Waterwise Gardening for Home and Small Acreage Owners of the Oliver Area

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Adapted from
Toni Boot and Janelle Parchomchuk,
Xeriscape Design Concepts for Large Lots; Solutions to the Challenges of Landscaping on the West Bench, December 2009.

About this Publication

This manual was originally written in 2009 by Toni Boot and Janelle Parchomchuk and titled '*Xeriscape Design Concepts for Large Lots, Solutions to the Challenges of Landscaping on the West Bench*' as part of a West Bench Irrigation District initiative. We thank them for their permission to use it as the basis for this manual.

The revision of this manual was spearheaded by the "Oliver Communities in Bloom" Committee in order to:

- Educate residents of Oliver and Rural Oliver (homeowners with yards & small acreages) about general water conservation methods for their gardens and backyards (excluding agricultural fields or vegetable gardens).
- Introduce xeriscaping concepts to residents, so they are more aware of options to reduce water use on their properties or lots.
- Share water conservation lawn care knowledge with residents, especially newcomers who are not aware of the need for efficient waterwise gardening techniques for the Okanagan.

This booklet was made possible thanks to the generous support of the Town of Oliver, Area C of the Regional District of Okanagan – Similkameen, and the "Oliver Communities in Bloom" Committee.

Waterwise Gardening for Home and Small Acreage Owners of the Oliver Area is not just a 'how to xeriscape' manual. It also includes information on how to save water on lawns, and how to manage and reduce the risks of soil erosion present in silty soils such as those along Black Sage Road.

To get the full benefit of the colour in this publication, it is best to download and save it on your computer. If you choose to print the document, use a colour printer and 8.5" x 11" paper (Letter size). To reduce paper use, print on both sides.

This icon represents a particular design consideration or implementation process that can result in cost-savings when converting a landscaped lot in Oliver or Rural Oliver to xeriscape.

This icon represents a special Tip or Idea.

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Introduction

Studies by the Okanagan Basin Water Board indicate that even if the present climate does not change, the ever increasing population of the South Okanagan will create a water crisis in the not-too-distant future.

The Town of Oliver has statistics showing that in 2010 the average person in Oliver consumed double the Canadian average at a whopping 680 litres per day. Most of this goes to watering our lawns spring through fall.

Water conservation is a necessity, and everybody can make a difference by making some changes to their landscapes and irrigation practices. Not all changes are expensive; in fact some of them will save you money.

The water meters implemented by the Town of Oliver have spurred an interest in learning how to conserve water. The Town's Water Conservation Plan of 2006 proposed an education program to increase awareness of xeriscape gardening.

Xeriscaping is a landscaping technique that significantly reduces water consumption. It involves planning your landscape, the selection of plants with minimal water requirements, the use of soil amendments such as compost and mulch, and efficient irrigation and maintenance practices.

In 2011, the "Oliver Communities in Bloom" Committee organized a *Waterwise Gardening Workshop* to increase awareness of how to garden with drought tolerant plants. It was well received. The Committee therefore decided to continue its water conservation initiatives by fundraising for the publication of a waterwise gardening manual. This manual is designed to educate residents about how to decrease water consumption while beautifying their gardens and reducing maintenance. It empowers residents to make a change in their own backyards and make a tangible, enjoyable difference for the benefit of our community and environment.

Photo by Lesley Field.

Photo by Eva Durance.

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Xeriscaping in the Oliver Area

The word 'xeriscape' ('zir-ə-skāp, 'zer-ə-skāp) originates from the Greek word *xeros*, meaning "dry"; the word is trademarked by the Denver Water Board. Definitions abound for the term, but they all have one thing in common: conserving water in the landscape.

Xeriscape aims at a) creating a colourful, low-maintenance landscape that is mindful of water use, b) designing a landscape specifically to cope with dry conditions and for water conservation, and c) using drought-resistant plants in an effort to conserve resources, especially water.

Some of the reasons to xeriscape:

- reduces water by more than 50%
- lower water use = lower maintenance
- eliminates use of toxic pesticides and herbicides
- provides enjoyment and reduces impact on the environment
- provides food and habitat for South Okanagan birds, butterflies and bees particularly when low-water native selections are chosen
- survives restricted water use during drought conditions.

"...strive to achieve the full benefits of xeriscape by implementing all seven steps."

Xeriscape follows seven established principles. Generally, each principle builds on the one previous to it; strive to achieve the full benefits of xeriscape by implementing all seven steps.

1 Planning and Design
2 Soil Analysis and Amendments
3 Practical Turf Areas
4 Plant Selection
5 Irrigation
6 Mulch
7 Maintenance

Photo by DirtWorks Landscape Development Ltd.

Pots with xeriscape plants. Photo by Eva Durance.

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1 Planning and Design

The planning and design xeriscape principle is critical. A completed design is the outcome of a process, whether you're starting from scratch or moving towards a more water-efficient landscape. The finished design:

- can save you time and money
- makes it easier to budget and complete the project over several years
- allows you to accurately compare estimates from landscape contractors
- makes you really *think* about how you use your landscape…and how you *could* use it
- makes your xeriscape materialize in an organized manner.

Designing the Landscape

If you have the time, interest, and an 'eye' for landscape design and a property that does not include topographical features such as steep slopes, unstable soils, or gullies that present unsafe or significant design challenges, you may well be able to do your own planning. If you do, however, it is a good idea to have a landscape designer review your final plan.

If your property is large and/or has some of the above features and challenges, hiring a qualified Landscape Designer or in some cases a Landscape Architect who is also experienced in xeriscape principles and practices is highly recommended. The design is generally a small part of the cost of a new or renewed landscape and a professional's experience with challenging situations is likely to save you time, money, and the disappointment of not ending up with the landscape you want.

If you design and install your new landscape/gardens yourself, develop a logical order for the installation. (Design professionals will do this as part of their design work.) For example, irrigation conduits should be placed under hardscape (pathways, driveways, etc), and hardscaping should be constructed before beds are built and planting is done.

If planting is to be done over more than one season, get trees, large shrubs, and large ornamental grasses in first. They are the backbone of your garden that, if well placed, prevent the need for moving them and the smaller plants later on. You'll also want to enjoy the benefits of trees (cooling effect, red uced greenhouse gases, etc.) as soon as possible.

Mock orange, tufted white prairie aster, parsnip flowered buckwheat. Photos by Sagebrush Nursery.

How to Start a Plan

When starting the design process, consider the following:

- Site features— sun/shade and how many hours of each, windy areas and direction of wind, slopes, rocky areas, soil type(s), drainage, moisture, traffic or other noise sources, etc. It is particularly important on the Black Sage Road properties to recognize the silty soils because of their erosion hazard, low permeability, and low organic content. Also consider the site's proximity to the bluff edges along the Okanagan River and possible gullies and sinkholes.
- Uses — play areas for children, out-of-doors entertaining, vegetable garden, pets, sports.
- Utilitarian features - outbuildings; garbage storage; utility meters, water catchment and dispersal, etc.
- Views — from inside the house especially from rooms used the most and in winter, from both floors of a two-story house, and from a deck or patio, visual screening and views you want to have.
- Movement – walkways, driveway, paths, how you move around the property.
- Microclimates — sun path, cold troughs, windy areas, dry or moist shade.
- Grade — *always* ensure the ground slopes *away* from your house.

The Base Plan

After measuring the site, start drawing a base plan to scale. Include:

- Residence with main windows and doors, outbuildings, patio or deck, telephone poles, lot boundaries, septic field, location of utility meters, heat pump, any other features that will remain.
- water flow (be aware of slope, depressions, and possible run-off pathways).
- usual wind directions fall-winter and spring-summer.
- slopes and natural features, e.g., creeks, rock outcrops, existing vegetation you intend to keep.
- scale, North arrow, name, address (last two not really needed if it's your property; certainly a professional will include these as well as the type of plan it is). Take some pictures of your site as well.

Design Considerations

- Wildlife — attract (birds, butterflies, bees and other beneficial insects) or deter (deer, bear, rattlesnakes, wild horses).

Scarlet Gilia. Photo by Sagebrush Nursery.

- Zonal Planting — group plants with similar water and light needs.
- Lawn — how much, where, or none?
- Hardscape — fences, patios, paths, dry riverbed, etc.
- Water feature — pond, pondless waterfall, bubbler.
- Service areas — storage shed, kennel, space for garbage cans, etc.
- All season colour — evergreen trees and shrubs, ornamental grasses, bulbs, groundcovers and perennials, deciduous trees and shrubs. Think about berries, foliage and bark colour as well, not just flowering colour.
- Native plants — no plant material is more adapted to our semi-arid environment than native species.
- Size of planted areas which influences the amount of maintenance required.
- Lighting or other electrical features.

Tips for Low Maintenance Design

- consider low-water lawn seed mixes, or drought-tolerant groundcovers instead of meadows and lawn grasses.
- use evergreen trees and shrubs (avoid hedge cedars and other conifers that are not drought tolerant).
- use native drought-tolerant plants as they are adapted to Oliver's silty/sandy soils.
- plant in the early fall; however, pre-order the plants you want as popular plants sell quickly and most nurseries sell off as many plants as possible by early fall in order to avoid overwintering them.
- use mass plantings of a limited number of species rather than a great mix of species.
- when working out how many plants you need, indicate on your plan the *mature* spread of shrubs and trees and on your plant list indicate the *mature* height as well.
- use perennials (vs. annuals), naturalizing bulbs and ornamental grasses; they are less expensive and require less maintenance.
- use organic (wood chips, pine needles, compost, etc.) or inorganic (gravel and rock) mulches to cover bare ground between plantings.

Want some other ideas? Take part in a Meadowlark Festival 'Xeriscape Garden Tour' held every year in May.

Landscaping information is widely available at public libraries and online (see bibliography). Whenever possible do it yourself, but know when to hire a professional, e.g. complex landscape, installation of rockwork, patios, and focal features.

Make use of natural or existing features already on your property — rock, rock outcroppings, native plants, riverside vegetation, oxbow wetlands, etc. Note: Check government bylaws and regulations if planning to make changes within 30 metres of a water body.

Photo by Eva Durance.

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2 Soil Analysis and Amendment

Soils in the Oliver area vary considerably. If your property is located along the Okanagan River floodplain, you likely have soil with a good amount of organic matter in it, although you might also have sections of sandy or gravelly alluvial deposits.

To the east of the Okanagan River, along Black Sage Road, properties tend to have sand and gravelly sand along the northern part, and more clay silt to the south. The high silt content of the soils may lead to slumping and erosion hazards when the soil is overloaded with water (through irrigation). Xeriscape gardens can assist to reduce water loading.

To the west of the Okanagan River, as the elevation increases, properties tend to have boulder gravel.

The area along the Golden Mile bench has sections of boulders, sandy gravel, and silt.

The Tuc-el-Nuit Lake neighbourhoods are mostly built on gravel with boulder segments.

Amending the Soil

Appropriate soil preparation is critical when planting a waterwise garden. Most drought-tolerant plants tend to thrive in well-drained soils with a neutral to slightly alkaline pH, and low to medium fertility. So, amend the soil accordingly.

Amending Soil of Conventional Lawn or Ornamental Garden Bed

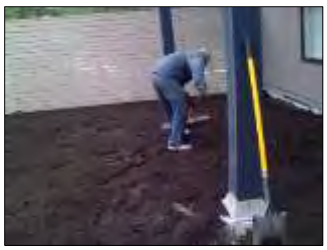

Photo by Sagebrush Nursery.

If you are in the process of converting your thirsty lawn or ornamental garden bed to a more drought-tolerant garden, your soil may be just fine. But if you had plants that required or created acidic soils (below pH 6.0), like rhododendrons or some evergreens, take care to amend the soil pH by adding dolomitic lime. Simple soil-test kits are available at some garden centres (see page 10).

Ensure that the soil is loose by working it with a pitch-fork or shovel down to 45 or 60 cm (18 inches – 2 feet).

Remove all weeds.

Amending Soils That Are Mostly Mineral – Sand, Silt, or Gravel

Remove all weeds and loosen compacted soil. Add organic matter such as compost, chopped leaves, dried grass clippings, finely chopped wood, or manure (preferably composted and not poultry). Use of organic matter is the best way to enhance moisture retention in gravelly and sandy soil, improve permeability in clay-silt soils, improve overall soil structure, and add nutrients.

Amending the entire planting area is the best long-term solution when amendment is needed, but it may not be financially realistic if you have a large area to plant. If this is the case, choose plants that are adapted to the natural soil, or amend just the planting hole:

- dig a hole three times wider and slightly deeper than the plant root ball
- use organic matter such as home compost, composted manure (except poultry), finely chopped wood, or composted sawdust
- mix the compost into the native soil (25-30% by volume)
- do not layer and don't plant into only the amendment
- no need to amend the planting holes for native plants or plants that thrive in your soil type, although they do grow better with extra help (amendments).
- to increase water capturing capability, shape the soil around the plant into a bowl shape, so that the stem/trunk of the plant is at the deepest point. Or mound the soil up into a donut shape so water will pool around the plant when watering or when it rains.

Compost. Photo by Kathryn McCourt.

Sources of soil amendments include homemade compost, compost from the Penticton landfill, well-rotted manure (not poultry), bagged or bulk compost or manures available at local nurseries and garden centres. Avoid peat topsoil (slightly acidic) and baled sphagnum peat moss (very acidic) as once they dry out, they are extremely difficult to re-hydrate. If you are buying topsoil, ask where it came from to avoid material that is too acidic or full of weed seeds.

If you have overly fertile soil (rich in manure or other nutrients), add sand, chopped leaves, sawdust, or chopped wood and bark.

If you want to plant a drought tolerant lawn (see page 12), ensure you add at least two inches (5 cm) of compost to your soil. This is better than commercial fertilizers as the compost adds organic matter and slow-release nutrients. A deep soil layer of at least six inches (15 cm) holds more moisture and allows grass roots to grow deeper allowing the lawn to go longer between irrigations.

If Planting a Site That Has No Soil

Even hardy drought tolerant native plants need some organic matter. They cannot grow on compacted construction sites, sand pits, clay fields, gravel or silt beds. So, if you are planting on a site without organic matter, plan to bring in a truckload or more of topsoil.

If you are laying down drought-tolerant lawn, you will need to spread the soil out. The deeper your soil layer, the deeper the roots can grow and the more moisture the soil will hold, allowing a longer interval between irrigations. Six inches of soil is fine, more is even better.

If you are putting down individual plants, you can simply prepare each hole where a plant will be placed. In this case, because you do not have any soil to start with, you must bring in topsoil. Dig a hole three times wider and as deep as the plant root ball. Add some of the soil into the planting hole. Place your

plant in the hole and add more soil mixture. Press soil down firmly around the roots and soak thoroughly with water. Do not cover the main plant stem or trunk with soil, especially in trees.

Acidic or Alkaline Soil: Checking Soil pH

Soil pH is a scientific scale that illustrates whether the soil is acidic or alkaline. The pH scale goes from 0 to 14 with a pH of 7 being neutral. A pH below 7 is acidic. A pH of 7 is neutral. A pH above 7 is alkaline or basic.

Native drought tolerant plants grow best in neutral to slightly alkaline soils. If you have a lawn or garden bed that you are turning into a xeriscape, your soil is likely fine, so don't bother testing the pH. However, if you had plants that required or created acidic soils (below pH 6), like rhododendron, blueberries, or some evergreens, then take care to test and amend the soil pH. If the site where you are planting was previously used for industrial use, then testing the soil pH is important.

It is easy to test the soil pH. Local hardware stores and some nurseries carry pH test kits for about $10-$20. Simply follow the instructions, which go something like this: collect some soil, add water, stir, test the water with test strip, and compare strip colour with pH test chart.

Once you know what your soil pH is, you can amend it. To make the soil more alkaline or raise the soil 1 pH unit, spread 5 lbs of lime per 100 square feet (10' x 10'). Water the area, and test again after a few days. To make the soil more acidic or lower the soil 1 pH unit, add 1 lb aluminum sulphate per 100 square feet or add compost which is usually somewhat acidic.

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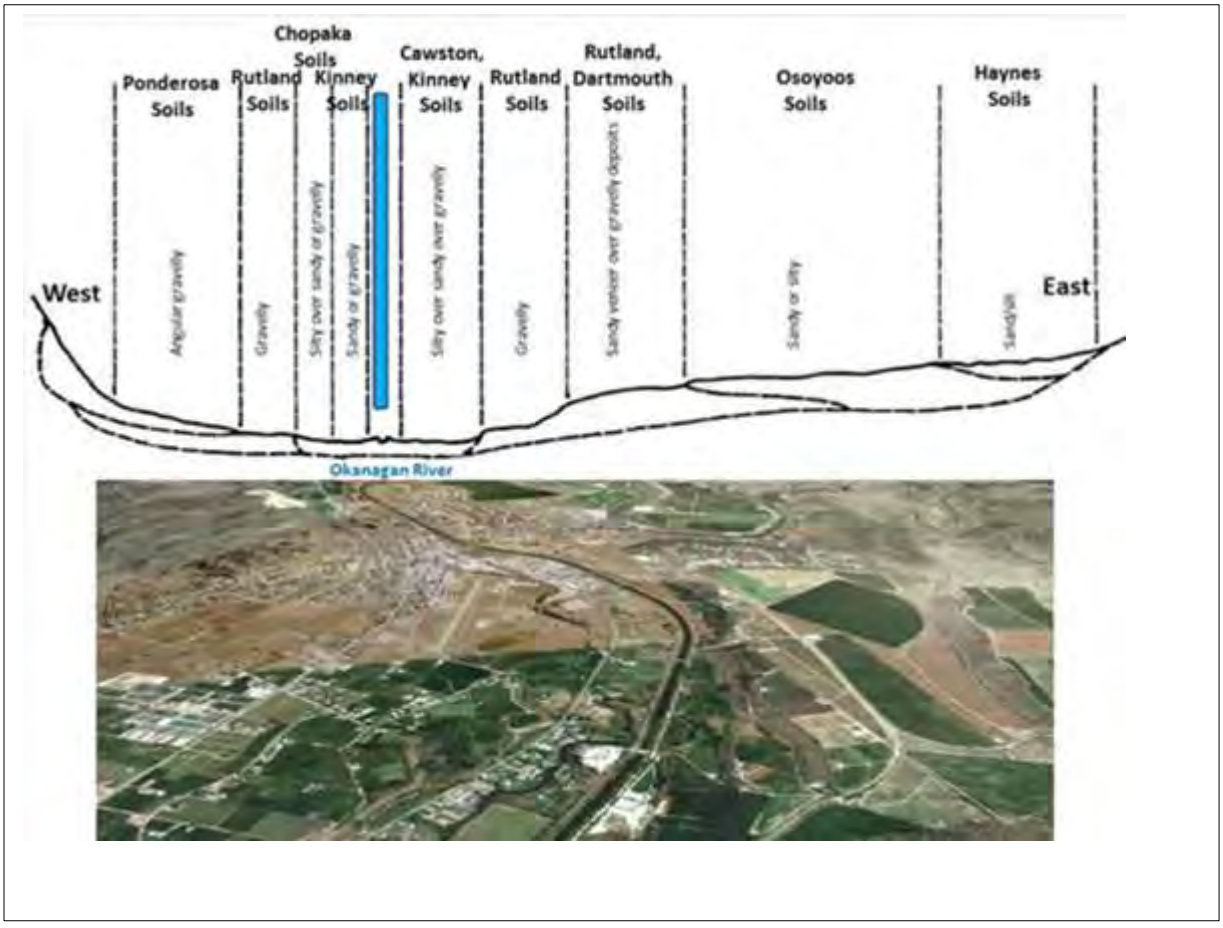
More Depth on Soils

During the Ice Age, the Oliver area was covered by advancing and retreating glaciers, and then a lake, called Glacier Lake Oliver. As the Ice Age came to an end, about 12,000 years ago, the ice dam to the north holding back even larger Glacier Lake Penticton started to break. This created large flood events that eroded the Oliver landscape and also deposited sediments. As a result, the terraces, gullies, lakes, and the Okanagan River floodplain that we see today took shape.

Over the last 10,000 or so years, the climate cooled and warmed and vegetation of different kinds flourished. About 7,700 years ago, a volcano in Oregon erupted and deposited the Mazama Ash layer, visible in most soil samples in the Okanagan.

With the exception of the Okanagan River floodplain, most areas in the Oliver area have soils with low amounts of organic matter and are neutral to alkaline in pH. Most are heavy with deposits of gravel, sand, and silt which means they drain fairly quickly (Figure 1). Most drought tolerant plants do well in these kinds of soils

Figure 1. This west-east cross section of the valley at Oliver illustrates the types of surficial soil deposits in combination with a Google Earth satellite photograph. Adapted from Wittneben (1986).



3 Practical Turf Areas

Most lots in Oliver and Rural Oliver consist primarily of large lawns. With the new water metering program in the Town of Oliver, residents are realizing how costly it is to irrigate a lawn. Reducing the amount of Kentucky Bluegrass lawn in your landscape is the single, most effective way to save water.

Although there are benefits to having a lawn in your landscape, large lawns have their drawbacks. They are costly to establish and maintain – on the pocketbook, on your yard time, and on the environment (fuel or electricity to run the mower and trimmer; air and noise pollution; pesticides and fertilizers).

As you redesign your landscape ask yourself, "How much turf do I *really* need?" and, "How will I use the lawn?"

"...reducing the amount of Kentucky Bluegrass lawn in your landscape is the single, most effective way to save water."

Conserving Resources on Your Turf Area

1. Keep your conventional Kentucky Bluegrass lawn, but...

- reduce the square footage
- change your watering habits (see page 24)
- "Gold is the new Green": let the lawn go dormant (brown) in the hot summer months.

2. Remove lawn and reseed with a low-water variety

- try a blend of fescues ('Eco-Lawn' or 'Enviroturf'), buffalo grass, or a buffalo grass/blue grama grass combination
- consider hydroseeding with a custom seed mix if you wish to reseed a very large area
- low-water alternatives can be mowed or left to grow tall, forming a meadow.

Examples of lawns seeded with drought tolerant grass mix.
Photo by Kathryn McCourt (left) and Eva Durance (right).

3. Overseed existing lawn

- use a more drought-tolerant species (see '2' on previous page)
- prepare the existing lawn: either (1) add 3-4 inches of topsoil, or (2) cut the existing lawn as short as possible then use a power rake to roughen up the turf and expose soil so the seed can germinate
- overseed repeatedly over 2-4 years until the old lawn has been replaced. Overseeding is a great option for retaining organic nutrients in your soil.

 Re-seeding or overseeding lawn areas is less expensive than having turf installed.

4. Eliminate turf completely (see page 14).

- use an alternative groundcover (wooly thyme, kinnikinnick, creeping juniper)
- replace with other xeriscape options such as mixed planting beds or pervious hardscape.

5. Replace turf with Eco-Turf sod

- well-established turfgrass company in Kelowna, Eco Turf Farms, now sells drought-tolerant lawn in sod form, called 'Eco Smart Blend' (see Resources, page 42).
- Alternatively, contact Sagebrush Nursery in Oliver who will bring Eco-Turf sod in for you.

Creeping thyme as living mulch.
Photo by Eva Durance.

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How to Remove Your Turf

The prospect of removing a large amount of turf from the yard can be intimidating. However, because reducing the amount of conventional lawn is the single, most effective way to reduce water consumption, a number of ways to do so are included in this manual. In keeping with your xeriscape plan, you can convert portions of your property one year at a time.

Sod Cutter

A sod cutter is a gas-powered machine that is maneuvered much like a rototiller. The height (depth of the cut) of the blade is adjustable. Sod cutters can be rented from local rental centres.

Photo by Toni Boot.

Advantages

- Removes most of the existing grass roots.
- Removes a thick layer of weed seeds.

Disadvantages

- Very hard, heavy work.
- Removes the most nutrient-rich layer of soil.
- Must remove sod under trees by hand to avoid root damage.

Other Comments

- If you have underground irrigation mark the sprayers to avoid damage.
- Exercise care when using a sod cutter on slopes or uneven ground.
- Cut the grass before you begin; remove the turf when it is not too wet.
- Try cutting in a diamond pattern; the turf is very heavy.

Work together with your neighbours. After each landowner has determined where grass will stay and where it will not, the group can hire a crew to remove five or six lawns at the same time. If you organize a work party, the contractors can remove the turf as neighbours are loading it into a dump truck for composting at the Oliver landfill.

Sheet Mulching or "Lasagna Gardening"

Sheet mulching is a layered mulch system. It is inexpensive and easy to do. New plantings can be planted through the mulch, but if you've planned where you want to add vegetation, it's easier to plant before sheet mulching. A small area is left open to accommodate established plants and trees.

Step 1: Prepare the site.

- Mow the lawn as short as possible.
- Remove healthy turf from areas where plants will be planted, allowing room for development of roots. (Turf will not biodegrade under dry conditions.)
- Dig wide holes, add amendments if necessary, and plant. Water the plant.
- Lay a 1" layer of compost or manure to speed up the decaying process.
- Soak the area with water.

Step 2: Add a weed barrier.

- Put down an organic weed barrier that is permeable to water and air.
- Recycled cardboard, a thick layer of newspaper, burlap bags or old carpets of natural fiber work well. Do not use plastic.
- Two or three layers may be required to achieve a ½" thickness.
- Do not sheet mulch the root crown of established trees and shrubs.
- Wet down the weed barrier.

Step 3: Layer mulch and compost.

- Good materials for this layer include chipped plant debris, tree prunings, leaves or straw.
- The mulch layer should be 3-5 inches deep.

Step 4: Plant.

- If you did not plant in Step 1, punch a hole in the cardboard and underlying turf. Remember to cut a wide hole around each plant to accommodate future root development.

Other Comments

- Do not use sheet mulching over septic drainage fields.
- If your turf is healthy extra care must be taken to remove turf where plants are to be planted (Step1), or to delay planting until the turf is thoroughly biodegraded (Step 4).
- If you are installing a drip irrigation system for the transformed area, place the tubing on top of the weed barrier, and beneath the surface layer of mulch.

Soil Solarization

Solarization is accomplished by completely covering an area with clear or black plastic during July and August. The intense heat that builds up under the plastic kills the turf and sprouting weeds.

Advantages

- Easy to do.
- Does not remove organic matter or nutrients from the soil.

Photo by Lesley Field.

Disadvantages

- Can cause an anaerobic effect, killing valuable microorganisms in the soil.
- Heavy winds can displace the plastic. Anchor it very well with stones or wood.
- Is unsightly.

Other Comments

- Mow the grass as short as possible and water well before covering with the plastic. The combination of heat and water introduces a fungus that speeds up turf decomposition.

Rototill

This method takes some patience, as you need to rototill several times. Between each tilling, let the lawn sit four to six weeks to allow the grass/weeds to re-sprout.

Advantages

- Easier to maneuver than a sod cutter.
- Keeps the nutrients and organic matter in the soil.

Disadvantages

- Area may be disrupted for several months.
- Cannot rototill near tree roots.
- Can damage the soil structure.

Other Comments

- Do **not** rototill if you have noxious weeds that propagate by rhizomes (ie. bindweed, Dalmation toadflax, crabgrass, quackgrass, etc).
- Unless you are certain your underground irrigation system is deeper than the tines of the rototiller, do **not** use this method.
- Mark sprinkler heads of underground irrigation before beginning (see note above).
- Be prepared to spend time raking and leveling the tilled area.

Bindweed. Photo by Toni Boot.

Spray with Herbicides

If you are planning to overseed or reseed your existing turf, this method is an option to consider closely. Use a 'mild' herbicide, such as glyphosate (trade name 'Round-up') or 'Eco-Clear', a blend of acetic and citric acids. Always follow the label directions closely.

Advantages

- Little labour involved.
- Kills weeds and turf.
- Keeps the nutrients and organic matter in the soil.

Disadvantages

- Herbicides are expensive.
- May need several applications to kill some perennial weeds.

Other Comments

- Residential use of herbicides by other than certified pesticide applicators is currently being reviewed in BC.
- Both recommended sprays are post-emergent, foliar products; they only work on actively growing vegetation.

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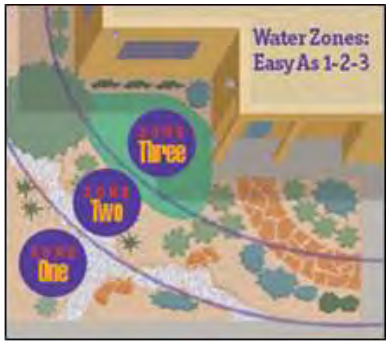
4 Plant Selection

Selecting the right plant for the right location is very important. The plant list on pages 34-41 contains plants suitable for the Oliver area. These plants thrive on sandy/gravelly/silty soils, help control erosion and/or are somewhat resistant to deer. They are all winter hardy to zone 5 and grow in dry to low-water conditions.

Blue flax.
Photo by Paula Rodriguez de la Vega.

When selecting plants for your site it is also important to consider sun and wind exposure. Plants can also be selected for their practical purposes. For instance, shallow-rooted plants, such as grasses and certain herbaceous perennials, are good choices over septic drainage fields; likewise taller plants can create shade or provide screening. Remember trees are an important part of xeriscape: they provide shade and have a cooling effect on the home and landscape.

Grouping Plants by Water and Sun Requirements (Zonal Planting)



Picture your lot or yard as an 'oasis in the grassland': the area closest to your house (Zone 3) is the most lush and full. This zone includes small turf areas and vegetable gardens. Further from your house, but not on the peripheral of your property, is Zone 2 that contains low-water plants that benefit from occasional drip irrigation. Zone 1 is furthest from your house and contains only those plants that do not require supplemental irrigation, once established. This is an excellent area to consider a native plant garden or habitat restoration. As you are selecting plants, decide in which of the three zones the plant will do best, based on its needs.

Zone 1 requires the least amount of watering and maintenance. For highest water savings, make this your largest zone. Conversely, Zone 3, which requires the most care and watering, should be kept small and practical.

Zone 1	**Dry**	**'Natural'**	**Hand water until established**
Zone 2	**Low-Water**	**'Transition'**	**Micro/drip irrigation**
Zone 3	**Moderate Water**	**'Oasis'**	**Micro/drip irrigation (except for turf area)**

Purchasing plants to fill a large-lot can become very expensive. Here are some tips for obtaining plants on a low budget:

- Start your own plants from seed or trade xeriscape seeds, plant divisions and cuttings with friends and neighbours. Have an annual plant trade day.
- Salvage native plants (with permission) from lands scheduled for development.
- Buy plants in fall when they are usually available at a discounted price.
- Bulk purchase plants together with neighbours; prepare beds before buying.
- Check with local nurseries to ask if they custom grow large orders.
- Buy your plants in the smallest sizes possible, such as in plugs. They are less expensive and will more easily adapt to your soil conditions.
- Ornamental grasses and perennials are less expensive than shrubs and trees.
- Buy plants from the discount section of the nursery.
- For large areas or slope stabilization, choose native plants that spread.
- Plant perennials instead of annuals so you don't have to replace them every year.

"Spread the Word – Not the Weed"

The Invasive Plant Council of BC (IPCBC) states that, among other problems, invasive plants have the potential to decrease natural biodiversity and wildlife habitat, lower property values, and hinder aesthetic appeal. The Weed Control Act of BC imposes a duty on all owners/occupants to control designated noxious weeds.

Simple Ways Gardeners can Help:

- Choose plants wisely. Be suspicious of plants promoted as "fast spreaders" or "vigorous self-seeders."
- Do not purchase or grow invasive or legislated noxious weed seeds or plants.
- Dispose of invasives carefully: don't 'recycle' garden debris or compost. Properly dispose in trash bags for a local disposal facility/incineration, or by drying out any material to kill remaining vegetative parts.
- Avoid letting invasive plants fruit or set seed, as birds and animals can spread the plants to other areas. Remove flowers, seedpods and berries of known invasive plants.
- Avoid using exotic wildflower seed mixes.
- Avoid picking plants from roadsides, gravel pits or other disturbed areas.
- Discourage propagation of invasive species by friends and neighbors.
- Limit soil disturbance and cover bare soil on your property.
- Get involved with local efforts to control invasive plants.
- See pages 40 - 41 for a list of invasive plants found locally and some "alert" species at our borders.
- The RDOS, South Okanagan-Similkameen Invasive Plant Society (SOSIPS), and IPCBC have additional information and pictures (see Resources, page 42).

Puncturevine.

Native or Xeriscape Plants?

In this booklet, 'native' plants refers to plants that grow in the wilds of the South Okanagan – Similkameen Valleys and have thrived here since before the arrival of European settlers. Native plants have many benefits, a) they provide food and shelter for wildlife, b) they are adapted to this region so use very little water, if planted in an appropriate location, c) they are low-maintenance, d) they are beautiful, unique, and there are many to choose from. See pages 34-35 for a list of native plants that are available for purchase at local nurseries (pg. 42).

'Xeriscape' plants refers to ornamental varieties that are not native to the South Okanagan. These are plants originating from other parts of the world with similar soil and climatic condiditons. Using these in addition to native plants can give you more choises in blooms, colours, shapes, sizes, and plant growth habits. A variety of xeriscape plants is listed on pages 36-40.

Plants That Help Birds and Pollinating Insects

The arid grasslands of the South Okanagan are some of the most rare and endangered ecosystems in Canada. As the human population expands and changes the natural landscape, wildlife is displaced.

Hummingbirds, songbirds, bees, butterflies, and other pollinating insects depend on native plants for food and shelter. Using native plants in your xeriscape garden will help provide the much needed habitat. The plant list on pages 34-35 has a column illustrating whether the plant is beneficial to birds or pollinators.

For more information, visit the Osoyoos Desert Centre or see the Resource section at the back of the manual.

The Behr's hairstreak is disappearing as the vegetation that it depends on is destroyed. They require antelope brush, snowy buckwheat, yarrow, smooth sumac, oceanspray, and sweet clover. Photo by Bob Lincoln, South Okanagan Similkameen Stewardship Program brochure.

Plants That Deer Avoid

Deer are opportunistic herbivores, meaning that when they are hungry, they will eat just about any plant that is easily accessible. When there is an array of plants to choose from, there are many factors which determine which plants will be ignored, slightly browsed, or chewed down to the root.

The plants deer avoid most are strongly-scented, have a strong taste, have prickly stems or thorns, or contain toxins that are harmful to them. The plant list on pages 34-40 contains a column indicating that the plant is avoided by deer.

Prickly pear cactus in bloom. Photo by Paula Rodriguez de la Vega.

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5 Efficient Irrigation

During a typical winter day, the residents of Oliver use 3.5 million litres of water, which is just over five Oliver sized swimming pools worth of water. In summer, that increases four fold. According to research compiled for the Town of Oliver by the Design Centre for Sustainability at UBC, lawn and landscape irrigation can represent 50 to 70 per cent of domestic water use. By simply converting to efficient irrigation practices landowners can see a dramatic reduction in water use.

Start with a Good Irrigation Design

An irrigation system must be well designed and installed by a licensed irrigator in order to be efficient and cost-effective. It is important to review the Oliver bylaws and to ensure that proper backflow prevention devices, valves and connections are installed. The South Okanagan has many professionals certified by the Irrigation Industry Association of BC to help you design and install an irrigation system that works for you.

Start with a xeriscape plan, then hire a professional to cap unusable or unnecessary portion of the underground system, install valves and a controller that allows for proper water usage. From there, it is relatively simple for the homeowner to refit sprinklers to micro or drip systems for xeriscape zones. *For best results, hire a certified irrigation professional who understands how to irrigate a xeriscape.*

Zones

Group your plants according to their watering and sun exposure requirements (see pg. 18). Not only will this save water, it will prevent the need for complex or costly irrigation systems.

When to Water

You should only water your landscape when necessary. Keep an eye on your plants and soil moisture to know when to water. This will vary depending on the current weather, recent rainfall, time of year, and your specific soil types.

Generally, the leaves of shrubs and perennials will begin to droop, and lawn grass will leave footprints when dry. If the top inch of soil next to a plant feels dry when you wiggle your finger into it, this is another sign that water is needed. You can also use a shovel or a soil probe to determine how dry the soil is.

It is best to water when the weather is cool, dark, humid and windless. At night or early in the morning before sunrise are optimal times. Irrigation during these times also helps to reduce interference with daytime household water and energy demand.

Watering Frequency

For xeriscape plants, it is important to water **deeply** and **infrequently**. Soaking the soil to the bottom of the root-zone encourages roots to grow into deeper soil, instead of spreading into drier surface soil. Wait until the soil partially dries out before watering again.

Watering Depth and Rate

Soil Type	Penetration depth of 1" of water (inches)	Infiltration rate of water (inches /hr.)
Clay	4-5	1/10 to ¼
Silt/loam	6-8	¼ to ¾
Sand	12 -14	1-2

Soil Penetration

For Oliver sandy soils, one inch of water penetrates 12-14 inches deep (even deeper for gravelly sites). Sandy and gravelly soils soak up water the fastest, so applying approximately 1.5 inches of water per hour allows water to infiltrate fine. For silty soils, one inch of water penetrates 6-10 inches. Silty soils should be watered at a rate of approx. ½ inch per hour. More than this may lead to surface run-off.

Visible puddles are a sign that the watering rate is too high and that water pressure should be turned down, or that watering should spread over a series of cycles.

Watering New Plantings

All new transplants must be watered regularly until their roots are established. This includes the first year for shrubs, and 2-3 years for trees. Water deeply, to the bottom of their root zone.

"All new transplants must be watered regularly for the first few years, until their roots are established."

Irrigation Systems

Irrigation systems can range from simply hand-watering your plants with a watering can or hose nozzle, to complicated underground systems with timers and soil sensors. The most efficient irrigation systems use nozzles that apply water directly to the soil in the root zone of the plants needing water, with the least loss of water by evaporation. Low-flow systems, such as "micro" or "drip" irrigation are very efficient.

Dripper.
Photo by Nulton Irrigation.

Micro Irrigation

Micro irrigation is highly recommended for xeriscape landscapes. This system includes a flexible supply tube that lays on the soil surface, with individual emitters that supply each plant. Landowners interested in this system can consult with local irrigation suppliers for information before starting a project.

Benefits of Micro Irrigation

- **existing underground irrigation can easily be converted to drip or micro irrigation**
- very inexpensive, and extremely adaptable
- less water is lost to evaporation; this is especially important for windy area
- emitters can be adjusted to the water requirements of each plant as it grows
- do-it-yourself landowners can easily purchase and install these systems
- irrigation timers and sensors can be included, but are not required
- well-suited system for plant beds in the low- and moderate-water zones
- the system is above ground, therefore leaks can be easily detected.

Basic Irrigation Schedule for Drip Irrigation Systems in the Oliver Area

Plant Type	Root depth (in.)	Avg. Water Needs	April, May, Oct		June, Sept		July, Aug	
			Hrs.	Days/Wk.	Hrs.	Days/ Wk.	Hrs.	Days/Wk.
Vegetables and annuals	4-8	Mod	2	1	3	2	4	3
Perennials	8-12	Low	1.5	Every 2 wks.	2.5	1	2.5	2
		Mod	2	1	3	2	4	3
Small shrubs 3-5 ft.	12-24	Low	3	Every 2 wks.	4	1	4	2
		Mod	4	1	5	2	6	3
Large shrubs or small trees 5-10 ft.	18-30	Low	5	Every 2 wks.	5	1	5	2
		Mod	6	1	7	2	8	3
Mature trees 10-25+ ft.	24-36	Low	5	Every 2 wks.	6	1	6	2
		Mod	6	1	8	2	10	3

These are general guidelines. Needs vary depending on weather, flow rates and soil.
Figures based on ½ gph (gallons per hour) for perennials, 1 gph on shrubs, 3 gph on large shrubs and 6 gph on mature trees.
For automated systems, spread your daily allotment over 3 cycles during the day.

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Watering By Hand

For many garden areas, complex irrigation is not necessary, and hand-watering or moving sprinklers will suffice. Plants in the dry or natural zone should not require regular irrigation **once they are established** (see Watering New Plantings, page 22). Simply hand water these plants during the first year of growth, then water only when necessary during extremely dry conditions in following years. Smaller gardens, plants close to the house, or feature trees can also be watered by hand.

South Okanagan Similkameen Secondary School students watering newly planted native grass. Photo by Lisa Scott.

Hand or Sprinkler Watering for Large, Mature Plants

Plant Type	Root depth (in.)	Avg. water needs	April, May, Oct		June, Sept		July, Aug	
			Gallons	Times per month	Gallons	Times per month	Gallons	Times per month
Small shrubs 3-5 ft.	12-24	Low	5	0-1	5-10	1-2	5-10	1-2
		Mod	5-15	1	10-20	2	10-20	2-3
Large shrubs/small trees 5-10 ft.	18-30	Low	20-30	0-1	20-40	1-2	20-50	1-2
		Mod	30-60	1	30-60	2	30-60	2-3
Mature trees 10-25 ft.	24-36	Low	100-150	0-1	100-150	1-2	100-150	1-2
		Mod	150-200	1	150-200	2	150-200	2-3

These are general guidelines. Needs vary depending on weather, flow rates and soil.
Determine the flow rate or your sprinkler or hose by submerging the sprinkler or nozzle in a large bucket of known volume. Time how long it takes to fill the bucket to determine your flow rate in gallons per minute or gallons per hour.

Lawn Irrigation

Conventional sprinklers or underground irrigation are the typical systems for lawn irrigation. There are also nozzles for micro irrigation systems suitable for small turf areas.

Application Rate

Lawns benefit from approximately 1" of water for every irrigation. To determine how many minutes you need to turn on your sprinklers:

- place straight-sided containers, such as tuna cans, around your lawn
- turn on the water for 15 minutes

- determine the average depth of water in the containers
- calculate your flow rate in inches/minute: (avg. depth of water divided by 15 min.)
- to obtain 1 inch of irrigation, divide the number "1" by your flow rate. This is how long you need to turn on your sprinklers to saturate the lawn to root depth.

Pooling water indicates the application rate is higher than the infiltration rate; adjust your system accordingly.

The lawn should then be allowed to dry out a little between watering. Generally, once the grass starts to lie flat, or footprints are left in the lawn when you walk across it, then it is time to irrigate again.

Recommended Watering Frequency for Oliver Area Lawns

Grass Type	Avg. Root Depth	Water Needs	Number of irrigations per month 1-inch of water per irrigation		
			April, May, Oct	June, Sept	July, Aug
Buffalo grass	6-8"	Very low	0-1	1	1-2
Fescue (Ecolawn or Enviroturf)	6-10"	Low	1	2	2-3
Conventional Bluegrass lawn	3-6"	Moderate	1-2	2-4	3-4

These are general guidelines. Needs vary depending on weather, flow rates and soil.

Automatic Timers and Monitoring Weather

Irrigation systems with automatic timers can help to reduce water use, but only if they are adjusted regularly to prevent overwatering. Remember these systems are only as efficient as the person who sets the timer! It is important to monitor your landscape and the weather regularly so that you can reduce irrigation when there is sufficient rainfall. Soil moisture sensors and shut-off devices can be installed to do this automatically. Visit www.farmzone.ca and www.irrigationbc.ca for up-to-date climate information.

System Maintenance and Water Audits

Your irrigation system should be monitored regularly to ensure proper functioning and application rate. A yearly irrigation water audit by yourself or a contractor includes:

- checking for leaks and making sure valves open and close properly
- ensuring sprinklers are upright and the arc is correct
- clearing or changing blocked nozzles
- ensuring water is not falling on pathways, patios or driveways
- ensuring application rate is appropriate
- ensuring timers and sensors are functioning and set properly.

Microbubbler.
Photo by Nulton Irrigation.

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6 Mulch

Mulch provides a protective layer over bare soil, mimicking what occurs in nature. In forests, leaves and woody materials cover the forest floor. In the natural Oliver area grasslands, bunchgrasses dominate the landscape with forbs and shrubs interspersed. Between plants, the soil is covered and protected by a living layer of mosses and lichens.

Mulching is one of the best things you can do to ensure the health of your plants. There are two general types of mulch: organic and inorganic.

Organic mulches consist of plant materials, such as: shredded bark, wood chips, chipper debris, sawdust, wood shavings, dry grass clippings, pine needles, evergreen boughs, peat moss, straw, compost, newspaper, shredded paper, leaves, and leaf mold. Inorganic mulches consist of non-living materials, such as: plastic, woven fabrics, pea gravel, river rock, crushed stone, and shale.

Benefits of Organic mulch:

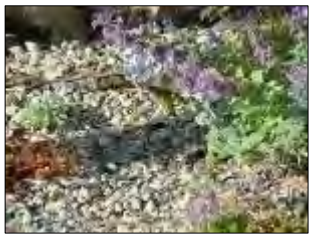
- limits reflectivity, keeping plants cooler and resulting in less evaporation
- absorbs and retains water around root zones
- protects and insulates soil from freezing in winter
- controls erosion by slowing down rainwater
- reduces the loss of bare topsoil to wind
- safeguards against soil compaction and crusting
- builds soil, improving organic content and nutrients
- reduces weed growth and seed germination
- becomes a design element, giving the landscape a 'finished' look
- some mulches help acidify alkaline soils, such as coffee grounds, evergreens, pine needles, and sawdust.

"Mulching is one of the best things you can do to ensure the health of your plants."

South Okanagan Similkameen Secondary School students mulching with shredded bark around native plants at end of Spartan Place (base of Oliver Mountain) as part of a habitat restoration project.
Photo by Lisa Scott.

Inorganic Mulch

Inorganic mulches are long lasting and are good for high traffic areas such as pathways, boulevards, or as small feature areas.



Pea-gravel as mulch. Photo by Eva Durance.

They require maintenance. In fact, within a year or two, weeds will sprout as leaves and other organic matter fall and decompose in the cracks. They can be hard to clean, expensive and difficult to weed.

Keep in mind that rock mulch, particularly in our hot Okanagan summers, can create an additional stress on plants because of its tendency to both absorb and reflect heat, increasing temperatures around your plants, your home and your neighborhood. The increased heat results in a higher evapotranspiration rate, leading to higher water demands. If you plan on installing rock mulch, you are recommended to keep these features small.

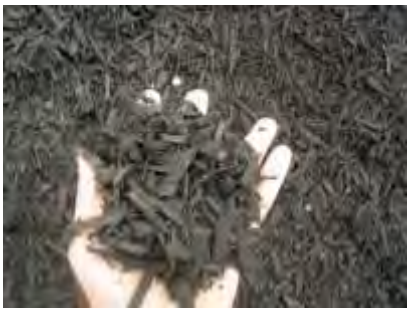
Costs and Coverage

- Recommended depth of mulch is 2 inches for fine mulch to 4 inches for rough mulch.
- One cubic yard covers 108 sq. ft. in 3 inches of mulch.
- The cost of organic bark mulch ranges from $25 to $60 per yard ($0.25 – 0.60/sq. ft.)

Mulch can be a major expense in creating new landscapes. However, it is possible to obtain some mulches for free! Some free materials include grass clippings, pine needles, leaves, chipper debris, cardboard and newspaper. The Oliver Landfill sometimes has free chipper debris.

Mulching Tips

- The best time to add mulch is just after planting. Top-up existing mulch in the fall.
- Keep flammable mulches such as pine needles, straw and evergreen boughs away from wooden walls and fences. Once organic mulches have aged and flattened down, they are much less flammable.
- Do not bury stems or trunks of trees, shrubs, and woody perennials; this avoids pest or fungal problems.
- Mulch containing strips of bark or different size chunks tends to knit together better to withstand wind.
- Plastic landscape fabric under organic mulch is not recommended. Plastic prevents water infiltration and weeds will eventually grow through this layer. If troublesome weeds occur in this area, consider sheet mulching.
- It is always best to cover bare soil with mulch, even when you are not ready to plant. This will save weeding time.
- Extremely dry soil plants such as cacti, succulents, and artemesias are sometimes better left without mulch. Do not mulch irises either.



Bark mulch. Photo by Lisa Masini.

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7 Maintenance

Large Oliver properties can be time-consuming and costly to manage. Although every landscape requires some maintenance, the advantage of xeriscape is that much less time, money and resources need to be expended to keep your landscape beautiful and healthy.

Irrigation

- Perform watering system audit annually. See page 25.
- Monitor for signs of erosion caused by irrigation leaks or run-off.
- By not overwatering your landscape, plants stay healthy and require less care.

Lawn Care

- Fertilizing a low-water lawn should only be done once annually, in the spring. Lightly top-dress your lawn with compost or a nutrient-rich soil.
- If overseeding with drought tolerant grass seed, do so in spring for first 2-4 years (see page 13).
- Overwatering and/or over fertilizing conventional lawns necessitates more frequent mowing, dethatching and aerating. Reducing both cuts down on your maintenance time.
- A healthy lawn is naturally more resistant to weed growth.

Weeding

- Stay on top of weeding. This task is much reduced when mulch has been applied.

Pruning

- Prune out dead, diseased and damaged limbs.
- Trees should be pruned when they are dormant.
- Proper watering and fertilization practices, and allowing room for mature species, can virtually eliminate the need to prune.

Fertilizing

- For the most part, xeriscape plants do not require the application of fertilizer, particularly if you've amended the soil.
- Do not fertilize native plants.

Mulching

- Top up mulch when necessary.

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Photo by Grasslands Nursery.

Managing and Using Rainwater Runoff

Rainstorms can be few and far between in the arid Okanagan Valley. However, when they do arrive, the rapid flow of surface waters can cause serious erosion problems in the Oliver area such as gully erosion, underground piping, sinkhole formation, and landslides. Sudden rainfall is often viewed as a hazard, but with a few simple preparations, rainwater can be turned into a valuable resource for landscape irrigation.

Steps to Harvesting Rainwater

Begin with long and thoughtful observation.

- Observe where the water flows, where it collects, where it drains away, and where it drains from. This informs you of your resources and challenges. Build on what is working and change what isn't.

Start at the top of your property or house, and work your way down.

- It is easier to harvest water at the top where it is more manageable. Then use the free power of gravity to distribute harvested water to areas down slope.

Start small and simple.

- Small, simple systems of an appropriate scale are easier to create and maintain than complex, extensive systems. Start with a rain barrel off one downspout or create a berm around a large tree where runoff occurs.

Slow, spread, and infiltrate the flow of water.

- A zigzag pattern calms the flow of water to reduce destructive erosion and increases the time and distance the water flows. This will increase infiltration into the soil from the high point to the low point. For example, creating a system of small berms or terraces on steep slopes helps to slow flow of water.

Always plan an overflow route and manage that overflow as a resource.

- You can't turn off the rain once your water-harvesting earthworks and cisterns are filled up, so always be prepared for overflow into the surrounding landscape.

Create a living sponge.

- Maximize planting of climate-appropriate vegetative groundcover and spread organic mulch over the surface of the soil to create a "living sponge". As roots expand and soil life increases, the soil's ability to infiltrate and hold water steadily improves.

Continually reassess your system.

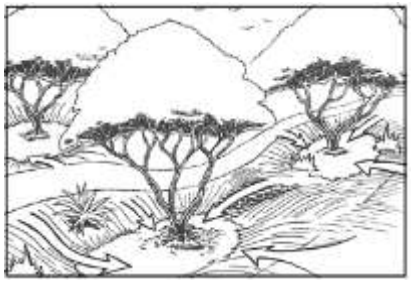
- Monitor the success and failures of your rainwater systems. If necessary, make changes using the above steps to guide you.

Tips

- Do not infiltrate water within 10 feet of a building foundation.
- Always check for underground utility lines before digging.
- Harvest water into the moderate-water or oasis zone, where the plants need it most.
- Make sure land slopes away from all buildings.
- Don't move large quantities of soil; instead, work with the existing landscape forms.
- Direct downspouts or rain barrel overflows onto high points, so that gravity can be used to distribute the water throughout the site via berms and basins.

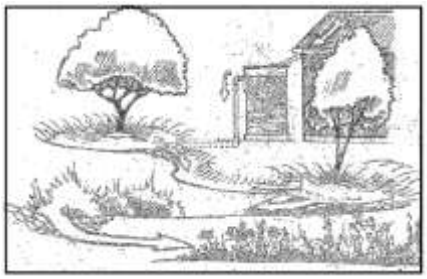
Driveway Runoff

- Reduce the amount of impervious, paved surface on your property.
- Slope pavement to drain into vegetation alongside driveway.
- Cut grooves or create small speed bumps to divert water towards plantings.
- Use small berms alongside driveway to catch and hold water around plants.
- Install drain tile or a French drain at the bottom of a long slope in the driveway to divert water to the sides rather than onto the main road.
- Consider installing porous surfaces for driveways and paths such as gravel, recycled asphalt, porous asphalt, open-jointed blocks or turf blocks.
- Reduce the driveway to two narrow strips for vehicle tires.



Roof Runoff

- Install rain barrels at the bottom of downspouts to hold water for irrigation on dry days. Be sure to install an overflow route for water.
- If downspouts empty onto steep, erodible slopes, install a rock spillway (dry creek bed) or pipe to carry water to your landscape.
- Use a perforated pipe on the end of downspouts to distribute water away from the house and towards plantings.
- Install 3-4 pop-up drains per downspout; they distribute roof runoff onto your landscape.
- Install a green roof to absorb and slow down rainfall while moderating the temperature of your home.
- For a more decorative look, install rain chains instead of downspouts.



Landscape Features to Capture, Distribute, and Infiltrate Rainwater

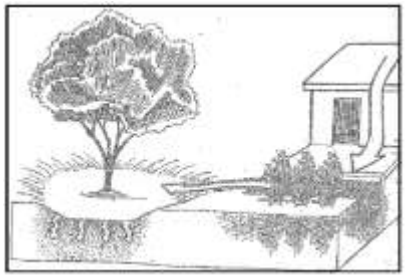
Berms and Basins

A system of small berms and basins, also known as 'ditch and swale', can be used on moderate slopes to slow, disperse and allow water to infiltrate the soil. A berm generally follows a contour line of a slope, or forms a boomerang shape to hold water around a specific tree or shrub. A basin consists of a depression in the ground that catches water and allows it to infiltrate the soil. Basins usually contain deep-rooted plants to soak up the rainwater, essentially functioning as a 'rain garden'.

Terraces

A terrace is a flat shelf of soil built parallel to the contour of a slope, creating flat planting areas. These are typically used for smaller gardens on steep slopes.

Spillways



Spillways carry water from downspouts or overflow areas towards collection basins. Spillways should be lined with plastic and artfully covered with rock to form an attractive dry creek bed, thus adding a design element to your landscape.

French Drain

A French drain is a plastic-lined basin or trench filled with angular gravel. This allows water to infiltrate quickly, while creating a stable surface to walk on. French drains can be used to carry water away from non-porous surfaces to catch basins surrounding shrubs and trees.

Illustrations by Joe Marshall

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Boulevards in Oliver (a Message from the Town of Oliver)

Within the Town of Oliver, property owners/occupiers are responsible for the care and maintenance of the boulevard adjacent to their property. Boulevard maintenance is important for the safety of pedestrians, cyclists and motorists. Well maintained boulevards ensure safe, clean and attractive neighbourhoods. Overgrown vegetation contributes to unsightliness and can affect community appeal and safety.

If we all pitch in and do our share, we can make our neighbourhoods safer, greener and more beautiful. Take pride in our great community!

Obstructions

Pasture Sage. Photo by Paula Rodriguez de la Vega.

Plantings at intersections or near crosswalks should be no taller than 0.6 m (2 ft.)

Hedges, trees and shrubs on private property should be kept as not to interfere with pedestrians, cyclists and motorists. This ensures proper sightlines required to see other road users.

A 3m (10 ft.) setback from the edge of the road is recommended for safe sight lines.

Fences should not be on boulevards. Setback requirements depend on where you live, as they are zone specific. For more information on fence height, setbacks, etc. please refer to the Zoning Bylaw or contact the Development Services Department at 250-485-6200.

Do not place large rocks or obstacles in boulevards as these may not be seen by drivers and may become a hazard.

Bylaws

Traffic Bylaw #650, 1992 states:
Owners/occupiers of property are to maintain a minimum standard in the boulevards along adjacent streets such as weed control, rubbish removal, and water boulevard trees.

Town approval is required for boulevard work including:
· Removal or alteration of boulevard trees (including pruning)
· Altering grades
· Construction of driveways
· Plantings other than grass, turf, flowers, bedding plants or low shrubs

Boulevards often contain buried cables, conduits, gas or other underground facilities so
Call before you dig! BC One Call 1-800-474-6868

To report any obstructions of sidewalks, signs, driveways, and roadways or for more information regarding boulevard maintenance and applicable bylaws contact **TOWN OF OLIVER, Public Works Department,** *Phone:* 250-485-6213, *Email:* works@oliver.ca, *Website:* www.oliver.ca.

Tips for Xeriscaping on the Boulevards

Since boulevards are usually furthest from your irrigation system, they are perfect places to plant a xeriscape garden.

- Choose low shrubs, perennials, short ornamental grasses, or eco-turf that do well with no supplemental watering once established (choose plants in 'dry' column in plant list pages 34-41).
- Apply the rainwater runoff principles on page 29. This will help funnel driveway or road runoff into the plants.
- If you park in the boulevard, get creative and design a half-moon parking area. Use permeable substances such as gravel, recycled asphalt, porous asphalt, open-jointed blocks or turf blocks. Plant feature grasses or shrubs along the edges.

Before and after, example of boulevard landscaped with inorganic mulch. Photo by Pacific Silica.

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Plant List

= Dry = Low water EC = Erosion cntrol = Deer resistant

Note: "x" in a column means suitable. = Used by birds (b) or pollinators (p)

PLANT NAME			EC		
NATIVE GRASSES					
Indian Rice Grass *Achnatherum hymenoides*	x	x	x		
Great Basin Wild Rye *Elymus cinereus*		x	x		
Idaho Fescue *Festuca idahoensis*	x	x	x		
Needle and Thread Grass *Hesperostipa comata*	x				
Junegrass *Koeleria macrantha*	x				
Bluebunch Wheatgrass *Pseudoroegnaria spicatum*	x		x		
Sandberg's Bluegrass *Poa secunda*	x		x		
NATIVE PERENNIALS					
Yarrow *Achillea millefolium*	x			x	p
Nodding Onion *Allium cernuum*	x			x	
Pearly Everlasting *Anaphalis margaritacea*	x	x			
Rosy Pussytoes *Antennaria microphylla*	x				p
Kinnickinnick *Arctostaphylos uva-ursi*	x	x			pb
Pasture Sage *Artemisia frigida*	x		x	x	
Western Mugwort *Artemisia lucoviciana*	x			x	
Showy Milkweed *Asclepias speciosa*	x	x		x	p
Lindley's Aster *Aster cileolatus*	x	x			p
Tufted White Prairie Aster *Aster ericoides pansus*	x				p

PLANT NAME			EC		
NATIVE PERENNIALS					
Yarrow *Achillea millefolium*	x			x	p
Nodding Onion *Allium cernuum*	x			x	
Pearly Everlasting *Anaphalis margaritacea*	x	x			
Rosy Pussytoes *Antennaria microphylla*	x				p
Kinnickinnick *Arctostaphylos uva-ursi*	x	x			pb
Pasture Sage *Artemisia frigida*	x		x	x	
Western Mugwort *Artemisia lucoviciana*	x			x	
Showy Milkweed *Asclepias speciosa*	x	x		x	p
Lindley's Aster *Aster cileolatus*	x	x			p
Tufted White Prairie Aster *Aster ericoides pansus*	x				p
Arrow-leaved Balsamroot *Balsamorhiza sagittata*	x				pb
Showy Daisy *Erigeron speciosus*	x	x		x	p
Sulphur Flowered Buckwheat *Eriogonum umbellatum*	x		x		p
Parsnip-flowered *Eriogonum heracleoides*	x		x		p
Snow Buckwheat *Eriogonum niveum*	x		x		p
Brown-eyed Susan *Gaillardia aristata*	x				p
Old Man's Whiskers *Geum triflorum*		x			

PLANT NAME			EC		
NATIVE PERENNIALS					
Scarlet Gilia *Gilia aggregata*	x		x	x	pb
Golden Aster *Heterotheca villosa*	x				p
Round-leaved Alumroot *Heuchera cylindrica*	x				
Bitterroot *Lewisia rediviva*	x				p
Blue Flax *Linum perenne ssp. lewisii*	x	x			
Silky Lupine *Lupinus sericeus*	x				pb
Prickly-pear Cactus *Opuntia fragilis*	x			x	
Shrubby Penstemon *Penstemom fruticosus*	x				p
Long-leaved Phlox *Phlox longifolia*	x			x	p
Canada Goldenrod *Solidago canadensis*	x	x		x	p
NATIVE SHRUBS					
Saskatoon *Amelanchier alnifolia*	x		x		pb
Big Sagebrush *Artemisia tridentata*	x		x	x	
Red Stemmed Ceanothus *Ceanothus sanguineus*	x	x	x	x	p
Snowbrush *Ceanothus velutinus*	x			x	p
Rabbitbrush *Chrysothamnus nauseosus*	x		x	x	p
White Clematis (CAUTION: can grow aggressively) *Clematis ligusticifolia*	x	x			p
Wolf willow *Eleagnus commutata*	x		x		pb
Common Juniper *Juniperus communis*	x			x	b

PLANT NAME			EC		
NATIVE SHRUBS					
Ocean Spray *Holodiscus discolor*	x	x			pb
Common Juniper *Juniperus communis*	x			x	b
Oregon Grape Holly *Mahonia aquifolium*	x		x	x	pb
Mock Orange *Philadelphus lewisii*	x	x	x		p
Shrubby Cinquefoil *Potentilla fruticosa*	x	x			p
Antelope Brush *Purshia tridentata*	x			x	pb
Smooth Sumac *Rhus glabra*	x		x		pb
Waxy Currant *Ribes cereum*	x		x		pb
Prairie Rose *Rosa woodsii*	x		x	x	pb
Blue Elderberry *Sambucus caerulea*	x	x	x	x	pb
Soopalallie *Shepherdia canadensis*	x	x	x		b
Snowberry *Symphoricarpos albus*	x	x	x		pb
NATIVE TREES					
Douglas Maple *Acer glabrum*		x	x		p
Black Hawthorn *Crataegus douglasii*	x	x		x	pb
Rocky Mountain Juniper *Juniperus scopulorum*	x		x	x	b
Lodgepole Pine *Pinus contorta var latifolia*	x		x		b
Ponderosa Pine *Pinus ponderosa*	x		x		b
Chokecherry *Prunus virginiana*	x		x		pb
Douglas Fir *Pseudotsuga menziesii*	x		x		b

PLANT NAME			EC	
XERISCAPE BULBS				
Crocus *Crocus*	x		x	x
Snowdrop *Galanthus*	x			
Grape Hyacinth *Muscari*	x	x		x
Daffodil *Narcissus*	x	x		x
Prairie Crocus/ Pasqueflower *Heterotheca villosa*		x		
Scilla *Scilla siberica*	x	x		
Tulip *Tulipa*	x			
XERISCAPE GRASSES				
Buffalo Grass (for Lawns) *Buchloe dactyloides*	x	x		
Blue Gramma (for Lawns) *Bouteloua gracilis*		x		
Quaking Grass *Briza media*		x		x
Feather Reed Grass *Calamagrostis*		x		x
Northern Sea Oats *Chasmanthium latifolium*		x		x
Fescue species (some for lawn) *Festuca spp.*	x		x	x
Blue Oat Grass *Helictotrichon sempervirens*	x			x
Blue Hair Grass *Koeleria glauca*	x			
Giant Chinese SilverGrass *Miscanthus floridulus*		x		
Switch Grass *Panicum virgatum var.*		x		
Perennial Fountain Grass *Pennisetum alopecuroides*		x		

PLANT NAME			EC	
XERISCAPE GRASSES				
Hardy Pampas Grass *Saccharum ravannae*		x		
Little Bluestem *Schizachyrium scoparium*	x			
Autumn Moor Grass *Sesleria autumnalis*	x	x		
Prairie Dropseed *Sporobolus heterolepis*	x	x	x	
XERISCAPE PERENNIALS				
Hyssop *Agastache*	x	x		
Hollyhock *Alcea rosea*	x	x	x	
Blue star *Amsonia*		x		
'Mountain Gold' Alyssum *Alyssum montanum 'Mtn. Gold'*	x			
Mt. Atlas Daisy *Anacyclus depressus*	x			
Windflower *Anemone sylvestris*	x	x		
Pussytoes *Antennaria*	x	x		
Rock cress *Arabis*		x		
Thrift *Armeria maritima*	x			
Sage varieties *Artemisia*	x			x
Aster *Aster*		x		
Basket of Gold *Aurinia saxatilis*	x			
False Indigo *Baptisia australis*	x	x		
Poppy Mallow/Winecup *Callirhoe involucrata*	x			

PLANT NAME	💧	💧💧	EC	🦌
XERISCAPE PERENNIALS				
Bellflower *Campanula*		x		
Trumpet vine (CAUTION; spreads aggressively by suckering) *Campsis*		x		
Cupid's Dart *Catanache caerulea*	x			
Valerian *Centranthus ruber*		x		x
Snow in Summer (CAUTION: spreads quickly in garden setting) *Cerastium tomentosum*		x		x
Blue Leadwort *Ceratostigma plumbagnoides*		x		
Jackmanii Clematis (vine) *Clematis jackmanii*	x	x		
Golden Clematis (vine) *Clematis tangutica*	x	x		
Coreopsis varieties *Coreopsis lanceolata var.*		x		
Large-flowered Coreopsis *Coreopsis grandiflora*	x			x
'Zagreb' Threadleaf Tickseed *Coreopsis verticillata 'Zagreb'*		x		x
Hardy Iceplant *Delosperma*	x			
Pinks *Dianthus*		x		x
Dragon's Head *Dracocephalum*	x			
Purple Coneflower & varieties *Echinacea purpurea var.*		x		x
Globe Thistle *Echinops ritro*		x		x

PLANT NAME	💧	💧💧	EC	🦌
XERISCAPE PERENNIALS				
Daisy *Erigeron species*	x			
Eryngium varieties *Eryngium sp.*		x		x
Euphorbia varieties *Euphorbia sp.*		x		x
Blanket Flower (varieties) *Gaillardia grandiflora var.*	x			
Hardy Gazania *Gazania linearis*	x			
Cranesbill/Hardy Geranium *Geranium*	x	x	x	x
Rock Rose *Helianthemum numularium*		x		
Maximillian Sunflower *Helianthus maximillianii*	x			
Heliopsis *Heliopsis*		x		
Daylily *Hemerocallis*		x		
Candytuft *Iberis semervirens*	x	x		
Iris (some) *Iris*	x	x	x	
Torch Lily *Kniphofia*		x		x
English Lavender *Lavandula angustifolia*	x			x
Shasta Daisy (AVOID: too close to invasive Oxeye Daisy) *Leucanthemum x superbum*		x		
Dotted Gayfeather *Liatris spicata*		x		x
Honeysuckle (vine) *Lonicera*		x		
Bird's-foot Trefoil *Lotus corniculatus*		x		x

PLANT NAME			EC	
XERISCAPE PERENNIALS				
Catmint *Nepeta*	x			x
Ozarks Sundrop *Oenothera macrocarpa*	x			
Fragilis Bronze Beauty Cactus *Opuntia fragilis*	x			x
Fragilis Long Red Spine Cactus *Opuntia fragilis*	x			x
Fragilis denudate Cactus *Opuntia fragilis var. denudate*	x			x
Polyacantha North Dakota Cactus *Opuntia polyacantha*	x			x
Viridiflora cholla Cactus *Opuntia viridiflora*	x			x
Humifusa 'Wisconsin' Cactus *Opuntia humifusa*	x			x
Macrorhiza Cactus *Opuntia macrorhiza*	x			x
Origanum varieties *Origanum sp.*		x		x
Peony *Paeonia*		x		x
Virginia Creeper (CAUTION; spreads aggressively by seeds) *Parthenocissus quinquefolia*		x		
Penstemon (most) *Penstemon spp.*	x	x		
Russian Sage (CAUTION, can grow aggressively) *Perovskia atriplifolia*	x			x
Fleeceflower *Persicaria affinis*		x		
Phlox (some species) *Phlox subulata*	x			

PLANT NAME			EC	
XERISCAPE PERENNIALS				
Pasque flower *Pulsatilla vulgaris*		x		x
Rosemary *Rosemarius officinalis*		x		
Gloriosa Daisy *Rudbeckia hirta*	x			
Sage varieties (CAUTION some grow aggressively) *Salvia spp.*	x	x	x	
Soapwort *Saponaria*		x		x
Alpine Skullcap *Scutellaria alpina*	x			
Stonecrop varieties *Sedum var.*	x			x
Hen and Chicks *Sempervivum*	x			
Lamb's Ear *Stachys byzantina*		x		x
Thyme varieties *Thymus var.*	x			x
Wooly Veronica *Veronica pectinata*	x	x	x	
Speedwell *Veronica repens*		x		
Wisteria (vine) *Wisteria*		x		
'Golden Sword' Yucca (CAUTION: root segments can start new plant) *Yucca filamentosa "G. Sword'*	x		x	x
White Yucca or Soapweed *Yucca glauca*	x			x

Eriogonum heracleoides. Photo by Sagebrush Nursery.

PLANT NAME			EC	
XERISCAPE SHRUBS				
Japanese Barberry *Berberis thunbergii*		x		x
Caragana (CAUTION: spreads quickly by suckering and seeding) *Caragana spp.*		x		x
Bluebeard/Blue Mist Spirea *Caryopteris x clandonensis*		x		
Smokebush *Cotinus*		x		x
Cotoneaster *Cotoneaster*		x		x
Euonymus (some varieties) *Euonymus**		x		
Exochorda *Exochorda*		x		x
Apache Plume *Fallugia paradoxa*	x			
Forsythia *Forsythia*	x	x	x	x
Broom *Genista*		x		
Juniper varieties *Juniperus spp.*	x			x
Honeysuckle (shrub varieties) *Lonicera*		x		
Ninebark *Physocarpos opulifolius*		x		
Mugho Pine *Pinus mugo*	x	x	x	x
Purple Leaf Sand Cherry *Prunus cistena*		x		
Staghorn Sumac (CAUTION: spreads quickly by suckering) *Rhus typhina*	x		x	
Currant/Gooseberry *Ribes*		x		

PLANT NAME			EC	
XERISCAPE SHRUBS				
Red Leaf Rose *Rosa rubrifolia*		x		
Rugosa Rose *Rosa rugosa*		x		
Dwarf Arctic Willow *Salix purpurea 'Nana'*	x	x	x	
Lavender Cotton *Santolina chamaecyparissus*	x			x
False Spirea *Sorbaria*		x		x
Bridal Wreath Spirea *Spirea x vanhoutii*		x		
Lilac *Syringa*	x	x	x	x
Weigela *Weigela florida*		x		x
XERISCAPE TREES				
Maple (some varieties) *Acer spp.*		x	x	
Western Redbud *Cercis occidentalis*		x	x	
'Paul's Scarlet' Hawthorn *Crataegus oxycantha 'Paul's Scarlet'*		x	x	
Green Ash *Fraxinus pennslvanica*	x	x	x	x
Maidenhair Tree *Ginkgo biloba*		x		x
Honey Locust *Gleditsia spp.*		x		x
Golden Raintree *Koelreuteria paniculata*		x		
Crabapple (ornamental var) *Malus spp.*		x		
Weeping Mulberry *Morus alba "Chaparral"*		x		

PLANT NAME	💧	💧💧	EC	🦌
XERISCAPE TREES				
'Colorado Blue Spruce *Picea pungens 'Glauca'*	x		x	
Pinus nigra *Pinus nigra (all)*		x		
London Plane Tree *Platanus x acerfolia*		x		
Staghorn Sumac *Rhus typhina*		x		
Japanese Tree Lilac *Syringa reticulata*		x		
Greenspire Linden *Tilia cordata*		x	x	
Wayfaring Tree *Viburnum lantana*	x	x	x	

Golden Aster. Photo by Sagebrush Nursery.

***Iris missouriensis*. Photo by Sagebrush Nursery.**

NOXIOUS WEEDS AND INVASIVE PLANTS

The South Okanagan Similkameen Invasive Plants Society (SOSIPS) would like gardeners to be aware of the following invasive ornamental plants. For more information, see their website at www.sosips.ca.

Invasive Ornamental Plants (that are still sold/traded)

DO NOT PURCHASE OR PLANT

Bachelor's Button (*Centaurea cyanus*)
Black Locust (*Robinia pseudoacacia*)
Butterfly Bush (*Buddleia davidii*)
Cherry Laurel (*Prunus laurocerasus*)
Common European Hawthorn (*Crataegus monogyna*)
Common Fennel (*Foeniculum vulgare*)
Common Periwinkle (*Vinca minor*)
English Ivy (*Hedera helix*)
European Mountain Ash (*Sorbus aucuparia*)
Herb Robert (*Geranium robertianum*)
Invasive Knotweeds (*Fallopia or Polygonum spp.*)
Old Man's Beard (*Clematis vitalba*)
Purple Deadnettle (*Lamium amplexicaule*)
Russian Olive, Oleaster (*Elaeagnus angustifolia*)
Sea Buckthorn (*Hippophae rhamnoides*)
Siberian Elm (*Ulmus pumila*)
Silver lace vine (*Polyganum aubertii*)
Tamarisk, Saltcedar (*Tamarix ramosissima*)
Tree of Heaven (*Ailanthus altissima*)
Yellow or False Lamium (*Lamium galeobdolon*)

Established Invasive Plants

CONTROL ON YOUR PROPERTY

Baby's Breath (*Gypsophila paniculata*)
Canada Thistle (*Cirsium arvense*)
Common Tansy (*Tanacetum vulgare*)
Dalmatian Toadflax (*Linaria genistifolia*)
Hawkweeds (*Hieracium spp.*)
Hoary Alyssum (*Berteroa incana*)

Established Invasive Plants (continued)

Hound's-tongue (*Cynoglossum officinale*)
Leafy Spurge (*Euphorbia esula*)
Orange Hawkweed (*Hieracium aurantiacum*)
Oxeye Daisy (*Chrysanthemun leucanthemum*)
Puncturevine (*Tribulus terrestris*)
Purple Loosestrife (*Lythrum salicaria*)
Reed Canarygrass (*Phalaris arundinacea var. picta*)
Sulphur Cinquefoil (*Potentilla recta*)
Velvetleaf (*Abutilon theophrasti*)
Wild four o'clock (*Mirabilis nyctaginea*)
Scotch thistle (*Onopordum acanthium*)
Nodding thistle (*Carduus nutans*)
Burdock (*Arctium sp*)
Longspine sandbur (*Cenchrus longispinus*)
Blueweed (*Echium vulgare*)
Knapweeds (*Centaurea spp.*)
Diffuse, Spotted, and Russian Knapweeds

Alert species
NOT KNOWN TO OCCUR IN THE OLIVER AREA
**** TO REPORT ANY SIGHTINGS****
**** CALL SOSIPS: 1-250-404-0115 ****
Rush Skeletonweed (*Chondrilla juncea*)
Scotch Broom (*Cytisus scoparius*)
Tansy Ragwort (*Senecio jacobaea*)
Yellow Starthistle (*Centaurea solstitialis*)
Common bugloss (*Anchusa officinalis*)
Yellow toadflax (*Linaria vulgaris*)
Giant hogweed
Teasel


Puncturevine flower and seedpod.

Spotted Knapweed.

Oxeye Daisy.

Orange Hawkweed.

All photos on this page by Lisa Scott.

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Resources

Books

Bonnemaison, Tamara. *Native Plant Landscaping for the South-Okanagan Similkameen.* Osoyoos Desert Society, Osoyoos BC. 2008.

Durance, Eva. *Cultivating the Wild: Gardening with Native Plants of British Columbia's Southern Interior and Eastern Washington.* Nature Guides BC. © 2009.

Hansen, Juergen and Jacquie Tapping. *Gardening in the Okanagan.* Okanagan Past and Present Society 4th edition, Summerland. © 1995

Naturescape BC. Southern Interior. The official program on gardening to attract wildlife on your property; Call -800-387-9853, $25 for 3 books.

Xeriscape Color Guide: 100 Waterwise Plants for Gardens and Landscapes. Ed., David Winger, Denver, CO. Fulcrum Pub. 1998.

Businesses with Xeriscape Services

The following list is a compilation of businesses that provide certain services in the Oliver area associated with xeriscaping, as described by the icons below. The businesses listed are not necessarily **certified** designers, irrigation contractors, architects, or landscapers. If your landscape is complex, please ensure you ask for the necessary credentials.

Xeriscape irrigation design, installation, or maintenance

Xeriscape or/and native drought-tolerant plant selection

Xeriscape landscape installation

Xeriscape Designers

Other gardening supplies or information

DirtWorks Landscape Development Ltd 
Site 78 comp. 24 RR#1 Oliver
Tel. 250-490-6167 or 250-498-9648, Fax: 250-498-4778, dirtworksltd@hotmail.com
DirtWorks is full service landscape company with 12 years in the business. Our team includes: certified horticulturist, certified arborist, certified green house manager, certified turf grass manager and fully ticketed pest management tech., and are qualified for the exciting trend of xeriscaping.

Eco Turf Farms 
3330 Old Vernon Road, Kelowna, BC, V1X 6P3
Tel. 1-866-923-8873, Fax. 250-765-9419, info@ecoturffarms.com, www.ecoturffarms.com

Emerald Irrigation & Landscape Contruction 
840 Barrington Ave., Penticton, BC
Tel. 250-490-9002, 250-494-0456, aran4@shaw.ca, www.emeraldirrigation.com
Design, Installation, and maintenance of efficient landscapes, xeriscapes, and irrigation systems for over 24 years. We have a certified irrigation designer, certified landscape irrigation auditor, certified irrigation technician, irrigation contractor, supply of black slate, rock mulches, and feature rocks.

Eva Durance, Dip. GD, Designer 
Tel. 250-492-0158, edurance@vip.net
Eva has designed xeriscape landscapes and gardens on large and small properties for over 15 years. She has a Diploma in Landscape Design and has published Cultivating the Wild: gardening with native plants of BC's Southern Interior and Eastern Washington.

Firstfruits Lawn and Garden Care 
Box 158, Oliver, BC
Tel. 250-498-0009, fflandgc@telus.net

Future Gardens 
33890 – 97th Street, Oliver, BC
Tel. 250-498-0383, www.futuregardens.ca
Offers exceptional quality, selection and service. Whether you choose your own design or rely on us for assistance, with our plants you are guaranteed to create a beautiful garden.

Grasslands Nursery 
3615 Gartrell Road, Summerland, BC, V0H 1Z4
Tel. 250-494-4617, info@grasslandsnursery.ca, www.grasslandsnursery.ca
A full-service nursery specializing in xeriscape and sustainable landscaping. Certified irrigation technicians, certified landscape designer and knowledgeable staff ensure professionalism from consultation to maintenance. Readers' Choice awards for Best Garden Centre and Best Landscape Design.

Greenfoot Landscaping 
PO Box 3, Oliver, BC, V0H 1T0

Tel. 250-408-0703, greenfootdesign@gmail.com
Greenfoot Landscaping designs gardens based on natural processes, encouraging sustainability and balance. Greenfoot is able to design gardens that mimic patterns found in nature, creating a stable, productive systems using proven techniques and technology.

Kathryn McCourt, Hands on Garden Care & Coaching 
1-8712 Stuart St., Summerland, BC, V0H 1Z6
Tel. 250-494-8244 kdmccourt@shaw.ca
I do coaching, consulting, planting plans, and workshops on Xeriscape and waterwise gardening.

Nulton Irrigation (BC) Ltd. 
33496 91st street, Oliver, B.C. (PO box 399), V0H 1T0
Tel. 250-485-0246; Cell: 250-689-0334 Fax: 250-485-0247 german@nultonirr.com
Certified irrigation designs / irrigation and gardening supplies / automatic irrigation control / soil moisture and weather sensors.

Osoyoos Desert Society 
Box 123, Osoyoos, BC V0H 1V0
Tel. 250-495-2470 or 1-877-899-0897, Fax. 250-495-2474, mail@desert.org, www.desert.org
The Osoyoos Desert Society is a non-profit organization dedicated to saving the biologically rich and diverse habitats of British Columbia's Southern Interior through habitat restoration, education and conservation. The Society is a steward of 67 acres on which its nature interpretive centre – the Osoyoos Desert Centre – is located.
Native plant landscaping booklet, Native plant landscaping workshops, Native plant demonstration garden, Native plant seed packets.

Pacific Silica and Rock Quarry Ltd. 
36867 Hwy 97, RR2 S17 C37, Oliver, B.C. V0H 1T0,
Tel. 250-498-6665, Fax 250-498-2384, psilica@telus.net, www.pacificsilica.com
Pacific Silica and Rock Quarry Ltd. is committed to providing a great selection of organic and inorganic mulches at competitive prices. ** Pacific Silica - Rockin Your World **

Paula Rodriguez de la Vega, BSc., Fish & Wildlife Tec., Ecological Gardening Cert. 
Box 717, Oliver, BC, V0H 1T0
Tel. 250-485-4382, prvega@telus.net
Wildlife habitat enhancement, xeriscape design and installation, naturescaping.

Sagebrush Nursery and Xeriscape Garden Center 
38084 Island Rd - 5 kms North of Oliver
Tel. 250-498-8898, Fax. 250-498-8892, www.sagebrushnursery.com
We are a propagation nursery specializing in Native and Ornamental drought tolerant plants. Grower direct pricing ensures you will receive the lowest prices in the valley.

Skaha Water Gardens
325 Eastside Rd., Okanagan Falls. Tel. 250-497-5658
(assumption may be that you want fish in your pond, but if you want other critters such as frogs, toads, and salamanders, resist the urge to have any fish, as they will eat them).

South Okanagan-Similkameen Invasive Plant Society (SOSIPS)
8703 Palmer Place, Summerland, BC, V0H-1Z2
Tel. 250-404-0115 sosips@shaw.ca www.sosips.ca
SOSIPS is a multi-stakeholder organization that has been actively participating in prevention, detection and management of invasive plants in the Regional District of Okanagan-Similkameen since 1996. The role of the society is to encourage and facilitate agency coordination, prioritize management activities, coordinate/evaluate on-the-ground treatment and to provide public information programs for invasive plant management.

Sunridge Landscapes Ltd.
PO Box 1707, Oliver, BC, V0H1T0, Cell:250-498-7084, Toll free: 1-855-498-7084,
Fax: 250-498-2295, aaron@sunridgelandscapes.ca, www.sunridgelandscapes.ca
We are a premier landscape design and construction company. We love to use big boulders, rock, drought tolerant plants (including cacti) for a natural, low water use and maintenance yard. We love creating an outdoor oasis that is specific to the customers wishes and ideas.

Waterwise Landscape Design
Lisa Masini, Kelowna, Tel. 250-862-1931, lisa@waterwisedesign.ca, www.waterwisedesign.ca
The founding philosophy of Waterwise Landscape Design is expressed by the proverb "The frog does not drink up the pond in which he lives". We believe in creating landscapes that conserve water and look beautiful. We base our designs in xeriscape principles and provide smarter landscape alternatives for homeowners who live in dry climates.

Photo by Grasslands Nursery.

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Sampling of Xeriscape Websites

Bluestem Nursery http://www.bluestem.ca
Grasslands Nursery www.grasslandsnursery.ca
Okanagan Xeriscape Association http://okanaganxeriscape.org
Summerland Ornamental Gardens http://www.summerlandornamentalgardens.org/xeriscape
Wildflower Farm http://www.wildflowerfarm.com

Irrigation and Water Conservation Websites

Farmzone http://www.farmzone.com
Irrigation Industry Association of BC http://www.irrigationbc.com
Landscape Watering Guide, Arizona http://www.wateruseitwisely.com/region/arizona/100-ways-to-conserve/outdoor-tips/landscape-watering-guide.php
Okanagan Waterwise http://www.okwaterwise.ca/
Regional District Okanagan-Similkameen http://www.rdos.bc.ca/index.php?id=232
"*Slow It. Spread It. Sink It! An Okanagan Homeowner's Guide to Using Rain as a Resource*". Okanagan Basin Water Board www.obwb.ca
Town of Oliver http://www.oliver.ca/siteengine/activepage.asp?PageID=110

Invasive Plant Websites

BC Government http://www.weedsbc.ca/
Invasive Plant Council of BC http://www.invasiveplantcouncilbc.ca
"*Grow Me Instead*" booklet:
http://www.invasiveplantcouncilbc.ca/images/stories/documents/otherpublications/GMI_2011_web.pdf
Regional District Okanagan-Similkameen http://www.rdos.bc.ca

Photo by Grasslands Nursery.

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Appendix 1

Photos from sample project by Kathryn McCourt and Lesley Field. Removing the sod. Removing roots and weeds. Soil after amending with compost. Raising the beds. Marking the beds. After bark mulch is spread out, planting occurs. Microirrigation is layed out. Paths are rolled to flatten. Gravel is added and raked. Flagstone patio is built. Finished project!











Before and after landscapes by Eva Durance.

Before and after by Lisa Masini.

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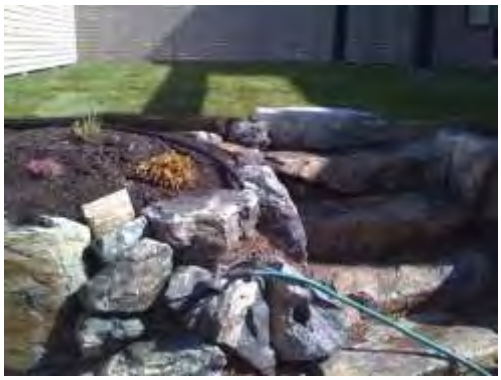
Xeriscapes by Sagebrush Nursery.



Before and after series.





Before and after xeriscape by Grasslands Nursery.

Although water features are not covered in this booklet, they are an important part of a landscape. Here they are nicely integrated into the xeriscape.

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