California Native Plant Society
2707 K Street, Suite 1, Sacramento, CA 95816-5130 (916) 447.2677 www.cnps.org

Protecting California's native flora since 1965

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POLICY ON INVASIVE PLANTS (PRI-96)

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Summary

Non-native invasive plants cause extensive harm to the environment and natural habitats. CNPS supports and encourages programs and activities that prevent and mitigate such harm.

Working Definitions

Native plant: any plant species (or infra-specific taxon, including but not limited to subspecies and variety) present at a site prior to European contact. These species may have since shifted location or genetic composition in response to environmental change without human involvement through natural processes such as seed dispersal, succession, and natural selection.[1]

Non-native[2] plant: a plant species (or infra-specific taxon, including but not limited to, subspecies and variety) that does not meet the above definition of native.

Invasive plant: a non-native plant species (or sub species or variety as above) that is able to proliferate, spread, and aggressively alter or displace native biological communities, causing harm to the environment, economic activities, or human health.

Recommendations

- CNPS urges all government agencies, non-governmental organizations, and individuals charged with land management to:
    - adopt and implement invasive plant management policies.

[1] This does not include new taxa created following hybridization with non-native plants introduced to an area, or natural dispersal of plants introduced by humans, post contact.
[2] Non-native plants are often referred to as "exotic" or "alien" plants.

    - coordinate with each other at all levels regarding non-native plant policy formulation and implementation.

    - publicize the need to prevent the spread of invasive plants.

    - adopt measures to prevent invasive plant species from being introduced into natural ecosystems.

    - implement invasive plant control measures in such a manner that native species and natural systems are not adversely affected.

    - adequately fund the control of invasive species.

- CNPS urges that all landscaping, mitigation, restoration, revegetation, and habitat/species recovery monitoring plans include provisions for identifying and managing non-native plants and for identifying no potential for damaging the genetic structure of local native plant populations.

- CNPS advocates for cooperative efforts to restrict introductions of invasive species from commercial sources, such as the agricultural, landscaping, and revegetation industries.

- CNPS supports providing information about the effects of invasive plants to environmental or outdoor education programs in schools.

- CNPS encourages chapters to work for adoption and implementation of invasive species policies and programs at the municipal and county levels and to raise local awareness regarding the problem.

- CNPS encourages supervised volunteer invasive plant removal.

Background (The following text is from 1996 with minor corrections to taxonomy, references, facts, punctuation, and terms):

The homogenization - blurring of distinctions - of the earth's flora and fauna and subsequent loss of biological diversity, is a problem of global significance that threatens livelihoods and engenders catastrophic ecological change. The threat posed to natural ecosystems by biological pollution - the introduction of non-native plants, animals and other organisms - is rivaled only by that of development and rapid climate change. The most aggressive non-native plants are unacceptable in natural areas because they can replace native plants; degrade, alter, or displace natural plant communities; promote faunal change; reduce biological diversity; disrupt ecosystem processes; alter fire frequencies; restrict economic return; reduce recreational values; threaten endangered species; and fundamentally alter the unique character and physiognomy of California.

1. With the possible exception of alpine and subalpine habitats, most areas of California contain significant expanses of non-native and invasive plants. To cite but a few of the most egregious examples:

   Vast areas of coastal dunes are occupied by iceplant (*Carpobrotus edulis*) and European beach grass (*Ammophila arenaria*), usually to the exclusion of other kinds of plant. They deprive other plants of moisture and nutrients scarce in this environment. Their value to wildlife is low. They alter wind patterns that sculpt the dunes, and they bind the dunes, preventing the natural disturbance required by some native species. Because coastal dunes support biological communities whose plant and animal inhabitants may exist nowhere else, their degradation represents a loss of biological diversity.

   Many-acre stands of pampas grass (*Cortaderia jubata* and *C. selloana*) and masses of German ivy (*Delairia odorata,* syn. *Senecio mikanioides*) appear discontinuously along the coast from the Oregon border into Baja California. German ivy forms thick blankets that cut off light and air to plants that it covers. Pampas grass is a robust six-foot-tall grass with sharp-edged leaves growing from a stout clump. Its aggressive root system outcompetes plants even much larger than itself. Tall plumes bearing many light seeds rise several feet beyond the leaves, dispersing seed great distances in the wind.

   About one tenth of California (including ten million acres of rangelands) has been invaded by yellow star thistle (*Centaurea solstitialis*; Maddox and Mayfield 1985). The plant is toxic to horses, and its stout spines render it inedible to sheep and cattle. Aside from its economic impacts, yellow star thistle increases roadside fire hazards and affects recreational values by invading campgrounds, lining trails, and reducing biodiversity.

   Brooms and gorse (*Cytisus, Genista,* and *Ulex* spp.) have usurped many biological communities in the coast ranges and Sierra foothills: grasslands (including pasture), scrub, coastal prairie, chaparral, and mixed evergreen forest. Brooms are highly flammable and especially common in wildland-urban interfaces. Seeds of all of them may be viable for decades, making reclamation of territory they occupy exceedingly difficult. Their ranges continue to expand.

   Giant reed grass (*Arundo donax*) and salt cedar (*Tamarix* spp.) have replaced riparian communities, especially in southern California, the Mojave Desert, and the San Joaquin Valley. Salt cedar can cause dramatic hydrologic changes, lowering water tables and drying up streams and seeps.

   Invasive annual grasses (e.g., *Aira, Avena, Bromus, Hordeum, Lolium, Schismus,* and *Festuca myuros*) and forbs (e.g., *Vicia* spp. and *Cirsium* spp.) have greatly altered the character of the remaining grasslands and deserts of California, replacing native bunchgrasses, and lessening spring and summer wildflower displays.

2. On federal lands alone, it is estimated that weeds are claiming 4600 acres every day and

dominate over 17 million acres in the western United States (BLM 1996) with similar expansions occurring in Canada and Mexico.

3. Control of invasive plants is expensive, and control expenses continue to escalate as the problem grows. The federal and state departments of agriculture, national and state park systems, and The Nature Conservancy devote large and increasing resources to efforts to control invasive plant species. Hundreds of grassroot groups selectively address the problem in specific areas, but their work is dwarfed by the magnitude of the overall problem.

4. Taxpayers have spent billions of dollars purchasing and protecting wildlands, which are now being lost due to invasion by non-native plants. In many cases these invasions - which will result in permanent, effectively irreversible damage - are allowed to proceed unopposed due to short-term budget considerations.

5. Economic return is reduced in areas dominated by invasive plants. For example, in addition to the above-cited California grazing lands degraded by the spread of yellow star thistle, a public agency was successfully sued by an adjacent landowner because yellow star thistle invasion rendered the home unsaleable.

6. Logged-over lands are frequently invaded by non-native plants such as pampas grass and brooms, which prevent establishment of seedling trees.

7. Biological control is expensive and time-consuming, but it is the most cost-effective remedy for controlling some of the most widespread invaders.

8. Rejmánek and Randall (1994) estimated 1,025 species (about 22%) of California's flora to be exotic. The estimate of exotic species increased to 1,045 by 1998 (Bossard et al. 2000) and to 1,800 by 2006 (Cal-IPC 2006). Sahara mustard (*Brassica tournefortii*), first documented in Coachella, California in 1927 (CISR 2024), has spread through southern California and now covers large areas of the Sonoran and Mojave deserts. Biologists consider it a threat to the desert tortoise. Undesirable plants continue to be introduced and spread. With increased international travel and trade, new accidental and intentional introductions will likely accelerate.

9. Ecosystem function is altered, often irreversibly, by exotic plant invasions. The introduction of Sahara mustard, red brome (*Bromus rubens*), cheat grass (*Bromus tectorum*) and other non-native grasses to the Mojave Desert has promoted unnatural fuel conditions and fire cycles that have become self-sustaining. Cheat grass causes similar impacts in rangelands throughout the Intermountain West (D'Antonio and Vitousek 1992). Smooth cordgrass (*Spartina alterniflora*) from eastern North America is changing sedimentation rates in open mud intertidal habitats (Josselyn et al. 1993). Other invasive plants have dramatic effects on hydrological regimes and nutrient cycling.

10. Invasive non-native plants modify wildlife habitat, altering the species composition, sometimes drastically. Riparian areas, which are crucial breeding and foraging areas for both common and endangered birds, have become dominated by giant reed grass and salt cedar. Many species of birds don't use stands of these species in part because they support few insects, so food supply for insectivorous birds is poor. Studies have shown that native birds prefer native woodlands dominated by oak rather than groves of introduced trees such as Tasmanian blue gum (*Eucalyptus globulus*; Morrison and Keane 1988).

11. Fire frequencies may be altered by invasive plants, reducing the ability of native plants to prosper and effecting conversion of vegetation type (e.g., from native chaparral to non-native grassland). Post-fire seeding with non-native grasses has been shown to increase the likelihood of premature reburn, thus promoting type conversion. This conversion often can lead to increased erosion. (California Native Plant Society 1995).

12. Invasive plants further threaten many already rare or endangered native plants by displacement of habitat. Examples of rare or endangered plants so threatened include Howell's spineflower (*Chorizanthe howellii*) and other dune endemics, diamond-petalled California poppy (*Eschscholzia rhombipetala*), large-flowered fiddleneck (*Amsinckia grandiflora*), Morro manzanita (*Arctostaphylos morroensis*), San Luis Obispo monardella (*Monardella frutescens*), and Nipomo Mesa lupine (*Lupinus nipomoensis*). At least 91 of the plants in CNPS' *Inventory of Rare and Endangered Vascular Plants of California* are threatened by invading exotics (Skinner and Pavlik 1994). Growing infestations of non-native species are likely to drive populations of native species so low as to require listing by state or federal agencies. An informal analysis by the California Department of Fish and Game found that 23% of California's 280 plant communities are heavily impacted by non-native plants, and another 28% are moderately threatened by them (Keeler-Wolf 1993).

13. Invasive plants may trap nearly all the energy flowing through the natural systems of the many areas where they have completely displaced indigenous plants, resulting in conversion from one vegetation type to another. This energy, instead of entering the food chain, is channeled into further proliferation by the invading plant, thus energizing the cycle. Land dominated by weeds has low biological value and is of little or no use to human societies. The land's ability to function in a biologically stable way is impaired.

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