You're Growing *that* Nasty Plant?

Native plant propagators are often called upon to grow some unusual plants for unusual projects. This collection of 4 propagation protocols highlights irritating plants—irritating in what they can do to our skin and sometimes irritating in their difficulty to be propagated. However, these plants have important ecological niches and a couple of them have importance to the herbal market. Read on. . . you may find some aspect of these nasty plants that really intrigues you. I for one am interested in the purported hair-raising abilities of stinging nettle!

—The (balding) Editor

Propagation Protocol for Devil's Club (Oplopanax horridus)

Tara Luna

KEY WORDS: seed propagation, stem cuttings, divisions

NOMENCLATURE: ITIS (2000)

Photo by Tara Luna

*Devil's club (*Oplopanax horridus*) seedlings at Glacier National Park Native Plant Nursery.*

For anyone hiking through devil's club (*Oplopanx horridus* Miq. [Araliaceae]) habitat, they have probably regretted not bringing a pair of tweezers in their backpack. Brushing against this spiny shrub results in festering splinters and unpleasant words. The Latin name descriptively translates as "a prickly porcupine ginseng." It is an easy plant to identify and a difficult one to forget!

The very spiny shrub grows up to 3 m (9 ft) tall, with large palmately lobed leaves. Veins of the leaves and the stems are covered with sharp prickles. Flowers are greenish white and are borne in a terminal cluster during spring. The bright red fruits mature in July and August, each bearing 1 to 3 tan-colored seeds.

Devil's club is found in moist woods and thickets and along streams and seepages from sea level to the subalpine zone (0 to 1524 m [0 to 5000 ft]). It is found from Alaska south along the Pacific coast to southern Oregon, extending east to southwestern Yukon Territory, central Alberta and the Rocky Mountains of Idaho and Montana, with disjunct populations around Lake Superior and Lake Michigan (Hitchcock and Cronquist 1996).

For all its ferociousness, devil's club has many redeeming properties and uses. It belongs to the same family as American, Asian, and Siberian ginseng, and like ginseng, it is used as a general tonic and system-strengthening herb. Many Pacific Northwest and Alaskan native groups use devil's club root tea for colds, arthritis, toothaches, stomach problems, gallstones, and as a blood medicine. It is also used as an external wash for boils and festering skin irritations and insect bites (Moerman 1998). An extract of the inner bark has been shown to have anti-bacterial and anti-fungal properties (Marles and others 1999). Indigenous people have used it to treat tuberculosis and cancer. The traditional uses of devil's club as an anti-diabetic and studies regarding its blood-sugar-lowering activity have been reviewed (Marles and Farnsworth 1995).

Some coastal groups used stem sections of devil's club as fish lures. Other groups used the charcoal of devil's club mixed with grease as a black face paint or as a tattoo dye inserted under the skin. Devil's club is still regarded as a protective force in some localities. It is placed above doorways, on fishing boats or worn as an amulet to ward of evil. Traditionally, the smoke from burning plants was used to scare off disease causing spirits (Turner 1998).

RATIONALE FOR PROPAGATION

Devil's club is propagated at the Glacier National Park Native Plant Nursery for restoration projects in the Avalanche Creek drainage. It is a component of the mature western redcedar (*Thuja plicata* Donn. [Cupressaceae]) habitat and can form dense patches in moist seepage areas and swales in the under story of the forest. It is an effective species for blocking undesired off-trail use in suitably moist to wet sites that are sensitive to trampling. The development of propagation techniques is also desirable to restore the species to areas that have been over harvested in other portions of its range. Perhaps devil's club can be effectively propagated on small farms or nurseries in the near future to relieve collecting pressure from natural stands.

Devil's club is also utilized as an ornamental landscape shrub. The large leaves and course texture is desired by some as a specimen plant or as an effective barrier on the edge of the garden (Kruckeberg 1989). Wildlife uses devil's club as a food source; birds eat the red berries and grizzly and black bears eat leaves and young shoots in spring and ripe berries in fall (USDA 2001).

PROPAGATION

Devil's club can be propagated by seeds or vegetatively from stem tip cuttings. In Glacier National Park, Montana, seeds are collected in July and August when fruits have fully matured. Seeds most likely exhibit a combination of morphological and physiological dormancy. Morphological and physiological dormancy is exhibited by the related genus *Panax*, and requires prolonged periods of warm and cold stratification for after ripening of the embryo and to break the physiological dormancy (Baskin and Baskin1998).

At Glacier National Park Native Plant Nursery, seeds are placed in a 72-h running water soak to remove any inhibitors and fully imbibe seeds before stratification. We treat freshly harvested seeds with a 400 d stratification—four 100-d-long periods of alternating warm-moist (20 °C [68 °F]) and cold-moist (1 °C [34 °F]) stratification beginning with the warm-moist treatment. Seeds germinate after the second cold-moist stratification and initial establishment and growth of seedlings is slow. Seedlings form firm root plugs in 2 to 3 y, depending on container size (Wick and others 2001).

Growing medium is a 2:1:1 (v:v:v) milled spaghnum peat moss:perlite:vermiculite with Osmocote controlled release fertilizer (13N:13P_2O_5:13K_2O; 8 to 9 month release rate at 21 °C [70 °F]) and Micromax fertilizer (12% S, 0.1% B, 0.5% Cu, 12% Fe, 2.5% Mn, 0.05% Mo, 1% Zn) at the rate of 2 g (0.07 oz) of Osmocote and 1 g of Micromax per 800-ml container. Plants have a shallowly rhizomatous root system and will require shallow square containers in order to obtain firm root plugs.

Seedlings require shade throughout nursery production and for establishment on the outplanting site. Other effective seed propagation techniques are currently being investigated in Alaska. Devil's club readily germinates in the wild after passing through the digestive system of brown bears and a mild but rapid scarification simulating the action of stomach acid on seeds may prove to be an effective treatment for breaking seed dormancy (Ianson 2000). The Alaska Plant Materials Center in Palmer, Alaska, is the priority site for devil's club in the National Germplasm System. Mycorrhizal relationships have been found and are currently being investigated.

Because of the delayed germination observed on seed propagated plants at Glacier National Park, methods for obtaining plants vegetatively were employed. Using heavy-duty leather gloves, cuttings were collected from field plants. Stem tip cuttings taken in early June during bud break but before leaves have expanded were successful. Cuttings were 20 cm (8 in) in length and 1.5 cm (0.6 in) in diameter and were recut at the base and treated with

3000 ppm IBA rooting powder. Cuttings were struck with at least 2 nodes below the surface of rooting medium (1:1 v:v perlite:sand) in an outdoor mistbed with bottom heat maintained at 22 °C [72 °F]. All cuttings rooted in 8 wk and were potted into 3-l (1-gal) containers containing the same medium, Osmocote, and Micromax fertilizer described above, but at the rate of 4 g (0.14 oz) of Osmocote and 2 g of Micromax per container. Cuttings are grown in the shade house for the remainder of the growing season. Cuttings produce firm root systems in 1 to 1.5 y (Hosokawa and others 2001).

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*Propagation Protocol for Poison Oak (*Toxicodendron diversilobum*)*

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"Why in the world would anyone grow THAT?" is the most common question we hear when someone walks by a healthy crop of poison oak (*Toxicodendron diversilobum* (Torr. & Gray) Greene [Anacardiaceae]) in containers at our nursery. Hopefully, they didn't step too close as to have brushed against the plants. If they were wearing shorts on a summer day, they might leave Tree of Life Nursery in good shape, but in a couple days they would remember us with an irritating rash on their legs, and their itch might last more than a week.

Poison oak is an important member of many plant communities in the west from Baja California to British Colum-

Photo by Thomas D Landis

Poison oak (Toxicodendron diversilobum)