

conservation connection

road ecology

How eco-passages help motorists and wildlife coexist safely

With increasing traffic volumes and road expansions, road networks have become a major stressor on the environment. Over the past few decades, the field of road ecology has emerged to monitor the impact of roads on the surrounding environment.

Roads affect air and water quality, physical and chemical soil conditions, vegetation and wildlife composition, and wildlife mortality due to collisions with vehicles (i.e. road-kill). They also fragment vital wildlife habitat, which can compromise an animal's ability to meet its biological requirements.

The Ontario Ministry of Natural Resources (OMNR) defines roads as an explicit threat to a wide diversity of animals vulnerable to extinction.

Road mortality rates are especially high for amphibian species near wetlands in Ontario, and research is beginning to assess the long-term survival impacts on local populations. Large and small mammals are also frequently killed on roads. Many are not on the endangered species list, but populations are fragmented, movement patterns are affected, and local extirpation is not uncommon. Larger mammal collisions can cause vehicle and property damage, personal injury and human death.

Fortunately, road ecologists have found that wildlife mortality does not occur randomly along roads but at key locations associated with road and landscape characteristics. This can help transportation planners and biologists to figure out where to put safe animal crossings. For example, Banff National Park, Alberta now has 24 underpasses and overpasses along 45 km of the Trans-Canada highway where >90,000 large mammals have crossed since 1996. Other measures include wildlife reflector systems, animal crosswalks, speed reduction and wildlife signage.

The Toronto Zoo and the OMNR have partnered on an exciting new



Eco passage

project to raise public awareness about the affects of roads on biodiversity. The project is sponsored by the OMNR Species-at-Risk Stewardship Fund, the Zoo's Endangered Species Recovery Fund and group members.

Currently, the Road Ecology Group is using Geographic Information Systems to produce a habitat linkage analysis for the province to determine road-kill hotspots. Our final output will provide transportation decision-makers with scalable maps to help them plan safe crossings within their jurisdiction. The project will also develop a public awareness campaign.

A road ecology symposium hosted by the Zoo on April 23 and 24, 2008 will feature renowned road ecologist Dr. Tony Clevenger, and presentations on current road ecology research. Check out torontozoo.ca/conservation



spring tune-up for lawns

Springtime means getting your lawn off to a great start. Thatch is the layer between the soil surface and the green blades of the grass. Some thatch is good; a depth of 1.25 cm (1/2") will act as a mulch to insulate your grass, and cushion foot traffic. Thicker thatch can prevent water and fertilizer from reaching the soil. Aerating or dethatching can penetrate the thatch and allow a passage to the roots. Late spring is the best time to dethatch your lawn using a thatching rake or a dethatching machine.

For severe thatch or compacted soil, aerate your lawn, which allows for air, water and fertilizer to reach the grass' root zone. Aerating is the removal of plugs of soil from your lawn. For smaller lawns a pitch fork, aerator shoes or foot-press unit can be used. For a larger area, rent or purchase a unit or hire a company to come and complete the job for you.

Repair bare spots by over seeding with the proper seed (sun or shade). This will thicken the lawn and crowd out weeds. A good blend should have perennial ryegrass and fescues. If the soil is compacted, aerate it with a shovel or fork. If new topsoil is required, build up the area to almost the same height as the surrounding area. Sow seeds then cover with 1/4" of soil. Apply an organic fertilizer and then water lightly and

often. Do not cut the new grass until it has reached a height about 3".

Mow your grass at a proper height of 7.5 cm (3"), and never cut more than 1/3 of the grass blade. The old ritual of cutting your grass every week is not true. Leave the grass clippings on the lawn, as they provide nutrients (nitrogen) for the grass to grow, and help to retain moisture.

Fertilize your lawn with an organic fertilizer, usually twice a season. The first application is in the late spring. The second is in the early fall. With organic fertilizers, there is a much lower risk of "lawn-burn" and they also are non-polluting.

Your lawn only requires 2.5 cm (1") of water per week, which includes rainfall. Water early in the day and less frequently to reduce the risk of lawn diseases. When you water at night, the water mainly stays on the grass blades and does not penetrate the soil. Frequently watering your lawn with small amounts leads to your grass developing shallow roots, which is perfect for weed growth and lawn diseases.

Pull or dig weeds when the soil is wet. Then drop a little seed into the hole to prevent the weed from returning.

And remember, Toronto and several other municipalities restrict the use of pesticides. Happy Gardening!