

## *Dendromecon* Benth.

bush-poppy

William Gary Johnson and Donald L. Neal

Mr. Johnson is a botanist at the USDA Forest Service's National Tree Seed Laboratory, Dry Branch, Georgia; Dr. Neal retired from the USDA Forest Service's Pacific Southwest Forest and Range Experiment Station.

**Growth habit, occurrence, and use.** Bush-poppies (also known as tree-poppies) are openly branched, evergreen shrubs from 0.6 to 2.5 m high, sometimes to 6 m. They have a woody base with gray or white shreddy-barked stems. The 2.5- to 10-cm-long leaves are mostly lanceolate, 3 to 8 times longer than wide (LHBH 1976). Environmental factors and shoot growth pattern affect leaf size (Bullock 1989). The 2 species considered here grow on dry chaparral slopes, ridges, and washes below 1,830 m. One species is found in California's Channel Islands and the other in the coast range, from Sonoma County to the Sierra San Pedro Martir, Baja California, Mexico, and in the west foothills of the Sierra Nevada, from Shasta County to Tulare County (table I). Bush-poppies rely on seed production to propagate. No lignotuber is formed on sprouts that appear after burning, so regrowth after fire is rare (Bullock 1989).

The genus is useful for watershed protection (Sampson and Jespersen 1963) and for forage. Goats are especially fond of bush-poppies, and deer and sheep eat the sprouts after fire.

**Flowering and fruiting.** Flowers are bisexual, yellow, showy, and solitary on stalks. At several locations, the shrubs first flowered in their second spring (Bullock 1989). Flowers appear in April through June and sometimes into August (Munz and Keck 1959). Bullock (1989) reports that the shrubs flower profusely from February through April in the Santa Monica Mountains. Several populations produce a few flowers throughout the year. Fruits are linear, grooved capsules measuring 5 to 10 cm long, with 2 valves that separate incompletely at maturity. Ripe fruits (those that explode when grasped) may be collected in May, June, and July (Neal 1974). Fruits dehiscent, scattering the seeds up to several meters from the shrub, and ants disperse the seeds, some below and others above the ground. Concentrations of seeds can be found around the entrances of harvester ant—*Pogonomyrmex* and *Veromessor* spp.—nests (Bullock 1989).

**Collection, cleaning, and storage.** The black seeds are almost spherical, 2 to 4 mm in diameter, with a slightly pitted, hard and brittle testa. The seeds are dispersed by ants; the prominent caruncle is removed and used by the ants for food. The endosperm is oily, and the minute embryo rudimentary (Berg 1966) (figure 1). The mean number of seeds per fruit ranged from 2.9 to 10.7 in 14 populations (Bullock 1989). In 2 samples of cleaned seeds, purity was 77% and soundness was 97%. There were 92,400 to 114,400 seeds/kg (42,000 to 52,000/lb) (Neal 1974). Four other samples had purities of 99.4 to 99.9%, average 99.4%, and 100,300 to 106,300 seeds/kg, average 103,200/kg (45,600 to 48,300/lb, average 46,900/lb) (Vivrette 1996). Bullock found that seed weights varied greatly among the 14 populations studied, ranging from 10.1 to 15.8 mg (Bullock 1989). Vivrette reported seed weights ranging from 9.38 to 9.90 mg, average 9.70 mg, on 4 samples (Vivrette 1996). Bullock's slightly heavier fresh seeds may have had attached caruncles or a higher moisture content than Vivrette's laboratory samples.

There are no reports of seed storage of these species, but they likely can be stored at low moisture contents and near-freezing temperatures.

**Germination pretreatments.** Seeds have been sown in a moist medium at temperatures alternating diurnally from 4.5 EC (night) to 21 EC (day). Germination started after 50 days at these temperatures and reached 21% at 102 days after sowing (Mirov and Krabel 1939; Neal 1974). Vivrette reported no germination in 9 samples tested for 21 days at 15 EC. A few seeds germinated on blotters moistened with 400 ppm GA<sub>3</sub> (gibberellic acid). Total viable seeds as determined by staining in tetrazolium chloride ranged from 11 to 50%, average 27% (Vivrette 1996). Emery recommended fire treatment or 1½ to 2 months of stratification and stated that 3 months of stratification with a diurnal fluctuation from 8 to 21 EC may improve germination (Emery 1988).

**Nursery practice.** Fire-treated seeds give the most reliable germination in nurseries (Emery 1988; Everett 1957). Seeds to be fire-treated should be sown in the fall in a slightly moist nursery bed. The seeds should be then covered with a layer of milled peat or sand 1 to 2 times as thick as the seeds' diameter and **not watered**. Then, a 10- to 15-cm (4- to 6-in) layer of dry pine needles or excelsior should be placed over the bed and burned. The seedbed should be watered after it has cooled. If wooden flats are being used, 2 layers of aluminum foil will protect the wood during the burning (Emery 1988).

#### References

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**Figure I**—*Dendromecon rigida*, bush-poppy: longitudinal section through a seed (left) and exterior view (right), H20.

**Table I**—*Dendromecon*, bush-poppy: nomenclature and occurrence

Scientific name & synonym(s)	Common name	Occurrence
<b><i>D. harfordii</i> Kellogg</b> <i>Dendromecon rigida</i> ssp. <i>harfordii</i> (Kellogg) Raven <i>D. rigida</i> spp. <i>rhamnoides</i> (Greene) Thorne	<b>Island bushpoppy,</b> Harford tree-poppy	Channel Islands, California
<b><i>D. rigida</i> Benth.</b>	<b>stiff bushpoppy,</b> tree-poppy	Central California to N Baja California

**Source:** Munz and Keck (1959).