

Final Project Report – 394 Butterfly Monitoring in the Spring Mountains NRA

PROJECT REVIEW:

What measurable goals did you set for this project and what indicators did you use to measure your performance? To what extent has your project achieved these goals and levels of performance?

Goals of this project included:

- Monitor endemic butterfly populations on the Spring Mountains National Recreation Area (SMNRA) to further understand their distributions.
- Monitor resource use of these species to better understand population resource needs and locations those resources are being used.
- Work toward a better understanding of how disturbance may impact these other species.

The project moved forward as a study of a single species, *Speyeria carolae*. A single species study was determined to be more efficient and would provide more detailed and useful information on one species versus limited information on several species given time and money available for the project.

The project achieved the goals for the *S. carolae* in Kyle and Lee Canyons. The study documented changes in the behavior and distribution of *S. carolae* in response to seasonal progression and resource availability and use. Sixty four monitoring sites were established in Kyle and Lee Canyon. Each of the sites was monitored four times during July and August 2004 and during June and September 2005. Monitoring was conducted during periods of optimum conditions. Number of individuals seen, individuals feeding on nectar plants and type of plant, and individuals feeding on mineral either solid or in solution was recorded. Courting behavior and mating was also recorded.

This study answered a number of questions regarding the phenology, distribution, resource use, and peak flights of this species. Understanding more about the resource needs and distributions of this species has already and will continue to help with management decisions in the future.

A map with general locations of observations is attached in the specialist report. No GPS data was collected and therefore no GIS data exists for this project.

Did the project encounter internal or external challenges? How were they addressed? Was there something Clark County could have done to assist you?
No.

What lessons did you learn from undertaking this project?

- What lessons does the success or shortfall of the project have for others attempting similar efforts?

Focusing on one species yielded more useful and detailed information than focusing on several species would have. Having more experts in the field to collect similar information on other species during the same year would be helpful in determining any relationships, shared resources, or similarities among the species.

- What would you recommend to others to emulate and/or avoid?

Future studies should include work on why particular habitats are being used and how to restore areas to habitat that will be used by SMNRA endemic butterflies.

What impact do you think the project has had to date?

This study provided us with confirmed resource areas used by the *S. carolae*, which is critical when working to protect the species and its habitat while providing safe recreation for visitors to the SMNRA. Management has more information now to make better decisions on what projects or activities may cause disturbance and have impacts to these known areas.

Is there additional research or efforts that would complement or add to your project that could be conducted?

A study focusing on courting and mating of the *S. carolae* would enhance and expand these data and our knowledge of the life history of this species. Studies of this and other endemic butterflies on the SMNRA would continue to close the gap on unknown life cycles and habitat requirements of these species and would help us to understand any interrelationships among the species.

FORMAL REPORT:

Executive Summary

Featured Project and Type

MSHCP project 2003-USFS-394-P.
Butterfly monitoring on the Spring Mountains National Recreation Area.

Species Addressed

Carole's silverspot (*Speyeria carolae*)

Project Description

The intent of this study was to document potential changes in the behavior and distribution of *Speyeria carolae* in response to seasonal progression and resource availability and use. Known resources include nectar, minerals and larval host plants.



Carole's Silverspot

Project Status/Accomplishments

The project was completed in November of 2005. The study answered a number of questions regarding the phenology, distribution, resource use, and peak flights of this species. Understanding more about the resource needs and distributions of this species has already helped with management decisions and will continue to do so in the future.

Partners

Clark County

Project Contact

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Funding

The project was completed within allowed funding of 11,000 dollars.

Completion Date or Status

Completed November 2005.

Documents/Information Produced

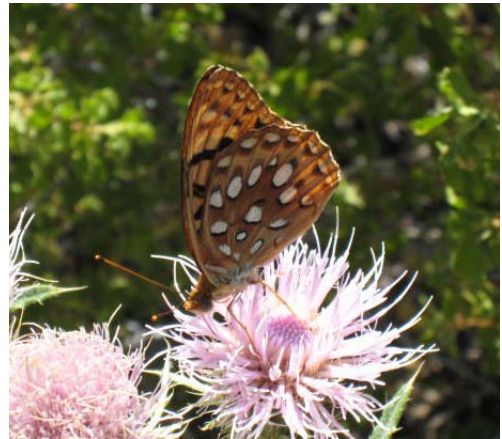
"*Speyeria carolae* Study in the Spring Mountains, Clark County, Nevada 2004-2005", by Bruce Boyd.

No GPS or GIS data was created for this project. The preferred contractor did not have the necessary equipment and skills at the time to collect this data. A map with general locations of observations is attached in the report.

Introduction

The project focused on obtaining detailed information on the distribution and behaviors of a single butterfly species rather than collecting limited information on several butterfly species. Carole's silverspot was chosen to be monitored under this project as information on the species

and its resource needs was limited. The goal of the *Speyeria carolae* study was to document potential changes in the behavior and distribution of the species in response to seasonal progression and resource availability and use. Information gathered through the study would need to be useful in making management decisions on where and how projects and activities could take place on the SMNRA without negatively impacting *S. carolae*. The project also addresses MSHCP management action USFS (19) Conduct research on the species of concern and ecological communities of the Spring Mountains NRA by prioritizing research needs and identifying funding sources.



Carole's Silverspot

Methods

Sixty-four monitoring sites were established with the only criteria for placement being their geographic location within the study areas, Kyle and Lee Canyon. Forty sites were placed in Kyle Canyon and twenty-four sites were selected in Lee Canyon. Each of the sixty-four sites was monitored four times during July and August of 2004 and during June and September of 2005.

Monitoring was conducted during periods of optimum conditions for this species. The number of individuals observed within a 20 meter radius during a five minute period was recorded. The number of individuals feeding on nectar and the species of plant involved was recorded. Individuals observed ingesting minerals were recorded and the minerals noted as solid or in solution. Courting behavior and mating were also recorded.

Results

256 visits were made to the monitoring sites during the study. 476 *S. carolae* were recorded during the study across the 64 sites. Of these, 257 were recorded ingesting nectar. Eight plant species were documented as sources of nectar. Two instances of courting behavior and a single mated pair were observed during the study.

Conclusions and Recommendations

This study answered a number of questions regarding the phenology, distribution and resource use of this species. The peak flight for this species occurs in July and August. Two plants, *Chrysothamnus nauseosus* and *Cirsium Sp.* were identified as primary sources for nectar. The study also identified locations of confirmed sightings of the *S. carolae*, which will be useful for future projects. A study focusing on courting and mating would enhance and expand these data and our knowledge of the life history of this species.

Literature cited

Boyd, Bruce -*Speyeria carolae* Study in the Spring Mountains, Clark County Nevada 2004-2005.