

The Lay of the Land

The Newsletter of the Solano Resource Conservation District

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Springing Forward in our (Very) Dry State

By Christopher Rose, Executive Director

By the time you read this, we'll have almost one month of spring under our belts. We'll also have lived through the driest winter on record, and be well into our third year of drought. Though we've had a little rain here and there, everyone who manages water in any capacity in the state is putting plans in place to try and deal with a record shortfall. Here at the RCD, staff and volunteers are putting the last of our plants in the ground for the season, establishing water-efficient irrigation systems, attacking weeds and getting ready for a long dry summer.

District staff have been rethinking the ways we plan and establish plants in restoration projects when there is no expectation of impending rain or confidence in future rain events. It reminds us that we live in a naturally dry state. If we're going to have enough water, both this year and in the future, all of us need to rethink what we spend our limited water budget on, and why. Saving water is urgently important. We need to build and protect a healthy reserve to see us through in tough years, and one way to do that with water is to rethink the way we live to use less all the time.

SRCD has supported gardening with drought tolerant California natives and naturalized hybrids for a long time. One of the best ways to achieve big water savings is to convert lawn areas- which can use more water than all other home uses combined- into drought tolerant plantings featuring native grass meadows or native shrubs. The Solano County Water Agency offers a one-time rebate to customers who replace their turf drought tolerant meadows, mulched drought-tolerant shrubs or permeable hardscape, and RCD staff can help you plan for the switch.

Plants native to Solano County and similar areas evolved to survive in drought conditions, and require much less

water to flourish than species evolved to live in wetter climates. A garden planted with a variety of native plants provides habitat and nectar sources throughout the year to support local and migratory beneficial insects, birds and wildlife. In urban areas, native gardens provide wildlife habitat and cover where none would otherwise exist.

What a perfect time for our Spring Plant Sale! As always, the plant sale features drought tolerant California native plants and other regionally appropriate drought tolerant species. Set for

May 3rd this year, the event will feature over twenty species of reasonably priced plants for your garden, fenceline or back forty. SRCD staff and Board members and volunteers from the Solano County Master Gardeners will be on hand to assist you in picking the appropriate plants for your specific needs and site conditions. Solano RCD staff will give a presentation and answer questions about drought tolerant gardening with California natives from 10:00 to 11:00 am. Staff from the Solano County Water Agency will also be present to answer question about their turf replacement rebate program. We look forward to seeing you there!



Jean Callison Elementary students from Ms. Cherry's class plant CA grape while working with Solano Resource Conservation District in a late winter restoration project along Alamo Creek.

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Replace Your Lawn with Native and Drought-tolerant Shrubs

Featuring Solano RCD's Top Ten Water-thrifty Shrubs

by Amy King

The recipe to success in saving water, controlling weeds and benefiting wildlife in your low maintenance shrub garden includes several main ingredients:

- Drip irrigation
- Mulch over the unvegetated areas
- A variety of shrubs that flower at staggered times of year and are easy to maintain

Choosing your plants is the fun part! Here are some of our top recommendations for Solano County gardens (in no particular order):

1. **Deer grass** (*Muhlenbergia rigens*) – large bunch grass, provides cover and seed for wildlife, Central Valley native.
2. **Foothill penstemon** (*Penstemon heterophyllus*) – beautiful purple-blue flowers attract bees and hummingbirds, Solano County native (foothills).
3. **CA fuchsia** (*Epilobium canum*) – late summer flowers attract hummingbirds, can take some shade, Solano County native (foothills).

4. **Yarrow** (*Achillea millefolium*) – flowers attract butterflies all summer long, good ground cover, can take some shade, Solano County native.



Yarrow Photo by Georg Slickers

5. **CA lilac** (*Ceanothus spp.*) – beautiful spring flowers that are true-blue, attracts bees and butterflies, Solano County native (foothills).

6. **Coral bells** (*Heuchera spp.*) – delicate spring flowers, takes substantial shade, Solano County native.
7. **Western redbud** (*Cercis occidentalis*) – lovely small tree with striking purple flowers in early spring, important food source for hummingbirds, Solano County native (foothills).



Western redbud Stock Photo

8. **Lavender** (*Lavandula spp.*) – Very tough garden plant, attracts bees and butterflies, smells great. Not native.
9. **Matilija poppy** (*Romneya coulteri*) – large showy flowers, good tall ground cover for very dry slopes, Southern CA native.



Matilija poppy Stock Photo

10. **Pacific Coast Hybrid Iris** (*Iris douglasiana hybrids*) – diversity of colors available, beautiful spring flowers on perennial bulbs, good ground cover. Bred from CA native iris.



Douglas iris Photo by Cliff Hulson

Convert Your Water-Hungry Lawn to a Native Meadow

It's easy to do and better for wildlife!

by Katherine Holmes

So... you want to replace your water-hungry lawn, but you don't want to convert it to mulch and shrubs? Perhaps you have pets that like to lie on your lawn, or perhaps you just like the look of grass... Luckily it's easy to use native grasses and sedges to create a meadow that provides the look of a lawn but needs very little water once established. You can even tuck in bulbs and wildflowers to fill your new meadow with flowers!

Selecting your species

After you get rid of your existing lawn (see the article on page 6), the next step is to select your native grass or sedge. The table on the next page will help guide you to the right species for your situation. This table was compiled from a variety of resources, including the book "Know Your Natives", produced by Yolo RCD.

Summer water?

If you are OK with watering at least 2-3 times a month during the summer, you can select any species from the table. Even those that normally go dormant in the summer under natural conditions will stay green with some water. However, if you don't want to water at all in the summer, select species from the bottom half of the table. They will turn brown during hot weather if not watered, but will green up after the first rain.

Growth form (3rd column in the table) If you want a solid, continuous mass of grass, pick a rhizomatous species, which grows by forming a dense mass of grass stems. If you like a "bunchier" look, with room for bulbs or wildflowers, select a bunchgrass.

Awns (4th column) Some native grasses have seed heads with sharp, needle-like awns. If dogs with long, fluffy hair have access to your meadow, you may want to consider picking a species with short awns. Another option is to mow or cut off the seed heads before they develop awns.

Height (5th column) Most native grasses and sedges naturally grow to a height that is taller than a typical sod lawn. The table gives height ranges, which can vary depending upon soil type, sunlight, and nutrients. Although some species can be mowed (11th column), there are limits as to how much you can reduce the height of some grasses without damaging them. The heights given for bunchgrasses include their flower stalks. These can easily be trimmed off without hurting the bunchgrass.

Growth season (6th column) Warm season grasses grow actively in the summer (but need water to do that), while cool season grasses grow naturally in the winter (with the rain). Cool season grasses are usually dormant in the summer, but can be tricked into staying green with occasional irrigation. A couple of the warm season species are winter dormant and will turn brown in cold weather.

Water, Exposure, Soil (7th, 8th and 9th columns)

Different species prefer different amounts of water and sun. Some do better in sandy soils while others can tolerate the heavy clay soils so common in Solano County. Make sure you match up the

conditions at your site with the requirements of the species you are thinking of using.

Planting (10th column) Many native grasses can be grown from seed, but most sedges and a few grasses have to be planted as small plug plants (more on that later).

Installing your meadow

Where to buy your natives? There are a number of nurseries in the area that sell native grasses and sedges; try searching for "native grass supplier northern California" on your web browser. Here at Solano RCD, we often buy our grass seed and plugs from Hedgerow Farms in Winters.



Native meadows, like this one made of slender sedge (Carex praegracilis), can be very pet-friendly. Photo by Mick Klasson

Continued on page 4

Meadow, continued

Timing The best time to install your meadow is in February or March, before it gets too hot. Make sure the soil is NOT saturated when you are doing heavy work to protect soil structure and prevent compaction.

Planting from seed, you will need to rototill. Use a rake to break up large clumps of soil and create a finely-textured seed bed. Use



Plug tray and dibble stick, with purple needle grass (*Nassella pulchra*) in background. Photo by Mick Klasson

a broadcast seeder to spread seed evenly: your target is 50-75 seeds per square foot or 3/4 pound per 1,000 square feet. You should count the number of seeds in a square foot to make sure you are seeding at the correct rate. Then, lightly rake

deeper than the depth of the plug root mass. Then jam the plug into the bottom of the hole, so that the surface of the plug is about 1/2 inch below the surface of the soil. Finally

seeds into soil - this improves soil-seed contact and hides the seed from birds.

Planting from plugs, you will need to purchase grasses or sedges in special trays that have small plants growing in 1"x 1"x 4" cells. Plugs are best planted with a dibble stick (see picture), which you can buy on-line or make yourself with an old broom stick or even a construction stake. Use your dibble to create a small hole slightly

Species of native grasses and sedges appropriate for Solano County low-water meadows

Needs some amount of summer water

1. Name	2. Native habitat	3. Growth form	4. Awns	5. Height	6. Active growth season
Santa Barbara sedge <i>Carex barbarae</i>	Riverbanks and seasonal sloughs	Rhizomatous - forms a dense mass of stems	None	12-24 inches	Active growth in summer, green year round
Sand dune sedge <i>Carex pansa</i>	Coastal sand dunes	Rhizomatous - forms a dense mass of stems	None	8-12 inches	Green year round with watering
Slender sedge <i>Carex praegracilis</i>	Floodplains and wet meadows	Rhizomatous - forms a dense mass of stems	None	8-18 inches	Warm season growth, may go dormant in winter
California oatgrass <i>Danthonia californica</i>	Moist, open mountain meadows	Densely tufted bunchgrass	1/2 inch	20-36 inches, including tall flower stalks	Active growth in cool season
Saltgrass <i>Distichlis spicata</i>	Floodplains and salt marshes	Rhizomatous, forms low mat, looks similar to bermuda grass	None	4-16 inches	Warm season growth, winter dormant

Naturally dormant during summer, but summer watering will keep green year round

1. Name	2. Native habitat	3. Growth form	4. Awns	5. Height	6. Active growth season
Red fescue <i>Festuca rubra</i>	Coastal regions with 18+ inches of rain/year	Somewhat rhizomatous bunch grass, loosely tufted	None	12-30 inches, including tall flower stalks	Cool or warm, depending upon temperature and water
Junegrass <i>Koeleria macrantha</i>	Dry open sites in foothills/mountains	Bunchgrass	None	18-24 inches, including tall flower stalks	Cool season growth at low elevations
Coast range melic <i>Melica imperfecta</i>	Dry rocky hillsides and oak woodlands	Loosely tufted bunchgrass, can be rhizomatous	None	12-24 inches, including tall flower stalks	Active growth in cool season
Idaho fescue <i>Festuca idahoensis</i>	Foothill oak woodlands	Bunchgrass, cespitose or cushion-like form	1/8 inch	12-36 inches, including tall flower stalks	Cool season - dormant late summer to winter, growth starts in spring
Purple needlegrass <i>Nassella pulchra</i>	Central Valley and foothill grasslands	Bunchgrass	4 inches	12-40 inches, including tall flower stalks	Cool season - starts growth with first fall rains

pinch the native soil over the top of the root mass so that the plug is sealed into the soil. Depending upon how much room you want for wildflowers or bulbs, plant your grass/sedge plugs 6 to 12 inches apart.

Watering Water once a week or so for the first couple months until the new grasses or sedges are well established. Most natives can get by on a deep watering about twice a month during the summer (May-October), although a few of the coastal species may need a bit more frequent watering here in our hot Central Valley summers.

Diversifying your meadow Consider using several different grass and sedge species in a single meadow; differing heights

and textures can create an interesting mosaic. You may want to use different species in shady versus sunny exposures. It's also a great idea to include flowering species in your meadow, since this greatly improves wildlife habitat by providing nectar

and pollen for birds, butterflies, and bees. Bulbs (crocus, daffodils) and wildflower plugs (yarrow, milkweed) can be planted in the spaces between bunchgrasses, while other wildflowers (poppies, lupine) will sprout from sprinkled seeds.

Workshop If you want to learn more, Solano RCD will be hosting a "Replace Your Lawn" workshop at our native plant sale on Saturday, May 3rd from 10:00 to 11:00 at 6390 Lewis Road.



Wildflowers, like yarrow (Achillea millefolium), will increase the habitat value of your meadow. Photo by George Hartwell

7. Water	8. Exposure	9. Soil	10. Planting	11. Mowing and foot traffic
Fairly drought tolerant, but requires summer water	Sun, part sun, shade		Plugs only	
Fairly drought tolerant, but requires summer water	Sun, part sun, shade	Prefers sandy soil, but can be grown in clay soils	Plugs only	Handles mowing well, tolerates moderate foot traffic
Tolerates long periods of standing water as well as long dry periods	Sun, part sun, shade		Plugs only	Handles mowing well
Requires moist soils	Sun		Seeds or plugs	Regular mowing leads to turf-like cover, tolerates foot traffic
Can tolerate prolonged arid conditions	Sun, part sun		Plugs only	

7. Water	8. Exposure	9. Soil	10. Planting	11. Mowing and foot traffic
Drought tolerant, but may stay green all year if given summer water	Does well in full sun; needs shade in Central Valley		Seeds or plugs	Handles mowing well
Water once a month in hot summers	Sun	Needs well-drained, sandy soils if watered during summer	Seeds or plugs	Mow once a month if desired
Stays green during summer if watered	Sun, part sun, shade		Seeds or plugs	Tolerates mowing but do NOT cut to less than 6 inches tall
	Full sun to part sun	Grows on many soils, does best on well-drained sandy loams	Seeds or plugs	Tolerant of mowing
Very drought tolerant	Full sun to part sun	Adapted to clay soils	Seeds or plugs	Good tolerance of mowing

The First Step: Removing your Lawn

By Miles Da Prato

So, are you ready to “close the valve” on your lawn and convert the yard space to a native grass or sedge meadow, a mulched shrub dominated design, or a hybrid of those mixed with home grown produce? There are several ways you can transition from a high water-use lawn to something much more water thrifty. I just went through this process myself, so I can share lessons learned from real life experience. One caveat is that the yard will go through a bit of an ugly phase during the transition. Don't let anyone's dubious looks worry you during this phase- keep your eye on the end result and you (and your neighbors) won't be disappointed.

First the Preparation: Before getting started with the lawn killing method of choice, it is important to evaluate the existing irrigation system (where the risers are located, where the underground pipe runs, how deep, etc.) and what the new system will look like. In my case, I wanted to cap most of the existing sprinkler head locations and install a couple of drip irrigation source risers in their place that I could tie into. However, once I started digging, I discovered that the PVC 1/2 inch mainlines were only buried 3-4 inches deep and were likely to be damaged with my planned roto-tilling.

Take the time to dig around the existing riser locations and PVC mainline to ensure that they are compatible with your soil preparation and planting plans and make any necessary modifications. For example, if you're converting to a meadow, you will likely require occasional sprinkler irrigation, so you will want to leave some risers in place, and increase riser height by 18". A mulch and shrub-scape can be strictly drip irrigated- which entails capping most sprinkler risers and turning a couple into a drip supply source for the start of your drip line runs.



Plumbing new drip connections in place of overhead sprinklers.

Once the irrigation issues are sorted out, there are multiple ways to kill your lawn. Some people use a combination of techniques. There is no right or wrong way: your project timeline and comfort level will dictate which techniques you use and when. The timeline associated with my own lawn removal consisted of spring/summer lawn destruction followed by a winter, early spring installation of the replacement. Here are some options for lawn-killing:

Chemical Application: Make sure your lawn is healthy and well watered. Though it seems counterintuitive, a chemical application of an appropriate systemic (root penetrating) herbicide is most effective if applied to non-stressed/actively growing grasses. The primary grass species in my lawn was Bermuda grass. This is pretty much the worse-case scenario since this species has very extensive and strong root systems that are extremely resilient. Following all herbicide label safety and rate recommendations, I sprayed Round-Up herbicide to the actively growing grass in the spring. With this species, it was necessary to irrigate the lawn multiple times over the course of the summer to



Modifying the existing irrigation system before getting started.

stimulate growth so that a second spray was possible in the mid to late summer. When Bermuda is not present, one application may be all that is needed. Regardless of the species of grass, irrigate the seemingly dead stand to see if a follow up treatment is necessary.

Mechanical Removal: Ranging from small home use tractors or Bobcats, to the good old-fashioned shovel blade, another option (often complimentary to the chemical option) is to physically scrape out or rototill the sod layer into the soil. Be wary of using this technique alone when dealing with a species like Bermuda grass because the chopping of underground stems (called rhizomes) into smaller fragments can actually spread the grass around the yard. I strongly recommend considering a combination of techniques and extending your prep timeline when dealing with this species. Mechanical soil preparation is ideally done when there is some moisture in the soil beneath the lawn.

If you're replacing the lawn with a mulched shrub planting or vegetable garden, the best timing is late winter/early spring. For a seeded or plugged meadow replacement, the best time is early fall. After the physical removal of the grass and upper root layer, irrigate and watch for re-sprouts and missed fragments. Repeat as necessary.

Creating a smooth and well prepared soil surface (amended with plenty of compost) with whatever equipment you settle on will help ensure the successful establishment of any new planting.



Incorporating compost with an 8hp rototiller.

Mulching: The mulching option works by starving the grass of sunlight for an extended period of time.

Overlapping layers of newspaper and cardboard has been shown to be an effective technique as has the application of a thick bark mulch layer (often 6-8 inches deep). With both techniques it is recommended to water the mulch after application to create an effective seal over the grass layer. The mulch layer can be left in place and easily planted into.

Solarizing: The solarizing technique works best in hot summer weather and effectively cooks the existing grass stand and many of the weed seeds stored in the top layer of soil. This can be done with either clear or black plastic tarps laid out over a recently trimmed and watered lawn area. The plastic must be fastened down to the ground fairly well with weights or staples to minimize the loss of heat. The length of time the plastic should stay on the ground is variable based on the level of heat generated (local summer temperatures) and the amount of stored energy in the root system of the grass. Check after 6-8 weeks and extend the solarizing period if necessary.



Ready to plant!

I found a couple of informative websites when getting started with my lawn removal:

http://ucanr.edu/sites/scmg/Lawn_Replacement/Grass_Removal_Methods/

<http://losangelesaudubon.org/index.php/education-mainmenu-194/science-illustration-mainmenu-244/926-kill-your-lawn-comic-book>

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Solano Resource Conservation District

Annual Spring Plant Sale

May 3, 2014

8:00 am-12:00 pm

at the Conservation Education Center
6390 Lewis Road, Vacaville

Featuring California native & regionally appropriate plants

Join us for a FREE

Water Thrifty Landscaping and Irrigation workshop from 10 to 11 am.

cash or checks only, please
Map is available at www.solanorcd.org

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Solano RCD's Spring Native Plant Sale is May 3rd



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