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LIVING

Nature's unseen economic benefits

Replicating all of the natural world's benefits would cost billions in the Kawarthas area alone



DREW
MONKMAN

LIVING

It seems that just about every environmental news story we read these days describes how yet another government program has been cut. Some observers would even say that 2012 was the worst year in decades for the abandonment of the natural world by governments everywhere.

The Earth Summit in June proved to be a complete bust, and the world failed to reach any kind of meaningful climate accord in Doha. Our own federal government has passed two omnibus bills that have gutted environmental protection and monitoring.

One federal cut of local significance was the cancellation of the Trent-Severn Waterway Wildlife Action for Habitat Health education. As for the Ontario government, it has cut funding to all paid position on the provinces' Stewardship Councils the purpose of which is to inform landowners about the value of an ecologically friendly approach to land use and the Liberals are now set to further weaken the Endangered Species Act.

I have to think that part of the reason for these cuts is that widespread polling suggests that loss of the world's biological resources, which includes natural habitats and biodiversity, is still not considered a pressing issue by much of the public.

In other words, governments probably feel that the political price for making cuts in this area will be minimal. The inevitable conclusion is that we can't look to government to address many of the most pressing conservation issues. We, as individuals and groups of all kinds, will have to take more ownership of these problems. As we'll see next week, land trusts are one of the most useful tools at our disposal.

As a starting point, it is more important than ever to clearly articulate why nature has value. This cannot be taken for granted. In 2013, we are living in a society that has a limited understanding of the natural world and little (if any) direct contact with it. Although the majority of people are still fascinated by the marvels of nature, many are not able to clearly explain the crucial importance of protecting it. In the past, many people - myself included - valued nature mostly in terms of its inherent worth as a source of beauty, companionship and unlimited wonder. However, in a world where most everything is monetized - expressed in terms of its dollar value - arguing simply in terms of nature's intrinsic worth is clearly not enough.

Today, I would like to talk about the "ecological services" or "natural capital" that nature provides free of charge. Many of these are services that would otherwise cost society billions of dollars.

Please indulge me as I try, by way of a fictional anecdote, to explain what is meant by the idea of ecological services. "Leaving the city after a stressful day at work, John could feel himself slowly decompress as he drove home along the quiet country road with its old farms, rolling hills, wetlands and forests. He was pleased to see the osprey still sitting on its nest at the top of the telephone pole - it had been there that same morning, too and admired the white pines towering above the maples along the ridge. In the distance, the shimmering waters of the lake were framed by corn fields and grazing cattle. How he loved this landscape.

When he pulled into his driveway, the first thing John did was to check the tomato plants in his garden. He was delighted to see that tiny tomatoes were already forming. The bees had obviously done their job. To help the tomatoes along, he went over to the compost bin - he was surprised by how fast the green waste was breaking down - and took a shovel-full of the rich material to spread around the base of the plants. It had rained quite heavily that morning, so no watering was necessary. He was relieved, though, that unlike parts of the city, there had been no flooding on his property.

Acting like a giant sponge, the nearby wetland had absorbed most of the runoff. In fact, the water in the small stream running out of the marsh was crystal clear. This was in sharp contrast to the brown torrent of stormwater he'd seen earlier that day roiling through the ditch behind his city office.

When John finally went in the house to escape the late-afternoon heat, he was pleased that the air inside was still cool.

This was thanks largely to the shade from the maple trees he'd planted years before along the south side of the house - the same trees that provided his family with two or three litres of maple syrup



NICK PUJIC Special to The Examiner

Nature's own water filtration systems make it possible for brown trout to survive in streams, at no cost to society

every spring. After supper, he took a brisk walk down to the lake shore. Having so much inviting nature at his doorstep had turned him into an inveterate walker.

Several bats were coursing back and forth over the lake, no doubt dining on mosquitoes. He always found it amazing that, unlike some humans, bats don't become sick from the West Nile virus that certain mosquitoes carry. Then, with darkness quickly setting in, his thoughts turned to the bats' use of sonar to catch their prey and how humans might one day benefit from new research being done on these remarkable creatures.

Being aware that White Nose Syndrome is probably leading to the extinction of the little brown bat, he wondered if other bat species might eventually fill the void and help to keep mosquito numbers down."

As is easy to see, this account highlights some of the services we derive from nature. They come in many varieties: physical and mental health benefits, aesthetic pleasure, pollination, decomposition, flood control, water filtering, shade, food, pest control, the safety net of biodiversity - to name a few.

The Millennium Ecosystem Assessment defines the following four categories of ecological services that together form nothing less than humanity's life-support system.

- Provisioning services: goods or products obtained from nature such as food, drinking water or timber

- Regulating services: benefits to the planet, including humans, as a result of an ecosystem's control over natural processes such as pollination, flood and stormwater control, erosion, climate, disease, etc.

- Cultural services: these include non-material benefits such as aesthetics, spiritual values, recreational opportunities

- Supporting services: these are natural processes such as seed dispersal and soil formation that help to maintain the other services

If you think in these terms, a forest at the source of a river provides much more than just timber or firewood. It also helps to improve water quality (filtering the water as it flows through roots and soil), provides flood control (reducing runoff and erosion), stores carbon (mostly in the form of plant material), conserves biodiversity (providing habitat for plants or animals living in the woods) and is a source of aesthetically pleasing landscape.

Unfortunately, market prices don't even begin to reflect the value of these precious ecosystem services. Our economic and ecological valuations are misaligned. The part of a financial balance sheet that reflects nature's value is missing. We therefore use nature's resources wastefully and unsustainably. The negative (or sometimes positive) human impacts on ecosystems are rarely included in market prices.

These impacts are an "externality." For example, if the price of fossil fuels included the cost of the resulting damage to ecosystems and climate, then gasoline would cost more, leading to less waste and more efficient use. Consequently the climate and ecosystems would be less degraded. The net effect of the higher price would be positive for society. By recognizing the economic value of ecosystem services, we can slow or even prevent the degradation that is happening now.

The bottom line is if we do not protect these services, governments (a.k.a. taxpayers) will have to spend more and more on replacing them with expensive

technology. Isn't it preferable that we do all we can to assure that natural capital performs these services free of charge?

The measurement of these services has become quite concrete in recent years through what are known as "valuation models."

One such model was done by the David Suzuki Foundation in 2008 for Ontario's Greenbelt which covers 1.8 million acres and was designed to safeguard key environmentally sensitive land, watersheds, and farmlands that provide essential ecosystem services to

the Greater Toronto area.

The study quantifies the value of the services provided by the Greenbelt, which include everything from water filtration and flood control to wildlife habitat and recreation. The findings show that the Greenbelt offers \$2.7 billion worth of non-market ecological services to the province each year, an average value of \$3,571 per hectare annually.

This value is likely a conservative estimate, due to the incomplete understanding of all the benefits provided by



MARGO HUGHES Special to The Examiner

Without bees and insects, crops would have to be pollinated by hand

nature, the intrinsic value of nature itself and the likely increase in ecosystem service value over time.

It does, however, provide an estimate of the current benefits of the Greenbelt and the potential costs of human impact if natural capital is depleted.

So, what is the value of conserving nature and its many ecosystem services? As much as anything, it is simply a smart investment in our economic and personal health as well as our quality of life.

It forms the foundation of sustainable economic prosperity. Although government seems to have stepped back from acting upon the protection of ecosystem services, there is still a great deal that individuals can do.

In fact, there is a vibrant community-driven organization in Peterborough and the Kawarthas that is protecting natural lands. The Kawartha Heritage Conservancy, a local land trust, provides a value to the natural capital for owners of ecologically sensitive property by means of income and property tax incentives.

This unlocks the financial potential of these lands while maintaining their natural capital benefits.

More about this next week.