

· California Native Plant Society ·
North Coast Chapter

Invasive Plants

& Pollinators

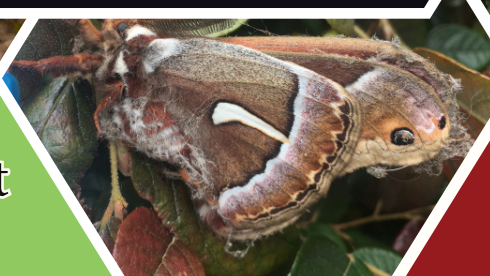
The California Native Plant Society (CNPS) North Coast Chapter aims to conserve California native plants in Humboldt County, Del Norte County, western Siskiyou and western Trinity counties.

Invasive plant management is necessary to protect the ecological biodiversity of native plant communities. Native plants serve as floral and larval host resources for pollinators. In order to conserve native plants, pollinators and their nesting sites must also be protected.

What does it mean to be an “invasive” plant species?

How do invasive plants affect pollinators?

Follow a fellow pollinator to find out!



What does it mean to be an “invasive” plant species?

The California Invasive Plant Council (CAL-IPC) describes an **invasive plant** as a species that is not native to a specific region and, once introduced, can establish quickly reproduce and spread, and cause harm to the environment, economy, or human health. Invasives are simply plants that are undesirable!



Often, when invasive plants are introduced into an area, they can threaten the biological diversity of native plant communities and cause ecological and economic damage to agricultural and wildland areas.

Don't be fooled by the beauty of invasive plants!

Research has shown that invasive plants can have an adverse impact on native plant communities, as well as the native plants that depend on them. Invasions may pose an ecological threat if they are not controlled.



The presence of invasives may or may not negatively impact pollinators; in cases where biological invasions displace native plants, the results are almost always negative.

Pollinators will visit invasive plants for nectar or pollen, and there are some pollinator species that have developed close mutualistic associations with specific plants species. If those plants are unable to thrive, pollinators essentially lose their habitat and access to important floral resources.

The effects of invasive plants on pollinator behavior are still being investigated.



Foxglove
(*Digitalis purpurea*)
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Continue reading to learn more about how invasive plants impact pollinators in various focus areas in the North Coast Chapter!





Coastal dunes

Coastal dune habitats are complemented by sand dunes deposited along the coast that are typically stabilized by a mosaic of vegetation that support an array of important pollinators.



One of the main culprits imposing adverse impacts on native pollinators in coastal dune habitat is the non-native *Ammophila arenaria* (European Beachgrass). This invasive perennial grows in clumps and blocks the movement of sand, creating steep dunes that reduce the amount of sand being blown to interior dunes.

The establishment of *Ammophila sp.* can displace native dune mat communities by reducing open sands, and often native plants cannot compete with the dense stands. The management practices for European beach grass are controversial because the plant is used to stabilize previously dynamic coastal dunes to protect adjacent neighborhoods from coastal flooding.

Many native solitary bees rely on areas of open sand in dune mat communities for nesting and for food and nest material resources. The introduced *Ammophila sp.* may reduce nesting areas for native bees because the plant grows densely and reduce open sands used for nesting.



European beach grass (*Ammophila arenaria*)

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Silver Digger bee (*Habropoda miserabilis*)



These once-common bees have been a rare sight over the last century due to invasive plant encroachment, but are now making a slow come-back due to sand dune habitat restoration. These bees enjoy feeding on native plant species found along the coast and burrowing into the sand to create their nests.



© 2011 Jillian Gorder

Pacific Wool Carder bee (*Anthidium palliventre*)

This genus (*Anthidium*) of bees makes their nests using a mix of mud, plant hairs, and conifer resin. These creative nests can be found in trees, walls, or in sand. These bees are often found feeding on the nectar of buckwheat and other coastal flowers.



© 2006 Stan Shebs

The plant *Phacelia argentea* (silvery phacelia) is an obligate out-croser, relying on pollination services to successfully set seed. (California rare plant rank 1B.1)



Coastal Bluffs

Coastal Bluff habitat is characterized by patchy grasslands and coastal scrub plant communities covering ridgetops within the marine layer.

Many native and non-native plants found along coastal bluffs can withstand powerful winds, full exposure to sun, fog and occasional winter storms. The establishment of resistant invasive plants may crowd out natives and alter plant composition.



The non-native Jubata grass (*Cortaderia jubata*) is a perennial that tends to establish in disturbed areas. It was introduced as a landscape ornamental and use for erosion control. It can quickly displace native plant species by spreading its lateral rhizomes; a single individual of Jubata grass unit can produce 100,000 seeds per plume!

Scotch Broom (*Cytisus scoparius*) is another infamous noxious weed introduced in North America in the early 1800's as an ornamental.



Scotch broom
(*Cytisus scoparius*)
© 2020 Karla Jovel

This plant can aggressively invade areas and outcompete native species for light and nutrients with its dense stands that are difficult to eradicate.

Many enlisted rare plants such as *Oenothera wolfii* (Wolf's evening primrose), *Polemonium carneum* (Oregon Jacobs Ladder), and *Castilleja affinis ssp. litoralis* (Oregon paintbrush), are reliant on coastal bluff habitat. Invasives can outcompete native plants and become favorable species for pollinators as their floral resources become widespread and available to pollinators; this further disrupts existing mutual associations between certain pollinators and specific plants that rely on pollination services.



Various pollinators
© 2020 Steven Krause

Wetlands

Wetland habitats are areas of land that are inundated by water, either salt or fresh, and generally include grasses, sedges, and forbs.

Saturated soils in seasonal and permanent wetlands can alter the chemical composition of the soil, resulting in anaerobic conditions. This determines what type of plants are able to grow in this environment, as well as the wildlife and pollinators that visit them!

Vegetation that grows in wetlands are emergent, floating or submerged plants, that offer complex floral resources and nesting habitats that many pollinators call home.



Yellow flag (*Iris pseudacorus*)
© 2019 USFS



Yellow flag, *Iris pseudacorus*, is an invasive that negatively affects *Menyanthes trifoliata*, the bog-bean by crowding out the natives at Dead Lake, in Tolowa Dunes State Park. This population of bog-bean is significant because it is an outlying population.



Bog bean (*Menyanthes trifoliata*)
© 2019 Chico Hiking Association

Many native bumblebees and bees, are attracted to bogbean's complex flowers. The flowers' rank smell attracts flies and beetles as well.

Wetlands can be prime pollination spots for various honey bees, which also benefit adjacent agricultural productions because healthy bee populations that help pollinate crops.



Honey Bee
© 2011 Bob Petterson



Native Skunk Cabbage
(*Lysichiton americanus*)
© 2020 Karla Jovel



Riparian

Riparian habitats are found along the banks of rivers, streams or any actively moving source of water. The dense growth and vegetation of a riparian area provides a good deal of shelter for pollinators, including thick herbaceous plants, shrubby thickets, and flowering trees.

Invasive species of concern in riparian habitats within the North Coast chapter include *Phalaris arundinacea* (Reed Canary grass). It can quickly establish in riparian corridors where its dense growth impedes the flow of water, leading to siltation. This results in a loss of habitat for native amphibians and salmonids, reducing biodiversity. Additionally, the spread of this weed can alter the composition and abundance of native plant communities that pollinators are dependent on.



Reed Canary grass
(*Phalaris arundinacea*)



There are many pollinators that are dependent on the various willows, perennial plants, and sedges that grow in in riparian habitats

Environmental factors influencing the spread of invasive plants in riparian habitat:

- Drought can displace natives by favoring drought tolerant annuals and other fast establishing weeds.
- Water can transport seeds downstream and induce the spread of invasive plants during hazardous floods.
- Increased levels of human activity facilitate the introduction of invasives.



Red-shouldered Ctenucha
(*Ctenucha multifaria*)
© 2020 Steven Krause

Various willows (*Salix ssp.*) that grow in riparian habitat, are insect pollinated, thus attracting an array of flying insects —which are important prey for birds, bats, and more.



There are many species of bees that rely on *Salix ssp.* for floral resources such as pollen and nectar.



Old-growth conifer forest

Old-growth conifer forests are composed of a mixture of young and older coniferous trees, shrubs and herbaceous plants typically characterized by a dense multistory structure.



Western Trillium
(*Trillium ovatum*)
© 2020 Karla Jovel

These complex interdependent systems function as a refuge for rare and endangered species, and support a plethora of native flora and fauna.

Pollinators such as carrion flies, beetles, fungus gnats, bumble bees, and the margined white butterfly are dependent on the wildflowers that thrive in these habitats.

During the early 1900's, commercial logging and land use changes in old-growth conifer forests resulted in major environmental problems including habitat destruction and increased erosion, which today continues to impose indirect effects on wildlife and pollinators.

Extensive tree removal encourages the establishment and spread of invasive plants that displace existing vegetation.

Particular invasive species of concern include non-native vines, such as *Hedera helix* (English ivy) and *Hedera hibernica* (Irish ivy).

These invasive woody perennials have escaped cultivation in many places along the coast and outcompete native species for light and nutrients because of their fast establishing rhizomes that are difficult to eradicate.



Examples of invasive species that negatively impact Old-growth conifer forest habitat:

- Three-cornered leek (*Allium triquetrum*)
- Shining geranium (*Geranium lucidum*)
- Herb Robert (*G. robertianum*)
- *Cotoneaster* spp.

English Ivy
(*Hedera helix*)
© 2020 Karla Jovel

Protecting Pollinators!

Ceanothus silkmoth
(*Hyalophora euryalus*)
© 2020 Karla Jovel

Here are ways you can help support native plant diversity as well as pollinator habitat in your community!

Avoid planting invasive species

Support pollinators by planting native species in your garden. Create a bee or butterfly garden to enhance pollinator habitat.

Help prevent the accidental spread of weeds

Be mindful when you explore natural areas and be aware of your impact. You may be introducing or possibly transporting invasive plants or seeds unknowingly.

Educate yourself about invasive weed management.

Take time to practice your plant identification skills! Learn all you can about common invasives in your community.

Control invasive plants in your home and neighborhood.

Weed out undesirable plants from your garden and around your property to reduce the risk of ecological invasions.

Useful Sources about Invasive Plants and Pollinators:

- California Native Plant Society – northcoastcnps.org
- California Invasive Plant Council – cal-ipc.org
- Cal Flora – calflora.org
- Butterflies and Moths of North America – butterfliesandmoths.org
- Bug Guide – bugguide.net/node/view/15740
- Redwood National and State Parks - <https://www.nps.gov/subjects/pollinators/photos.htm>

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*-Karla Jovel
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