

A long-term approach to abiotic and biotic monitoring was a cornerstone of CNLM's management of the Illa M. Collin Conservation Preserve. A properly designed monitoring program allows for observation of changes in community and species populations in response to changes in the environment over time. Long-term monitoring also provides a basis for evaluating the response of species and communities to the use of management tools. CNLM set up a monitoring program in 2017 and monitored annually 2017-2024. Continuing this monitoring program over time would allow the preserve manager to observe any continuing or emerging correlations between changes in vegetation composition and annual climatic conditions and for parsing of other responses to management actions or other changes, allowing for data-driven management decisions. The long-term monitoring program would provide information to inform the efficacy of management actions and a response to changes in management activities.

During 2024, CNLM continued to implement the management and monitoring programs that staff had initiated. Vernal pool tadpole shrimp (*Lepidurus packardii*) were observed in 12 of the sampled pools—the highest number of pools across the nine years during which CNLM had conducted monitoring. Western spadefoot (*Spea hammondi*) larvae were observed in one pool. Sacramento orcutt grass (*Orcuttia viscida*) was observed in the two selected monitoring pools where it has been known to occur and legenere (*Legenere limosa*) was observed in the five selected monitoring pools where it has been known to occur.



Orcutt Grass in 2024

Photo: C. Little

Management tools introduced by CNLM staff (e.g., grazing and prescribed fire) have reduced residual dry matter, priority invasive species, and non-native annual grass cover. By implementing these tools within an experimental frame—that of using both previous conditions in treatment areas and current conditions of comparable untreated areas—a powerful measure of the efficacy of weed treatments was provided. Further, use of these management tools reduced the amount of herbicide needed to treat invasive plant species. CNLM worked effectively with Sacramento Metropolitan Fire District (Sac Metro) to have three controlled burns in 2024 and three prescribed burns in previous years since 2017; and the County coordinated a burn in 2015. In general, eight years of vegetation monitoring provides evidence that prescribed burns help to control non-native grasses and benefit native species in the vernal pools.



Prescribed Burn, June 2024. Photo: A. Titus

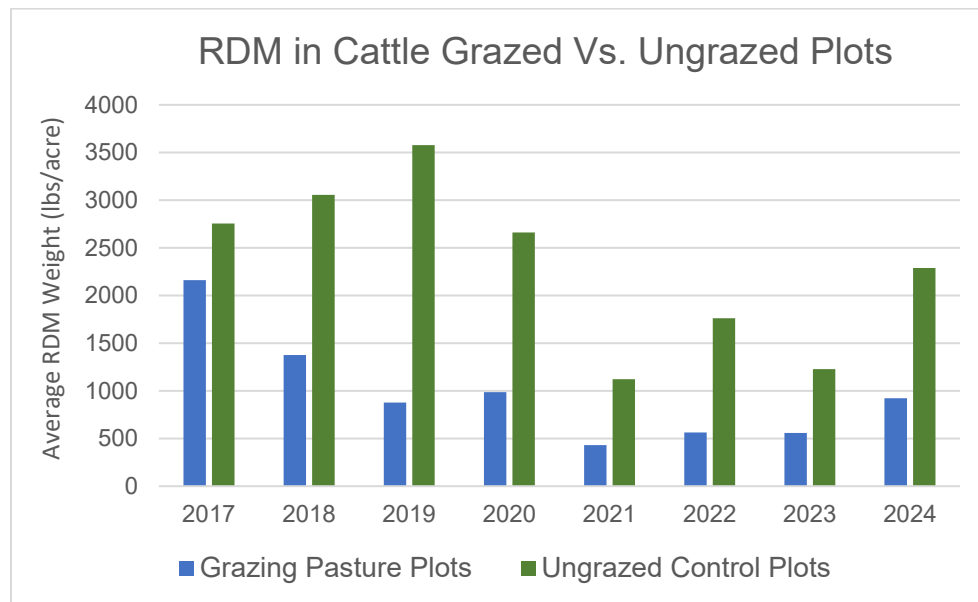
Initiation of a conservation-directed grazing program was commenced on the Preserve in 2017. The goals of this program were to:

- 1) reduce non-native annual grasses and associated thatch layer;
- 2) reduce the spread of invasive plant species and promote native forbs; and

3) improve vernal pool hydrology; and 4) avoid disruption of hydrology patterns, erosion, spreading invasive species, or reducing native plants in vernal pools or associated grasslands.

CNLM staff began planning the grazing program in 2017 – involving implementation of infrastructure and delivery of water, determination of appropriate areas for conservation-directed grazing, developing a relationship with a grazing operator, determining (grazing agreement) conditions, seeking approval by the wildlife regulatory agencies, fencing, providing an opportunity for the public—especially more local residents—to become accustomed to seeing cattle on site and address any questions, notifications to adjacent community, and determining an optimal stocking rate.

The pilot program for grazing was sufficiently tested for larger-scale implementation by 2021: no significant issues were identified, the value to conservation objectives was confirmed, and the program was well established with logistics, grazing operator relationship, grazing plans and protocols, and community considerations. For several years, CNLM recommended that the program be expanded as soon as possible to provide the conservation benefits and operational efficiencies of this vegetation management approach. The only limitations are fencing and other grazing infrastructure. Based on data collected, there is strong evidence that the conservation-directed grazing program initiated and managed by CNLM has reduced residual dry matter (RDM).



Average RDM weight in cattle grazed RDM plots compared to ungrazed control plots by year.

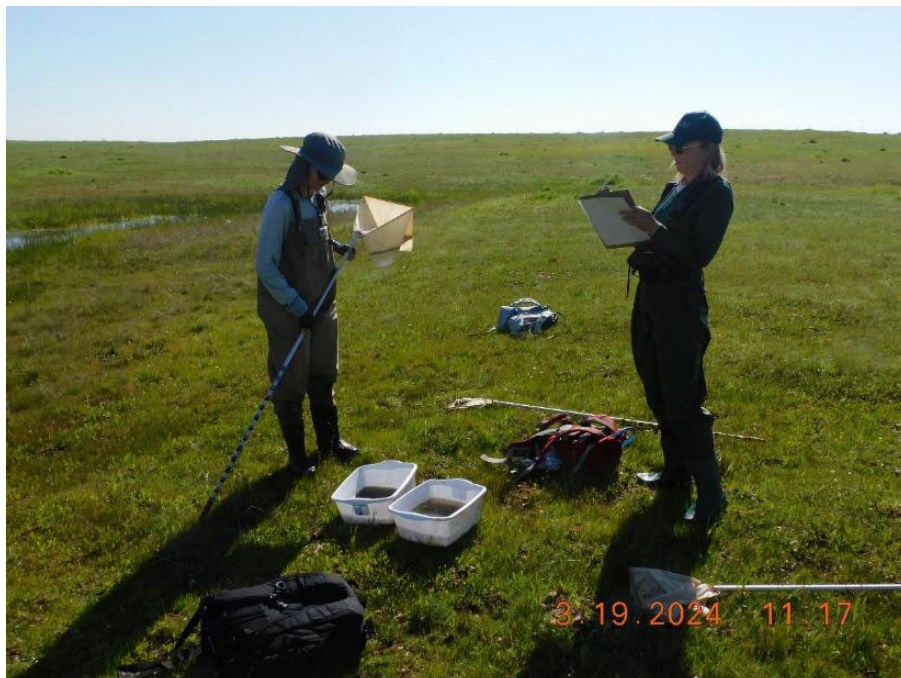


Cattle Grazing in 2024. Photo: A. Titus

Initiation of the grazing program included selecting the location of permanent plots to allow comparison of grazed and un-grazed areas. Monitoring activities in 2024 included vernal pool branchiopod, vegetation community, and RDM surveys within vernal pools and grasslands in grazed and ungrazed areas. Vernal pool vegetation composition monitoring conducted from 2017 to 2024 has shown that grazing helps control non-native annual grasses in the uplands and benefits native species within the vernal pools.



Vegetation Monitoring Plot. Photo: C. Little



**Vernal Pool
Branchiopod
Monitoring in 2024**

Photo: E. Gantenbein