

Nonnatives, Invasives, Weeds

Plants as stories of human meddling

The wording of this article has been adjusted to a 7-8th grade reading level. Andrea Barbknecht of the Wyoming Wildlife Federation made the revisions as part of the organization's curricula to engage kids in exploring their Wyoming landscape.

The original article, written by Bonnie Heidel for Western Confluence magazine, can be found [here](#).



By Bonnie Heidel (May 2020)

The Wyoming count for the plant kingdom is out! There are over 2,900 plants growing wild in Wyoming. The 2018 count of plants was conducted by experts at the University of Wyoming's Rocky Mountain Herbarium. The plants include more than 2,500 **native** species along with 372 nonnative ones. Every single wild plant falls into one of those two categories: native or nonnative. Native plants belong in an ecosystem. They belong not only because they live in Wyoming, but because **adaptations** to Wyoming conditions are coded in their genes. They are uniquely adapted to their environment and to each other.

What about the nonnatives? They don't have the fine-tuned adaptations or have an ecological role like natives. Some, but not

all, nonnative plants are invasive. An invasive species is like a biological bomb. They multiply across the landscape, wreaking havoc on native plants and animals. People today often think of natives as "good" and nonnatives as "bad." That hasn't always been the case. In fact, the Wyoming plant census, with all its nonnatives, is full of stories. They tell about how changing human ideas of good and bad have shaped the plant life of our state.

Waves of nonnative plants started showing up on Wyoming landscapes well over 100 years ago. New invasions have continued right up to the present. The plant count never stays the same. One of the earliest weeds to arrive in Wyoming was Canada thistle (*Cirsium arvense*). It first appeared in

Cheyenne in 1901. One of the more recent noxious weeds to arrive was garlic mustard (*Alliaria petiolata*). It was first found in 2014 along a trail in Devil's Tower National Monument. Garlic mustard is highly invasive in most of the country. The National Park Service is trying to eradicate it from the monument. The 100-plus years of nonnative species arrivals include tales of human plans and accidents, international travel, and a few contradictions.

Some nonnative plants that were once considered desirable are now known as invasive. For example, spotted knapweed (*Centaurea maculosa*) came from central Europe. It first arrived in British Columbia in North America. Beekeepers in western Montana planted it because its nectar made tasty honey. Without natural controls though, spotted knapweed spreads widely and quickly. It is recognized as a noxious weed in Wyoming and 15 other states.

Settlers also brought Russian olive (*Elaeagnus angustifolia*), a hardy tree found in southern Europe and central and western Asia. It was brought to the New World for windbreaks in the arid West. It is very fragrant—Thermopolis is filled with the sweet smell when it blooms in midsummer. Some birds and small mammals like the seeds and carry them far and wide. Now the aggressive Russian olives have crowded out other species in rare river woodlands. The changes make these low elevation habitats less welcoming for wildlife and livestock. Wyoming added Russian olive to the state noxious weed list in 2007. It is now illegal to sell commercially. A similarly sweet-smelling relative called silverberry (*Elaeagnus commutata*) is a native shrub. It

is starting to show up at plant nurseries that feature native plants.

Other plants were accidental introductions. Canada thistle (*Cirsium arvense*) was likely one of the first weeds early settlers brought to North America. It came as a contaminant of grain crops from the Mediterranean region of Europe. The name Canada thistle comes from early residents of New England who blamed its appearance on French traders from Canada. It's time to forgive Canada! Historians now believe it arrived in both countries at about the same time. Today, it grows in moisture rich places in every county in Wyoming. It grows in ditches, dams, valleys, and wetlands. It spreads by underground root-like stems, often forming large, dense colonies.

Sometimes our efforts to control invasive plants harm native plants as well. To control invasive musk thistle (*Carduus nutans*), weed managers imported Eurasian flowerhead weevil (*Rhinocyllus conicus*) from Europe. The weevil is a natural pest of the thistle where it is native. Weevil larvae feed on developing seeds in the musk thistle flowerhead. The [biocontrol](#) strategy succeeded in turning around severe musk thistle invasions. However, recent studies suggest the weevil has developed a taste for the rare native Ownbey's thistle (*Cirsium ownbeyi*). Like invasive plants, the Eurasian flowerhead weevil didn't behave in a predictable way in a new ecosystem.

Fortunately, not all nonnative plants are invasive. Crested wheatgrass (*Agropyron cristatum*) is a bunchgrass from Russia. It is widely planted in the western United States to control erosion. It is abundant in patches

in every county in Wyoming. Although it grows and thrives where it is planted, it doesn't spread to other areas. Another example is the common lilac (*Syringa vulgaris*), a sweet flower often planted around houses. It can be found long after these places are abandoned, but does not spread to the wild.

Native plants are never truly invasive in Wyoming ecosystems. They can be pesky for human tastes and uses, though. Skeletonleaf bursage (*Ambrosia tomentosa*) is the best example in Wyoming. It is the only native species on the Wyoming noxious weeds list. It is on the list because it produces spiny bur like seeds and grows in disturbed areas like crop fields. It spreads by seeds and creeping roots and can grow waist high. It is widespread on the high plains. As a noxious weed, skeletonleaf bursage is the target of state funded herbicide spraying. Despite efforts to

eliminate it, this species still grows on cropland and rangeland across the state.

The word weed is used for both native and nonnative plants that people find pesky. For example, every kind of milkweed growing wild in Wyoming is actually native. These plants may be called weeds because they grow well where people have disturbed the soil or because they are poisonous to people and livestock. Showy milkweed (*Asclepias speciosa*) grows in wetlands and valleys in eastern Wyoming as well as meadows and roadsides. Recently, we have started to appreciate these plants as food for butterflies.

The many stories of humans moving plants around and later changing their minds show that good and bad are not simple. When it comes to understanding invasive plants in Wyoming, it is important to understand that humans brought them here in the first place.

Glossary

Native A species that normally lives and thrives in a particular ecosystem

Adaptation The evolutionary mechanism by which populations of organisms adjust to new environments or to changes in their current environment

Biocontrol The control of a pest by the introduction of a natural enemy or predator