikes and canals. Ecological monitoring shows that these restoration efforts have been quite successful. Riparian photo points and aerial photos show a dramatic expansion of riparian cottonwood-willow forest since 1989. Tree belt transects sampled in 1993 and again in 2006 show increases in riparian tree densities along with shifts in age structure and species composition. Channel cross-sections measured in 1993 and repeated in 2006 showed stability in several sensitive areas and aggradation in the upper reach, raising the channel surface some three feet towards its original floodplain. Cienega Creek still faces several threats including loss of surface water and shallow groundwater, invasive species, channel erosion, and destabilized stream banks.

## **ii. Resource Management Challenges**

Major threats to Las Cienegas NCA include development on surrounding or intermixed lands for housing, mining, and other infrastructure which could result in loss of both surface and shallow groundwater in Cienega Creek and its tributaries; introduction and/or spread of exotic plant and animal species including tamarisk, non-native grasses, bullfrogs, mosquito fish and crayfish; climate change impacts, which may include drier and warmer weather conditions; channel erosion and destabilized stream banks from floods or other impacts; and border related impacts.

The proposed Rosemont Copper Mine in the watershed above Cienega Creek poses the potential risks of ground water depletions affecting aquatic-riparian function and designated Critical Habitat for the endangered Gila chub and threatened Chiricahua leopard frog. The mine also poses the risk of heavy metal contamination of the aquifer and soil surface. The magnitude and timing of these effects to Empire Gulch Spring and Cienega Creek are uncertain.

Another challenge is the attempt to integrate Adaptive Management and Partnerships with traditional BLM management in this NLCS unit. Both styles have positive qualities but are not completely compatible and have caused many challenges. One major challenge is applying Adaptive Management with Partnerships, intermixed with traditional BLM management while most BLM State, District and Field office personnel are unaware of the Adaptive Management and partnerships decisions found in the LCNCA RMP.

## **b. Land Health Assessments**

Rangeland Health Evaluations have been completed for three of four allotments on the NCA covering just over 39,000 acres or about 93% of the NCA.

### **i. Acreage Assessed, Methods, and % Meeting Standards**

All allotments assessed to date are meeting land health standards. All of the riparian habitat on Cienega Creek and its tributaries have been assessed for Riparian Proper Functioning Condition (PFC). Overall, all riparian areas are in PFC, with a few stream segments functional at risk due to drought effects, or historic stream alterations.

## ii. Additional Contributions to Meeting Land Health Standards

On the Empire-Cienega allotment, livestock numbers and pasture rotations are adjusted annually in response to monitoring data through a biological planning process. This is part of the adaptive management implemented through the Las Cienegas Resource Management Plan. In 2010, four technical teams were established for the biological planning process representing Upland areas, Riparian areas, Heritage Resources, and the larger Landscape. Coordinators of each technical team meet as part of a Coordinating Committee for biological planning which sets the agenda for the two annual biological planning meetings in April and November each year. At these meetings, BLM, agency technical experts, and a team of interested stakeholders, review BLM's evaluations of the monitoring data and provide input to the BLM and permittee on the annual grazing proposal, restoration projects and other management activities on the NCA. Participants include BLM, Forest Service, Fish and Wildlife Service, Natural Resource Conservation Service, Arizona Game and Fish Department, Arizona State Land Department, University of Arizona, ranchers, conservation organizations, recreationists, and other interested public.

Livestock control in riparian areas has been implemented and maintained in order to protect and enhance riparian function and health. Riparian enclosure fences and livestock crossing lanes have been monitored and repaired as needed. Removal of exotic salt cedar in riparian areas is also being implemented. However, additional maintenance and replacement of old riparian fence is needed to decrease the incidence of livestock grazing in enclosed riparian habitats during the growing season. Old fences, fences with poor placement, and poorly designed gates allow a limited number of livestock to impact riparian resources.

## c. Inventory Efforts

### Wildlife Inventory:

Annual inventories for Chiricahua leopard frog, Gila topminnow and Huachuca water umbel continue. Additionally, surveys for southwestern willow flycatcher are conducted annually and a Monitoring Avian Productivity and Survivorship (MAPS) station is established on site and surveyed annually. Infrared triggered cameras (see photo at right from remote camera) are used



Figure 4-Game camera photo of bobcat on LCNCA

to monitor wildlife use of water sources and movement corridor use of deer, javelina, coati mundi, bobcat and many other wildlife species. Generally, trends for fish populations appear on the increase, bird populations and populations of other wildlife species appear to be increasing or static.

Riparian Inventory: Riparian area monitoring on Las Cienegas NCA is tied to several RMP objectives for riparian vegetation and aquatic and riparian dependent fish and wildlife species. Riparian areas have continued in a stable or upward trend on Las Cienegas NCA since designation. Length of perennial surface water on Cienega Creek as measured in annual wet-dry mapping decreased slightly in 2010 compared with 2009 measurements but had the second longest perennial length of all five years. Overall perennial surface water length on Cienega Creek plus tributaries slightly decreased in 2010 compared to 2009 but was still the second longest perennial length in the five year period (Table 1).

	2006	2007	2008	2009	2010
Cienega Creek upper reach	1.13	1.21	1.22	2.02	1.37
Cienega Creek lower reach	4.00	3.19	3.34	3.71	3.82
Empire Gulch upper reach	0.15	0.20	0.27	0.26	0.26
Empire Gulch lower reach	0.24	0.78	-	0.90	0.86
Mattie Canyon	0.51	0.60	0.65	0.95	0.80
Total Cienega Creek wet length in miles	5.13	4.40	4.56	5.73	5.19
Total Wet lengths in miles (total)	6.02	5.97	4.26	7.85	7.11

Upland Inventories: Upland area monitoring is tied to the Arizona Standards for Rangeland Health and several RMP objectives for upland vegetation including these objectives for ground cover:

- Maintain <30% exposed soil surface (bare ground) in grassland communities; and
- Maintain >10% live basal cover of perennial grasses.

The first objective is set forth in the RMP to guard against soil erosion and promote watershed health as a whole. The second objective is used by the BLM and the upland technical team as an interim objective for Las Cienegas NCA’s grasslands, pending finalization of more site-specific objectives for particular rangeland ecological sites, which were drafted in 2010.

Figure 6 provides a summary of monitoring results of these parameters from 2004 to 2010 at key areas throughout LCNCA. These key areas represent various ecological sites found in the area.

Ground Water and Surface Water: BLM continues to support USGS maintenance of a stream gauge on Cienega Creek. Instantaneous flows are also collected at one location on upper Cienega Creek and one location on upper Empire Gulch. BLM is in the initial phase of designing a ground-water monitoring program for the NCA. The Nature Conservancy through an Assistance Agreement with BLM has developed a detailed database of wells and associated attributes, and we are working together to collect baseline information including water depths from a subset of these wells.

#### **d. Restoration Efforts**

Removal of invasive species: Northern crayfish are known to disrupt aquatic ecosystem function and prey on native insects, fishes, frogs, turtles and garter snakes. Crayfish were removed from a livestock pond on the NCA in May 2009. In the spring of 2010, monitoring showed that the crayfish population had rebounded. It is possible that crayfish from upstream were not eliminated. Some adults may have survived in the mud along the shoreline. The pond was pumped dry in the fall and will be kept dry until the summer monsoons refill the pond sometime in the late spring or early summer. The La Nina weather pattern is likely to create warm dry conditions this winter and spring. These dry conditions may eliminate the crayfish; however, yearly inventories will continue and removal efforts will continue as necessary.

Reintroduction of Key Species: Reintroduction of black-tailed prairie dogs continued on Las Cienegas NCA in 2010. A third release site, Cieneguita, was added and 76 prairie dogs were released at the site in September 2010. Supplemental releases of prairie dogs occurred in September 2010 at the 2008 and 2009 release sites at Road Canyon and Mud Springs. Monitoring data from January 2011 showed a 56% survivorship rate at the Cieneguita site. The goal of the reintroduction program is to restore a keystone species to the southeastern Arizona grasslands. Black-tailed prairie dogs were once native to Arizona and commonly found in southeastern Arizona but were extirpated about 50 years ago following an extensive poisoning campaign. The native grasslands in and adjacent to LCNCA were selected by AGFD as the preferred reintroduction site for the species based on habitat assessments.



**Figure 5- Prairie Dogs to be released on LCNCA**

Key area monitoring results  
2004-2010 Point-intercept cover derived perennial grass and bare ground cover versus upland objectives

Pasture	Key Area	Range Site Description	Elev (ft)	Bare ground basal cover %							Perennial grass basal cover %									
				2004	2005	2006	2007	2008	2009	2010	Most recent	2004	2005	2006	2007	2008	2009	2010	Most Recent	
Trap #1	1	Sandy Loam Upland/Loamy Upland	4056	51.4	40.8	49.6	18.3	36.2	34.2	28.8	28.8	9.5	3.6	3.6	2.5	4.8	4.4	5.3	5.3	
North	2	Loamy Hills	4038	9.9	9.6		12.9			2.3	2.3	12.7	16.0		6.8		13.4	13.4		
North	3	Loamy Hills	4034	13.1	14.5		23.0			16.5	16.5	7.5	11.7		5.7		8.3	8.3		
North	4	Volcanic Hills/Limy Slopes	4051	21.5	20.0		20.4			20.4	4.2	3.4		4.2				4.2		
Upper 49	5	Sandy Loam Upland/Loamy Upland	4470	16.5	25.5		32.2			32.2	2.8	5.1		3.9				3.9		
Rockhouse	6	Volcanic Hills/Limy Slopes	4003	13.5						13.5	4.0							4.0		
Rockhouse	7	Volcanic Hills/Limy Slopes	4016	19.4						19.4	3.8							3.8		
North	8	Sandy Loam Upland/Loamy Upland	4522	51.8	58.5	46.4	21.1	18.6	12.1	12.1	7.9	4.2	7.8	9.0	8.3	11.9		11.9		
Alamo Solo	9	Sandy Loam Upland/Loamy Upland	4602	36.4	42.9	54.2	-	47.4	-	27.8	27.8	10.5	4.7	7.7	-	7.0	-	9.1	9.1	
Johnson	10	Sandy Loam Upland/Loamy Upland	4579	20.9	20.3	37.3	5.2	6.4	11.2		11.2	26.8	10.6	15.8	13.7	15.6	18.2		18.2	
Hilton	11	Loamy Hills/Limy Slopes	4752	7.2	5.4	11.5	8.1	2.8	-	2.6	2.6	20.3	16.1	12.0	15.9	18.4	-	17.2	17.2	
Hilton	12	Loamy Hills/Limy Slopes	4725	18.1	28.0	31.9	11.3	13.1	17.2	16.5	16.5	11.0	9.7	3.4	14.5	12.4	8.6	11.3	11.3	
Beck	13	Loamy Upland/Swales	4779	26.9	47.7	49.2	42.5	13.3	10.5	10.2	10.2	16.9	13.7	8.9	9.6	11.3	9.3	16.5	16.5	
Davis	14	Loamy Upland/Swales	4688	25.7	22.6	26.0	11.2	4.0	3.0	4.0	4.0	29.8	26.7	13.8	11.2	15.7	23.1	17.9	17.9	
Davis	15	Loamy Upland/Swales	4725	16.2	8.0	7.5	11.4	8.0	8.8		8.8	22.5	22.5	6.3	8.7	11.4	10.8		10.8	
Springwater	16	Sandy Loam Upland/Loamy Upland	4623	22.3	29.3	32.1	35.1	21.0	21.5		21.5	20.4	11.7	4.7	5.5	10.3	7.8		7.8	
West grazed	17	Loamy Upland/Swales	4847	32.7	23.9	23.4	10.8	12.2	10.0	14.5	14.5	12.4	19.3	16.0	12.5	15.0	13.5	11.8	11.8	
West enclosure	18	Loamy Upland/Swales	4847	19.4	16.7	25.3	11.5	13.5	10.3	7.8	7.8	17.8	24.8	19.5	10.9	11.4	11.7	14.1	14.1	
S Wire	19	Loamy Bottom/subirrigated	4394	23.9	24.0		6.9	18.5			18.5	19.0	26.7		13.9	23.4			23.4	
Lower Mattie	20	Limy Slopes/Loamy Upland	4380	28.1							28.1	9.4							9.4	
Fresno	22	Limy Slopes	4489	26.4	24.8			22.0	18.4		18.4	5.9	4.3			6.8	6.9		6.9	
Triangle	23	Besalt Hills	4321	10.0	10.3			7.5			7.5	1.7	5.1			2.9			2.9	
Mac's Sacabin excl	30	Limy Slopes/Loamy Upland	4327	23.2	25.6			16.7			16.7	11.3	8.0			5.8			5.8	
Springwater grazed	31	Limy Slopes/Loamy Upland	4327	47.3	42.2			35.9	13.2		13.2	5.3	5.0			3.1	7.0		7.0	
Springwater out	33	Limy Slopes/Loamy Upland	4543			41.7	35.1	27.3	22.3		22.3			0.4	0.9	3.6	4.7		4.7	
Springwater excl	34	Limy Slopes/Loamy Upland	4522			51.4	36.2	28.9	25.8		25.8			1.3	1.8	3.8	5.5		5.5	
Screwworm out	36	Volcanic Hills/Shallow Upland/Clay Hills	4649			37.8					37.8			7.8					7.8	
Screwworm excl	36	Volcanic Hills/Shallow Upland/Clay Hills	4673			41.3					41.3			6.0					6.0	
Wood out	37	Limy Slopes	4662			43.7			16.1		16.1			1.6			5.0		5.0	
Wood excl	38	Limy Slopes	4644			43.1			9.0		9.0			2.2			4.8		4.8	
Apache out	39	Limy Slopes	4915			44.1		30.8	17.8	11.0	11.0			0.4		2.7	2.4	4.0	4.0	
Apache excl	40	Limy Slopes	4692			45.9		21.3	23.5	13.1	13.1			0.1		2.2	3.7	5.7	5.7	
Maternity	41	Loamy Upland/Swales	4909			39.0	20.8	9.9	12.5	18.0	18.0			7.2	7.7	13.1	9.3	9.6	9.6	
Empire	42	Loamy Hills	4903							9.9	9.9							14.3	14.3	
North	44	Loamy Hills	4694							12.3	12.3							8.8	8.8	
Trap #2	46	Sandy Loam Upland/Loamy Upland	4600						43.7		43.7							4.6	4.6	
Enzenburg	47b	Sandy Loam Upland/Loamy Upland	4773						29.7	20.8	20.8							6.7	8.7	8.7
Blue Hilton	49	Loamy Upland/Swales	4681						13.9	8.2	8.2							14.7	16.9	16.9

Mesquite grubbed 2010

RMP bare ground objective <30%

RMP perennial grass basal cover >10%

meets objective  
does not meet objective

paired enclosure and grazed key areas

# meets obj	19	16	5	14	18	20	17	34	13	11	5	7	11	7	9	13
Falls Short																
# monitored	24	21	21	19	22	22	17	38	24	21	21	19	22	22	17	38
% meets obj	79.2	76.2	23.8	73.7	81.8	90.9	100.0	89.5	54.2	52.4	23.8	36.8	50.0	31.8	52.9	34.2

Figure 6- Summary of LCNCA Upland Monitoring Data 2004-2010

The initial reintroduction sites are being used to evaluate and modify the methods employed to reintroduce prairie dogs. Once the reintroduced population is stable, AGFD plans to reestablish



**Figure 7- Releasing prairie dogs on LCNCA**

the species on up to five additional sites in southern Arizona to contribute towards the national and international conservation effort and preclude the need for listing as part of the Endangered Species Act. The University of Arizona initiated a research project in 2010 to evaluate the success of the black-tailed prairie dog reintroductions and examine spread of the colonies. Prairie dogs were color-marked in order to assess forays from the release sites and to monitor survival, reproduction, and colony spread. Data are crucial to denoting success of the reintroduction.

The Tucson Field office has been working with partners on the conservation of the threatened Chiricahua leopard frog on the LCNCA since 2002. Annual, basin wide bullfrog control has occurred annually with the aid of the University of Arizona and the Tucson Herpetological Society. The University of Arizona has assisted BLM in designing and building leopard frog propagation site (photo at left) BLM in partnership with Arizona Game and Fish Department continues to pursue establishment of additional populations of native fish and frogs on Las Cienegas NCA. The Chiricahua leopard frog head start facility will provide a source of native leopard frogs and endangered Gila topminnow for other reintroduction projects on LCNCA. Additionally, The Nature Conservancy, Cienega Watershed Partnership and BLM submitted an application to and received a \$390,000 from National Fish and Wildlife Foundation awarded to CWP. This has resulted in the formation of the FROG Conservation Partnership Project.



**Figure 8- Chiricahua leopard frog propagation facility on LCNCA**

Watershed restoration: The Las Cienegas RMP prescribes vegetation treatments, including



**Figure 9- Marking "leave" trees in bosque habitat in a mechanical mesquite treatment unit**

chemical, mechanical and prescribed fire treatments on more than 23,000 acres of public land to control invasive brush and trees and restore grasslands. District fire staff have been engaged in mesquite removal on the area since 2006 with Field Office resources staff providing environmental oversight. As of FY 2010, mesquite have been mechanically removed on 1,158 acres,

prescribed fire has been applied to 9,823 acres and mesquites chemically controlled on 1,290 acres for a total of 12,271 acres. In FY10, 1,164 acres of mechanical mesquite removal was accomplished, prescribed fire was applied to 2,921 acres and chemical eradication of mesquite was accomplished on 196 acres.

In order to ensure that vegetation management activities, particularly mechanical grubbing of mesquites, as well as other land management activities don't accelerate erosion, BLM co-



**Figure 10- LCNCA erosion control workshop**

hosted (along with non-profit partner Sky Island Alliance-SIA) hands-on erosion control workshops. The workshops presented concepts of using native materials for low-impact erosion control structures, "letting the water do the work" and induced meandering. Participants from several Federal, State and local agencies, as well as NGO's and other interested individuals and ranchers from as far as New Mexico attended the three-day workshops and constructed several types of loose rock structures and wood structures in head-cuts and incised washes.

Subsequently, the SIA has conducted volunteer week-end work sessions to continue the erosion control work started during the workshops.

The BLM Tucson Field Office resource staff in conjunction with the SIA and the Nature Conservancy (TNC) is currently involved in a ranch-wide inventory of erosion control needs and will formulate an erosion control/watershed improvement plan which will require obtaining a Clean Water Act Section 404 Nation Wide permit from the United States Army Corps of Engineers (USACE). Additionally, the USACE provided Section 404 compliance training sessions for Gila District and Tucson Field Office staff.

#### **IV. Protecting America's Heritage Resources**

##### **a. Notable Heritage Resources**

###### **i. Notable heritage resources description:**

Ongoing efforts to preserve, protect, stabilize, and interpret historic buildings and structures at the Empire Ranch Headquarters and other LCNCA historic sites continue. Historic preservation projects undertaken during FY2009 included:

- Continuation of repairs to the post-and-rail corral fences
- Repair of the wood-and-glass partition entry to the Stone Corral
- Restoration of walls and plasters in the historic Ranch House
- Completed rehabilitation of the Master Bedroom, including finish trim and paint
- Continued restoration of all historic doors on the Ranch House
- Successful implementation of contract for repair of the South Lintel on the Zaguan
- Removal of hazard branches/limbs around structures and public areas
- Implementation of mitigation measures for all safety hazards noted in 2010 Gila District Health & Safety report

###### **ii. Condition of these heritage resources:**

The historic ranch buildings (Vail house, Huachuca house, field station building, Hired Mans house, and miscellaneous support structures (corrals, windmill, hay barn) at the ranch headquarters area were structurally stabilized prior to FY 2010. These structures remain stable, but are assessed and maintained periodically to ensure that condition does not deteriorate. BLM and the Empire Ranch Foundation continue to work closely to ensure continued



**Figure 11- Historic Vail House at Empire Ranch headquarters on LCNCA**

stabilization and preservation of the historic ranch headquarters site. Other sites remote from the headquarters, including Cienega House and Hummel House have been stabilized and sealed.

## **b. Inventory Efforts**

## **c. Restoration Efforts**

Restoration efforts were undertaken through a collaboration of multiple partners: BLM; the Empire Ranch Foundation; SRI, Inc. (a private, local cultural resources contractor); John Weiss (a local historic wood restoration specialist); and volunteer efforts by individuals and work-day groups sponsored by ERF.



**Figure 12- Historic windmill, barn and shop buildings at Empire Ranch headquarters on LCNCA**

During FY2010, planning was initiated for two large-scale rehabilitation projects at the Empire Ranch: final stabilization and repairs to the historic Adobe Hay Barn, and structural /safety rehabilitation to the Ranch House. Working in collaboration with the Arizona State Office, National Operations Center in Denver, and contract specialists, TFO staff expect to have the Hay Barn contract completed during FY2011. The contract specs for work on the Ranch House are being developed, and the contract will be awarded in FY2011 with work to be completed in FY2012. Both projects are being implemented with Deferred Maintenance funding.

## **d. Other Accomplishments**

### Events – Onsite

- Arizona Archaeology Month – March 2010; approx. 50 participants. Tour sponsored by ERF, BLM, and SHPO
- Empire Ranch Roundup, western cultural heritage event – October 2010. Held at Empire Ranch Headquarters; approximately 2000 participants. BLM staff provided security, assisted with planning and logistics, and staffed an information booth that provided maps, brochures, and handouts.

- Collaboration with ERF on annual Legacy Day Western Heritage Education program for Elgin Middle School in May 2010. Approximately 75 local students, teachers, and parents learned heritage skills including adobe brick-making, and participated in preservation efforts.
- “Wild About The Grasslands!” Elementary School Summer Camp – June 2010 held on LCNCA. Students learned about LCNCA natural and heritage resources, presenters included BLM staff and partners. Program funded by ERF, BLM CCS funding, other grants. About 20 students attended the Summer Camp.
- Wild About the Grasslands Youth Leadership Training was also conducted in 2010 with about a dozen middle and high school age students who had participated in Wild About the Grasslands in previous years and were returning as leaders for the Summer Camp.
- Volunteer Work days -- BLM/FS Shared Services Historic Preservation Specialist facilitated 10-12 volunteer work days during FY2010 in collaboration with ERF. At least five of these comprised 25+ volunteers, including a workshop in appropriate materials and techniques for undertaking preservation efforts on Federally-managed historic properties.



**Event** **Figure 13- Empire Ranch Roundup public event**

- CamNet Rendezvous – In March 2010, the Collaboration and Adaptive Management Network brought their 4<sup>th</sup> annual Rendezvous to Tucson with the theme of “Addressing Climate Change”. This gathering was designed to provide a forum for innovative natural resource managers, scientists, policy makers, academics, and citizens to hear about collaborative and adaptive management projects in the arid Southwestern U.S.; learn about the collaborative approach to adaptive management of the Las Cienegas National Conservation Area; and discuss the implications of climate change for natural resources management and how CAM can help address the challenges of a changing climate. Over 70 participants gathered to hear Kit Batten, Science Advisor to the Deputy Secretary of Interior, BLM Arizona State Director Jim Kenna, former Deputy Secretary of Interior Lynn Scarlett, and renowned Climate Change scientist, Jonathan Overpeck speak. Several presentations and the field day highlighted BLM and partners’ collaborative planning and adaptive management on Las Cienegas NCA.

- Las Cienegas NCA was one of the case study sites asked to participate in the Large Landscape Conservation Workshop held in Phoenix Arizona in June 2010. The Workshop presented by Sonoran Institute focused on collaboration and management in large landscapes. LCNCA Ecosystem Planner and stakeholders participated in the workshop.
- Annual Collaborative Planning – held at BLM Tucson Field Office, July 2010. This annual planning workshop includes the Empire Ranch Foundation Board, BLM-TFO staff, and other stakeholders. “Big picture”, long-range strategies are developed in areas of resource preservation; public access and interpretation; educational outreach; federal, private, and grant funding sources; etc. Results provide the framework for short- and long-term goals and objectives.
- Agency collaboration included over 20 meetings with ERF Preservation Committee (on-site, off-site, online, and conference calls) to advance shared goals and complete tasks.

### Publications

- BLM-TFO staff authored four articles for publication in the ERF quarterly newsletter. The foundation prints and distributes 1,000 copies of the newsletter; it is also posted on their website, which receives several thousand hits monthly.  
<http://www.empireranchfoundation.org/>

## **V. Providing Recreation and Visitor Experiences**

### **a. Overview**

#### **i. Annual visitation numbers and types of activities**

IN FY 2010, LCNCA received approximately 26,000 visits. This visitation represented a wide variety of uses included: bird watching, wildlife viewing, sightseeing, hunting, camping, ATV use and stargazing.

### **a. Facilities, Construction, and Maintenance**

#### **i. Signing Efforts**

Work on a sign plan for Las Cienegas NCA was initiated in 2004. An inventory of existing signs was completed in 2005. Several new signing projects have been completed over the years prior to NCA designation and since NCA designation including installation of recreation zone area markers, road number signs, portal sign installation, wayside exhibit, fire signs, and border-related information signs. Las Cienegas NCA has two portal signs installed, one on the State Highway 83 access and one on the State Highway 82 access. The portal signs were



**Figure 14- LCNCA portal sign**

manufactured by the BLM sign shop and meet all BLM standards. In 2010, the Arizona State Office announced that we must change our road numbering system, now all existing and recently installed road signs information are out-of- date.

## **ii. Physical Outdoor Recreation Facilities**

The Heritage Discovery trail has been partially developed and includes an interpretive panel on the value of a new leopard frog rearing facility located next to the trail. The panel emphasizes the recovery efforts for the Chiricahua leopard frog and its place in the riparian ecosystem on the NCA.

## **iii. New or ongoing construction of recreation-related facilities**

The Heritage Discovery Trail and a leopard frog propagation facility near the trail were finalized in 2010. The trail caters to a wide variety of public visitors including bird watchers, western history enthusiasts, and outdoor education groups for youth.

## **c. Comprehensive Travel and Transportation Management**

### **i. Primary modes of recreational travel**

Primary modes of travel and transportation are: Motorized-2 wheel, 4 wheel, ATVs, and Horseback in descending order of occurrence.

### **ii. Status of a comprehensive travel and transportation management plan. Miles of public use roads and trails.**

A comprehensive travel and transportation management plan was completed in the 2003 LCNCA RMP. Approximately 91.9 miles of roads and trails are open for motorized use Nearly 6.6 miles are to be converted to non-motorized trail for hiking, horseback or bicycle.

### **iii. Briefly describe any ongoing opportunities, challenges, and/or trends associated with comprehensive travel and transportation management planning and implementation.**

We have on-going issues with the State of Arizona Trust lands that are intermixed with public land in LCNCA. We need to obtain Right-Of-Ways from each other. The State of Arizona is uncomfortable with our maps and guides showing any roads in LCNCA on State Trust lands.



Figure 15- Heritage Discovery trailhead gate

#### **d. Recreation Fee Program**

##### **i. Recreation fee sites/areas**

No sites, (fees are collected from Special Recreation Permits authorized in LCNCA)

##### **ii. Number of active Special Recreation Permits**

14 Total (3 Commercial, 7 Competitive, 4 Organized Group)

##### **iii. Business plans that are guiding the collection of recreation fees**

A draft business plan is being prepared.

##### **iv. Revenue generated from the recreation fee program (L12320000 account, from LCNCA SRP's)**

Revenue generated from the recreation fee program in FY 2010 totaled \$1937.

##### **v. Expenditure of collected recreation fees.**

Approximately \$820 of fees from the recreational fee program were spent mowing group recreation sites to accommodate camping and group recreation activities.

#### **VI. Your Recovery Dollars At Work**

In 2010, LCNCA received approximately \$1.8 million in ARRA funding. These funds were expended in part as follows:

- \$149,996 spent on 9 contracts (4 separate local contractors) for cultural surveys on 9,939 acres on LCNCA. These surveys are complete.
- \$335,934 spent for 6 stewardship contracts (2 separate local contractors) for mechanical removal of mesquite on 995 acres of mesquite invaded grasslands. These contracts are complete.
- \$637,880 obligated in FY 2010 for 10 contracts (1 local contractor) for mechanical removal of mesquite on 995 acres of mesquite invaded grasslands. These contracts are in progress and will be completed in FY 2011.

#### **VII. Engaging Youth in America's Great Outdoors**

### a. Youth Engagement

Youth in Wilderness: In April 2010, LCNCA hosted the annual Youth in Wilderness program. The program hosted approximately 45 students from Hohokam Middle School and Pascua Yaqui, Native American Tribe. Students participated in Arizona State Standards for education projects. The 2010 event ran smoothly and was very inspiring to the Youth and the Pascua Yaqui Community. For further details about the program see: (<http://edweb.tusd.k12.az.us/hohokam/>)



**Figure 16- Hohokam Middle School students of the Pascua Yaqui Nation make adobe bricks at LCNCA as part of the Youth in Wilderness Program**

Wild about the Grasslands: The “Wild About The Grasslands!” Elementary School Summer Camp was held in June 2010 on LCNCA. Approximately 20 elementary school



**Figure 17- Elementary school students participating in the Wild About the Grasslands program**

students learned about natural and heritage resources, presenters include BLM staff and partners. This program is funded by ERF, BLM CCS funding, other grants. About 12 former Wild About the Grasslands students in Middle and High School attended an associated Youth Leadership Training.

### b. Youth Employment

Up to six Student Conservation Association ( SCA) youth worked at LCNCA in 2010. These jobs were funded from border issue specific funding. Job duties included remediating border issue impacts , including removing trash and waste left by illegal border crossers, repairing fencing damaged by border activities and recording site specific damage to roads, trails and infrastructure on LCNCA.

One Chicago Botanic intern worked at LCNCA for about 6 months in 2010. The CBG Conservation intern worked on grassland monitoring, monitoring of vegetation treatments, native fish monitoring and a variety of other projects on the NCA.

**VIII. Partnership and Volunteer Efforts**

**a. Overview**

The LCNCA resource management plan (RMP) was developed through an intensive collaborative effort with partners and volunteers. That collaborative spirit continues, and outreach and collaboration with numerous partners and volunteers is a critically important aspect of the current RMP implementation phase. Important partners include: Sonoita Valley Partnership, Empire Ranch Foundation, Cienega Watershed Partnership, and the National Audubon Society’s Appleton-Whittell Research Ranch. The missions and contributions of these partners are described below.

**b. Volunteer Accomplishments**

Major volunteer accomplishments, as well as the total amount of volunteer hours contributed, and the total monetary value of these hours (based on the Department of the Interior’s approved 2010 hourly rate of \$20.85) are noted in the table below.

<b>Las Cienegas National Conservation Area Fiscal Year Volunteer Accomplishments</b>				
<b>Partner</b>	<b>Mission</b>	<b>Accomplishments</b>	<b>Contribution</b>	
			<b>Hours</b>	<b>Dollars</b>
Empire Ranch Foundation	Protect, restore and sustain the Empire Ranch historical buildings and landscape as an outstanding western heritage and education center	Fund raising for stabilization of historic structures, event sponsor of annual Empire Ranch Roundup	6,584	137,276
Arizona Antelope Foundation	Promoting preservation and sound management of antelope habitat and populations in Arizona	Conducted brush clearing project around wildlife waters	32	667
Individual volunteers and volunteers from groups such as TNC and Audubon Society	Assist BLM staff in completion of various land management activities	Fisheries surveys, riparian surveys, upland habitat surveys, wet-dry survey	760	15,846
Totals			7,376	153,789

**c. Partnership Accomplishments**

The table below describes major ongoing partnership projects.

<b>Las Cienegas National Conservation Area Fiscal Year 2010 Partnership Accomplishments</b>				
Partner(s)	Project Name and Description	Accomplishments	Monetary and In-Kind Contributions	
			BLM	Partner
Empire Ranch Foundation	Hands on Land: Wild about the Grasslands Program	Youth Leadership Training Elementary Age Summer Camp	\$11,000	\$6500
Empire Ranch Foundation	Historic Ranch Preservation and Adaptive Reuse	Preservation of Historic Structures – Adobe hay barn Seismic Repairs and Maintenance of Historic Structures	\$16,800	\$18,000
Cienega Watershed Partnership and Sky Island Alliance	Arroyo Restoration Stewardship Workshops – Building erosion control projects	Stabilization of highly erosive areas	\$10,000	Volunteers time valued at \$12, 870
Cienega Watershed Partnership, National Audubon Society (Appleton-Whittell Research Ranch)	FROG Project: Actions to help recover threatened Chiricahua leopard frog in the watershed; and Lehmann’s lovegrass annotated bibliography	Managing headstart facility; controlling bullfrogs; reintroductions at refugia sites	\$23,700	\$23,700*
Cienega Watershed Partnership, National Audubon Society	Sonoita Valley Planning Partnership and Cienega Corridor Conservation Council	Managing collaborative efforts with other partnership groups, application for grant funding, management of grant funding, Facilitating SVPP and CCCC Forums, Science on the Sonoita Plain Symposium, Oral History Workshops, and Wet-Dry Riparian Monitoring	\$32,500	Volunteers time valued at \$10,000
The Nature Conservancy, Arizona	Ecosystem Monitoring on Las Cienegas NCA	Development of Ground Water Monitoring Program, bibliography of Hydrology references, compiled all flow, groundwater, and wet-dry data, wells database. Vegetation Treatment Monitoring. Climate Change Adaptation work with sacaton grasslands.	\$150,000	\$20,000

\*Partners also obtained NFWF Grant for \$280,000 for this project



Figure 18- Tohono O'odham Nation partners and volunteers participating on a Youth Horse Camp on LCNCA

## IX. Science

### a. Overview

LCNCA has considerable resources of significant scientific interest, with an active science program across a broad range of those resources. The potential for future scientific research continues to be a major focus of work on the NCA. In several cases, the scientific findings are influencing land management decisions, particularly through the adaptive management process that has been established on the NCA. The NCA has not yet initiated a science plan. However, the RMP contains extensive decisions that support science and research goals and objectives.

### b. Science Efforts

The following table identifies ongoing scientific efforts and partnerships.

Las Cienegas National Conservation Area Fiscal Year 2010 Science Efforts						
Project Name and Description	Scientific Discipline	Research Contributor/Collaborator	Land Management Applications	Products	Monetary and In-Kind Contributions (in thousand USD \$)	
					BLM	Partner
Monitoring Avian Productivity and Survivorship.	Wildlife Biology	BLM Staff	Avian population trends	Annual report	6	0
Wildlife Tracking and remote camera monitoring	Wildlife Biology	Sky Island Alliance and BLM staff	Mammalian use of corridors	Annual report	6	6
Soil Permeability and Rainfall Effects on Rangelands	Hydrology	USDA, Agricultural Research Service	Informs erosion control management	Scientific report		12
Las Cienegas Grassland Restoration and Avian Response	Natural Resources	University of Arizona	Impacts of vegetation management on birds	Scientific Report	19	15
Avian Groundwater Relationships study	Wildlife Biology	University of Arizona	Quantification of riparian habitats for birds	Report	18	45
LCNCA Breeding Ecology of Arizona Grasshopper sparrows	Wildlife Biology	USGS	Describe habitat use and breeding ecology	Report	25	30
Cretaceous Surveys on LCNCA	Paleontological Resources	Arizona Museum of Natural History	Survey and excavate for Cretaceous formations,	Report and Maps	10	19
Oral History	Cultural Resources	Cienega Watershed Partnership	Preserve and share Oral History .	Report, Training Workshops,	10	15
Assessing Black-tailed Prairie Dogs on LCNCA	Wildlife Biology	University of Arizona	Study of success of reintroduction	Report	22	6
Totals (\$)					116,000	148,000

## X. Outreach, Environmental Education, and Interpretation Efforts

### a. Overview

LCNCA hosts at least 4 major outreach efforts including the Empire Ranch Roundup, Arizona Archaeology Month, and the two youth education/outreach events mentioned previously in Section VII (Engaging Youth in America's Great Outdoors) above. The primary themes of these

events are cultural interpretation, historic preservation, youth education and outreach to Tribal youth. In addition to these annual structured events, in-person public contacts are made by staff specialists in the field on a continuous basis. Other contacts are made through the printed advertisement of events like the Empire Ranch Roundup, and through website information in the case of events like “Wild About the Grasslands”.

## **b. Visitor Centers**

### **i. Description of visitor centers associated with the NCA**

The LCNCA does not have a visitors center, though BLM in concert with the Empire Ranch Foundation continues the long term endeavor to restore the historic buildings at the Ranch Headquarters. The goal is the eventual creation of opportunities for early ranching history interpretation through the historic site and the creation of a period visitor’s center in one of the historic buildings.

### **ii. Identify the annual visitation to each visitor center**

Though LCNCA does not currently have a visitors center, given current visitation levels (26,000 visitors in FY 2010), and the expected increase in visitation as nearby Tucson grows, anticipated visitation at a future visitor center is expected to be significant.

## **c. Environmental Education**

As noted in Section VII (Engaging Youth in America’s Great Outdoors) above, LCNCA hosts 2 major youth education initiatives: Youth in Wilderness and Wild About the Grasslands. These programs focus on urban and Tribal youth and aim to kindle an interest in natural resources, science and land management issues. Each year approximately 50 youth participate in these programs.



**Figure 19- Hohokam Middle School students installing fencing at a group recreation site on LCNCA**

#### **d. Interpretation**

##### **i. Provide a brief overview of the main messages being delivered and identify who is providing interpretation.**

Several handouts are available at Tucson Field Office, the messages are managed by the Public Affairs office for BLM Arizona, both at the State Office and Field Office. These handouts depict basic LCNCA information including location, travel routes and destination activities. The popular collaborative/partnership generated LCNCA map/guide was available for over 6 years is now out of print. A reprint is pending (funds obligated to Arizona State Office Public affairs in mid FY 10).

##### **ii. Describe types of interpretive products and services (personal and non-personal).**

The Empire Ranch Foundation provides non-personal informational displays at the Historic Empire Ranch Headquarters. The Heritage Discovery Trail at LCNCA contains several interpretive wayside panels. Additionally, the Empire Ranch Foundation sponsors several public events that highlight Empire Ranch History themes. For more information, please see: <http://www.empireranchfoundation.org/>

##### **iii. Identify the types of participants in the interpretive programs (e.g. local, regional, schools, tourists, etc.).**

Participants in interpretive programs include "local" people from surrounding communities of Tucson, Sonoita and Elgin as well as tourists from all over the country.