

Limiting Your Losses on Hard-to-Root California Natives®

Michelle Truscott

Cornflower Farms, P.O. Box 896, Elk Grove, California 95759

INTRODUCTION

Cornflower Farms started business in 1981 adopting a philosophy of “grow what everyone else will not or can not grow” and that philosophy continues today. Our primary focus is California natives; however, we do grow many other drought-tolerant plants, general ornamentals, perennials, and grasses; approximately 700 species in all. Cornflower Farms is located in California’s Central Valley where the climate can be foggy and rainy in the winter and hot and dry in the summer. We have learned that to understand growing California natives we need to have an understanding of the plant’s native habitat — observing the native soils, drainage, which side of the slope it grows on, sun or shade, elevation, and temperature ranges. We bring this information back to the nursery and implement changes to approximate these conditions as necessary. We currently have a 20-acre site of which approximately one-third is under production. Our main propagation greenhouse is 3000 ft² with a bottom-heat rooting system that is set at 70°F. The mist system for this house is solar controlled. The mist interval is controlled by solar exposure, not by time giving us less chance for human error. If the day is cloudy and overcast, which it can be for most of our winter days, the mist may not come on at all. If the day is sunny and bright then the mist will come on more often. When the weather changes suddenly then we can rely on the mist clock to make proper adjustments. We also have the ability to have different mist rates for each of our heated rooting tables depending on plant variety.

Although much progress has been made on limiting our losses of California natives we are still developing new processes as we grow. This paper discusses seven different species of California natives that we have successfully propagated.

CALIFORNIA NATIVES

***Fremontodendron* Taxa.** We grow successfully, *F.* ‘California Glory’, ‘Ken Taylor’, ‘Pacific Sunset’, and ‘San Gabriel’. The best time we have found to process these plants is during the winter months of December and January when our greenhouse is dry and mild. We have found that *Fremontodendron* taxa do not like a hot and wet greenhouse. The size they are cut to is 3 to 4 inches long and we do not prune the leaves which would cause open wounds for diseases to enter. Before they are planted we soak them in a mild bleach solution for sanitation. They are then dipped into Hormex #8 and are planted into our cutting media of perlite and peat moss (9 : 1, v/v). The spacing on the planting is kept open and airy to prevent disease, (about 150 cuttings per flat). These are placed into the greenhouse on a table where the mist is turned down very low to a mist interval of once an hour or not at all. The optimal mist cycle for the *Fremontodendron* rooting would be no mist at all. Our winter days are cloudy and cold which makes the mist stay off, providing the perfect dry greenhouse environment. We also keep the cutting medium low on water, watering them only once a week with a very light watering. The dryer the *Fremontodendron* cuttings stay the less chance they have of rotting. The cutting flats are

placed on a bottom heated table set at 70°F, and they are also placed on our preventative spray rotation of fungicides while in the greenhouse. The *Fremontodendron* taxa take about 2 months to root.

When the plants are rooted we pull them outside to a shaded table for about a week to harden off. The cuttings are then pulled from the flats being very careful not to damage or brake the roots. They are potted directly into 1-gal containers without any root pruning. We have a higher rate of survival if the roots are not damaged in any way. At this time if there are cuttings that have not rooted, but still look good, we restick them into the cutting medium and put them into the greenhouse for further rooting. The 1-gal containers are set down in a special dry water area preselected before planting. One week after planting we drench the plants with a product called Rootshield which is a biological fungicide that helps control root diseases. The 1-gal containers are put on a dry watering schedule with a light watering once a week. The plants like to be kept very dry, almost to the point of being stressed. We also shift the ones up into 5-gal containers with the same watering schedule.

***Arctostaphylos patula*.** This plant is a high-elevation plant found at 5300 to 6200 ft in California. The best time we have found for collection of this plant is just after the first large snowfall. We have tried to do them at different times without much success and we have found that the plants need a winter chill for us to get a good rooting. They are cut 4 to 6 inches long keeping a double set of leaves to safeguard against blind budding that occurs in the transplanting stage. We do not prune the leaves on the *A. patula*, preventing an open wound for leaf spot to occur. The cuttings are wounded by scarring the base of the cutting $\frac{1}{4}$ inch long with pruning shears; this helps to promote root growth. They are rinsed through our mild bleach solution for sanitation then they are then dipped into Hormex #8 and stuck in our cutting medium. The spacing on the planting is kept open and airy to prevent diseases, getting about 100 cuttings per flat. They are placed in the greenhouse on a dry mist table and watered about once a week very lightly to avoid rotting. They are placed on a bottom heat table set at 70°F and these are also placed on our preventative spray rotation of fungicides while in the greenhouse. The *A. patula* cuttings take about 3 to 4 months to root.

When they are ready to pot we skip the hardening-off period and plant from the greenhouse into their desired pot; this prevents the rotting that occurs while hardening off. During transplanting we do not prune the roots avoiding any open wounds that would allow diseases to enter the plant. They are potted into a pot called a Tree Band that is 2- $\frac{1}{2}$ inches \times 2- $\frac{1}{2}$ inches \times 5 inches deep that has an open bottom to allow natural air root pruning. If there are cuttings that have not rooted, we also do resticks on them to finish rooting. The Tree Bands are placed in a dry watering zone and they are also treated with Rootshield 1 week after planting. The next pot size that they are transplanted into is a TreePot Four which is 4 inches \times 4 inches \times 14 inches deep and has an open bottom for air root pruning. These are also placed on a table in a dry watering zone.

***Arctostaphylos nevadensis*.** This plant is also found in the high elevations with the *A. patula*. The timing of cutting collection for this one is the same, just before the first snowfall. At the nursery they are processed and cut to 2 to 2- $\frac{1}{2}$ inches and they do not need wounding. We do not prune the leaves of the *A. nevadensis* either for disease reasons. They are rinsed through our mild bleach solution then they are

dipped into Hormex #8 and stuck into our cutting mix with open spacing of 250 per flat. They are placed in the greenhouse on a dry mist table and watered lightly once a week. They also are treated with our preventative spray rotation of fungicides while in the greenhouse. The *A. nevadensis* plants are more prone to leaf spot than the *A. patula* plants. The *A. nevadensis* plants take 3 to 4 months to root.

When they are ready we skip the hardening-off period and transplant them directly into a pot. During transplanting we do not prune the roots and they are potted into the Tree Band pot for air pruning. We also do resticks of *A. nevadensis* putting the flats into the greenhouse for future rooting. The plants are placed into a dry watering zone and treated with Rootshield a week after planting. The next pot size they are planted into is a Treepot Four which is 4 inches × 4 inches × 14 inches deep and placed on a table in the dry watering zone.

Garrya Taxa. We successfully grow *Garrya elliptica* 'James Roof' and 'Evie'. The best time we have found for collection of this plant is in the winter months of December and January because they also like a dry greenhouse environment. We process these cuttings to 3 inches in length, and cut the base 1/2 inches below the last node. The reason for this process is the *Garrya* taxa root on the surface of the cutting medium and leaving the 1/2 inches below the last node makes the node sit just under the surface of the media when planted. The leaves are not cut to prevent an open wound for diseases to pass through. They are placed in our mild bleach solution for sanitation. They are then dipped into Hormex #8 and planted in our cutting flats with an open spacing of 120 plants per flat. They are placed in the greenhouse on a dry mist table and given a dry watering schedule of a light watering once a week to avoid rotting. They stay in the greenhouse for about 2 to 3 months until they are rooted. While they are in the greenhouse they are treated with our preventative spray rotation of fungicides.

When the plants are rooted we place them outside on a shaded table for about 1 week to harden off. The cuttings are then pulled from the flats being careful not to damage or brake the roots. They are potted into liner pots and placed on a dry water zone table. The *Garrya* cuttings tend to rot with over watering. One week after planting they are treated with Rootshield. Once the liners are ready for transplanting the next size they are potted into is a 1-gal container. We also pot the rooted *Garrya* cuttings up into 5-gal containers using them for next year's cutting stock.

Ribes viburnifolium. This plant is found at lower elevations near the Central Valley of California. The best time we have found for this one is in the springtime. We process these plants to 3 inches in size, and place them in the mild bleach solution for cleaning and they are dipped into Hormex #3 rooting hormone. They are planted into our cutting flats with an open spacing of 100 plants per flat. We have found that when we tried to put more cuttings into the flat they tended to succumb to diseases when they were in the greenhouse. They are placed in our greenhouse on a high mist table to avoid their leaves from drying out. We keep the soil on the dry side to avoid rotting of the stems. While they are in the greenhouse they are put on our preventative spray rotation of fungicides. They take about a 2 months to root. Once they are rooted they are pulled out of the greenhouse onto a shaded table to harden off. They are potted into our liner pots and placed in a normal watering area. We also pot the liners into 1-gal containers.

Ribes speciosum. This is also found in lower elevations throughout the Central Valley of California mostly on dry rocky slopes. We process this plant during the summertime just after the nice spring growth. The cutting size we process this to is 3 inches. They are placed into a mild bleach solution for sanitation and then they are dipped into Hormex #3. They are planted into our cutting flats with an open spacing of 100 plants per flat to avoid diseases in the greenhouse. They are put on a high mist table in the greenhouse and the soil is kept on the dry side to avoid rotting. These take about 2 months to root. While in the greenhouse they are treated with our preventative spray rotation of fungicides.

When they are rooted they are hardened off on a shaded table before transplanting. We pot the *R. speciosum* into our liner pots and they are placed on a dry watering table to avoid diseases. We also pot the liners up into 1-gal containers and these are kept on the dry side too.

***Epilobium canum* (syn. *Zauschneria californica*)**. This plant is also found in the lower elevations of the Central Valley on dry slopes. We take the cuttings in the summertime just after the new spring growth. When we get the plants back to the nursery they are processed to 3 inches in size and placed in a mild bleach solution for sanitation. They are dipped into rooting Hormex # 3 and are planted into our cutting media with a full spacing of 300 per flat and placed on a normal mist table in the greenhouse. They like a cool greenhouse so we try and process them before our summer weather reaches 100°F and higher. The soil media is kept on the dry side to avoid rotting and they are put on our preventative spray rotation of fungicides. They take about 2 months to root. When they are rooted they are hardened off on an outside shaded table. When they are ready we pot them into our liner pots and place them on a normal watering table. We also pot these up into 1-gal containers.

One thing I have found to be helpful is to have good support system and team members. We are always learning at our nursery, improving and changing our techniques, with a good team system you can rely on the employees you have to help you make the changes.