



## Soil Erosion and its impact on our lakes



*Pictured is Luise Manning (left) with some of the helpful volunteers from the Springfield Lakes Girl Guides.*

To commemorate Earth Day on 22nd April, SLNC organised a public revegetation planting event on a steep eroding bank leading down to Regatta Lake. Council supplied native shrubs and grasses and about 30 residents and a number of Springfield Lakes Girl Guides helped plant them. The goal was to revegetate a steep bare slope with leafy shrubs and grasses to intercept raindrops and slow the velocity of the water flowing over the surface.

Soil erosion is one of the major contributors to poor water quality in our lakes and waterways. This is due to the nutrients (nitrogen and phosphorus) contained in the soil being released into the water when the soil dissolves, and the turbidity (cloudiness/muddiness) of the water occurs. The extra nutrients enable algae and water weeds to grow abundantly, choking waterways, and the turbidity causes problems for the fauna, mainly the macro-invertebrates (insects) that live in the water, as well as the fish and birds that feed on them. The murkiness of the water also stops the natural disinfection effect that sunlight has on pathogens in the water.

The main driver of soil erosion in suburban areas is steepness of slope, ground cover and rainfall intensity. Unfortunately our subtropical location involves storms whereby large raindrops hit the soil with explosive power causing the surface soil structure to break-up, allowing it to dissolve and run-off as dirty water. We cannot alter this but what we can do is alter the slope and ground cover of our yards.

By maintaining a good ground-cover, the soil surface is not exposed to raindrop impact. Ground-cover can consist of grass, leafy shrubs, bark chip/mulch, pebbles. Concrete and pavers stop erosion where they exist, but the increased run-off from these impermeable surfaces often cause bigger erosion problems downslope. Vegetation also has the advantage of having a root structure that holds the soil together and allows greater infiltration of rain into the soil. On steep slopes, surface mulch and bark chip may just wash off the surface and end up at the bottom of the hill. Establishing long grass or bushy/leafy shrubs may be the only options here, which is what SLNC did with our Earth Day plantings.

Where the slopes are very steep or long, then terracing with retaining walls may be the best option, but remember that the water that pools behind the retaining walls needs to drain somewhere that doesn't create further erosion. If water becomes concentrated into an area and flows down-hill, then a rill—a shallow but steep sided channel—can form. The greatest incision occurs where the water moves fastest, usually at the bottom of the slope. If nothing is done to fix this, the erosion will usually create a vertical drop-off and a gully will begin to form. This cliff or gully 'head-cut' will migrate up-hill until it reaches an impermeable surface. These head-cuts can undermine fences and house foundations.

Small rills can be repaired by smoothing the edges so that the channel is wider, and slowing the water down via dense shrubbery. To repair deeper rills and gullies, the base and sides of the rill and head-cut need to be armoured with rock, so that the fast-flowing water doesn't come into contact with exposed soil, basically turning it into a rocky waterway. The rocks and plants provide landscape roughness that also slows the flow of water so that it doesn't cause erosion at the base of the hill and start the whole process again.

Membership to our group is free - contact [info@springfieldlakesnaturecare.org.au](mailto:info@springfieldlakesnaturecare.org.au) or visit [www.springfieldlakesnaturecare.org.au](http://www.springfieldlakesnaturecare.org.au) and download a form. You can follow us on [www.facebook.com/SpringfieldLakesNatureCare](https://www.facebook.com/SpringfieldLakesNatureCare).