



# Managing Invasive Plants



**A volunteer crew is hand digging dandelions along the gravel edge of the Denali Park Road as part of the work of the Exotic Plant Management Team.**

The weed-digging tool slips into the soil. The orange-vested volunteer wiggles the tool to make sure that when she plucks up the dandelion, the entire taproot comes with it. Working on the roadside in Denali National Park and Preserve, she adds it to the bag that is getting heavier with the weight of non-native plants being removed. With limited time, the exotic plant volunteers divide their efforts between pulling dandelions and trying to eradicate or limit the spread of other non-native plants that are more invasive.

## **Non-native plants in Denali**

Denali has relatively few non-native plant species (28), when compared with more than 760 native plant species. In contrast, many parks and other natural areas in the Lower 48 have hundreds of non-native species (e.g., Yellowstone has more than 200).

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## *When is a guest a pest?*

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At this point, most of Denali's six million acres are unaffected by non-native plants, because those species are found currently only in the human-disturbed footprint of the park (entrance area, road corridor, construction sites). Of the non-native species found in Denali as of 2012, some are agricultural weeds which lack the ability to invade native habitats (e.g., pineapple weed *Matricaria discoidea*). Others are successfully being controlled by hand pulling. Thus, park managers have an opportunity to keep out these unwanted invaders and help keep native ecosystems functioning without

adding exotic species to the ecological challenges posed by a changing climate.

## **The nature of invasive plants**

The non-native plants in Denali are outside their native geographic range, introduced to a new environment by people. These plants have arrived at the park inadvertently—spreading along the railroad and road corridors, clinging to the mud of cars, buses, and construction equipment, or hidden within gravel or soil deliveries for maintenance projects.

Some of the non-native plants that have arrived in Denali, or could arrive in Denali in the near future, tend to be invasive. Invasive plants grow rapidly and escape beyond where they first arrive. These plants tend to have robust vegetative growth, abundant seed production, high seed germination, and high longevity of seeds in the soil. Invasive “weeds” often crowd out native species, and may destroy food sources or habitat for native wildlife.

## **Denali's Exotic Plant Management Team**

The National Park Service coordinates 16 Exotic Plant Management Teams (EPMTs) rotating among 225 national parks. In Denali, the team consists of the park's invasive plant coordinator and one or more Student Conservation Association interns; it works exclusively in Denali.



native dandelion



non-native dandelion

Denali's five species of native dandelions (top photo) have shorter, narrower leaves clustered closer to the ground, compared to the non-native dandelion (bottom photo). In addition, the bracts (leaf-like structures under the flower head) of native species cup the flowers, while on the non-native species, these bracts point down.

Denali's five "most wanted" invasive plants.

Each summer, the team tracks the location and extent of infestations of invasive plants—in or near the park—using Global Positioning System (GPS) mapping devices. The team prioritizes its work on invasive plants based on the extent of the invasion (known from the mapping) and the level of threat the invasive species poses to native species (based on an index score previously assigned to each Alaska invasive plant). Denali's EPMT operates using "early detection and rapid response," meaning that the team would try to eradicate a small patch of an invasive species with a high index score (e.g., bird vetch) before tackling a larger infestation of a less invasive species (e.g., dandelion).

Denali's EPMT controls infestations in the park by hand pulling the plants or using hand-held weed-digging tools, because most invasive plants quickly recover from being cut or mown. While chemical treatments now are allowed within the park, in such a pristine environment, chemicals are used only on a small scale to treat the most invasive plants.

#### Natives and invaders: the dandelion story

There are nine native dandelion species in Alaska (five in Denali). They differ in several ways from the non-native species (see photos at left). The non-native dandelion (*Taraxacum officinale*) is the most prevalent non-native species in the park. Each plant disperses up to 200 windborne seeds. It grows in disturbed areas along the park road, but thus far hasn't shown any ability to invade native habitats. With the help of volunteers, the control efforts focus on keeping the infestation from spreading beyond the Savage River (Mile 15). Hundreds of pounds of dandelions are removed by digging each year.

#### Keeping an eye on invasive plants in Denali

The five species pictured and described below are the highest-priority targets for eradication.

Here are ways to assist the EPMT in identifying new invasives and in preventing the spread of invasives that have arrived in Denali.

- Before travel to Denali, wash vehicles and pay attention to wheelwells, where clumps of mud can be temporary homes for invasive plant seeds.
- Before backpacking, examine boots, tent, jacket, and other gear for seeds that might be clinging to fabric or leather. Pick or brush off the seeds and discard them in the garbage.
- Keep an eye out for Denali's five most invasive plants—review the species below—along the roadside, at bus stops, on the trails, and in the backcountry. Report to a ranger what might be a new infestation by taking photographs and noting the location, so the EPMT can investigate further.

Continued vigilance by the EPMT will ensure that the team can continue to eradicate or control Denali's non-native plants, and help maintain the park's unspoiled character.

#### For more information

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#### Narrowleaf Hawksbeard

(*Crepis tectorum*) sends up a flowering stalk from a rosette of leaves. Several small yellow flowers on each stalk produce 50,000 seeds. This plant tagged along in soil brought into the park for a construction project, and is currently prevalent along the park road near the Wilderness Access Center.



#### White Sweetclover

(*Melilotus alba*) has small, white, fragrant flowers. Bees are attracted to these flowers and thus do not pollinate native plants. Each plant can produce up to 350,000 seeds, each of which can lie dormant for as long as 80 years, waiting for the right conditions to sprout. Found in small patches along the park road.



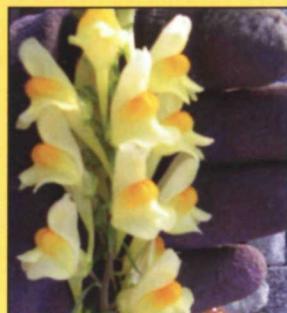
#### Bird Vetch (*Vicia cracca*)

is a fast-growing plant that can shade and choke native vegetation (the curling tendrils at the end of each stalk can cling to native plants). Bird Vetch was planted in Fairbanks as a forage crop. In the park, this plant is present in six small infestations near the paved portion of the park road.



#### Yellow Toadflax (*Linaria vulgaris*)

has a yellow and orange snapdragon-like flower (1,500 to 30,000 seeds per plant). Toadflax sends a hefty taproot nearly 3 feet (1 meter) into the soil, pulling up moisture and nutrients more efficiently than native plants. In Denali, this ornamental arrived from Anchorage and is found at the railroad tracks.



#### Scentless False Mayweed

(*Tripleurospermum perforata*) is the only plant in Denali with daisy-like flowers. Mayweed has an extensive root system that can reduce available moisture for native plants. This invasive reproduces only by seed, but is prolific in seed production. In Denali, False Mayweed is found only at the railroad tracks.

