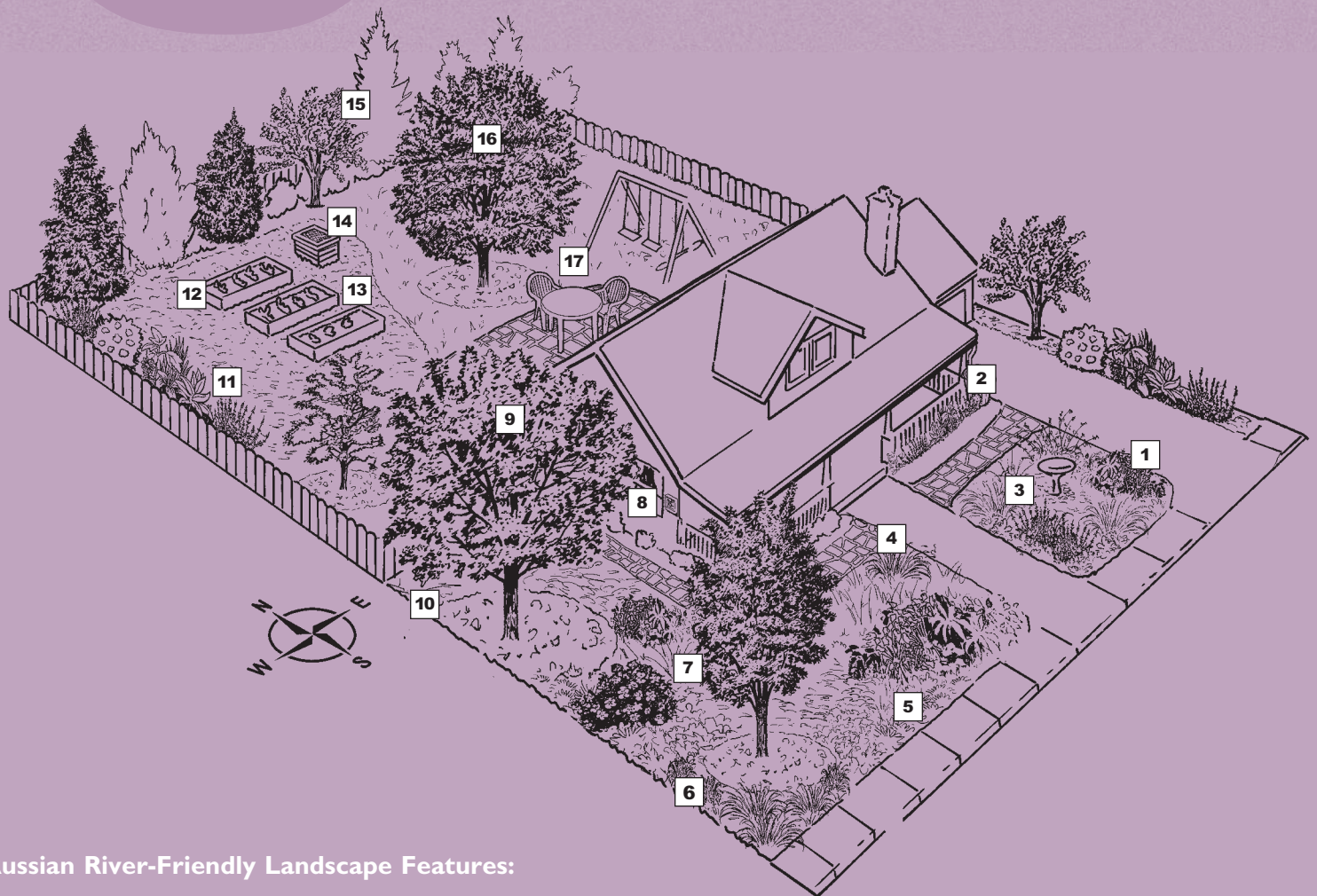


Russian River-Friendly Landscaping Principles and Practices



Russian River-Friendly Landscape Features:

- | | | |
|---|---|---|
| <p>1 Permeable paving on driveway and walkway to front door</p> <p>2 Water from roof channeled to cistern</p> <p>3 Water for wildlife habitat</p> <p>4 Pavers with spaces and low water use plants between</p> <p>5 Front lawn replaced by diverse plantings with many California native groundcovers, shrubs and trees, but no invasive species</p> | <p>6 All plants given the space to grow to their natural size</p> <p>7 Plants selected to match the microclimates</p> <p>8 Irrigation controller waters hydrozones according to plant needs, soil moisture and weather</p> <p>9 Deciduous trees placed to the west and southwest of the house and patio for summer cooling</p> <p>10 Repository for leaves to collect under trees as mulch</p> | <p>11 Mulched paths keep soil covered</p> <p>12 Drip irrigation for vegetable beds, shrubs, trees and elsewhere where feasible</p> <p>13 Raised beds are constructed from plastic or composite lumber</p> <p>14 Compost bin recycles plant and kitchen debris</p> <p>15 Evergreen windbreak blocks north winter winds</p> <p>16 Trees not topped but pruned properly</p> <p>17 Small lawn in backyard where family will use it</p> |
|---|---|---|

1. LANDSCAPE LOCALLY



Russian River-Friendly landscaping recognizes that our landscapes, whether they are commercial, institutional, residential or open space, are part of the larger ecosystem of the Russian River Watershed. It does not mean that the landscape must be wild and uncontrolled, but rather on the whole, it respects the natural attributes of our region and contributes to the health, diversity and sustainability of the Russian River ecosystem.

In return, many of the natural processes of a well functioning ecosystem, like nutrient cycling, can benefit the landscape you design, construct or maintain. In addition, your clients are re-connected to nature through their landscapes.

I. Select and evaluate the site carefully

Description

Careful selection and evaluation will reveal both the opportunities and the limits of the site. Consider the unique features of smaller zones within the site, which could mean the difference between life and death for some plants.

Applications

- Locate sites within urban growth boundaries, clean up brownfields and avoid environmentally sensitive sites.
- Visit the site and among other features, identify on a site map the:
 - Sunny, shady and partly shady areas
 - Hot spots along south facing walls and fences
 - Wet or dry spots
 - Windy or exposed areas and the direction of prevailing winds
 - Slopes
 - Frost pockets
 - Shape and size of planting areas
 - Zones with difficult access
 - Water flow
- Visit [Visit www.bayfriendly.org](http://www.bayfriendly.org) for a free copy of the Site Analysis template. Click on: 'Landscape Professionals' > 'Scorecard, Tools & Resources' > 'Site Planning'

Benefits

This knowledge is critical to all other Russian River-Friendly landscaping practices — particularly being able to select plant materials that match the site. It places the landscape in the context of the Russian River Watershed. In the long run, it allows you to collaborate with nature, saving you time and money.



“We are in the business of land management, and therefore ecosystem management.

The landscape industry is positioned very well to heal our ecosystems in urban and rural settings. Healing our ecosystems will heal the ability of life to thrive!”

— Jacob Voit, Sustainability Manager, Cagwin & Dorward, Novato



PHOTO: SUSAN REYNOLDS PHOTOGRAPHY

2. Assess the soil and test drainage

Description

Know the soil: its organic matter, fertility, texture, and structure. Identify problems such as compaction layers, poor drainage, or contamination with heavy metals, salts or toxic compounds. This knowledge will help you determine the soil quality, the types of plants it can best support and any need for supplements.

Applications

- Locate the landscape site on a soil survey map (available from the local library or the USDA Natural Resource Conservation Service at <http://websoilsurvey.nrcs.usda.gov>)
- Review site grading specifications.
- Visit the site and take handfuls of the soil to determine the texture by feel.
- Check for compaction zones with probes, augers or shovels. Test drainage in several spots.

- Sample the soil from different zones in the landscape - and remember that different plants have different nutrient requirements. Send soil samples for an analysis of the soil pH, organic matter, nutrients and potential contaminants.
- Identify soil characteristics on a site map.
- Do an initial soil analysis, and then annually during the transition to a Russian River-Friendly landscape. Also do a soil analysis:
 - When planning a renovation
 - When experiencing ongoing problems
- Watch the weeds. Clover, in turf, for example suggests a need for nitrogen.

Benefits

Understanding the soil is critical to landscaping in an environmentally friendly manner. Plants are more likely to be placed appropriately and fertilizers used only as needed.



PHOTO: MUNICIPAL WATER DISTRICT OF ORANGE COUNTY, LANDSCAPE MANAGEMENT FOR WATER SAVINGS BY TOM ASH.

3. Survey and protect flora and fauna

Description

Existing flora and fauna provide insight into the ecosystem health and the landscape possibilities. Native vegetation, wildlife habitat and sensitive areas such as wetlands may need protection. Invasive species will need active control.

Applications

- Identify plant species and communities, especially California natives, invasive or endangered species and wetlands.
- Learn what wildlife inhabit or move through the site or have historically inhabited the site. Consider what they used for food and shelter. Plan for restoration.
- Ask your clients to identify plants that are of value to them.
- Become familiar with local tree ordinances and wetland or endangered species regulations.
- Develop a plan for preserving existing trees and shrubs or engage the services of a certified arborist to help you create the plan.

Benefits

Conserving or restoring local flora, fauna and habitat provides your clients with a sense of place. Native plants can make the job easier for the landscape professional.



TIPS FOR SUCCESS

Soil Texture by Feel

Take a 1 or 2 tablespoon sample of soil into your hand. Slowly add water and knead the sample until moist. Try to form the sample into a ball. Squeeze it to see if you can make a cast (an impression of your fingers). Gently stretch the soil out between your thumb and forefinger and try and make a ribbon. Note the feel of the soil as you are working it and use the table below to determine its texture:

Characteristics of Soil Sample	Soil Texture
Soil will not stay in a ball. Loose and single-grained with a gritty feeling when moistened.	Sand
A cast will form but it can't be handled without breaking and will not form into a ribbon. Soil feels slightly gritty.	Loamy sand
A short ribbon can be formed but breaks when about 1/2 inch long .	Loam
A ribbon can be formed. The ribbon is moderately strong until it breaks at about 3/4 inch length. Soil feels slightly sticky.	Clay loam
The soil can easily be formed into a ribbon 1 inch or longer. Soil feels very sticky.	Clay

ADAPTED FROM: S.J. THEIN, A FLOW DIAGRAM FOR TEACHING TEXTURE BY FEEL ANALYSIS, JOURNAL OF AGRON. EDU.

4. Consider the potential for fire

Description

The potential for fire in the Russian River Watershed can be great, and landscaping is a critical factor. Understanding the topography, fuel and local weather are critical to designing and maintaining a landscape that reduces the potential for loss to fire. Plant selection is also very important to reducing the fuel load and avoiding fire ladders. Some species — “pyrophites” — ignite readily and burn intensely. Dense vegetation in hedges, screens or espaliers can be a fire hazard because the competition for limited water, nutrients and space results in a large amount of dry twiggy material.

Applications

- For sites adjacent to fire-sensitive slopes, open space or wildland:
 - Create a Fire Mitigation Plan that identifies adjacent fire-sensitive wildland or open space or developments, exposure to prevailing winds during the dry season, steep slopes (especially south and west facing that can increase wind speed and convey heat), and vegetation type (particularly species that burn readily). Specify mitigations to these fire vectors, including the establishment of a “defensible zone” immediately surrounding the structure, that use one or more strategies for firescaping, such as:
 - Emphasize plants with low fuel volume and/or high moisture content in planting plans.

- Avoid plants with high oil content or that tend to accumulate excessive dead wood or debris (pyrophites).
- Assure that trees are well-spaced and pruned to 6 feet minimum above ground, and that dense shrub plantings are separate from trees, to minimize fuel ladders.
- Plant trees and tall shrubs where limbs and branches will not reach the building or grow under overhangs as they mature.
- Avoid finely shredded bark mulch.
- Face and construct decks out of fire-resistant materials.

- Contact the local fire department for assistance in understanding the fire risk at a particular site and for additional guidance in reducing that risk, particularly for sites at the urban-wildland interface.

Benefits

Landscapes can be designed to reduce the fire hazard, with a clearer understanding of the risks, proper design and choice of plants.



PHOTO: VIRGINIA PORTER

African Corn Lily (*Ixia*) bulbs produce foliage and flowers with very little water other than winter rains. Foliage dies to the ground before late summer, leaving no flammable debris for fire season.



“To reduce fire hazard, avoid plants native to chaparral such

as chemise and some ceanothus. Favor flowering herbaceous perennials instead of woody trees and shrubs.”

— Denise Cadman, Natural Resource Specialist, City of Santa Rosa



TIPS FOR SUCCESS

Fire-Resistant Plants

- Most are broadleaf deciduous trees but some thick-leaf evergreens are also fire-resistant.
- Leaves tend to be supple, moist and easily crushed.
- Trees tend to be clean, not bushy, and have little deadwood.
- Shrubs are low-growing (2') with minimal dead material.
- Tall shrubs are clean, not bushy.
- Sap is water-like and typically does not have a strong odor.

SOURCE: R. MORITZ AND P. SVIHRA, PYROPHYTIC VS FIRE RESISTANT PLANTS, UCCE.

5. Use local, natural plant communities as models

Description

A plant community is a relatively distinct pattern of vegetation that is found in different regions of the Russian River Watershed. Six of these local plant communities are briefly described in the next section of these guidelines. It is important to also consider that species of plants within these communities overlap and that they change over time.

Applications

- Learn about local plant communities.
- Train yourself and your staff to recognize local plant communities and to evaluate the conditions under which the plants are succeeding.
- Use these communities to guide your choice of plant selection. Be careful with the Chaparral community as it is prone to fire.
- Plant seeds of annuals to fill in with color and greenery while slower growing perennials get established.

Benefits

Using the local, natural plant communities as a model allows you to work with nature to create spectacular landscapes that can help replace what's so often been degraded or lost.



Russian River Watershed Natural Plant Communities

Many local native species are excellent landscape plants. You can imitate natural processes by using the plant community concept to organize plantings. Blending the science of ecology with the practice of horticulture, you can create landscape projects that assume some of the beautiful natural qualities of our area.

If you choose plants in response to the site conditions, the new planting will probably become established easily. There will be no need for the special fertilizing, pest control, and heavy irrigation that have been so common in the past. The plants grow easily because they're adapted to this place - they've lived here for thousands of years! If you visit our native wildlands, you will notice that a particular species might be abundant in a given area, only occasionally present in an adjacent space, and completely absent elsewhere. You may also recognize, as you move from south facing to north facing slopes or from exposed ridges to wooded canyons that certain groups of plants tend to grow together. This is because native plants have adapted over many generations to specific environmental conditions.



Ecologists classify these groups of plants with terms like "biotic province," "vegetation type," "plant community," "plant association," and "series." The natural distribution of plants is very complex, with much overlapping of species, and experts disagree about the fine points of grouping and nomenclature.

Here we use the term "plant community" to describe a group of plants that recurs with relative consistency, often dominated by a single species. The

Russian River Watershed consists of many different environments, from the towering Redwood forest, to the dry ridge tops of the coastal mountain range, to the low lying valley flood plains. These environments support a series of distinctive plant communities including Riparian Woodland, Mixed Evergreen Forest, Chaparral, Valley and Foothill Oak Woodland, Valley and Hill Grasslands and Redwood Forest.

Following is a short list of representative species and a brief description of the most common plant communities of the Russian River Watershed.



Chaparral

Shrubs

- *Adenostoma fasciculatum* (Chamise)
- *Baccharis pilularis* (Coyote Brush)
- *Ceanothus* spp. (Wild Lilac)
- *Cercocarpus betuloides* (Mountain Mahogany)
- *Garrya elliptica* (Coast Silktassel)
- *Heteromeles arbutifolia* (Toyon)
- *Lupinus* spp. (Lupine)
- *Mimulus aurantiacus* (Sticky Monkeyflower)
- *Quercus berberidifolia* (Scrub Oak)
- *Rhamnus californica* (Coffeeferry)
- *Salvia sonomensis* (Sonoma Sage)

Herbaceous Perennials

- *Artemisia douglasiana* (Mugwort)
- *Castilleja foliolosa* (Chaparral Paintbrush)
- *Epilobium canum* (California Fuchsia)
- *Iris douglasiana* (Douglas Iris)
- *Scrophularia californica* (Bee Plant)
- *Wyethia angustifolia* (Mule Ears)

Redwood Forest

Trees

- *Lithocarpus densiflorus* (Tanbark Oak)
- *Sequoia sempervirens* (Coast Redwood)
- *Umbellularia californica* (California Bay)

Shrubs

- *Corylus cornuta* var. *californica* (Hazelnut)
- *Myrica californica* (Pacific Wax Myrtle)
- *Vaccinium ovatum* (California Huckleberry)

Herbaceous Perennials

- *Adiantum jordanii* (Five-finger Fern)
- *Asarum caudatum* (Wild Ginger)
- *Athyrium filix-femina* (Lady Fern)
- *Oxalis oregana* (Redwood Sorrel)
- *Polystichum munitum* (Western Sword Fern)
- *Smilacina racemosa* (False Solomon's Seal)
- *Woodwardia fimbriata* (Giant Chain Fern)

Riparian Woodland

Trees

- *Acer macrophyllum* (Bigleaf Maple)
- *Acer negundo* (Box Elder)
- *Alnus rhombifolia* (White Alder)
- *Fraxinus latifolia* (Oregon Ash)
- *Populus fremontii* (Fremont Cottonwood)
- *Sambucus mexicana* (Blue Elderberry)

Shrubs

- *Calycanthus occidentalis* (Spicebush)
- *Lonicera involucrata* (Twinberry)
- *Rosa californica* (California Rose)
- *Rubus parviflorus* (Thimbleberry)
- *Salix* spp. (Willow)

Herbaceous Perennials

- *Artemisia douglasiana* (Mugwort)
- *Athyrium filix-femina* (Lady Fern)
- *Carex* spp. (Sedge)
- *Equisetum* spp. (Horsetail)
- *Mimulus guttatus* (Monkeyflower)
- *Oenanthe sarmentosa* (Creek Parsley)
- *Sisyrinchium californicum* (Yellow-eyed Grass)

Vines

- *Aristolochia californica* (Dutchman's Pipe)
- *Clematis lasiantha* (Clematis)
- *Vitis californica* (California Grape)

Valley and Foothill Oak Woodland

Trees

- *Aesculus californica* (California Buckeye)
- *Arbutus menziesii* (Madrone)
- *Chrysolepis chrysophylla* (Chinquapin)
- *Quercus agrifolia* (Coast Live Oak)
- *Quercus chrysolepis* (Canyon Live Oak)
- *Quercus kelloggii* (Black Oak)
- *Quercus lobata* (Valley Oak)
- *Quercus wislizenii* (Interior Live Oak)
- *Umbellularia californica* (California Bay)

Shrubs

- *Garrya elliptica* (Coast Silktassel)
- *Heteromeles arbutifolia* (Toyon)
- *Myrica californica* (Pacific Wax Myrtle)
- *Rhamnus californica* (Coffeeferry)
- *Ribes sanguineum* var. *glutinosum* (Pink-flowering Current)
- *Rosa californica* (California Rose)
- *Sambucus mexicana* (Blue Elderberry)
- *Symphoricarpos albus* (Snowberry)

Herbaceous Perennials

- *Artemisia douglasiana* (Mugwort)
- *Dryopteris arguta* (Woodfern)
- *Epilobium canum* (California Fuchsia)
- *Festuca californica* (California Fescue)
- *Lupinus* spp. (Lupine)
- *Polypodium vulgare* (Polypody Fern)
- *Rubus parviflorus* (Thimbleberry)
- *Rubus ursinus* (California Blackberry)

Vines

- *Clematis ligusticifolia* (Virgin's Bower)
- *Lonicera hispidula* (California Honeysuckle)

Mixed Evergreen Forest

Trees

- *Arbutus menziesii* (Mardone)
- *Lithocarpus densiflorus* (Tanbark Oak)
- *Pseudotsuga menziesii* (Douglas Fir)
- *Quercus kelloggii* (Black Oak)
- *Quercus chrysolepis* (Canyon Live Oak)
- *Umbellularia californica* (California Bay)

Shrubs

- *Arctostaphylos* spp. (Manzanita)
- *Baccharis pilularis* (Coyote Brush)
- *Toxicodendron diversilobum* (Poison Oak)

Herbaceous Perennials

- *Monardella villosa* (Coyote Mint)
- *Polystichum munitum* (Western Sword Fern)
- *Salvia sonomensis* (Sonoma Sage)
- *Sidalcea* spp. (Checkerbloom)

Valley and Hill Grasslands

Herbaceous Perennials

- *Asclepias fascicularis* (Narrow-leaved Milkweed)
- *Danthonia californica* (California Oatgrass)
- *Dichelostemma capitatum* (Bluedicks)
- *Eschscholzia californica* (California Poppy)
- *Festuca idahoensis* (Blue Bunchgrass)
- *Juncus patens* (Common Rush)
- *Nassella lepida* (Needlegrass)
- *Nassella pulchra* (Purple Needlegrass)
- *Poa secunda* (Pacific Blue Grass)
- *Sisyrinchium bellum* (Blue-eyed Grass)
- *Wyethia angustifolia* (Mule Ears)

Common Plant Communities of the Russian River Watershed

Chaparral

Lying predominately in the rain-shadow slopes of the inner Coast Ranges, chaparral forms dense communities of shrubs and herbaceous perennials on dry slopes, sometimes on serpentine soil. This highly fire-prone plant community is often alive with color in the spring.



PHOTO: CITY OF SANTA ROSA

Redwood Forest

Redwood forest exists in groves scattered in canyons mainly within the coastal fog belt areas of the watershed. Redwoods are adapted to capture moisture from the summer fog with their leaves, adding to precipitation and soil moisture. A distinct group of understory species is adapted to the deep shade and highly organic soils of Redwood groves.



PHOTO: CITY OF SANTA ROSA

Riparian Woodland

Occurring along the Russian River and along its many tributaries throughout the watershed, riparian woodland hosts a variety of moisture-loving plant species. On many of the tributaries and portions of the main stem of the Russian River, trees create a predominately deciduous overstory, with shrubs and herbaceous perennials occupying the understory.



PHOTO: EAST BAY REGIONAL PARK DISTRICT

PHOTO: CITY OF SANTA ROSA



Valley and Foothill Oak Woodland

Covering large areas in the lower elevations within the Russian River Watershed, oak woodland communities are made up of dense areas of predominately broad-leaf evergreen hardwood trees including oaks, Bay and Madrone. Varied shrubs and herbaceous species occupy the perimeters and understory, with patches of grasslands interspersed.

Mixed Evergreen Forest

Large areas within the Russian River Watershed support dense forest with a mixture of broad-leaf evergreen and coniferous species. This plant community primarily occupies areas west of Highway 101 which are generally moister than areas east of the highway. Dominant trees include Douglas Fir, Tanbark Oak, California Bay and numerous live oak species.



PHOTO: CITY OF SANTA ROSA

3 Principles & Practices

PHOTO: CITY OF SANTA ROSA



Valley and Hill Grasslands

Scattered throughout the coastal hills and interior slopes and valleys are areas of grassland. Many are now dominated by exotic annual grasses, although depending on soil moisture availability and disturbance history, these communities may support native species of grasses and herbaceous perennials.

FOR MORE INFORMATION ABOUT PLANT COMMUNITIES IN CALIFORNIA AND WITHIN THE RUSSIAN RIVER WATERSHED, SEE: ORNDUFF, 1974, *INTRODUCTION TO CALIFORNIA PLANT LIFE*; SAWYER AND KEELER-WOLFE, 2002, *A MANUAL OF CALIFORNIA VEGETATION*; BEST, HOWELL, KNIGHT AND WELLS, 1996, *A FLORA OF SONOMA COUNTY*.