

Groundcovers for Water Conserving Landscapes

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Landscape groundcovers are a diverse group of trailing or spreading plants that naturally form a continuous soil covering. They can range in height from about six inches to nearly three feet tall, and may be woody, herbaceous, or succulent. Groundcovers are often looked upon as turfgrass substitutes in irrigated landscapes of the southwestern United States based on the presumption they require less water and other inputs to maintain high aesthetic quality. There is limited research-based information quantifying water requirements and climatic adaptability of the many plants that are potential landscape groundcovers. Unlike turfgrass, much of the information describing groundcover irrigation needs is anecdotal and non-quantitative. Thus, it can be impossible to accurately compare water needs of many groundcovers to those of turfgrass.

In a previous study, we looked at six groundcovers representing a range of growth habits and potential adaptations to drought to compare their minimum water needs. We found they varied widely and unpredictably in their minimum water needs and drought responses. We concluded that many groundcover species (in our study *Vinca major*, *Baccharis pilularis*, *Drosanthemum hispidum*, and *Hedera helix*) are able to maintain acceptable landscape performance when presented with significant drought and have minimum water needs around 30-40% of ETo, which is similar to that of warm-season turfgrass. Other species (exemplified in our study by *Potentilla tabernaemontanii* and *Gazania hybrid*) are not able to withstand any drought and have minimum water needs similar to cool-season turfgrasses. Thus, the idea is not true that groundcovers in general require less water than turfgrass to remain aesthetically appealing in the landscape.

This new study of 18 groundcover plant materials is designed to evaluate adaptation to the inland valley climate and performance at a reduced level of irrigation. After these plants become established, we plan to challenge them with decreasing levels of irrigation beginning with 60% of real-time ETo. The plants represent a mix of native, so-called California-Friendly, and non-native as well as woody and herbaceous plant materials.

Study Design:

- ◆ 18 species
- ◆ 1 irrigation treatment; 3 replications of each species
- ◆ 54 sub-plots 10 ft. × 10 ft. each
- ◆ Sprinkler irrigation
- ◆ Plants transplanted from #1 containers or from flats as rooted cuttings
- ◆ No soil amendment

GROUNDCOVER RESPONSE TO LIMITED IRRIGATION STUDY – U.C. RIVERSIDE

Specific Epithet	Common Name	Source Size^z	Date Planted	Notes
1. <i>Drosanthemum speciosum</i> , <i>Delosperma</i> , <i>Mesembryanthemum</i> ??	Vygie, ice plant	Altman Plants #1 container	4-2-10	Vygies (Afrikaans for mesembs, fam. Aizoaceae), So. Africa native, spring flowering, re-flowers in summer
2. <i>Rosmarinus officianalis</i> „Irene’	prostrate rosemary	Native Sons 4-in. pot	11-4-09	Reportedly very low-growing
3. <i>Convolvulus sabatius</i> (<i>Convolvulus sabatius</i> ssp. <i>Mauritanicus</i>)	ground morning glory	Native Sons 4-in. pot	11-4-09 repltd 4-2-10	Reportedly drought resistant, 1-2 ft. H × 2-3 ft. W, lavender flowers, Italy-Yugos-NoAf native, hardy to 25°F
4. <i>Achillea millefolium</i> „Sonoma Coast’	common yarrow	Native Sons #1 container	11-4-09	California native plant, white flowers
5. <i>Thymus praecox arcticus</i> (T. <i>praecox</i> subsp. <i>Arcticus</i> ; T. <i>serpyllum</i>) „Pink Chintz’	creeping thyme	Native Sons 4-in. pot	11-4-09	Reportedly grows 1-in. ht., pink flowers, attract bees
6. <i>Atriplex cinerea</i>	coastal salt bush	Native Sons #1 container	11-4-09	Silver foliage, reportedly low-spreading, Australian native
7. <i>Correa</i> X unk. „Dusky Bells’ („Carmine Bells’)	Australian fuchsia	Native Sons #1 container	11-4-09	Reportedly low wide-spreading, deep red flowers, Australian native
8. <i>Geranium</i> X <i>cantabrigiense</i> „Biokova’	cranesbill	Native Sons #1 container	11-4-09	Reportedly very low and spreading, flowers winter/spring
9. <i>Juniperus horizontalis</i> „Wiltonii’	blue rug juniper	Monrovia #1 container	12-2-09	Very flat dense growing, trailing branches, silver blue foliage
10. <i>Hypericum calycinum</i> L.	creeping St. Johnswort, Aaron’s beard	Expertise Growers cuttings in flats	10-29-09	
11. <i>Salvia sonomensis</i> „Gracias’ (<i>S. sonomensis</i> X <i>S. clevelandii</i>)	creeping sage	Las Palitas #1 container	9-11-09	Calif. Native, reported low growing, wide spreading, lavender-blue flowers, possibly a hybrid of <i>S. sonomensis</i> X <i>S. clevelandii</i> , flowers winter/spring
12. <i>Aptenia cordifolia</i> (L.f.) N.E. Br. (<i>A. cordifolia</i> X <i>A. haeckeliana</i> ??)	Red apple	Expertise Growers cuttings in flats	10-29-09 add plt 4-2-10	Ice plant relative
13. <i>Lantana montevidensis</i>	trailing purple lantana	Expertise Growers cuttings in flats	10-29-09 add plt 4-8-10	Common landscape lantana, flowers spring
14. <i>Trachelospermum jasminoides</i>	star jasmine	Expertise Growers cuttings in flats	10-29-09	
15. <i>Sedum</i> spp.	Mixed sedums	Altman Plants 8 ft. × 8 ft. mats	3-31-10	Sod-like product with cuttings of 4 sedum spp. Rooted in jute mat under laden with plastic netting
16. <i>Buchloe dactyloides</i> „U.C. Verde’	Buffalograss	Todd Valley Farms plugs	4-8-09	Performance standard under limited irrigation
17. <i>Corethrogyne filaginifolia</i> „Silver Carpet’	California aster, common corethrogyne	Las Palitas #1 container	9-11-09	California native plant
18. <i>Lonicera japonica</i> „Halliana’	Hall’s honeysuckle, Japanese honeysuckle	Expertise Growers cuttings in flats	10-29-09	Reportedly tolerates drought well