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Q1: Name of your organization.	National Audubon Society/Audubon California
Q2: Grant #	20130995
Q3: Grant Period	February 1, 2014 – January 31, 2015
Q4: Location of your organization	
City	Trabuco Canyon
State	CA
Q5: Name and Title of person completing evaluation.	Sandy DeSimone, Director of Research and Education
Q6: Phone Number:	949-858-0309
Q7: Email address.	sdesimone@audubon.org

PAGE 2: Key Outcomes and Results

Q8: Total number of clients served through this grant funding:	15
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Q9: Describe the project's key outcomes and results based on the goals and objectives:

Located in Orange County bordering the Santa Ana Mountains, the Audubon Starr Ranch Sanctuary preserves 4,000 acres of oak and riparian woodland, coastal sage scrub, chaparral, and needlegrass grassland. It has been operated since 1973 by Audubon California, the state field program of the National Audubon Society, founded in 1905. Starr Ranch's mission is to offer innovative approaches to land management and environmental education that will influence the way Southern Californians appreciate, conserve and manage wildlands, instilling a love of nature, involving people of all ages in wildlife research, and providing a model of sustainable land management. Starr Ranch operates as a nature preserve and an active ecological research station, serving 6,000 visitors a year through environmental education, citizen science, and robust volunteer programs. Habitat restoration is a long-term commitment for Starr Ranch, and our overarching objective is to preserve, enhance and restore native habitat on the ranch to its most pristine state. Overall our goal is to restore 1,600 acres across all habitat types, about 40% of the Ranch's total acreage. We expect to reach this goal by 2020.

Although habitat restoration continues to be an ongoing commitment, with the support of the S.L. Gimbel Foundation, we have been able to take a new perspective on our work through a prism of "climate-smart" land management. This new way of managing landscapes is future-oriented as we prepare for and adapt to current and future climate change impacts while also promoting resilience of native ecosystems. In our proposal, we established an overall project goal to inform habitat restoration work at Starr Ranch with a deeper understanding of current and potential future climate change impacts so that a rare habitat preserved and restored here. We are happy to report key outcomes and results by project objective:

Objective 1: Develop the first stage of a climate-smart land management pilot project at Starr Ranch.

Outcome and Results: During the grant period, we produced planning tools to help land managers, including ourselves, better understand how to approach coastal sage scrub habitat restoration from the perspective of climate-smart land management. Tools produced by three interns, recent college graduates mentored by the project director, included matrices to help plan weed control and restoration in both riparian (streamside) and coastal sage scrub habitats according to current climate projections for the South Coast Ecoregion. The interns then used the tools to plan small projects to test planting new species and "accepting" the presence of some non-native species because of their wildlife value. We shared information about these tools and how they are being used at Starr Ranch at the Ecological Society of America 2014 meeting in August in Sacramento.

Objective 2: Initiate a new research project at Starr Ranch to examine how small mammals that naturally occur in coastal sage scrub habitat might act as "biotic filters" to increase resistance of sage scrub restoration sites to invasive plants, which are predicted to thrive in the California climate of the future.

Outcome and Results: Results from our experiment and monitoring data, including small mammal trapping, indicated that native small mammals take shelter in restored coastal sage scrub strips (a restoration method pioneered at Starr Ranch) and forage on invasive weeds, in effect, helping us with our weed control in restoration sites. Research results were presented at the January 2015 Conservation Conference of the California Native Plant Society in San Jose. We also hope to publish results in the journal *Restoration Ecology*.

Objective 3: Recruit and train citizen science volunteers from the local community to begin long-term monitoring of phenological (seasonal) responses of plants and birds within the coastal sage scrub habitat to understand responses to the changing climate; contribute year-one data to the USA National Phenology Network.

Outcome and Results: Starr Ranch staff trained ten volunteers in February 2014 to monitor phenological or seasonal responses of plants, birds, and butterflies of both coastal sage scrub and riparian (streamside) woodlands. Volunteers work in pairs and monitor monthly. Data so far indicate expected seasonality for birds and butterflies except for one coastal sage scrub species, California Sagebrush, in which flowered earlier than ever before in March 2014 (normally in November) and then it flowered again as normal in November. Additionally, the project director is training volunteers from Audubon Chapters in Orange County and the San Francisco Bay Area to do local phenology monitoring of birds.

Q10: Please describe any challenges/obstacles the organization encountered (if any) in attaining goals & objectives.

This project helped us initiate a new phase of restoration and ecological research at Starr Ranch that allows us to compare and contrast habitat restoration between traditional and climate-smart practices. We hoped that research findings would help us identify new techniques to increase resilience of native habitats to invasive weeds, such as encouraging the presence of small mammals to help with weed control and that over time, we would detect patterns of seasonal changes in species' behavior that to help us track responses to climatic changes. While we successfully completed the anticipated activities, we encountered a few challenges in the first year of the effort. During the 2013-14 drought year, it was a challenge for to ensure adequate watering of the new riparian species planted and we had to innovate to come up with a system to ensure plantings would survive. Another challenge for our biotic filters research based on trapping small mammals was that the numbers trapped were down during this third season of drought.

Q11: How did you overcome and/or address the challenges and obstacles?

To overcome the challenge of lack of water for irrigating new plantings, the interns installed a new rain catchment system on one of Starr Ranch's buildings that provided water for late in the season and will eventually replace our use of well water for irrigation purposes. To improve our data about biotic filters we are planning a second round of small mammal trapping for March 2015 to supplement the data we gathered in 2014. We also received feedback from volunteers participating in our pilot phenology monitoring project. We have incorporated their feedback to improve the project and will share this information as we train Audubon Chapters in California to start up similar monitoring projects.

Q12: Describe any unintended positive outcomes as a result of the efforts supported by this grant.

Despite the challenges facing our biotic filters research, what information we did glean was surprisingly clear in indicating the strength of small mammals' influence in coastal sage scrub restoration sites. Data from this spring's surveys will help us confirm the role of small mammals in "weeding" restoration areas through foraging. This will help us understand how much resources to put into weeding new "climate-smart" species restoration plots. Research indicates perhaps not, which would free up resources for other restoration activities. We also had surprising results for one important plant species in the phenology study. Volunteers learned that a dominant shrub of the endangered coastal sage scrub flowered six months earlier than it has in the past. This will help staff who collect seeds for restoration understand how to shift collecting activities. The Audubon California Executive Director liked the volunteer phenology project so much that she asked Dr. DeSimone to train Audubon Chapters across the state to start monitoring climate change effects on birds in Important Bird Areas. We started two pilot projects in 2014-15 with Chapters in the Bay Area and in Orange County.

Q13: Briefly describe the impact this grant has had on the organization and community served.

Many of the spectacular native habitats in Southern California, like coastal sage scrub, are found nowhere else in the world. Once the dominant ecosystem in our region, coastal sage scrub is now one of the most threatened habitat types in North America and the most endangered habitat in California. Coastal sage scrub supports several animal species unique to California, including the federally threatened California Gnatcatcher, a songbird. The coastal sage shrublands found on Starr Ranch are some of the last remaining expanses of intact scrub habitat in the world. We have developed innovative, sustainable methods here that have been and are being adopted by other preserved lands from Ventura to San Diego counties. Support from the S.L. Gimbel Foundation has been instrumental in helping us initiate innovative new practices and research on coastal sage scrub which in turn is having wider impact. In just one year, the volunteers involved in the phenology project are very proud that they are doing scientific observations and making contributions to climate change monitoring. Their feedback has helped to improve the program which we can then share broadly within the Audubon network. In fact, the National Audubon Society highlighted this pioneering work on climate-smart land management at Starr Ranch in its 2014 annual report. Dr. DeSimone, project director, presented results from the biotic filters research at the 2015 California Native Plant Society Conservation Conference in San Jose, CA that was well-attended botanists, land managers, and conservationists from across the state. We deeply appreciate the S.L. Gimbel Foundation's commitment to Starr Ranch Sanctuary. You are helping us to preserve and restore key ecological habitats in Southern California, to inspire people to appreciate and conserve wildlands, to offer hands-on conservation opportunities grounded in science and, for our interns, to increase understanding of land and resource management techniques that can be applied elsewhere. As one intern put it, "this has been the best experience of my life." Thank you again for your support.

Q14: Please provide a brief narrative on how the funds were used to fulfill grant objectives.

National Audubon Society/Audubon California passed through 100% of funds provided for the purposes of achieving the project on Starr Ranch Audubon Sanctuary. All funds were expended during the grant period. The proposed budget included salaries and benefits for the Director of Research & Education, Sanctuary Manager, and two Riparian Interns in the of \$20,240, actual expenditures were \$20,240. Equipment and supplies were budgeted for \$1,000 to cover costs of hand tools and work gloves, etc. needed for the program and this line item was fully expended. We budgeted and spent \$500 for liability and property insurance for \$500 and had indirect administrative costs of \$3,261.

PAGE 4: Success Stories

Q15: Please relate a success story:

Nothing like a challenge to inspire some ingenuity! In order to water new restoration plantings and reduce reliance on domestic water for irrigation, our interns, all recent college graduates, designed and implemented a rain catchment system installing gutters and hooking up downspouts to holding tanks. To get ahead of predicated rainfall, the interns worked all day and into the evening on the rain catchment system, even having to drop down into the 1,000 gallon holding tank to clean it out. They completed work just before two large rainfall events that dropped three inches of rain and completely filled the tank (just from a 1,000 square foot roof)! With water available, they are currently collecting cuttings of native woody riparian shrubs and trees that will receive irrigation from the new catchment system. This was an excellent experience in restoration and conservation for these recent graduates. We hope to use the new catchment system to demonstrate a simple way to conserve water and expense for neighboring communities as well as the local water districts.

Q16: Please relate a success story here:

ADDITIONAL DEMOGRAPHIC INFORMATION ON CLIENTS SERVED: This grant directly served the ten volunteers in the pilot year for the phenology monitoring and funds supported the work of two interns and one research assistant, all of whom are recent college graduates. Last year's volunteers for this program came from San Diego and Orange Counties and ranged from a college student, two retired people, and three biological consultants looking to gain more field experience. Our interns can all be considered low-income as they receive minimum wage plus housing during their time at Starr Ranch. Some of our restoration work is also done through a partnership with the Orange County Conservation Corps which engages low-income at-risk youth and young adults with job training and hands-on conservation work.

Overall last year we served 3,000 students in grades K – 12 and another 3,000 community members through vibrant science education and hands-on conservation volunteer opportunities. We estimate about 70% of our clients served are Caucasian, 10% Hispanic or Latino, 10% Asian or Pacific Islander, and 9% African American, and 1% multi-ethnic or other. While we don't program specifically for people with disabilities, each year some autistic children enroll in our school programs and our teachers pay close attention to their learning needs. We also provide scholarships to enable children to attend programs free or at reduced rates, but we don't track their families' economic circumstances.

Q17: Please relate a success story here:

Respondent skipped this question

PAGE 5: Organizational Information

Q18: Which category best describes the organization. Please choose only one.

Environmental

Q19: What is the organization's primary program area of interest?

Environment/Environmental

S.L. Gimbel Foundation Fund

Q20: Percentage of clients served through grant in each ethnic group category. Total must equal 100%

African American	9
Asian/Pacific Islander	10
Caucasian	70
Hispanic Latino	10
All Ethnicities	1

Q21: Approximate percentage of clients served from grant funds in each age category.

Children ages 06-12 years of age	25
Youth ages 13-18	25
Adults	50

Q22: Approximate percentage of clients served with disabilities from grant funds.

No clients served with disabilities	99
Other Disability	1

Q23: Approximate percentage of clients served in each economic group. *Respondent skipped this question*

Q24: Approximate percentage of clients served from grant funds in each population category. *Respondent skipped this question*
