East Molera Grassland Avian Monitoring Report

A Collaborative Effort Between:
California Department of Parks and Recreation
&
Ventana Wilderness Society's Big Sur Ornithology Lab

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Introduction

Andrew Molera State Park is a 4,786 acre coastal unit of the State Park System located 26 miles south of Monterey on State Highway 1. The unit extends along the Pacific Coast for about two miles from Molera Point at the northwest boundary to Cooper Point at the southeast boundary. The 2,145 acres to the southwest of State Highway 1 is known as West Molera. It is bordered by private land to the southeast and northwest and by the Pacific Ocean to the west and southwest. East Molera, the 2,641 acres to the northeast of State Highway 1, is bordered by the Los Padres National Forest to the northeast and by private land to the northwest. The Big Sur River runs through the length of the park and empties into the Pacific Ocean just south of Molera Point.

Beginning in 2002 or 2003 the California Department of Parks and Recreation (DPR) will implement a project in East Molera with the intent of restoring hundreds of acres to native coastal prairie. Grass species that typically occur in the coastal prairie plant community along this section of the Big Sur Coast are *Melica californica* (California melic), *Melica imperfecta* (small flowered melic), *Nassella pulchra* (purple needlegrass), and *Nassella cernua* (nodding needlegrass). A variety of native forb and wildflower species also occur in coastal prairie communities. Currently, large areas of East Molera are dominated by invasive non-native species such as *Bromus diandrus* (ripgut brome), *Cirsium vulgare* (bull thistle), *Carduus pycnocephalus* (Italian thistle), and *Raphanus sativus* (wild radish). Other areas of East Molera consist largely of coastal prairie indicator species (as listed above), or consist of a mixture of invasive non-natives and native coastal prairie species. Extensive stands of *Baccharis pilularis* (coyote brush), a native shrub, also exist in East Molera. The objectives of this restoration project are to reduce the number of invasive non-native plant species, reduce the current overgrowth of *Baccharis pilularis*, and seed/plant the area with native coastal prairie species.

Bird populations are widely considered to be an important indicator of the quality of habitat for all wildlife (Marzluff and Sallabanks 1998). To aid in evaluation of the planned restoration efforts, we collected baseline data on the presence and relative abundance of terrestrial songbird species using the East Molera Grasslands. We employed the area search method developed by the Point Reyes Bird Observatory and modified by the Big Sur Ornithology Lab. Area searches can be easily performed with limited equipment and personnel and is an effective means to assess land management techniques (Ralph et al. 1993). To monitor changes in vegetation composition and to determine possible management techniques and/or effects of the restoration, we recommend area searches be conducted throughout the restoration process.

Methods

We established six permanent study plots (Appendix 1) in the East Molera Grasslands at Andrew Molera State Park in Monterey County, California. Plots were chosen to best represent the different structural components of the surrounding grassland and were spaced accordingly to reduce the potential of recounting individual birds from adjacent plots. We surveyed each plot for thirty minutes three times in spring 2001 (20 May - 20 June) and again in summer 2001 (25 June – 25 July) for a total of six survey days. In each season, we

conducted two morning surveys and one afternoon survey in each of the six plots, using a standardized data sheet (Appendix 2).

Each survey day, two experienced observers split up and surveyed three plots each during a three-hour period. Morning searches began one-half hour after sunrise and afternoon searches started three and a half hours before sunset. We surveyed the plots on a rotating schedule such that each plot was sampled at slightly different times during each set of searches. We documented all bird species (Appendix 3) within each plot by song, call note(s), or visual identification. In addition to documenting presence/absence of species, we also documented breeding behaviors e.g., copulation, territorial display, carrying food, carrying material, active nest, fledglings. Species observed flying over a study plot were not included as species using a plot, but were noted as flyovers (e.g., swallows, vultures, and hawks) (Table 7).

Results

The following 13 figures display the survey results by plot. Figures 1 and 2 show all bird species detected in Plot Area #1 for a total of 128 individuals of 14 species. Figures 3 and 4 show all bird species detected in Plot Area #2 for a total of 75 individuals of 12 species. Figures 5 and 6 show all bird species detected in Plot Area #3 for a total of 159 individuals of 17 species. Figures 7 and 8 show all bird species detected in Plot Area #4 for a total of 160 individuals of 21 species. Figures 9 and 10 show all bird species detected in Plot Area #5 for a total of 209 individuals of 18 species. Figures 11 and 12 show all bird species detected in Plot Area #6 for a total of 65 individuals of 18 species. See Tables 1-6 for more detailed results of each survey.

Discussion

Areas that had high densities of exotic vegetation (area 3, area 4, and area 5) appeared to have higher levels of bird diversity. In particular these areas had species present that would not normally be found in a grassland community during the breeding season. For example, Red-winged Blackbirds were documented as probable breeders in area 5. Furthermore we found that Song Sparrows (a riparian obligate) had a relatively higher level of abundance in these plots. Nest searching studies would reveal if these areas were acting as population sinks for certain species. We observed Grasshopper Sparrows, a grasslands species, more often in plots containing fewer exotic species (areas 1, 2, and 6), suggesting this species is more dependent on native plant species. Furthermore, avian diversity increased from spring to summer in all plots except area 3. This increase in species could be attributed to the dispersal of hatch year birds.

Continued avian monitoring coupled with vegetation assessments are necessary to understand the relationship between exotic plant and bird species in the East Molera Grasslands. Because the levels of exotic plant species (both herbaceous and woody vegetation) appeared to vary significantly within each of the study plots, we feel it premature at this time to make further comparisons of bird use between plots.

To provide a more comprehensive analysis of how avian use relates to vegetation composition in the restoration area, we recommend the following actions.

- Area searches should be conducted for two full years prior to restoration activities, (e.g., fall and winter 2001, spring, summer, fall, and winter 2002). Additional bird surveys will enhance the data set and allow us to better evaluate the effectiveness of the restoration efforts.

- Area searches should be continued throughout the restoration period, followed by post-restoration monitoring for at least five years.

- Thorough habitat assessment, including vegetation structure and composition, should take place in all plots during each season and year that avian monitoring is conducted. Habitat assessments during each season are necessary to associate bird use with specific habitat types that differ between plots.

Literature Cited

Marzluff J.M. and R. Sallabanks. 1998. Avian conservation: research and management. Island Press, Washington D.C., 512 pp.

Ralph, C. J., G. R. Geupel, P. Pyle, T. E. Martin, and D. F. DeSante. 1993. Handbook of field methods for monitoring landbirds. Gen. Tech. Rep. PSW-GTR-144. Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture; 41 p.

Figure 1. Spring 2001 Area 1

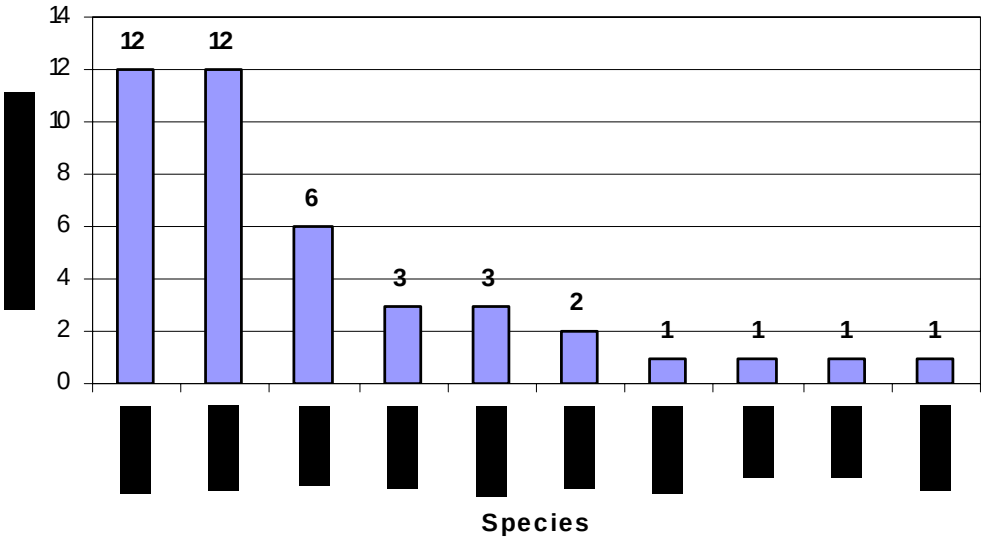


Figure 2. Summer 2001 Area 1

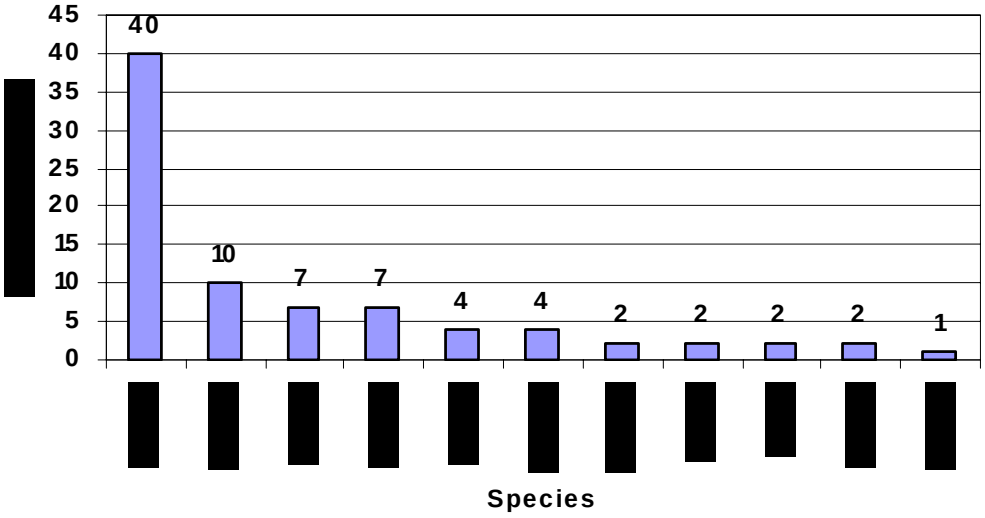


Figure 3. Spring 2001 Area 2

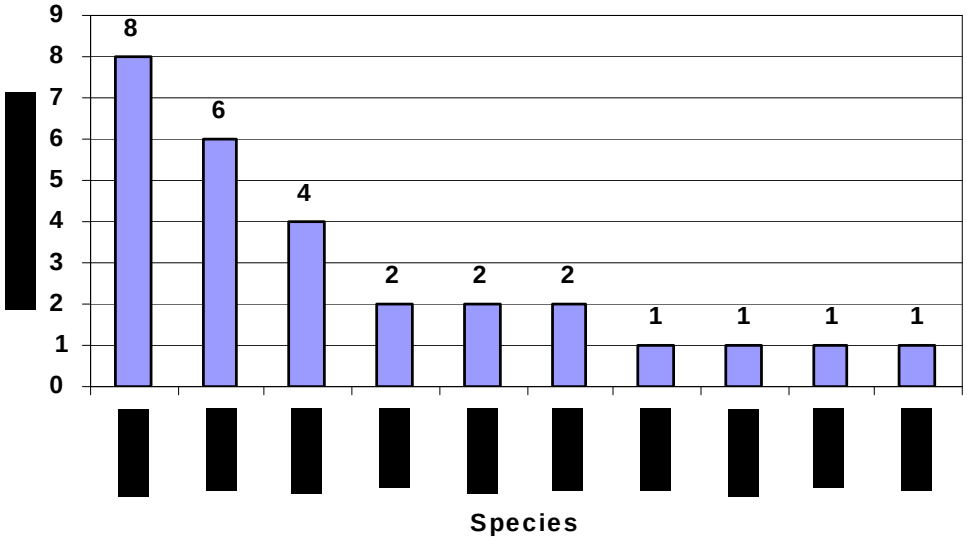


Figure 4. Summer 2001 Area 2

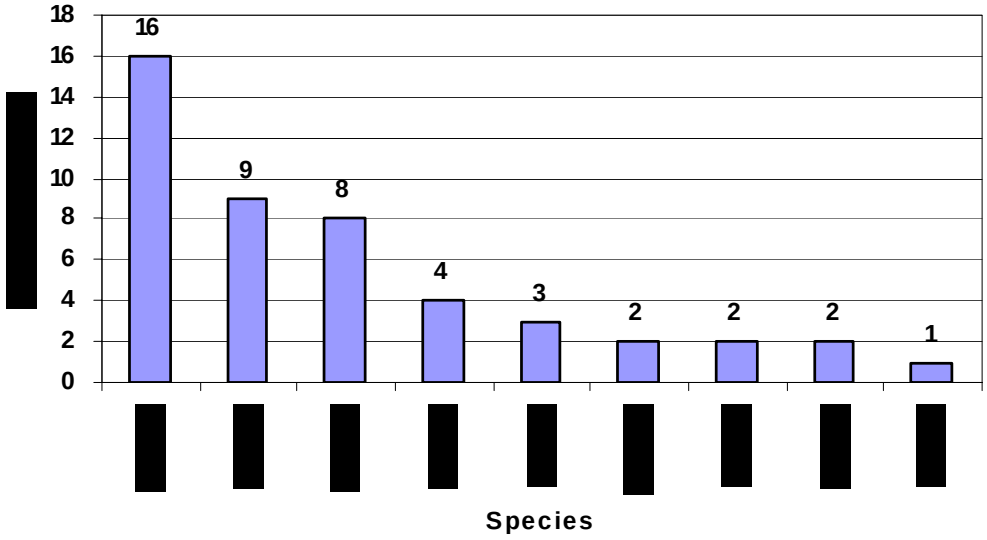
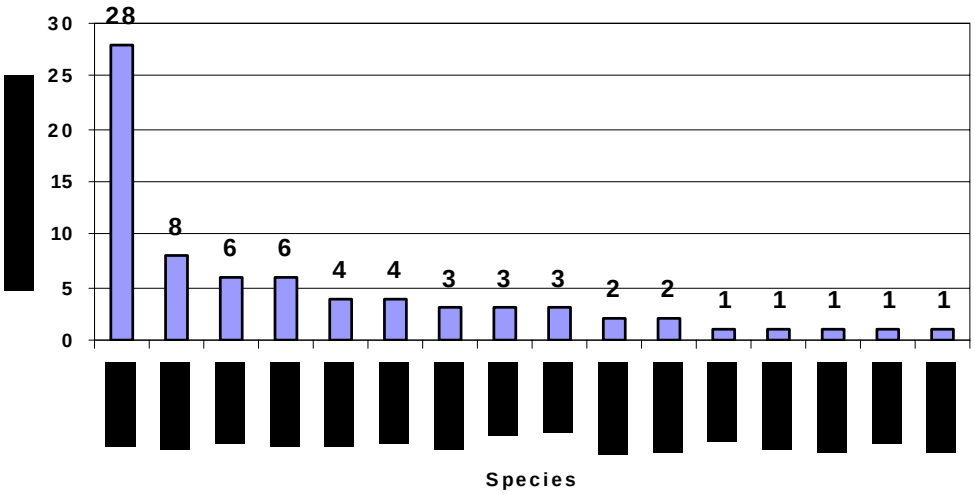


Figure 5. Spring 2001 Area 3



**Please note: See hard copy for Figures 6 – 12; Tables 1 – 7; Appendices 1 – 3.