

Cal-IPC News

Protecting California's Natural Areas from Wildland Weeds

Newsletter of the California Invasive Plant Council. www.cal-ipc.org



Weeds and wildlife

Pipevine swallowtail butterfly and native bee feeding on bull thistle (*Cirsium vulgare*) in Walnut Creek Open Space. Photo by Brian Murphy.



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• Yellow starthistle (*Centaurea solstitialis*) required multiple heavy grazing sessions late in the season to reduce seed production due to the plant's deep roots (Thompsen et al. 1993).

• McKell et al. (1966) found repeated defoliation of hardinggrass (*Phalaris aquatica*) during spring prior to dormancy could cause plant death. Fundamentally showing deep-rooted perennial plant control is possible using repeated defoliation as a strategy.

Exciting new research at the Sierra Foothill Research and Extension Center

led by the California Rangeland Watershed Laboratory is examining the long-term effects of four grazing treatments. The lab has completed the first year of implementing treatments of seven-month continuous grazing, four-month fall and spring grazing, four-month fall and spring targeted grazing, and winter-only grazing. The lab has implemented the project at a ranch scale (over 1200 acres, using over 360 cattle) and is monitoring multiple parameters including yearling cattle production, invasive and native plant responses, and other ecosystem responses.

It is important to note that the “target style” grazing strategies for weed control described above are not the only way that grazing can affect weed management. Any defoliation of weed plants has an impact on their subsequent seed production or the amount of thatch accumulated. Grazing can also have a positive effect on the reduction of fire fuel loads. A grazing strategy with a moderate continuous stocking rate does reduce weeds such as medusahead and starthistle when compared to non-grazed areas. With this grazing scheme it may be that effects are not seen on high rainfall years or years with significant late growing season rainfall, but effects may be seen during drought years or years with an early end to rainfall.

As stated earlier, grazing treatments rarely control the entire weed population. Rainfall's influence on a grazing treatment's “perfect” timing can cause success to vary from moderate to high between years. Because of this, grazing should be implemented only as a long-term weed management strategy. Such moderate single-season success in weed management can compound over years into drastically lower weed populations.

References

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Medusahead at the proper phenological stage to begin a targeted grazing treatment. Photo by Josh S. Davy

Impacts of native vs. exotic grassland vegetation

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[Abstract from poster presented at the 2013 Cal-IPC Symposium]

California's grasslands have been dominated by annual exotic grasses for the past 200-300 years. More recently, newer

invasive grasses have become prevalent, such as medusahead and barbed goatgrass. Control of these newer invasive grasses, or restoration of natives is not possible in all impacted areas, due to the broad extent of these invasions. Ecosystem services are a potential criteria to prioritize areas for restoration and weed control.

We planted plots consisting of three community types: naturalized exotic species (that have dominated California's grasslands for 200-300 years), invasive weeds (goatgrass and medusahead), and

native species (common mix of species used for restoration in California's Central Valley). After 3 years, we assessed the impacts of these vegetation types on multiple ecosystem services. When comparing natives to naturalized species, natives increased soil nitrogen availability, and were much better at suppressing invasive weeds. However, the naturalized species plots provided better erosion control, mitigation of soil compaction, water qual-

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ity, and soil water storage. This suggests that restoration of natives will be most beneficial in areas with high invasive weed pressure, but could be detrimental in areas where erosion, compaction, and water quality are of concern. Invasion of noxious rangeland weeds into the naturalized community did not enhance any ecosystem services, and greatly decreased palatable spring forage quantity. However, there is a tradeoff between invasive weeds and native species. Invasion of noxious weeds into native communities decreased spring forage availability and decreased soil nitrogen availability, but enhanced soil water storage, compaction alleviation and water quality. This suggests that sites that are less vulnerable to soil degradation would be best to prioritize for invasive weed control.

While the impacts of invasive grasses on California's flora are an important criterion for restoration and weed control, it is not possible to manage all invaded areas. Thus, prioritization of sites for management should consider that some of these invasive grasses are improving soil conditions and water quality.

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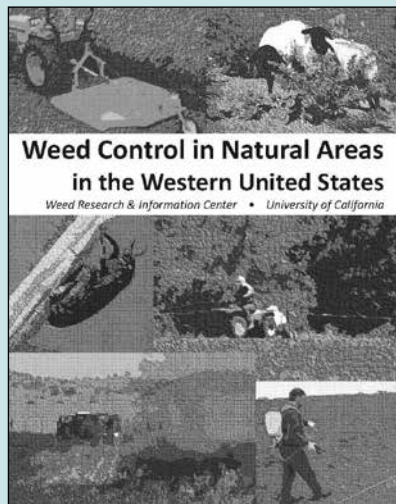
SERCAL

Weed Control in Natural Areas in the Western United States

Published in 2013 by the University of California's Weed Research and Information Center, with 15 contributing authors.

The manual presents detailed information on biology and control methods for 340 species found in thirteen western states. Includes tables summarizing chemical and non-chemical control options.

544 pages with photos.



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Wildland Weed News, cont'd...

Undergraduates help National Wildlife refuges. Eight universities including UC Santa Barbara participated in a combined seminar which compiled data on invasive plants in nearby refuges, including habitat richness and evenness, elevational range, native species diversity, refuge size, and the regional pool of invasive species. Results were combined for a continental-scale analysis. They found that patterns are highly variable among regions, suggesting that management strategies for invasive species are best formulated at the regional level. *Santa Barbara Independent*, August 22.

Does it matter whether a plant is native? Dr. Mark Davis of Macalester College and Dr. Daniel Simberloff of the University of Tennessee-Knoxville debated when, if, and how conservation biologists and managers should deal with non-native species. A recording of "Native and non-native species: How much attention should managers be paying to origins?" is available at distancelearning.fws.gov/players/con_sci.html.

Eucalyptus: friend or foe? The online science blog for KQED public radio in San Francisco describes the controversies surrounding removal of eucalyptus stands in the East Bay. blogs.kqed.org/science/2013/06/12/eucalyptus-california-icon-fire-hazard-and-invasive-species/