6-30-2009

Joint Fire Science Program – Lake Mead National Recreation Area: Revegetating Burned Arid Lands: Identifying Successful Native Species Using Trait and Competition Analysis, Quarterly Progress Report, April 1 — June 30, 2009

Margaret N. Rees
University of Nevada, Las Vegas, peg.rees@unlv.edu

QUARTERLY PROGRESS REPORT

University of Nevada, Las Vegas

Time Period: April 1— June 30, 2009

Cooperative Agreement Number H8R07060001
Task Agreement Number J8360070199
Joint Fire Science Program – Lake Mead National Recreation Area
Revegetating Burned Arid Lands: Identifying Successful Native Species Using Trait and Competition Analysis

Executive Summary

- Initiated a competitive hierarchy study.
- Monitored and maintained outplanting at Goodsprings.
- Completed more seed granivory trials at Goodsprings.
- Mentored student to completion of undergraduate research project.
- Monitored and maintained nursery plots.
- Revising article submitted to Journal of Arid Environments.

Program Activities

A competitive hierarchy experiment was initiated in April and will be terminated by the end of this quarter. This experiment is testing the competitive effect of 34 native species (18 perennials and 16 annuals) on *Bromus rubens*. The results of this study will compliment the goals of this JFSP task agreement. Screening large numbers of native species in the presence of *Bromus rubens* will allow us to identify natives with the strongest competitive abilities.

The outplanting in the burned area of Goodsprings was monitored and an additional species was added for testing. Due to the poor survival of previous grass species, a new grass species (*Aristida purpurea*) was added. The same treatments of shelter, slow-release water gel, both and none were applied. Slow-release water gel packs were since recharged late in this quarter. Preliminary results of this experiment were presented at two meetings (Nevada Native Plant Society on 5-4-09 and Mojave Desert Initiative on 5-7-09).

Further granivory trials were completed (one per month). Our continuing efforts to test seed granivory in both burned and unburned habitat on a monthly basis should elucidate the potential seasonal effects on granivore activity. Preliminary results of this experiment were presented at two meetings (Nevada Native Plant Society on 5-4-09 and Mojave Desert Initiative on 5-7-09). In addition, Alex Suazo will be presenting preliminary results of this study at the Ecological Society of America meeting in August.

During the spring semester at UNLV, an undergraduate student was mentored during his study examining the effect of wood mulch on the emergence of exotic annual weeds. This project was completed and presented during a symposium on campus May 4, 2009.

The experimental plots at the Lake Mead nursery were monitored and maintained. Since the initial planting of natives and seeding of exotic grasses, these plots have been regularly watered. The exotic grass seeding did not result in the desired density of grasses. Thus, the experiment will need more time (another growing season) to effectively determine the response of exotic grasses to different native species and community types.

Comments were received on the article entitled "Relationships of exotic annual plant invasions to roads and native perennial species in the eastern Mojave Desert, USA" submitted to the Journal of Arid Environments. Steady progress has been made toward revising the article for re-submission.

Technical Assistance/Synergistic Work

Donovan Craig reviewed the Environmental Assessment for the proposed Lake Mead Exotic Plant Management Plan and submitted comments to Mike Boyles (Chief of Environmental Compliance at Lake Mead). Mr. Craig also assisted Janis Lee (nursery manager) in watering nursery plants while Ms. Lee was out of town during the Resource Management retreat in early June.

Agency Meetings/Training Attended/Professional Development

- Donovan Craig attended symposium on May 4, 2009 for undergraduate student researchers he helped advise.
- Mr. Craig delivered talk on his research activities to the Nevada Native Plant Society meeting on May 4, 2009.
- Mr. Craig attended the Mojave Desert Initiative meeting on May 7, 2009 and presented information on research activities and results.
- Mr. Craig completed the required IT safety trainings for the NPS in late May 2009.

Submitted by:

[redacted]

Margaret N. Rees, Project Administrator

06/30/09

Date