

Propagating Monkeyflowers (*Mimulus* spp.) of the Western United States[®]

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INTRODUCTION

The Genus *Mimulus* contains many specimens well suited to western gardens. The center of origin for the genus is the greater California area and some 70 different species are known to occur throughout this range. Many of these species have ornamental potential and, while much breeding has been done on the *Diplacus* section types, many of the herbaceous perennial and annual species have not been widely used in ornamental breeding programs. Many of these species are generally later flowering, often beginning in mid-summer and continuing to the first frost. In addition the showy blossoms are excellent at brightening up shady spots and many species are great hummingbird attractors.

SEED PROPAGATION

Seeds were sown onto the surface of a mix of 1 coir : 1 pumice (v/v), then covered with a 1/8-inch layer of crushed quartzite (available as turkey grit No. 1). For trials we used 20 seeds per 2-inch band pot and subjected these to natural winter conditions in Portland, Oregon. Seeds were sown in February and received average temperatures of 47 °F for the high and 31.2 °F for the low. The following germination percentages were calculated in June when the greatest germination had been recorded and temperatures had reached an average of 75 °F for the high and 54.3 °F for the low.

Annual Species. Where available I have listed the chromosome counts for individual species, in hopes that this information will be useful to breeders.

Mimulus kelloggii (section *Enoe*) n=9: 60% germination. This species with its bright-pink flowers spotted gold in the throat ranges from Central California to Southern Oregon. Mostly found growing on dry, sandy slopes and scree banks.

Mimulus bigelovii (section *Eunanus*) n=8: 75% germination. Bright-pink flowered species that ranges from Nevada and Arizona west into California. A desert species inhabiting dry gravel banks and arid slopes.

Mimulus cusickii (section *Eunanus*) n=8: 20% germination. Pink-flowered species with variable yellow to black stripes in the throat. Ranging from eastern Oregon south to eastern California and Nevada. This species prefers dry, rocky soils and scree slopes.

Mimulus pictus (section *Mimulastrum*): 70% germination. The purple veining that marks the otherwise white flowers is fairly unique on this species. Occurs in central California where it has had much of its habitat destroyed by grazing.

PERENNIAL SPECIES

Mimulus guttatus (section Simiolus) n=14, 15, 16, 24, 28: 95% germination. Yellow flowers can be variably spotted in the throat with red. Common species ranging from Alaska to Mexico, often found in wet areas, ditches, and creeks.

Mimulus tilingii (section Simiolus) n=14, 15, 24, 25, 28: 80% germination. Very similar to *M. guttatus*, but occurring at higher elevations. Ranges from Alaska to California and east to Montana, usually growing in wet meadows and along alpine creeks.

Mimulus lewisii (Section Mimulus) n=8: 75% germination. The large pink flowers have yellow and white stripes in the throat. It ranges from British Columbia throughout the Rocky Mountain States to Oregon and California. It is a high elevation species mostly found in moist alpine meadows and along snow-melt creeks.

Mimulus eastwoodiae (Section Mimulus) n=8: 35% germination. The scarlet-red flowers of this species greatly resemble *M. cardinalis*, but the plants habit is decumbent as opposed to upright. Endemic to the sandstone and limestone canyons of Colorado, Utah, and Arizona.

Mimulus cardinalis (Section Mimulus) n=8: 80% germination. The narrow corolla of this species has flaring lips and the whole flower is variably brick-red to deep-scarlet. Ranges from Southern Oregon to northern Baja and east into Utah and Nevada. A yellow form was discovered in the Siskiyou Mountains of southern Oregon and is in cultivation.

VEGETATIVE PROPAGATION

Soft and semi-hardwood cuttings were placed into a medium consisting of a mix of 1 coir and 1 pumice mix (v/v). All cuttings had the lower leaves removed and were dipped into a 1:20 dilution of IBA and NAA (Woods Rooting Compound and tap water). The cutting flats were placed on 75 °F bottom heat with humidistat-controlled intermittent mist inside the greenhouse. Percentages are based on 20 cuttings. Percent take was considered good root formation with vigorous growth following transplanting.

WOODY SPECIES

Mimulus aurantiacus (section Diplacus) n=10: 90% take with semi-hardwood cuttings taken in June. Variable salmon-yellow to gold blossoms. This species ranges from southern Oregon to southern California.

Mimulus longiflorus (see *M. aurantiacus*) (section Diplacus): 85% take with softwood cuttings taken in June. Variable peach to yellow flowers. Similar to *M. aurantiacus* this species represents the more southern range of central California to Mexico.

Mimulus puniceus (see *M. aurantiacus*) (section Diplacus): A 90% take with softwood cuttings taken in June. Brick-red flowers. Ranges from southern California into Baja.

HERBACEOUS PERENNIALS

Mimulus lewisii: 70% take with softwood cuttings in July.

Mimulus cardinalis: 90% take with softwood cuttings in July.

Mimulus eastwoodiae: 100% take with softwood cuttings in July.

HYBRIDS

Mimulus × *bartonianus*: 100% take with softwood cuttings taken in July. This cross between *M. lewisii* and *M. cardinalis* produces variable flowers possessing many of the traits of the parents.

OTHER PROPAGATION METHODS

Mimulus primuloides and *M. primuloides* subsp. *linearifolius* (Section Pardanthus) n=17. Yellow-flowered blossoms and a mat-forming habit. Ranges from Washington to California and east into Nevada. Primarily found in high mountain bogs and along side creeks. This species and its subspecies both produce small bulbils strung along stolons at the onset of winter. These are about the size and shape of a large grain of rice and can be collected and planted in plug trays or flats to easily propagate large quantities.

Most of the herbaceous perennial types including *M. cardinalis*, *M. guttatus*, *M. tilingii*, and *M. lewisii* respond very well to vigorous division in the early spring. These can be potted into a well-drained potting mix and kept evenly moist, where they establish very quickly and produce mature, flowering plants by early summer.