A SUPPLEMENT TO

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THE SECRET'S IN THE SOURCE

Add these plant purchase pointers to your playbook.
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Editor's note: This is the first in a series of three case studies on urban ecology. The stories behind photos two and three will be featured in future issues.

URBAN NATIVES

How one designer brought three sustainable landscapes to San Francisco.

By Linda Novy

Three urban locations in San Francisco needed fresh ideas to revitalize their landscapes while addressing problem areas. I was called upon to review these needs and to provide sustainable, "Bay-friendly" landscape management guidance to each building's property manager and landscape contractors.

In each landscape, I was struck by occasional sightings of wildlife in the city. A dragonfly, a ladybird beetle, the odd hummingbird, a few European and native bees and a variety of butterflies and birds spoke of an ecosystem waiting to be restored. Considering the vigorous pest management programs and traditional landscape design and maintenance practices for commercial properties, I realized how little habitat, nectar, pollen and other support for these important members of the urban ecosystem existed.

My goal at any property is to restore its ecology while meeting the property manager's requirements. The managers of these sites agreed with this direction for several reasons: native plants' lower maintenance requirements, their important role in attracting beneficial wildlife, and the interest created for tenants and visitors. Two more incentives for incorporating local native plants into the cityscape are Leadership in Energy and Environmental Design (LEED) credits, and Sustainable Sites (SITES) potential.

Soil testing began in 2006 with samples being taken each spring and fall to guide the soil management program.

CASE STUDY #1: RIPARIAN REHAB

The first property consists of two interconnected, four-story buildings having upper and lower courtyard planters with 97 Himalayan birch trees and ground cover surrounded by 33 Ginkgo street trees. The prior structure was a recycled glass factory, and a glass wall enclosed with industrial steel framing creates a walkway simulating a riverbed. Prior to the city's construction, the landscape was sand dunes spotted with creeks, marshes and a rich diversity of flora. This information served as valuable inspiration for which plants might be well adapted to the climate and, perhaps, reflect the original landscape design.

The interior courtyard planters had several problem areas requiring solutions that both fit the riparian theme and also succeed in a roof top garden with limited root space.

Other than the two east and west edges of the courtyard, most of the landscape receives only intermittent direct and indirect sunlight through gaps in the tree canopy, along with reflected light from the building's ample windows.

Plant palette California natives: *Polystichum munitum* (Western Sword Fern), *Woodwardia fimbriata*, (Giant Chain Fern); *Blechnum spicant*, (Deer Tongue Fern) *Juncus effusus* 'Quartz Creek' (Soft Rush) **Non-natives:** *Carex divulsa* (Berkeley Sedge), *Clivia miniata*.

The imported soil – dense clay, low in organic matter and trending toward alkaline – was challenging as well, as it required close and active management. We began soil testing in 2006, taking samples each spring and fall to guide the soil management program. In addition, the original spray irrigation system was converted to a drip system in order to protect the trees' health and reduce overspray.

When I was called into the project, the deer tongue fern –

The landscape changes and the maturing tree canopy gave this urban forest a nice setting for tenants and visitors.

PHOTOS BY LINDA NOVY

native to coastal California forests – was not thriving, and alternative plantings were needed that would maintain the original landscape design. Native rushes and ferns, and two non-native plants, were introduced to provide more biodiversity and to enhance the design and function of the landscape.

The catwalk in the lower courtyard created a deep shade condition directly beneath it, and Clivia, a member of the amaryllis family, was selected. It provides the added bonus of providing nectar for pollinators and, en masse, creates a feeling of a meandering waterway. Bordering the Clivia, native chain ferns were planted. Their hardiness and ultimate size filled in a large area where the deer tongue ferns weren't thriving. They are normally found along creeks and seeps in Northern California. To represent a woodland plant community, hardy western sword ferns were installed, many along pathways where the deer tongue ferns proved too delicate.

On a sloped area that was eroding, jute netting and Berkeley Sedge, a hardy, but non-native carex, were installed to stabilize the slope and add texture to the area. Finally, in two low, rock-bordered edges of each courtyard that have poor drainage and streetscape exposure, we planted native rushes, a durable plant that grows along seeps and streams.

The native deer tongue fern was replenished in several areas, and its culture improved by misting its leaves in the non-rainy season and by adding organic matter.

The author is a sustainable landscape manager consulting nationally to property owners and managers. She received *Lawn & Landscape's* Leadership Award in 2000.

Property Management: CAC Real Estate Management **Landscape design and management:** Linda J. Novy & Associates **Tree care, soil and integrated pest management:** Bartlett Tree Experts **Landscape maintenance:** Gardeners' Guild

Editor's note: This is the second in a series of three case studies that took place in San Francisco on urban ecology. Each of the properties needed fresh ideas to revitalize their landscape, while addressing problem areas. To read the first installment, visit www.lawnandlandscape.com and search for "Linda Novy."

CASE STUDY #2:

A NEW LOOK

Adding native plants to a courtyard between high-rises gives the property an ecological story and provides habitat for wildlife. By Linda Novy

The second property consists of two high-rise buildings, interconnected by a courtyard with planters on the ground level and two long balcony planters. The prior structure was a public works administration Post Office, built in 1939-1940 in the Art Modern style.

Now a modern office, retail and residential complex, the courtyard landscape consists of an interesting pattern of planters on structure. This area of San Francisco was originally part of the bay, surrounded by sandy cliffs, rocky bluffs, small estuaries and marshes, attracting a wide range of wildlife.

The property manager requested ideas to replace Camellia hedges in both balcony planters to eliminate vegetative debris, repair waterproofing, and change the spray irrigation to Netafim sub-surface tubing while creating a fresh look. Replacing mature Camellias with a lower planting would present a change for the tenants, but they seemed interested in habitat planting. I worked closely with my nursery consultant to identify plant types and availability. All of the chosen plant species are native in origin with the exception of Flax, used to enhance the architectural elements of the landscape design and to tie into the courtyard planting. The landscape contractor made a sun/shade study (which changes dramatically from summer to winter) that helped develop the plant palette. To boost the sustainability of the project, the plants' ability to spread and regenerate themselves was a selling point to the property management company. We knew, however, that some modifications should be expected over

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Large swaths of grasses, sedges, rushes and iris grew into a cohesive planting just six months after they were installed.

time as the landscape evolved.

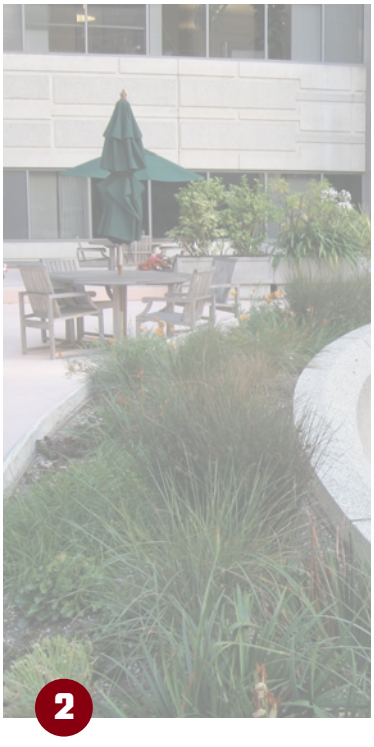
While there is diversity in the plant palette, the large swaths of grasses, sedges, rushes, and iris are growing into a cohesive planting just six months after installation. These, plus groupings of native succulents, coral bells, Douglas iris and Yerba Buena, provide habitat, food and nectar for beneficial wildlife. California poppy is being seeded into various areas experimentally for additional pollinator support.

As the landscape matures, the maintenance team uses "adaptive management" in determining which plants need thinning, additional spot watering and infilling.

The landscape has created a new look for this property, one that tells an ecological story, and provides habitat for beneficial wildlife in San Francisco.

Plant palette, using 4 inch and 1 gal. **Plant material:** *Sedum spathulifolium* (Stone Crop), *Dudleya farinosa* (Live forever), *Iris douglasiana* (Douglas Iris), *Juncus patens* 'Elk Blue' (Gray Rush), *Carex praegracilis* (California Dune Sedge), *Festuca California* 'Serpentine Blue' (California Fescue), *Erigeron glaucus* 'Martha Roderick' (Seaside Daisy), *Satureja douglasii* (Yerba Buena), *Polystichum munitum* (Western Sword Fern), Heuchera 'Canyon Delight' (Coral Bells), *Tolmiea menziesii* (Piggy-back plant) and non-native *Phormium tenax* 'Duet' (Flax).

Property Management: CAC Real Estate Management Company
Landscape Design and management: Linda J. Novy & Associates
Landscape maintenance: Interior Plantscape Company
Netafim consultant: Bob Best, Netafim USA
Soil: Roof mix with organic amendment
Nursery Consultant: Jim Dreer, Sweet Lane Nursery
Seed supplier: Pacific Coast Seeds



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CASE STUDY #3:

RESTORING NATIVE HABITATS

One designer proves how new landscape models can support regional ecosystems. By Linda Novy

The third property is a skyscraper with a popular public garden located over its parking structure. Prior to this building, the area was part of a low-rise retail district. This area of San Francisco was originally a bay estuary, gradually filled and built up. Surrounding the estuary were sand dunes and rocky cliffs, meandering creeks and marshes, attracting a wide range of wildlife.

The property manager called upon my services to troubleshoot an ailing street tree but, after examining the tree, I was drawn up the steps into the attractive, well-manicured garden space. The landscape had been replanted in 2001 with ficus, Japanese maples, Hornbeam trees, privet, star jasmine, agapanthus, ferns and other traditional plant choices. It was being maintained in a tightly pruned manner, preventing any plants from producing blooms. Some plants, which were not thriving, had been replaced with seasonal perennials from the landscape contractor's commercial grower. More than 30 color bowls and several areas of color rotation were planted with a single plant variety, and while making a color impact, they were not offering much habitat value to native wildlife.

At our first meeting, I asked the property manger if he would be open to some suggestions that might improve the habitat and diversity of the garden, and if he would accept plants that attract native and European bees, butterflies, hummingbirds, and other beneficial wildlife. At that moment, a hummingbird zoomed in front of us and, as if working a grid, she scanned every square inch of a tightly clipped

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Plant palette, using 4 inch and 1 gal. **Plant material**: *Juncus* 'Elk Blue' (California gray rush), *Ceanothus* 'Ray Hartman,' *Polystichum munitum* (Western sword fern), *Mimulus aurantiacus* Orange (sticky monkey flower), Iris Pacific 'Canyon Snow' (Douglas iris), *Heuchera* 'Canyon Delight' (Coral bells), *Festuca glauca* 'Elijah Blue' (dwarf blue fescue), *Carex praegracilis* (California field sedge), *Erigeron glaucus* 'Wayne Roderick' (seaside daisy), *Saliva sonomensis* x Bee's Bliss, *Epilobium canum* (California fuchsia), *Dudleya farinosa* (live forever), *Festuca idahoensis* 'Siskiyou Blue' (Idaho fescue), *Satureja douglasii* (Yerba Buena), *Penstemon* blue bedder 'Electric Blue' (Penstemon).
Seeds: *Eschscholizia californica* (California poppy), *Lupinus nanus* (sky lupine), *Phacelia tanacetifolia* (tansy phacelia), non-native *Lobularia maritime* (Alyssum Wonderland White), *Chrondopetalum* (cape rush) and *Carex divulsa* (Berkeley sedge).

Property management:
CAC Real Estate Management Co.

Landscape design and management:
Linda J. Novy & Associates

Landscape maintenance:
The Shooter Co.

Soil:
Roof mix with organic amendment

Nursery consultant and supplier:
Jim Dreer, Sweet Lane Nursery

Arborist firm:
Bartlett Tree Experts

Seed supplier:
Pacific Coast Seeds

privet hedge for a food source. Finding none, she flew off. The hummingbird's visit illuminated the lack of pollen and nectar at the property, and the property manager responded that yes, he was interested in improving the diversity of the property and welcomed the native wildlife. I began by working with the maintenance team, identifying the shrubs and ground cover that could be allowed to grow out and flower, and using targeted hand pruning to maintain their structure.

Phase two was to remove plants that were not thriving and infill areas with native and native-like plants. For example, the snail-host Liriope was removed and replaced with native iris, blue Fescue and coral bells, an excellent hummingbird host.

California field sedge was used under a specimen Japanese maple that previously was specified for azaleas and seasonal color rotation. This was more in keeping with the original ecology of the area, and would eliminate the constant disturbance of the maple's root system. A cluster of planters were renovated using ceanothus standards, Berkeley sedge, rushes, seaside daisy, fescue and dwarf penstemon, with interplanting of allysum to boost the insectary quality of the planting.

All these changes reduced the amount of seasonal color rotation while boosting the biological diversity of the landscape. The color rotation palette was broadened to include native-like perennials such as black eyed Susan (a bee attracting plant), Scabiosa, plus native dwarf penstemon with purple blue flowers. A section of the garden was infused with habit plants by interplanting natives with stands of flax. Native fuschia, salvia and sticky monkey flower were planted, and California poppy, tansy phacelia and lupine were seeded. Later phases of the renovation included infilling color rotation areas with native iris, Yerba Buena sword ferns and cape rush. White allysum, a well known insectary plant, was included in a permanent native planting that characterized a fresh water seep and sand dune plant community.

By introducing native plants, allowing the non-native hedges and ground cover to assume a more naturalistic habit, reducing annual color rotations and integrating longer lasting pollinator friendly perennials, the budget of this property has benefited – but equally important, so has the habitat for the native wildlife.

The next phase being considered is to change the high-maintenance lawn to native bent grass, which will reduce mowing and reflect the early ecology of the area.

The author is a sustainable landscape manager consulting nationally to property owners and managers. She received *Lawn & Landscape's* Leadership Award in 2000.

SUMMARY
In these case studies, it is clear that restoring native habitats tells a story of stewardship and creates a unique sense of place. The landscape industry has an important role to play in creating new landscape models that support regional ecosystems. This approach benefits everyone: the property manager conserves dollars and the environment, the landscape contractor cultivates horticultural and ecological skills, and natural systems are restored and supported. Even in cityscapes, in planters on structures, we can restore historical plant communities and welcome back beneficial wildlife.

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