

ANOTHER CRUCIFEROUS WEED ESTABLISHES ITSELF IN NORTH AMERICA¹

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The Cruciferae is one of the plant families that has contributed a disproportionate number of introduced weedy species to the flora of North America. Many of these are of European origin but others came from North Africa, the Middle East and parts of Asia. In fact, the exact origin of most weedy crucifers now established in our flora cannot be ascertained. But the extent to which members of this family occupy vast territories once the haven of only native species is a cause for concern and regret. That these weeds occur in old fields and waste places is one thing but the many square miles of open desert in Utah and Nevada covered by *Sisymbrium altissimum* L. or the thousands of acres of the eastern Mohave Desert of California to Arizona with nearly a continuous stand of *Sisymbrium irio* L. are unwanted sights. I remember my first encounter with *Malcolmia africana* (L.) R. Br. in western Colorado in the year 1938. At that time, the species was scarcely known outside of the Salt Lake Valley in Utah, but now it is everywhere on the sheep ranges of western United States. *Chorispora tenella* (Pall.) DC. is another introduction whose geographic range has burgeoned in the past twenty years. Although widespread elsewhere in the west, it has found the western plains a particularly hospitable region in which to proliferate. Nearly forty years ago (Rollins, Contrib. Dudl. Herb. 3: 183, 1941), I reported the first known North American station for *Alyssum desertorum* Stapf, a species now widespread in the Intermountain West. *Alyssum alyssoides* L. has been around a long time and is common in old fields and waste places (as well as range-lands) all across the United States and southern Canada. Relative newcomers in this genus, *Alyssum minus* (L.) Rothm. and *Alyssum szowitzianum* Fisch. & Meyer are presently more restricted in their distribution in North America but they are spreading rapidly.

Although some of the annual species of the Cruciferae are difficult to control, especially in grainfields, gardens, etc., the real noxious members of this family are the perennials. For example, such species as *Cardaria draba* (L.) Desv., *C. pubescens* (Meyer) Jarm., *Rorippa sylvestris* (L.) Bess., and *Lepidium latifolium* L. are nearly impossible to clear out of irrigated lands once they get well-established. Therefore, it is with some alarm that I report a recently introduced perennial member of the mustard family. The comparative newcomer is *Brassica elongata* Ehrh. This species has turned up in a number of sites in eastern Nevada, particularly along U.S. Highway 50. The danger is

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that the species will spread into the open desert where it could displace some of the native vegetation. A list of the localities where it has been found is given below.

Brassica elongata was brought to my attention by a specimen sent for determination by Mr. Sherel Goodrich (no. 8387) collected along Highway 50 about 50 miles east of Austin, Eureka County, Nevada, July 7, 1977. A search in the Gray Herbarium turned up a specimen misidentified as *Thelypodium* which was collected 13 miles west of Pancake Summit between Eureka and Ely, White Pine County, Sept. 2, 1968, by John Thomas Howell and Gordon H. True, their no. 44609. This appears to be the first record for the infestation in eastern Nevada but older specimens collected on ballast at Linnton, near Portland, Oregon, Sept. 2 and Nov. 3, 1911, *Wilhelm N. Suksdorf 1704 and 1749* (GH) shows that the species came to North America at least once at a much earlier time. It is probable, as with many plants introduced on ballast, that *B. elongata* did not persist where Suksdorf first found it. At least, the species has not been recognized as part of the adventive flora of northwestern United States (Hitchcock and Cronquist, Fl. Pac. NW. 156, 1973). It is doubtful whether there is any connection between the Oregon introduction and that of Nevada. However, the source of the latter is not determinable at this time.

Following is a listing of more recent collections of *Brassica elongata*, all from Nevada. Eureka County: 26.6 miles west of Eureka, June 12, 1979, *Reed C. and Kathryn W. Rollins 79216* (GH, duplicates to be distributed). White Pine County: 2.5 miles south of junction of highways 50 and 93, roadcut near KOA campground, June 28, 1978, *Margaret J. Williams 78-164* (GH); same locality, June 25, 1979, *Margaret J. Williams 79-97, Laurie Birdsey and Arnold Tiehm* (GH); 12.1 miles east of Eureka, June 12, 1979, *Reed C. and Kathryn W. Rollins 79215* (GH, duplicates to be distributed); 36.6 miles east of Eureka, June 12, 1979, *Reed C. and Kathryn W. Rollins 79214* (GH, duplicates to be distributed); 30.2 road miles east of Eureka on Highway 50, near turn to Belmont Mine, June 28, 1979, *Arnold Tiehm 5348, Laurie Birdsey and Margaret J. Williams* (GH).

Brassica elongata is a deep-rooted fleshy perennial with numerous branches beginning just above the base and extending to the top of individual plants. Usually several main stems arise from a single root. The branches diverge at a wide angle and each is divided into many smaller branches which ultimately bear inflorescences of many flowers with yellow buds and bright yellow to orange-yellow petals. As the fruits mature, the infructescences become elongated including numerous siliques on straight divaricately ascending pedicels. It is clear that the individual plants are heavy seed producers and the possibility for rapid and continued spread is a feature of the plant.

Many patches of *Brassica elongata* were seen by the roadside (sometimes extending away from the road into the open desert) at intervals both east and west of Eureka for a distance of more than 100 miles. The species is obviously well-established and unless it is eradicated soon, an infestation of much larger proportions could easily take place.

According to Flora Europaea (Tutin et al., Fl. Eur. 1: 336, 1964), there are two subspecies of *Brassica elongata* based primarily on leaf form. Plants with somewhat divided leaves are most common in the western portion of the species range which could be characterized as southeastern Europe. Subspecies *elongata* was originally described from Hungary. It is subspecies *integrifolia* (Boiss.) Breistr. which has entire or nearly entire leaves that has become weedy in Nevada. This subspecies is native to the eastern part of the range of the species as a whole and is found in southern Russia, the Ukraine and extends southward to include at least Turkey and Iran. Both subspecies have become weedy even in their native areas where they are often found in fields and waste places. Each has been introduced elsewhere, as wasteland, roadside or field weeds, particularly in the Eastern Hemisphere.



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