

WATER-WISE CALIFORNIA NATIVE and EXOTIC PLANTS for RECYCLED IRRIGATION

By Carol Bornstein

Summary of presentation **given at “Conservation Forum on the Successful Use of Recycled Water and Drought Tolerant Plants in Park Settings”**, County of Los Angeles Dept. of Parks and Recreation, September 30, 2009

Introduction

As demand for California’s increasingly limited water supply continues unabated, water agencies and municipalities must seek new sources for landscape and agricultural irrigation. Recycled water is being promoted as one answer. A key question has yet to be satisfactorily answered, however: Which water-thrifty California native and non-native landscape plants can be successfully grown using recycled water? An informal survey of designed landscapes in the greater Santa Barbara area was conducted to address this question. It was determined that a wide array of trees, shrubs, succulents, and herbaceous species are thriving with recycled irrigation but that the results may not be applicable to other regions of the state. Numerous plants were illustrated in this presentation and are itemized on the accompanying list.

Methods

Addresses for landscapes irrigated with recycled water were obtained from the cities of Santa Barbara and Goleta. An informal survey of thirteen sites was made during the summer. The landscapes varied from highly manicured residential and commercial sites to public parks and naturalistic restoration sites. Healthy, well established plants were photographed and plant lists were compiled for each site. After the physical survey, the landscape managers of several sites were contacted and asked the following questions:

- How many years has the landscape installation been in place?
- How would you describe the soil?
- Was the soil amended at planting time? If so, what was used?
- Is the site fertilized? If so, how often and with what product(s)?
- Is the soil and water supply regularly tested and routinely monitored?
- What kind of irrigation system is used?
- What is the irrigation schedule?
- Is the planted area periodically leached and if so, how often?
- What problems, if any, have you had with the landscape?

In addition to the survey, a literature search was conducted to obtain lists of plants that are recommended for recycled irrigation. Comparisons between these lists and firsthand observations were made.

Results and Discussion

Despite considerable repetition of several species throughout the survey sites, a reasonably diverse selection of native and non-native plants are growing successfully with recycled irrigation in Santa Barbara area landscapes. Due to limitations of the survey, it was not possible to ascertain which species were tried and failed. It was interesting to note that many of the successful plants were included on the plant lists resulting from the literature search.

The surveyed sites reflect a variety of soils (from sandy to clay loam to highly manipulated soils on top of a landfill), fertilization practices (none to occasional), irrigation regimes, ages, and microclimates but do share one thing in common - proximity to the recycled water distribution lines. As a result, all of the sites fall within the cool coastal strip of *Sunset* zone 24.

Site managers for the most part had few problems with recycled water, except for the landfill location. There, the salt content of the water is highly variable depending upon time of year and chlorine is problematic, necessitating use of potable water to leach the soils from time to time.

Although the plants included in the survey are considered to be drought-tolerant (able to thrive on natural rainfall once established), many of these landscapes continue to be irrigated as much as 3 times a week during the summer months. With the exception of newly installed plants that require supplemental irrigation during the establishment phase, one must question such unnecessary irrigation, regardless of whether the source is potable or recycled water. In contrast, one of the surveyed sites (composed entirely of California native species) is irrigated only once a year and the plants were in good condition.

Conclusions

Based on this very informal survey, it is inappropriate as well as impossible to recommend the attached list of water-thrifty native and non-native plants for recycled irrigation in other parts of California. The tremendous diversity of climates and soil types around the state, coupled with widely varied planting, irrigation, fertilization, and mulching practices, points to the need for rigorous, science-based research trials in each geographic region where recycled water is available for landscape use. Without such experimentation, water purveyors and their customers must continue to rely primarily upon anecdotal information when selecting plants for recycled irrigation.

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CALIFORNIA NATIVES

Trees

Aesculus californica
*Calocedrus decurrens*¹
Lyonothamnus floribundus var. aspleniifolius
Myrica californica
P. torreyana
Pinus radiata
Quercus agrifolia
Sambucus mexicana
Umbellularia californica

Shrubs, Subshrubs, and Vines

**Abutilon palmeri*
Arctostaphylos 'Howard McMinn'
A. 'Sunset'
Artemisia californica 'Canyon Gray'
A. pycnocephala
Atriplex lentiformis ssp. breweri
Baccharis pilularis
Berberis nevinii
**Calliandra californica*
Ceanothus gloriosus 'Anchor Bay'
C. thyrsiflorus var. griseus 'Yankee Pt.'
**Cercocarpus betuloides*
Cercis occidentalis
Encelia californica
Eriogonum arborescens
E. cinereum
**E. fasciculatum*
E. grande var. rubescens
E. parviflorum
**Eriophyllum nevinii*
Garrya elliptica
Heteromeles arbutifolia
Isocoma menziesii
Isomeris arborea

¹ During my survey, I also observed italicized plants in good condition. Those with an * were young plants whose long-term tolerance of recycled water is uncertain.

**Justicia californica*
Lavatera assurgentiflora
Malacothamnus fasciculatus
Malosma laurina
Prunus ilicifolia
P. lyonii
Rhamnus californica
Rhus integrifolia
R. ovata
Ribes amarum
R. speciosum
R. viburnifolium
Rosa californica
Salvia apiana
S. leucophylla
S. mellifera
**Sphaeralcea ambigua*
**Verbena lilacina*
Vitis californica 'Roger's Red'

Herbaceous Perennials and Succulents

Carex praegracilis
Erigeron glaucus
Juncus patens
**Lessingia californica 'Silver Carpet'*
Leymus condensatus 'Canyon Prince'
**Mimulus aurantiacus*
Muhlenbergia rigens
Romneya coulteri
Salvia spathacea
Yucca whipplei
Zauschneria

EXOTICS

Trees

Arbutus unedo
Cupressus sempervirens
Erythrina caffra
Eucalyptus
Jacaranda mimosifolia
Koelreuteria bipinnata
Laurus nobilis
Melaleuca quinquinervia
Metrosideros excelsus
Olea europaea
Palms – Archontophoenix cunninghamiana, Chamaerops humilis, Syagrus romanzoffianum,
Washingtonia robusta
Punica granatum
Stenocarpus sinuatus

Shrubs, Subshrubs, and Vines

Bougainvillea
Buxus
Callistemon
Carissa macrocarpa
Cistus
Cordyline
Distictis
Echium candicans
Elaeagnus pungens
Escallonia
Europys pectinatus
Juniperus
Lantana
Lavandula
Lavatera
Leptospermum laevigatum
Melaleuca nesophila
Nerium oleander
Pittosporum crassifolium
P. tobira
Raphiolepis
Rosmarinus officinalis
Salvia leucantha
Santolina chamaeparissus
Solanum jasminoides
Tagetes lemmonii
Westringia fruticosa
Xylosma congestum

Herbaceous Perennials and Succulents

Agapanthus
Agave
Aloe
Anigozanthos
Arctotis acaulis
Crassula falcata
C. ovata
Dymondia margaretae
Erigeron karvinskianus
Gazania
Hemerocallis
Ornamental grasses – *Muhlenbergia capillaris*, *M. lindheimeri*, *Nassella tenuissima*
Phormium
Senecio mandraliscae
Strelizia reginae