

# Growing good science and strong partnerships through park native plant nurseries

By Michelle O'Herron

## THE MORNING FOG IS STILL THICK THROUGHOUT THE

Presidio of San Francisco, but Michele Laskowski is already busily setting up her latest set of germination experiments and preparing for the day's incoming volunteer crew. Michele is just one of the many dedicated staff members, interns, and volunteers who work at the six native plant nurseries that grow plants for restoration operating as a partnership of the Golden Gate National Recreation Area, its partner organization the Golden Gate National Parks Conservancy, and the Presidio Trust.

What these six small nurseries have been able to accomplish for the park is truly astonishing. From 1999 to 2011 they grew 1.6 million plants, which, if stacked end to end, would reach past the International Space Station. In 2012, they will grow approximately 230,000 plants for 53 different park restoration projects using funding from park project budgets.<sup>1</sup>

Though these accomplishments are impressive, the nurseries are about more than just growing plants; they are also about transforming park habitats and building a supportive community. Through the nurseries and their 2,000 volunteers, seeds become plants, and degraded natural areas are renewed. But big restoration projects can also mean big changes. As park managers well know, not everyone likes change, especially to places that they love. By encouraging direct public participation in the restoration process, the nursery volunteer program has helped create a community of people who have a better understanding of changes in the park and a stronger personal connection to restored areas.

Each year, nursery staff and volunteers painstakingly collect more than 1 million seeds from across the park's 80,600 acres (32,643 ha) and mind-boggling array of different habitats and microclimates. To preserve the unique genetic mix that has evolved at each site, they collect seeds from the same watershed where they will be planted. Comprehensive seed collection guidelines help ensure that genetic diversity is maximized and wild seed stocks are not depleted. Other nursery protocols address how to avoid

<sup>1</sup> The cost of running all six nurseries is about \$970,000 per year, but nursery director Betty Young estimates that most parks could meet their planting needs (about 10,000 plants per year) with a part-time nursery manager and about \$50,000. A detailed overview of how to determine nursery costs and needs is available in "Planning and Building a Native Plant Restoration Container Nursery" at [http://www.sfnps.org/nurseries/chapter\\_2](http://www.sfnps.org/nurseries/chapter_2).



MICHELE LASKOWSKI, PRESIDIO NATIVE PLANT NURSERY

Trays of native plants line the nursery in this 2008 alternative germination media study.

artificial selection for particular traits; properly germinate, transplant, and care for seeds and propagules; and follow National Park Service policies.

The nurseries have cultivated an incredible 377 different native plants and, despite the extra effort required to grow so many different species, Michele believes it was worth it. "Having a broader restoration palette allows the park to create more natural and functional habitats," she explains. "We're showing how you can make that work." But, she says, propagation methods for many native plants are either not recorded or are simply unknown. To try to bridge this information gap, the nurseries have undertaken research projects to create and document successful cultivation protocols,<sup>2</sup> and also to increase their sustainability. These include:

### 1. Seed treatments

Experiments on many difficult-to-grow species have attempted to mimic the natural processes and conditions the seed would be exposed to in the wild. Treatments, including exposure to moist or dry heat, mechanical scarification, and natural acids (e.g., strong coffee or lime juice), and extended exposure to moist, cold

<sup>2</sup> Successful propagation methodologies are documented on Species Information Sheets, many of which are available at [www.nativeplantnetwork.org](http://www.nativeplantnetwork.org).

*By encouraging direct public participation in the restoration process, the nursery volunteer program has helped create a community of people who have a better understanding of changes in the park and a stronger personal connection to restored areas.*



JACKIE BERGQUIST, PRESIDIO NATIVE PLANT NURSERY

Electrical conductivity monitoring is done on native sticky monkey-flower (*Mimulus aurantiacus*) during a 2009 fertilizer study.



MICHELE LASKOWSKI, PRESIDIO NATIVE PLANT NURSERY

A variety of organic fertilizers were tested on native sticky monkey-flower (*Mimulus aurantiacus*) in this 2008 trial.



MICHELE LASKOWSKI, PRESIDIO NATIVE PLANT NURSERY

Molly McClary measures out a mixture for a 2011 alternative germination media experiment.

conditions have been methodically tested to see which improve germination rates.

#### 2. Peat-free germination media

Many germination mixes include peat moss as an ingredient, but because peat stocks are being depleted faster than they can regrow, the nurseries are experimenting with more sustainable (and more local) alternatives like rice hulls, worm castings, and sifted compost.

#### 3. Organic fertilizers

Seven organic and one chemical fertilizer were compared—as was a range of frequencies for applying liquid and pelleted fertilizers—by measuring the plant growth factors and overall biomass production in a common native plant.

#### 4. Water use

A number of experiments have been done to find the most efficient sprinklers and watering regimes.

Learn more about the Golden Gate National Recreation Area native plant nurseries at <http://www.parksconservancy.org/programs/nurseries/> and <http://www.sfnp.org/nurseries>.



MICHELE LASKOWSKI, PRESIDIO NATIVE PLANT NURSERY

Nursery staff Chelsea Dickson and Molly McClary sow Mount Tamalpais manzanita seeds as part of a germination experiment.