CREEK CARE GUIDE

CARING FOR THE CREEKS WE SHARE…
the Laguna Creek Watershed

Trail and open space area along Laguna Creek near Calvine Road.

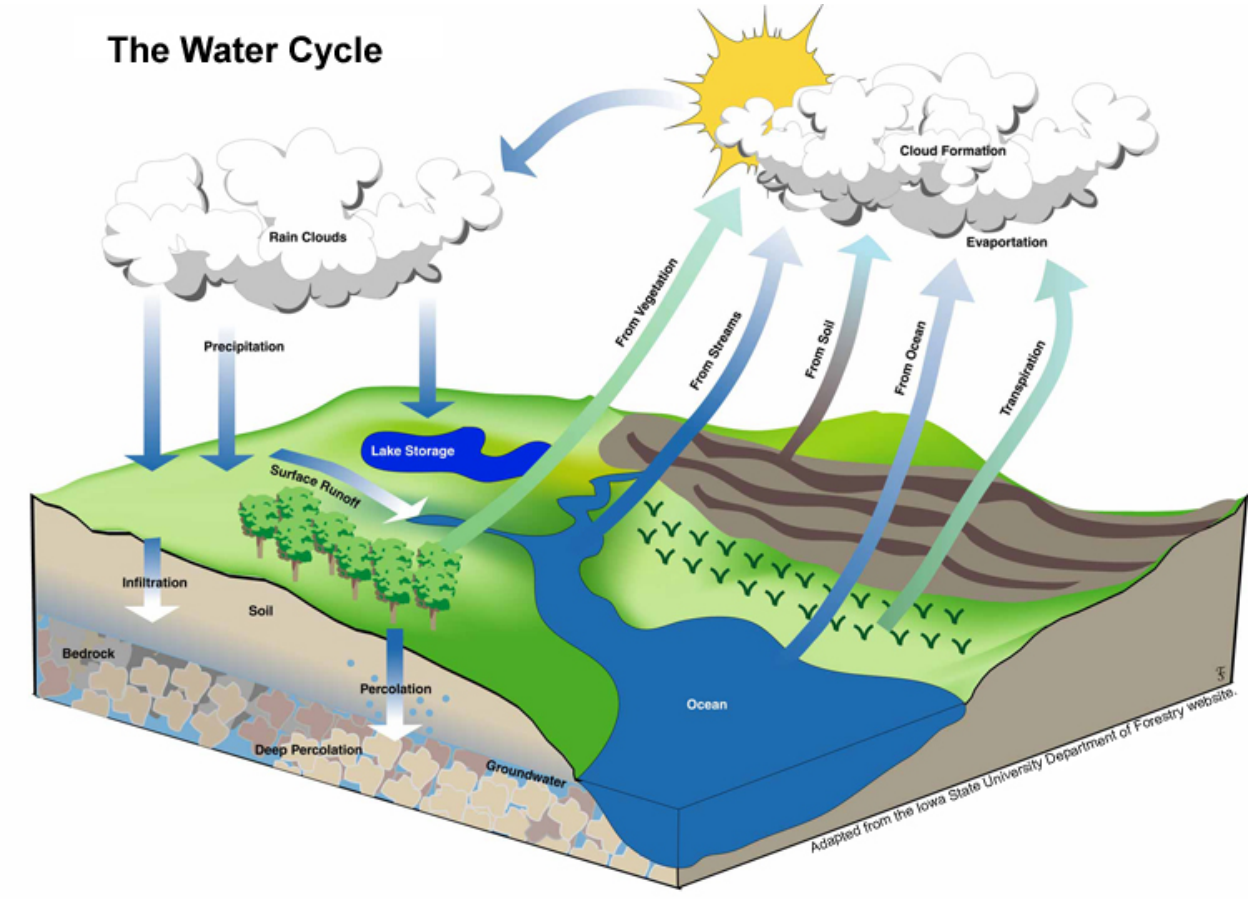
Everyone living in the Laguna Creek watershed has the opportunity to care for the creek. Whether your house or business backs up to Laguna Creek or one of its tributaries or you are 2 miles away, your activities at home have a direct impact on the health of the creek. This Creek Care Guide is designed to encourage and support the ongoing stewardship of creeks in the Laguna Creek Watershed. In urbanized areas, a creek is an irreplaceable natural resource. Whether it flows year-round or seasonally, our creeks provide water supply and groundwater recharge, habitat for a diversity of plants and animals, including birds and aquatic life, a conduit for flood waters, and wonderful trails and open space. Our creeks offer all these benefits to our community. The daily activities we take for granted can make a difference in the preservation of our creeks. This Creek Care Guide contains specific suggestions on how you can help protect the creek.

Giving Laguna Creek plenty of room helps to reduce flood risk to people (Dec. 2005, Laguna Creek at Sheldon Road.).

The habitat of Laguna Creek provides a home for many frogs and snakes, including the large, but harmless giant garter snake, an endangered species.

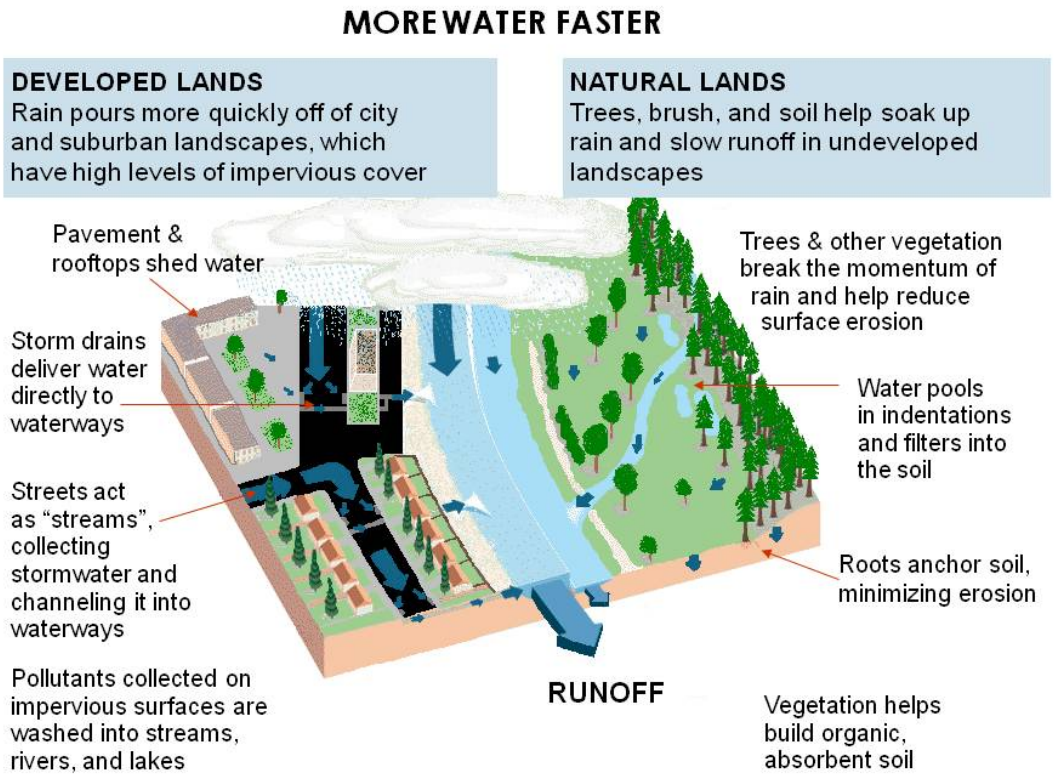
A TWO-MINUTE BACKGROUND ON HOW WE HAVE CHANGED THE CREEKS

Before the southern and eastern areas of Sacramento became what they are today….urban and suburban communities….. the Laguna Creek watershed consisted of wide open spaces and winter wetlands. This area was home to millions of migratory birds, large mammals such as elk, and large groves of oaks and black walnuts. When it rained, the water trickled through the soil to recharge the underground aquifer, a source of much of our drinking water. In some cases, shallow depressions in clay soils formed vernal pools every winter. Some of the water washed across the land and ended in the creeks. And finally, some of the rainwater evaporated into the atmosphere. This is the water cycle most of us learned about in school.



The natural water cycle is illustrated in the drawing above. When it rains, water runs off into the creek, rivers, eventually reaching the ocean. Some of it percolates through the soil to recharge the aquifer, the source of much of our drinking water.

When the great growth spurt occurred in our region during the last 20 years, everything changed. Land that used to be bare is now covered with houses, streets, and businesses. Rainwater that once filtered into the ground now forms runoff that flows into storm drains that carry it to the nearest waterway. Because the stormwater is not cleaned like wastewater, it carries with it all sorts of pollutants such as nutrients from fertilizers, pesticides, oil, grease, trash, and everything else in its path. And the volume of water in the creeks has increased greatly compared to what it used to be due to a greater volume of runoff**.**



WHAT A HEALTHY CREEK LOOKS LIKE

Few if any of California's urban streams like Laguna and Elk Grove Creeks have survived in a natural state. Still, creeks are resilient. With care and stewardship, the health of a stream can rebound. All streams are important, whether they flow year-round (perennial), part of the year (intermittent), or just during storms (ephemeral). Even the small swales that look like ditches are important because they carry water, soil, and nutrients into larger streams and support populations of aquatic invertebrates who themselves are food for larger animals.

Stream characteristics vary depending upon where you live in the watershed. In the upper watershed upstream of Eagles Nest Rd., a healthy creek may be an intermittent stream that

does not flow year-round. Water flow and characteristics of the creek banks, stream bed, vegetation and wildlife also vary naturally along the length of each creek. A thriving creek ecosystem is a diverse habitat where you will encounter a range of conditions.

Stormwater generally receive no treatment. Almost always, this urban runoff carries debris and pollutants that pose significant dangers to creeks. While you may have little control over the entire watershed, your diligence and cooperation can prevent and reduce activities which harm the creek.

Historically the creeks in our watershed were dry much of the year except after rain storms and in scattered deep pools. Today, major sections of Laguna Creek and its tributary streams flow year-round primarily due to urban runoff during dry seasons and rainfall during wet seasons.

What conditions are considered healthy for an urban valley floor stream today?

WATER: Clear most of the time, free of contaminants and excess algae.
FLOW: Winter flows, little/no flow in the summer; some pools within the creek, areas with faster moving, bubbly water.
CREEK BEDS: Rock, gravel, and sand of various sizes. Also, branches from surrounded trees and shrubs. This woody material adds diversity to the habitat in the stream and provides cover for many types of aquatic life like a healthy and diverse population of aquatic insects. They form the bottom of the aquatic food chain.

CREEK BANKS: Stable vegetated banks with minimal erosion.
PLANTS: Intermittent stream corridor tree canopy with oaks, willows, and other trees and plants adapted to our area's Mediterranean climate. An "understory" of shrubs and grasses. This vegetation helps to stabilize the banks of the stream, preventing erosion.

ANIMALS: Presence of fish, amphibian, and aquatic insect populations. Presence of birds and small mammals such as river otter.

SYMPTOMS OF AN AILING CREEK

In more recent times, urban development has dramatically changed the landscape of our watershed, affecting the creeks and their habitat. Creeks were literally picked up and moved in some places to make room for roads and houses and native creekside trees and plants were cut down. Pavement and roofs now prevent rain water from soaking naturally into the ground, sending more runoff into storm drains and down to the creeks, taking pollution with it and eroding natural creek beds and banks. Signs of an ailing creek include:

WATER QUALITY: Poor water quality, including problems such as excessive algae, suspended sediments, contamination from animal waste or sewage, or presence of metals or other toxics as well as high water temperature

FLOW: Summertime flows associated with overwatering lawns

CREEK BED: Covered with sand and silt, a consequence of excessive erosion of the stream bank. Evidence of trash, yard clippings, and other debris.

Algae overgrowth associated with fertilizer use on lawns and too much watering…. runoff from the lawn ends up in the creek degrading habitat for birds & aquatic life.

CREEK BANK: Very steep slopes (known as incised slopes) that are formed as a result of erosion force of too much water, little/no vegetation. Evidence of uncovered tree roots. Unstable banks can lead to erosion and loss of property.

PLANTS: Few trees, lack of diversity of plants and trees, presence of invasive plants.

ANIMALS: Few/no fish, little evidence of use by birds and wildlife.

Classic signs of an ailing creek – eroded banks.

EVERYONE CAN HELP PROTECT AND RESTORE OUR CREEKS….Whether you live right next to one of our creeks or miles away, you can take some simple steps to protect the creeks we have and even improve them!! Here's how……

I. IF YOUR HOUSE IS NEAR THE CREEK

The creek flowing along your property is a valuable amenity. You and your creekside neighbors share responsibility for keeping the creek and its corridor healthy, both for people's enjoyment and for the wildlife that depend upon this fragile waterway.

Make the most of your location next to a creek by helping to keep it healthy. Through proper care of stream banks and riparian vegetation, you can enhance your property, prevent erosion problems, avoid flood losses, preserve water quality, and contribute to the survival of fish and wildlife. If you and your creekside neighbors do your part to preserve and improve the creek you share, the whole community will benefit!

1. **Avoid Using Non-Native Plants**

   Non-native plants often outcompete native plants and can take over. Even if you plant a bush in the front yard, the wind and birds can carry seeds to the creek where these plants will frequently multiple quickly and choke a creek. This reduces the carrying capacity of the creek and can increase flood risk.

2. **Avoid Planting Near the Creek**

   It is wisest to let nature alone. Planting grass for example near the edge of a creek will result in fertilizers and whatever pesticides you might use running right into the creek when you water or it rains. Ideally a setback of 100 feet is best. However, due to the pattern of development, frequently this distance is unrealistic. In practice, leave a buffer strip of the greatest width possible between landscaped areas and the creek.

3. **Select natural alternatives to pesticides whenever possible**

   Because the fertilizer and pesticides you use around your house will be washed directly into the creek when it rains or when you water your lawn, a simple way to avoid pollution is to avoid the use of harmful chemicals. Integrated Pest Management (IPM) is an approach to managing bugs, spiders, and ants that emphasizes using beneficial insects to control pests and natural pesticides in addition to traditional pesticides. Online retailers carry a variety of natural products to control pests. See the Resources section of this Guide for links.

4. **Dispose of Waste and Vegetation Litter Properly**

   - **Motor oil and antifreeze**

   Even in low concentrations, automotive products are extremely toxic to fish and other aquatic wildlife. Never dump gasoline, motor oil, antifreeze, battery acid, or other

automotive fluids into a creek or storm drain. Place used motor oil or antifreeze in sturdy, sealed containers, caps tightened down, and recycle through your local collection program or recycling depot. Many communities have curbside oil recycling collection -- some have antifreeze collection services. Check with your local agency for more information about container restrictions.

- **Paints, thinners, and other solvents**

Improperly disposed paint products also cause harm to fish, wildlife, and people. Use up leftover paints, or share with a friend or neighbor. Dispose of unusable paints and paint products at your local household hazardous waste facility. Do not clean brushes in a gutter or near a storm drain or creek. Use water-based latex paints whenever possible; they are less toxic than oil-based paints, turpentine and thinners -- and they can be recycled. Small amounts of leftover paints may be air-dried in cans and discarded in the garbage. Paint thinners should be filtered and reused. Dispose of residue at a household hazardous waste collection facility or event.

- **Carpet cleaning waste.**

Carpet cleaning chemicals are detrimental to creeks; dispose of these solutions in a sink or toilet. If you use the services of a carpet cleaning company, make sure they do not dispose of the water into a creek or storm drain.

5. **Avoid hosing down paved surfaces or washing your car in the driveway or street.**
   Even "biodegradable" soaps are toxic to fish and wildlife. Wash cars on a lawn or unpaved area, or use a commercial car wash.

6. **Clean automotive spills using "dry" cleanup methods.**
   Use cat litter or other absorbent materials to remove spills from paved surfaces. Depending on the substance spilled, dispose of absorbent materials in the garbage can or at a hazardous waste collection site. If you must use water in a final cleanup step, direct flow to a lawn area -- not the street, gutter, or storm drain.

Overwatering not only wastes water, it also carries pollutants and fertilizer into the stormdrains that empty into the creeks.

7. **Carefully remove trash, litter, and other dumped debris from the creek.**
   Unfortunately, some people think of creeks as garbage dumps. You don't have to look far to find old shopping carts, used appliances, mattresses, car parts, bottles, cans, plastic, styrofoam and paper litter. This debris can become a hazard during floods. It can also be a potential threat to groundwater quality and provide breeding places for rodents and

mosquitoes. Remove old tires, garbage, and litter from your property. Never store these materials within the flood zone. They may be carried away during storm events. Do not dump yard clippings down creek banks or within a flood zone.

8. **Practice creek-safe swimming pool and spa maintenance techniques.**
   Chlorine and copper algaecides used in swimming pools and spas are toxic to aquatic organisms and other wildlife. Swimming pool and spa water should never be drained to the street, gutter, or storm drain. Contact your local wastewater treatment plant before discharging pool or spa water into the sewer line. Different cities have varying regulations. The best way to drain your pool or spa is to let the chlorine dissipate by allowing the water to sit for up to two weeks and then drain onto landscaping. If you cannot allow the pool water to sit, add sodium bisulfate in the amounts suggested on the label. Do not use copper-based algaecides. Proper chlorination should take care of algae problems. If you use a pool service, discuss safe pool cleaning methods with them.

9. **Check your rain gutters and other pipes to see where they drain. Make sure they do not carry water directly into the creek.**
   Runoff from roof surfaces contributes to the decline of creek health. Pipes projecting directly into a creek bank or flexible pipes allowed to drape down a bank cause erosion. Consider using rain barrels to capture roof runoff.

10. **Control pet access to creeks and the stream corridor unless supervised.**
    Dog and cat feces add excessive nutrients and bacterial pollution to water, which decreases water quality, causes unpleasant odors, and can also cause human health problems. Pets can frighten or kill wildlife and birds. People often believe a cat collar bell will alert animals and birds to danger, but research has shown by the time a bell rings, it is often too late. A declawed cat can still kill wildlife.

11. **Restrict access of livestock within the stream corridor.** Horse and livestock manure will harms water quality. The nitrogen in animal waste can cause algae overgrowth which clogs the creeks with vegetation, reduces oxygen levels in the water, and can kill aquatic life. Livestock also trample vegetation within the creek corridor. It is best to keep livestock at least 50 feet from creeks. A guide to managing livestock near waterways was prepared by the Sonoma County

Erosion of the creek bank caused by livestock, Upper Laguna Creek.

Resource Conservation District and can be downloaded at: http://www.sscrcd.org/pdf/Horse%20Manure%20Management%20-%20A%20Guide_web.pdf.

12. Avoid removing natural debris.

Removing branches and dead vegetation from a creek can harm fish and wildlife. Naturally occurring debris provides food and cover for fish, aquatic insects and other animals. If debris poses a serious flooding or erosion hazard, however, careful removal may be necessary. Seek advice from your California Department of Fish and Game representative and your local government agency before removing debris.

13. Watch for signs of erosion

When flowing water meets unprotected soil, erosion almost always results. Barren slopes on any portion of your property (not just creek banks) can lead to sedimentation problems in the creek. Too much sediment (soil, sand, and fine gravel) fills in the creek bed and reduces its ability to carry flood waters. Excessive sediment can also destroy pools, eliminate shelter and habitat for aquatic life, and diminish food supplies for fish and aquatic insects.

14. Keep an eye on the bottom of the slope!

A vegetated slope is the best defense against undercutting and slumping banks. Replant barren slopes or disturbed soils as quickly as possible. On slopes that are not too steep, a covering of straw over newly bared earth will prevent erosion until vegetation can grow back.

15. Capture stormwater on your property and use it to recharge the aquifer.

Infiltrating stormwater on your property reduces the volume of water and amount of pesticides that reaches the creek. This helps to prevent degradation. The bonus is that when stormwater is captured in a **rain garden,** such as in the picture, it will percolate through the soil to recharge the aquifer, the source of much of our drinking water. The quality of the water is naturally cleaned through this process. A rain garden is a depressed area to which soil amendments have been added that act like a sponge. These gardens are planted with trees, shrubs, and flowers that thrive in the natural variability of our climate. They typically require less maintenance than other plants/trees and less fertilizer to boot. The City of Elk Grove has built a Rain Garden Park, located behind City Hall, which will open in the Fall, 2011, that highlights a variety of these “low impact” stormwater management practices.

II. IF YOUR BUSINESS IS NEAR THE CREEK

Protecting the creek is good business. Most people appreciate businesses who are concerned about protecting our natural resources because it impacts the quality of life in our community. Here is a list of pollution prevention tips for businesses.

1. **Don't pour oil or grease down a storm drain or sanitary sewer.**
   Food service businesses produce pollutants such as oil, grease, detergents, and food scraps. Grease and oil discharged into storm drains can enter the creek and decrease the oxygen content of the water, coat fish gills, and smother bottom dwelling organisms. Food scraps can cause excessive nutrient loading in the creek, which uses up oxygen needed by fish and other organisms. Fats, oils, grease, and food particles should be placed in sealed containers and recycled. Most municipalities and garbage companies prohibit disposal of oil and grease in the garbage.

2. **Be a zero-discharger.**
   When you reuse and recycle fluids and other products, they never become wastes. Purchase reusable or recyclable materials whenever you can. If your business routinely uses chemicals or cleaning compounds, consider "closed loop" processes that recycle these materials.

3. **Cover and maintain dumpsters.**
   Open or leaking dumpsters are common causes of water pollution. Close dumpster lids, place dumpsters under roofs, or cover them with plastic sheeting at the end of each work day and during rainy weather. Inspect dumpsters regularly for leaks, and repair or replace any dumpster that is not water-tight. Return dumpsters to trash haulers for cleaning. Do not hose them down or clean them on site.

4. **Clean up leaks, drips and other spills without water whenever possible.**
   Use rags for small spills, a damp mop for general clean-up, and absorbent materials (such as cat litter) for larger spills. Clean up spills immediately. Avoid hosing or wet-mopping outdoor work areas. Dispose of clean-up materials properly. Do not dump them outside or in the creek. When cleaning inside, collect mop water and discharge into a sink or toilet.

5. **Use creek-friendly washing methods for vehicles and equipment.**
   Do not wash cars, trucks, or other equipment in a paved parking lot or street where soap and wash water can flow into the creek or storm drain. Install a "wash pad" to capture, pre-treat and discharge the wash water to the sanitary sewer or consider using a commercial car wash.

6. **Keep pollutants off exposed surfaces.**
   Place trash cans around your business site to minimize litter. Dispose of wastes appropriately in covered dumpsters or recycling receptacles.

7. **Control parking lot and site drainage.**
   Strategic grading of parking lots and other outdoor spaces can prevent runoff from contacting potentially contaminated areas and reaching creeks and sensitive areas. When building or grading parking areas, consider installation installing bioretention swales between rows of stalls to capture and naturally treat runoff (more details on bioretention is provided in the River Friendly Landscaping section on p. 10.) Clean parking lots regularly using street sweepers and dry cleanup methods.

8. **Train employees and keep customers informed. If employees misunderstand how to handle waste, costly pollution incidents can occur.**
   Make sure that all your employees understand and implement appropriate practices. Educate your customers, as well, and prevent them from disposing of wastes improperly on your site.

9. **Carefully remove trash, litter, and other dumped debris from the creek.**
   Unfortunately, some people think of creeks as garbage dumps. You don't have to look far to find old shopping carts, used appliances, mattresses, car parts, bottles, cans, plastic, styrofoam and paper litter. This debris can become a hazard during floods. It can also be a potential threat to our groundwater quality and provide breeding places for rodents and mosquitoes. Styrofoam packing material is especially harmful to wildlife because it can be mistaken for food. Remove old tires, garbage, and litter from your property. Never store these materials within the flood zone. They may be carried away during storm events.

10. **Use alternatives to pesticides whenever possible.**

    Pyrethroids are the most commonly found pesticide in urban and suburban waterways today. You might not believe it, but the primary reason they are used is to control ants!! There are many alternatives that work reasonably well, non-toxic chemicals such as soapy water, cloves, cucumbers, and borax traps. Other types of garden pests can frequently be controlled using beneficial insects such as lady bugs or praying mantises, frequently sold at garden stores. You can learn more about Integrated Pest Management (IPM) from the University of California Co-operative Extension (http://www.ipm.ucdavis.edu/). They provide extensive amounts of written material on all sorts of pests that might be found in the home, garden, or business. Online retailers sell many of these alternative products (for example: http://eartheasy.com/live_natpest_control.htm#a).

11. **Use pervious pavement whenever feasible**.
    Parking lots and roads contribute about 50% of all impervious surfaces. These hardscapes increase the volume of runoff and contribute pollutants collected on the pavement surface to a mix of potentially toxic chemicals contained in stormwater. If alternative materials

such as pervious concrete or pavers are used instead of asphalt or concrete, stormwater and associated pollutants won't reach the creeks or at a minimum, their volume will be reduced. When building new commercial property, these low impact development techniques should be considered. When renovating or repaving an area, pervious material should be incorporated into the redo. The feasibility of using bioretention cells and swales in landscaped areas between parking lot rows and around the perimeter of a parking lot should be considered. .

III. IF YOU LIVE OR WORK ANYWHERE IN THE LAGUNA CREEK WATERSHED

Just as important as the role of those that live/work next to a creek are the actions of those that live and work within the watershed. Why is that??

It's because the landscape throughout the watershed is connected through the complex system of storm drain pipes. The pipes collect water from lawns, streets, parking lots, you name it, and efficiently transport it to the nearest creek. This is the system that has been built over many years to manage stormwater. Unfortunately, this system has significantly increased the amount of water and pollutants that reach Laguna Creek and its tributaries. While the stormwater conveyance system addressed one problem, it caused another!!

Steps anyone can take to protect our local creeks.

1. **Follow River Friendly (aka Creek Friendly) Landscaping Practices.**

Probably the single most important step to protect the creeks that any resident or business owner within the watershed can take is to implement River Friendly Landscaping (RFL) practices on their property. These practices encompass a wide variety of stormwater management and gardening techniques that are creek-friendly. Get all the details on the River Friendly Landscaping Coalition's website: http://www.msa.saccounty.net/sactostormwater/RFL/default.asp. Here are some of the key principles and practices.

River friendly landscaping is based on **7 principles**, shown in the cartoon below:

Some easy ways to get started are:

1. Check your irrigation system to ensure you aren't wasting water.
2. Use mulch in flower, vegetable, and shrub beds
3. Use compost to improve soil quality (it will act more like a sponge and absorb rain better)

4. Grasscycle by leaving grass clippings on the lawn to naturally fertilize it and reduce waste.
5. Use drought tolerant and/or native plants whenever possible.
6. Pave only when necessary. Whenever possible, select pervious material (gravel, pavers, such as in the photo below) for walking spaces, driveways, or landscaping.

7. Limit use of gardening chemicals. Avoid using chemicals entirely in wet weather. Since pesticides, herbicides, and fertilizers can run off into storm drains, they eventually end up in the creeks..

8. Don't rake, sweep, or blow leaves or lawn clippings into the street or storm drain. Leave them on the lawn or add them to a compost pile to make fertilizer for your property. As a last resort, dispose of them in a lawn waste container**.**

Lawn was replaced with **a rain garden** at this house in Camden. The rain garden promotes infiltration of rainwater. It is planted with drought tolerant plants, requires less water and fewer pesticides/fertilizing than a lawn, produces few clippings, and is colorful and attractive looking. In bloom in this picture are some yellow yarrow plants.

2. **Do not pour anything down the storm drain.**
   Storm drains were designed to handle stormwater, that's it. They flow directly to our creeks.

3. **Find safe alternatives to pesticides.**
   Studies have shown that the use of pyrethroids, the most common pesticide sold at Home Depot or Lowe's, any place in the watershed will eventually make its way into the creeks. This isn't surprising due to the elaborate system of connected storm drains throughout much of the watershed. Safe pesticide alternatives do exist, although they typically take more consistent effort on the part of the homeowner than a monthly visit from the local pest control company. Using beneficial bugs such as ladybugs, praying mantises, or fly predators are a few examples. See the Resources list for more information.

Resources

- Create Your Own Rain Garden Guidelines, by Sacramento County Dept of Water Resources: http://www.sacramentostormwater.org/raingardens/raingardens.asp
- River Friendly Landscaping in the Sacramento Area: www. riverfriendly.org
- Green Gardener Training: http://www.bewatersmart.info/landscape-professionals/green-gardener/
- UC Davis's Valley-Wise Gardening: http://arboretum.ucdavis.edu/gardening.aspx
- Integrated Pest Management (IPM) from the University of California Co-operative Extension (http://www.ipm.ucdavis.edu/).
- Information about beneficial, fly-eating insects and fly traps: http://www.spalding-labs.com/. This is not an endorsement of the Spaulding Company; others companies provide these same resources.

Acknowledgement: This Creek Care Guide was adapted from a guide published by the National Park Service's River, Trails and Conservation Assistance Program, provides practical information about day-to-day activities which are creek-friendly. For additional information about the work of the Laguna Creek Watershed Council to protect and rehabilitate the creeks in the watershed, please visit our website: www.lagunacreek.org