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THREE CALIFORNIA NATIVES FOR GARDENS

GLORIA R. CAMPBELL*

BAILEYA MULTIRADIATA HARV. & Gray

An herb which has proved its worth by its welcome late-summer flowers when there is usually little color in the garden is *Baileya*. This attractive yellow-flowered and gray-foliaged member of the Aster Family is almost lacking in horticultural history. The city of San Marino has used it with pleasing results many years and it has also been grown successfully for several years at the Santa Barbara Botanic Garden.

The genus *Baileya* is represented by three species in the Colorado and Mojave deserts of California. *Baileya pauciradiata*, as the name suggests, has few ray flowers, usually only from 5 to 10, and the flower color of this species is a rather light yellow. *Baileya multiradiata* and *B. pleniradiata* are much alike, but the flowers of the former are borne on long, quite naked peduncles, bringing the flower-heads from 6-20 inches above the ground and also making them desirable as cut flowers. In *B. pleniradiata* the peduncles range from only slightly more than an inch to 8 inches in length. These two species have very attractive deep yellow heads with a double row of from 20 to 50 ray flowers. All three species have been grown at the Botanic Garden, however *B. multiradiata* which has been grown here since 1935 seems to be the most worthy of cultivation of these three.

Densely grayish-woolly, 6-20 inches tall, annual or perennial, few to many erect or nearly erect stems from base; leaves mostly near the base, pinnatifid, alternate, the few upper are few-toothed or entire; heads solitary, 1-1¾ inches broad, radiate, peduncles 6-18 inches long, involucre up to ½ inch high, bracts numerous, distinct, very woolly, lightly 3-nerved; ray flowers 20-50, pistillate, about ½ inch long, extended and bright yellow when young, becoming lighter in color, papery and reflexed in age; disc flowers numerous, yellow, perfect and fertile, teeth of corolla densely bearded on backs, style branches short, obtuse, inserted, achenes clavate to oblong, truncate with slight apical tooth, glabrous; pappus absent.

This plant occurs on sunny, rocky slopes and mesas, in the eastern Mojave Desert, east to Utah and Texas and south to Mexico at altitudes from 3500 to 5500 feet.

Plants of *B. multiradiata* from seed sown in March or April in warm, dry areas have flowered at the Garden within ten weeks. A rocky or sandy soil proves most favorable for this desert species. At the Botanic Garden it has been grown in heavy soil, but the plants were short-lived under this condition and were very subject to crown-rot. The seed can also be sown in late June

*Rancho Santa Ana Botanic Garden.

or in July if provided with occasional irrigation in areas where summer rainfall is absent. Planting in these summer months gives welcome late summer and early fall blooms. *B. multiradiata* seeds have been sown in flats in the nursery and in rows in the Garden in the winter, but planting at this time resulted in very poor germination. In the Botanic Garden *B. multiradiata* volunteers in several rocky areas where there is an abundance of sunshine, and flowers can be found on these plants at almost any time of the year with the exception of the coldest, wettest period of the winter. An infrequent, light irrigation and occasional trimming of the old flower heads will help to increase the length of the blooming season which can be expected to last two to four months. Bailey should be treated as an annual in the garden.

To supply a beautiful display of gold and gray in sunny border or bed, we have found *Baileya multiradiata* a pleasing choice.

MIMULUS CARDINALIS DOUGL. SCARLET MONKEY-FLOWER

Many monkey-flowers have been grown at the Botanic Garden, and among these are two differing greatly in amount of usage. *Mimulus cardinalis* has long been known to gardeners being introduced into England by David Douglas following the summer of 1831 which he spent in California. The second to be discussed, a variety of the common yellow Monkey-flower, *Mimulus guttatus* var. *grandis*, as nearly as can be discovered has not been used commonly, if at all, horticulturally.

Mimulus cardinalis was the last of the many species of *Mimulus* discovered in "North Western America" and introduced by David Douglas, early botanist sent to America by the Royal Horticultural Society. As early as 1836 it aroused sufficient interest to be praised in Floricultural Cabinet. Curtis's Botanical Magazine in 1837 (plate 3560) reported it as "a hardy annual, with us, readily increasing both by seeds and cuttings." Paxton's Magazine that same year (p. 197) reported color variations and spotting which might be expected to produce some handsome hybrids and suggested crossing with *M. roseus*, *variegatus*, and others. At that time they had not held it over a winter in England and proposed "it will require a dry part of the greenhouse, possibly a cold frame may be too low a temperature for it to be safe in." In the Gardener's Chronicle in 1873 (p. 1086) it was described as a favorite "window plant among cottagers in some districts" and as being displayed at country shows. This same publication in 1925 (p. 367) praises this species as a prolific bloomer of long season and as absolutely hardy.

Viscid, pubescent herb, 2-4 feet high, freely branching from perennial rootstocks, frequently somewhat decumbent at base; leaves obovate to oblong, 1-3 inches long, sessile and serrate; pedicels exceeding the leaves; calyx about 1 inch long, prismatic, 5-angled and 5-toothed, long-campanulate or tubular, lobes nearly equal and acute; corolla scarlet or occasionally yellowish, 1.5-2 inches long, strongly 2-lipped, the upper lip of 3 corolla lobes, erect and lobes rolled back, the lower lip of 3 corolla lobes reflexed, bearing internally a pair of bearded ridges; stamens 4, exserted, anthers bearing scale-like hairs; stigma of 2 flat lobes, closing when touched; capsule ovate-acuminate, firm-walled, dehiscent along both sutures.

The distribution of *Mimulus cardinalis* suggests it may be able to withstand a reasonable amount of cold, reaching elevations of about 4500 feet in California and 8000 to 10,000 feet in Arizona. The species occurs commonly along streambanks throughout California, into southern Oregon, south to Baja California, and east to Utah and Arizona. Beautiful masses of this scarlet monkey-flower may be found in seeps on sunny rocky cliffs and along streambanks with ferns and nettles.

Mimulus cardinalis is raised easily from seed which should be sown thinly for the very tiny seedlings growing close together are very subject to damp-off. The flat may be prepared with a loose soil mixture in the bottom and a layer of vermiculite on top or with any good soil mixture which will retain the moisture and yet remain porous enough to permit germination. Seeds scattered over the top of the flat will be covered sufficiently by a slight smoothing-over with the hand. The flat should then be soaked by placing it in water. Germination will occur in a very few days. At the Garden it has been grown most successfully in full or partial sun where it needs frequent watering as it is a species which occurs naturally in wet situations. Experience with it in shade has shown it to become rank and to produce few flowers of a less desirable shade. Sweet's "British Flower Garden" in 1836 reported that the plants placed in open air in the sun produced flowers of a brilliant scarlet but when grown inside with reduced sunlight the flowers were much paler approaching orange. The large red blooms will appear early in May and continue to be produced until September and even later if sufficient moisture and warmth are present. If the plants become ragged and unsightly, they may be severely trimmed and a second crop of blooms will be produced. The plant in loose, rich soils tends to spread rapidly by underground rootstocks and needs to be kept under control.

As this species of monkey-flower has a rather large, loose habit, it is most desirable for the larger garden. The many brilliantly colored, unusually shaped, pinched-gaping corollas produced over several months place this plant among those desirable for cultivation in areas where sufficient moisture may be supplied.

MIMULUS GUTTATUS VAR. GRANDIS GREENE

In 1894 Edward L. Greene in his "Manual of the Botany of the Region of San Francisco Bay" described a variety of *Mimulus guttatus* as "a conspicuous perennial of stream banks and some boggy places among the hills near the Bay." This plant was later collected in the Bay Region by A. A. Heller and named as a species in Muhlenbergia, Vol. I. Since then this attractive herb has been collected along the Pacific Coast from Monterey Bay, California, north to the southwestern corner of the state of Washington. Blooms have been reported at almost every month in the year, however the most abundant flowering occurs from April to September.

Pubescent, perennial herb; fibrous roots; 6-24 inches tall, stems stout and hollow, branching from base, frequently rooting at lower nodes and spreading by stolon-like lower branches; leaf blades orbicular or broadly ovate, 1-4 inches long, reduced in size upward, the uppermost reduced to bract-like structures at bases of pedicels, tomentose beneath, shiny-green above; pedicels



Plate XXII—*Mimulus guttatus* var. *grandis*, in the Botanic Garden, May, 1949. Photo by L. D. Robinson.

stout, becoming 0.75–2 inches in length, exceeding the leaves; calyx 0.5–1.25 inches long, pubescent or tomentose, 5-angled and 5-toothed, the uppermost tooth about once or twice the length of the others; corolla bright yellow, red-dotted on lower lip, 1–2 inches long, strongly 2-lipped, the upper lip of two lobes, the lower of three, throat nearly closed, stamens 4.

This variety of *Mimulus guttatus* grows at numerous locations along the coast of Oregon and northern California covering large areas of moist banks above the sandy beach.

Although this variety has not been commonly used, it possesses many characteristics which should place it among the native herbs valuable for gardens. As was mentioned above this variety of *Mimulus* has a very long blooming season. The large flowers (sometimes 2 inches in length), close together, and several on a stem in bloom at the same time produce a delightful, bright yellow mass. The plant forms a low attractive mat with the lower branches spreading as stolons. The dark green leaves are almost orbicular and the margins are somewhat revolute.

The culture is very easy. Seeds may be planted in flats in the winter months by the same method as described for *M. cardinalis* and transplanted when out-of-door conditions become favorable; however seeds may be sown directly into the flower bed in early spring. Frequent irrigation is necessary as the plant is a native of wet places and a condition of semishade is desirable if the plants are to be carried over as perennials. Flowers will appear in a few weeks if there is sunshine and continue throughout spring and summer months. In late summer, flowering stems may be cut down and there will be a formation of mats by spreading, lower branches rooting at the nodes.