



COLLECTING AND PROPAGATING NATIVE CALIFORNIA TAXADS: A CASE STUDY OF PACIFIC YEW (*TAXUS BREVIFOLIA*) AND CALIFORNIA NUTMEG (*TORREYA CALIFORNICA*).

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Introduction

Vegetative propagation of Pacific yew (*Taxus brevifolia*) has been reported from studies in Northern California (Doede et al. 1993) and the Pacific Northwest (Mitchell 1997; Vance 1998), however, no comparable studies exist for taxads at the southern limit of their range. In a previous note we called attention to the status of Pacific yew populations at their lower geographic range limit (Scher 1993). This reflects a concern about the survival of genotypes that occur in small, isolated, declining populations at or near their southern range boundary.

For this project, we identified two objectives: (1) to locate stands of Pacific yew and California nutmeg at or near the southern terminus of their range both in the Sierra Nevada and the Coast Range; and (2) to vegetatively propagate *T. brevifolia* and *T. californica* from sites near the southern range boundary. We also wanted to determine if propagation methods established for *Taxus* would be effective for *Torreya*.

Methods

We collected samples of Pacific yew (*T. brevifolia*) and California nutmeg (*T. californica*) from sites at or near the southern geographic range limit of these species in the coastal range and in the foothills of the Sierra Nevada. Cuttings of approximately 6 to 10 inches (15 to 25 cm) in length, from second to third year growth, were collected

between December 1996 and January 1997. They were stored in polyethylene bags at 35° F (2° C.) for two weeks, dipped in powdered Captan and #8 Hormex, and placed in a rooting medium containing a mixture of peat and perlite in 10 cubic inch (163.9 cc) supercells, 1.13 by 8.25 inches (2.86 by 21 cm). To maximize rooting, cuttings were placed on benches with bottom heat to maintain temperatures between 60 and 70° F and misted to maintain a high relative humidity.

After evidence of callus tissue formation and initial rooting appeared, approximately 600 cuttings were outplanted at the University of California Bay Area Research and Extension Center in Santa Clara. Another set of rooted cuttings were maintained at the Pacific OpenSpace Native Nursery in Petaluma CA as a back-up repository.

Results and Discussion

Cuttings were collected from ten sites, with ten trees from each site as follows:

Taxus brevifolia

Blodgett Forest (near Georgetown, CA)

Calaveras Big Trees State Park (near Angels Camp, CA)

Stanislaus National Forest (near Sonora, CA)

Russian Gulch State Park (Mendocino, CA)

Torreya californica

Newtown (near Placerville, CA)

Stanislaus National Forest (near Sonora, CA)

Mount Saint Helena (north of Napa Valley, CA)

Pepperwood Preserve (Santa Rosa, CA)

Mount Tamalpais (Marin County, CA)

Saratoga, CA

The bases of the cuttings callused during the spring of 1997. A few cuttings began to root, but most did not. The cuttings were maintained under mist during the summer and fall of 1997. During the winter of 1997-98, the cuttings were moved outside. They remained outside during the spring and summer of 1998.

By the spring of 1998, rooting of *Taxus brevifolia* was generally successful. Although the *Torreya* callused at the base, a relatively low proportion produced roots. Little mortality was observed during the winter of 1998, and the cuttings appeared healthy. During the spring of 1998, however, there was high mortality amongst the *Torreya*. The project produced some rooted and healthy *Torreya* cuttings, but more research is needed to improve the propagation technique.

Analysis of rooting studies showed that cultural conditions designed for *Taxus* cultivars favored survival of Pacific yew over California nutmeg cuttings.

Literature Cited

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