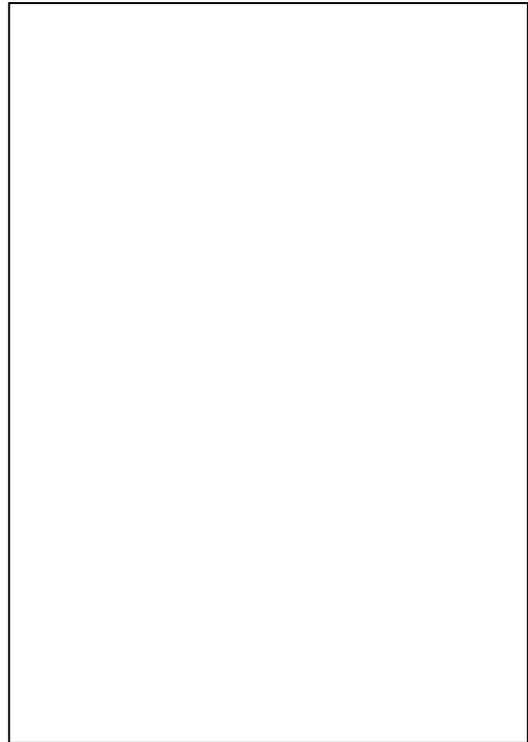


**SWEET RESIN BUSH**  
**Euryops subcarnosus**

**Life History/Identification:**

One of the most dramatic examples of the consequences of non-native plant invasions is the sweet resin bush. A native to South Africa, resin bush is a small shrub, generally less than three feet tall, with multiple, erect stems. Its woody stems are light yellowish brown to gray in color, have a branched or knotty appearance, and are easily broken. Like its name suggests, resin bush produces small, hardened droplets of resin that may be found on the stem surfaces or on the soil beneath the plant. Resin bush also produces phytochemicals that serve as a defense against herbivores and invading parasites. The leaves of this noxious weed are usually up to one inch long and are divided into three narrow lobes that have a fork-like appearance. The lobes are approximately 1/16 of an inch in diameter and tend to be round in cross section. During seasons that are dry, resin bush lacks green foliage. Resin bush has bright yellow daisy-like flowers that have 5 to 9 oval petals. Each flower is borne on a slender stalk that is 1/2 to 2 inches in length. In Arizona, the shrub usually flowers during the winter and spring months. An individual shrub may have hundreds of flowers and patches of the plant are intensely colored during the peak of flowering.

The flowers have a sweet, but somewhat disagreeable, odor. Each flower may produce a dozen or more fruits. Each fruit, containing a single seed, is about 1/16 of an inch wide and 3/16 of an inch long. Fruits are covered with fine, wooly hairs that lightly adhere to clothing and animal fur. When wetted, the wooly covering becomes mucilaginous and sticky. Resin bush thrives in arid and semi-arid conditions and does well in soils comprised of rock, gravel, or clay.



**Flagstaff Localities:**

According to the annual reports of the United States Soil Conservation Service (SCS), sweet resin bush was introduced into Arizona in 1935. It was brought here from South Africa because the SCS wanted a plant that had drought resistance, suitability for erosion control and other economic uses, and ease of propagation. With the help of the Civilian Conservation Corps (CCC), SCS used resin bush for various restoration projects throughout the arid southwest. Based on the recommendations of the SCS, seeds and young plants were also made available to anyone wishing to use them for range improvement. Unfortunately, the SCS kept few records describing the exact locations, dates, and fates of the test plantings, so current attempts at finding resin bush distribution has been difficult. There are no records of resin bush outside of Arizona, and there are basically four epicenters of infestations in the state. The closest infestation to Flagstaff is southeast of Cottonwood, along Camino Real near its junction with FSR 359. The other three locations in Arizona are at Frye Mesa, Marjilda Canyon, and at Sabino Canyon.

**Economic Impact:**

There are 97 species of *Euryops*, all of which occur natively only on the African continent. All but one of those occur only in South Africa. The common name "resin bush" is a literal translation of the Dutch name Harpuis bosch, "hars" (resin) and "puisje" (a small pimple), referring to the resinous secretion exuded from the stem and branches in the form of small, pimply drops. In colonial South

Africa, the resin allegedly had a medicinal value and was readily collected. In the United States, however, resin bush is a threat to our native ecosystems and should be targeted for eradication. Invasion by sweet resin bush produces dramatic and persistent changes in the structure and function of semi-arid grasslands. Research has shown that the weed spreads rapidly and forms extensive monocultures. In these monocultures, all native grasses and most woody perennials are completely excluded, which leads to significant increases in the exposure of bare soil and soil erosion. The weed is also capable of exploiting available water for its own use up to two months before native plants become active. On Frye Mesa alone, resin bush spread from a 20-acre infestation to 400 acres in twenty years.

### **Control:**

In the fiscal year 1999-2000, the Legislature of the State of Arizona appropriated \$200,000 to the Department of Agriculture to defray the cost of managing, controlling, and/or eradicating sweet resin bush. It is hoped that this money will not only be useful for controlling the infestation of the weed, but serve as a research tool for examining other issues that relate to the infestation of resin bush as well.

#### **Cultural Control:**

The prevention of further infestations of resin bush is the most effective and least expensive method of control. Do not drive through areas contaminated with resin bush and then across grasslands. Check vehicles and clothes for attached plants when leaving an infested site. The use of competitive, native species is an important control for resin bush, but it is most valuable when used in conjunction with another control method. Some species that may compete with resin bush are the following: saltbush, sand dropseed, globe mallow, desert marigold, lupine, plantago, sideoats, squirreltail, tobosa, and curly mesquite. It is important to seed in the fall with winter annuals.

#### **Mechanical Control:**

Hand grubbing has proven to work in an area with a small population of resin bush. If the roots are cut off a few inches below the soil, below the root crown, they will not resprout. This method of control can be used any time of the year, but it may be most effective in the summer months when the plant is already stressed. It is estimated that with nine people, one acre of infested land can be grubbed in a day. If the contours of the land permit it, a bulldozer can be used to scrape off the rosettes in large outbreak areas. Since the seeds are generally not dispersed by the wind and are viable for only two years in the soil, removing plants in this fashion can be helpful. Two years of follow-up treatment is necessary to continually stress resin bush and then spotty hand pulling should suffice. The use of herbicides is proven to work after some form of mechanical control has been executed.

**Chemical Control** *(Noted here are chemical control methods that have been used in other areas. Always check with weed specialists or chemical suppliers before treatment to ensure correct dosage and application. Mention of these products does not imply endorsement by the Northern Arizona Weed Council or The Nature Conservancy.):*

- 1) Roundup™ (chemical name: glyphosate) is a common herbicide that works effectively on resin bush. Higher dosages are needed on adult plants and will be most effective after mechanical stress.
- 2) Surflan™ is a granular, pre-emergent herbicide for seedlings. Apply in the fall and it will last for six months.

**Biological Control** *(No exotic species should be introduced into an ecosystem without extensive research into the long-term effects. Mention of the species below does not imply appropriateness for use in Northern Arizona.):*

There is currently no approved biological control agents used on sweet resin bush.

**Note: No single control method, or any one-year treatment plan, will ever achieve effective control of an area contaminated with sweet resin bush. The fast growth, ability to form monocultures, and fast rate of spread of this plant require long-term cooperative integrated management programs and planning to prevent, contain, and reduce sweet resin bush infestations.**

Moser, L; D. Crisp. San Francisco Peaks Weed Management Area fact sheet on Euryops subcarnosus. Coconino National Forest.