



Of Wildflowers and Weeds

by
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Wildflower meadows in Alaska have generated a lot of interest lately from homeowners, commercial businesses and public agencies interested in planting wildflowers. A reader in Denver, Colorado wrote to us expressing concern about two of our recommended wildflowers: wild chamomile, *Tripleurospermum inodorum* and dame's rocket, *Hesperis matronalis*. Both of these species apparently have become naturalized in the Denver area, and in some locations, have run amok. The reader cautioned against using these species lest they do the same thing in Alaska.

Although we have not seen any invasive habit in these species at the Garden, we take this reader's cautions very seriously. Each plant we test is observed for growth habit and the potential to become invasive. We are not interested in contributing to the biodiversity of Alaska's natural vegetation, rather in promoting ornamental plants that will grow in cultivated settings without harming the natural surroundings.

Through the years, the Experiment Station has conducted many trials on introduced plant materials. Some are ornamentals, while others are potential animal forage crops or agronomic crops for human consumption. Some of these introductions have spread beyond the boundaries of the experiment farm. One only has to drive by the farm in mid summer to see the very large patches of brilliant purple vetch (*Vicia cracca*) and yellow-flowered alfalfa (*Medicago falcata*) that carpet the roadsides. The alfalfa is a very slow spreader, but the vetch can be found all around the Fairbanks area. This is due, in part to the plant's natural spread, and also to gardeners who take seeds home because they like the flower color. Yellow and white sweet clover (*Melilotus officinalis* and *M. alba*) have spread beyond the farm fields, but these species also have been planted along roadsides by the Department of Transportation along with alsike clover (*Trifolium repens*) and red clover (*Trifolium pratense*).

Many of these weeds and wildflowers got their start years ago. Homesteaders imported grasses or grains from the "lower 48" and weed seeds would come along for a free ride. I have such a weed in my front yard. My property once was a homestead that was cleared in the 1950s. It had the normal accoutrements of a homestead: junk piled from one property line to the other, 5 silted-in deluxe sedans, two dumpsters (full, of course), engine parts, and buried in my future garden site, a pile of bones and cowboy boots!

The part of our property adjacent a state-maintained road was devoid of trees, a space just crying out for a bit of landscaping. Eight years ago, we tilled part of the land and it sprang to life almost immediately with a tiny little weed called purple sand-spurry (*Spergularia rubra*) we had never seen before. A quick look in Anderson's *Flora of Alaska*, and we learned that this spurry is an introduced European weed that occurs on disturbed sites in coastal Alaska and Fairbanks. The spurry formed tiny mats of light green foliage and beautiful pinkish flowers that closed every evening. I would have thought it was downright pretty if it didn't proceed to take over my whole front yard and driveway. It spread in waves wherever my tiller disturbed the soil.

After three years of this invasion, the plant began to disappear as rapidly as it appeared. Today, we see only an occasional plant where the soils are disturbed. No doubt there is a wealth of seeds buried in the soil that are just waiting for the next swipe with the tiller, and another massive bloom will ensue. This land hadn't been cultivated since at least the early 1970s, so the seeds remained dormant for nearly 20 years.

It is easy to see why this spurry got carried along with the homesteader's intended crop. It would thrive in soils that are tilled each year. It is even more interesting that the seeds lasted as long as they did. It showed me that regardless of the fact that I think we are ever vigilant for invasive weedy plants, they may lie dormant for years before re-appearing. Only constant vigilance for many years will help us avoid unintentional additions to our natural landscape.

Weed scientist, Dr. Jeff Conn, scoffs at my surprise of the seed longevity. Jeff has been conducting a 50-year experiment

since 1984 in which he buried weed seeds in mesh bags near the Garden. He digs up some of the bags at 5-year intervals and attempts to germinate them. In 1994, he found that seed viability dropped significantly between the 5- and 10-year harvest dates, but there were still plenty of weed seeds around. Despite the low percentages listed in Table 1, we all know it takes only one viable chickweed seed to start an invasion!

Table 1. Survival of weed seeds buried for 10 years in agricultural soils at the Agricultural and Forestry Experiment Station, Fairbanks.*
Weeds that did not germinate after 10 years
Common hempnettle (<i>Galeopsis tetahit</i>)
Quackgrass (<i>Elytrigia repens</i>)
Wild oats (<i>Avena Fatua</i>)
Foxtail barley (<i>Hordeum jubatum</i>)
Weeds that showed less than 1 percent viability after 10 years
Bluejoint reedgrass (<i>Calamagrostis canadensis</i>)
Corn spurry (<i>Spergula arvensis</i>)
Pineappleweed (<i>Matricaria matricarioides</i>)
Knotweed (<i>Polygonum aviculare</i>)
Wild buckwheat (<i>Polygonum convolvulus</i>)
Weeds that showed from 2 to 5 percent viability after 10 years
Chickweed (<i>Stellaria media</i>)
Lambsquarters (<i>Chenopodium album</i>)
Flixweed (<i>Descurainia sophia</i>)
Pennsylvania smartweed (<i>Polygonum pennsylvanicum</i>)
Rough cinquefoil (<i>Potentilla norvegica</i>)
March yellowcress (<i>Rorippa islandica</i>)
Shepherd's purse (<i>Capsella bursa-pastoris</i>)
Weeds that showed more than 50 percent viability after 10 years
Dragonhead mint (<i>Dracocephalum parviflorum</i>)
*From: Conn, J.S. and R.E. Deck. 1995 <i>Weed Science</i> 43:583-585.

Originally published in Georgeson Botanical Garden
Review Vol. 5, No. 3, 1996

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