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This article was published in the February 23, 2012, edition of *The Bar Harbor Times*. Pollution comes in many forms. In this week's column, Rich focuses on both light and sound pollution.

The Nature of Things....

By Rich MacDonald

Thanks to the dearth of snow this winter, litter that is typically masked this time of year is now plainly evident. On a three-mile walk around my block, I collected \$4.30 worth of returnable bottles and cans. This led me on a rambling muse about garbage, litter, and pollution.

For some reason I cannot explain, a subset of us chuck empty beer bottles, fast food wrappers, and cigarette butts out the window of their vehicle. Is this truly bad for the natural world or just an eyesore to some? The former is something to be quantified; the latter is a qualitative assessment.

A glass bottle seems benign enough...until it breaks. Shards of glass can easily slice the feet of any animal happening to step upon it or punctures bicycle tires, risking an accident. Plastic lasts an eternity. Over a great period of time, it breaks into smaller and smaller pieces until it enters the food chain, indigestible, filling an animal's stomach, sending false signals of an appetite satiated. Cigarette butts cause fires and are non-biodegradable packets containing myriad concentrated chemicals harmful to the environment that can wind up in our water supplies.

Whatever the source of litter, unless some conscientious citizen comes along, we are removing material out of the recycling stream, necessitating further extraction of natural resources for our daily consumption. This requires energy which releases more pollution into the air we breathe and the water we drink. Conversely, a rigorous campaign of recycling conserves energy and extends the availability of our finite natural resources.

Litter is just one form of pollution. Pollution comes out of the tailpipe of our cars and trucks. It is chemicals released by the manufacturing process and fertilizer that runs off our farm fields. It is the overflow of our sewerage systems when a rainstorm overtaxes treatment plant capacity. It comes from the wood we burn in our woodstoves.

During the summer months, it is not unusual for the National Weather Service to issue air quality alerts. Maine is the "tail-pipe of the nation," downwind of industrial and urban centers. Virtually all of the nation's air pollution is transported long distances to Vacationland. As an asthmatic, I don't need the National Weather Service to warn me of high ozone levels; I feel it searing my lungs. Sadly, there is little we can do about this locally.

Pollution also comes in forms we take for granted.

There was a time, not that long ago, when it was possible to look toward the heavens and see the stars. There is Polaris, the North Star, an ever-present beacon of orientation. And there is the densely clustered swath of the Milky Way spanning the summer sky.

Today, so much light skyward that some urban youth have never seen a star. In fact, $\frac{2}{3}$ of all Americans cannot see the beauty of the night sky from their homes. Even here on Mount Desert Island, our village centers create halos of light visible a considerable distance. Fortunately, communities such as Bar Harbor are increasingly implementing dark skies ordinances, requiring new construction to focus external light fixtures downward where the light is needed rather than illuminate the sky.

This is about more than just being able to see the stars. Light pollution confuses migrating birds. Sea turtles misinterpret man-made lights and come ashore on the wrong beaches to lay their eggs. Excessive light even interferes with the mating of fireflies. Studies have shown that too much light at night can disrupt our own hormone levels.

The case of disrupted bird migration was clearly illustrated September 9, 2010, when thousands of birds were “caught” in the Tribute in Light, the twin columns of light in New York City that annually marks the anniversary of the 2001 terrorist attacks. The birds, which normally migrate at night and use starlight as one of their orienting cues, were attracted to the memorial lights. Once they entered the light column, they swirled disoriented. Fortunately, New York Audubon had the lights temporarily extinguished so the birds could continue their migratory journey.

The concept of dark skies is gaining traction. It is increasingly showing up in the scientific literature. *EOS*, the weekly newsletter of the American Geophysical Union, recent had a brief about dark skies. In a December 31, 2011, piece in *The New York Times*, lexicographer Grant Barrett included “dark sky” among modern phrases and catchwords he expects to live on in the English language.

Another, less obvious, form of pollution coming into our collective consciousness is sound pollution. Many animals rely on their sense of hearing, whether to find food or to avoid becoming food, to find a mate, to learn about the world around them. We have all had someone say to us, or perhaps even said ourselves, “I can’t think, it is too noisy!” People get shushed at the movies so we can focus our hearing. Libraries are famed as institutions of quiet. For a not insignificant sum, we can buy noise-cancelling headphones for airplane travel.

Perhaps the best known example of the impacts of sound in the natural world is that boat engine noise travels great distances, interrupting communication among marine mammals. Increasingly, it is difficult to escape the sounds of civilization. I dabble in recording natural sounds. It is disconcerting how difficult it is to record a bird and not have a jet, car, chainsaw, or barking dog in the background. Even in Acadia National Park, it is difficult to entirely escape anthropogenic—that is, man-made—noise.

None of this is meant as a scathing commentary on the way we live our lives; rather, it should serve to raise our awareness that everything we do has repercussions. With care, we can reduce our impacts, making the planet a better place for all.

Rich MacDonald runs The Natural History Center in Bar Harbor. If you would like to share your observations of the natural world that is Mount Desert Island, contact him at rich@thenaturalhistorycenter.com.