Predator/Prey: Self-examination of Planet Earth's Most Dominant Super Predator

(By Toshio U.-P.)

Animal models are often used to study predator/prey dynamics. However, very rarely do we as humans look back at ourselves and study the ways that we as super predators are preying upon other types of fauna. Engaging in this form of self-examination, I will discuss how humans (*Homo sapiens*) are involved in capturing prey in a shrinking wilderness, how we exploit our prey, how current systems of conservation hardly address the alarming scope of biodiversity loss and how new priorities are needed to address our troubling negative impact.

While humans are considered to be omnivorous, a trip to the closest supermarket will reveal that we are involved in a troubling and scary harvest that is unsustainable to our planet. Unlike the hunting behaviours of our early human predecessors and the traditions of the indigenous communities which we continue to share land with, a profit-based harvest of animals involves making the hunt passive while also eliminating the time to cut and prepare the desired animal products for consumption and future use. In this type of consumer model, not only is the scale of consumption alarming but also the whole apparatus that contains the animals first and then uses modern technology to process the living beings into a consumer-ready format.

While existing practices of legalized hunting are regulated and ideally fluctuate based on the population numbers of different types of prey in the wild, modern systems of animal harvesting vary based on consumer demand with waste levels that are astronomically high. Imagine for instance, all of the times that meat of seafood products have not been been purchased by the expiration date and inevitably end up in landfill. Also, animals being hunted of fished in the wild have more of a chance to evade human predators in their natural habitats, while consumer-based systems heavily reduce or eliminate the risk of evasion altogether and focus instead on large-scale processing, display and sales.

While we as a human civilization have conquered pretty much all parts of the earth, we are also involved in a major crisis of biodiversity: habitat destruction. While causing the wild to shrink around our settlements and around our different industrial systems of resource harvesting, we often clash with fauna that have been displaced from their native territories ending up as outliers and drifters in our towns and cities. For instance, in the Greater Toronto Area (GTA), ravine and park users will often see warning signage about Coyotes (*Canis latrans*) who are treated as wild fugitives instead of victims of habitat loss. While considered invasive in a model that hardly acknowledges habitat destruction and human occupation, aren't we the more invasive species in the once pristine ravine and forest environments of places like Toronto?

While exploitation of prey is intertwined with habitat loss, human predators are often involved in containing animals, displacing them and drastically removing the space around them. While animals inhabit different environmental media, containment

involves matching the media to ensure survival and sometimes mimicking the habitat in a miniaturized form. Take for examples zoos, aviaries and aquariums where cages, enclosures and tanks contain animals in air, earth and water for entertainment and 'educational' purposes. While such systems teach humans to identify and describe animals at a basic level, they hardly address the human-induced problems of reduced biodiversity and declining conservation status.

Humans are undoubtedly the most feared predator on planet earth forcing other fauna to use evasion tactics when their habitat is being compromised and under invasion. While animal models have shown that prey under predation pressure alter their herding behaviour as a "selfish herd" (1), other studies have shown that prey call vocalizations also can vary based on such pressures to balance survival and reproduction (2). As we continue to encroach on natural spaces such as rainforests, coral reefs and other biodiversity hotspots, we continue to not only displace animals who have settled there long before us, but also impact their survival and reproduction. Countless examples exist where populations of animals are negatively impacted through logging, agriculture, aquaculture, oil-extraction, mining and other causes of habitat loss. These human-induced stressors can inevitably lead to a loss of food sources, a failing nest or lost breeding area and thus an inability to pass genes on to the next generation.

While animal population numbers are negatively correlated with human-induced habitat destruction, other industries than food—such as pharmaceuticals and fashion—exploit animals directly by stealing their energy and resilience through profit-based practices such as laboratory testing and fur trade. To deliver products to a seemingly endless human consumer market that wants to stay comfortably energized and fashionably warm throughout the changing seasons, animals become a disposable resource fit for a temporary stay in a research lab or a secret fur farm, where a sure death awaits.

Almost two hundred years after Darwin travelled on the H.M.S. Beagle in an attempt to address a future biodiversity crisis, this vessel (or ark of sorts) remains an important agent of conservation through both the diary written on board the ship and the ensuing theory of evolution published soon after. While the original vessel set sail to conserve life on our planet, a flood of human-induced conservation woes now impact our natural world more than Darwin or his followers could ever fathom.

Using the example of a ravine in my area, I will first talk about the rare story of a local conservation victory. The Don Valley Brick Works Park in the Greater Toronto Area (GTA) was once a fully operating quarry and brickyard that made a large volume of the city's bricks at the turn of the 20th century. When brick-making shut down in the 1980s, a government-funded local conservation group contested efforts to build residential properties on the site due to risk of flooding. The land was then converted to a park and most recently an environmental hub and tourist destination that now draws millions of visitors throughout the year. These types of conservation success stories are

rather scarce in this day and age, where industry and encroaching development most often take priority over land conservation and habitat. While the Don Valley Brick Works quarry's North Slope was partially preserved as a valuable geological feature and source of natural history specimens such as Pleistocene epoch fossils, most similar industrial extraction sites around the world continue to deplete natural resources at an unsustainable rate despite the risk of erasing valuable rock and fossil specimens on the lands that are tilled.

While animal models are frequently studied by scientists such as evolutionary biologists, are these studies truly being carried in favour of a failing conservation front or are they actually involved in a disguised form of exploitation? One must be skeptical of Darwinists who trap animals to study their predator/prey dynamics without releasing them back into the wild after the datasets are collected.

In the more recent times of the 21st century, certain attempts have been made to identify and promote opportunities for a 'greener economy'. Ideally, such innovations would potentially benefit wildlife and address the biodiversity crisis. To address the global carbon dilemma which correlates to climate change and abnormal weather patterns impacting wildlife, technologies have been created to lower our carbon footprint. For instance, wind farms, solar panels and battery-powered electric locomotion are some of the main technologies that are cited as carbon reducing and 'green'. Studies are now emerging that such technologies can occasionally negatively alter migration patterns causing fatal wildlife collisions or forcing animals from their native habitats. For instance, take a mine that is extracting materials to build batteries and an industrial facility involved in making these batteries for the latest electric vehicle. Carbon may be reduced once the vehicle is on the road but the process of generating such technology can have hidden costs to wildlife and their natural environment.

In the last ten years, the food sector has seen a jump in plant-based alternatives to meat, sold as vegan or vegetarian sources of protein. Big chain grocery stores and supermarkets has increased supply of deli products, sausages, burgers that are made from pulses and other types of edible plant sources. Fast food restaurants and franchises also have promoted such items on their menus for customers trying to limit their consumption of meats for the sake of animal welfare or for health and dietary reasons. Perhaps the world of slaughterhouses and meat packing, which are involved in the industrial market to transform living livestock and poultry into normalized consumer-sized cuts of meat is contributing to this recent heightened demand in such plant-based products. Another shift in its early stages is the development of cultured meat. Such sources of protein cultured in a laboratory setting, are deemed to have similar nutritional value, texture and taste as real meat without the slaughter of live animals and the environmental consequences of feedlots and other containment facilities.

While zoos, aviaries and aquariums continue to operate as theme parks to entertain and educate visitors through their 'wild' live animal collections, an open

concept is in high demand where wildlife enthusiasts can view animals within a park or conservation area setting. For instance, I was particularly pleased to have witnessed the presence of migrating Tundra Swans last March as they stopped in at a staging area in Aylmer, Ontario on their way north to their breeding grounds in the high Arctic. After fueling up on waste corn in the Wildlife Management Area for a few days they are free to leave and continue their journey toward a healthy nest. Other such eco-tourism destinations also exists in places like Austin, Texas where Mexican Free-Tailed Bats can be spotted at dusk from the spring to autumn, emerging from the Congress Avenue Bridge to forage nearby. Such open concept ways of viewing and appreciating wildlife favour population numbers and species-specific mating opportunities.

Finally, while wildlife sometimes face injury and death (particularly in urban settings), the need for rehabilitation and reintroduction into the wild is paramount. Ideally, an animal found injured—such as bat with an injured wing or a turtle with a shell fracture—needs a rehabilitator or veterinarian whose mission is first to aid the animal with their expertise and nurse it back to health until it is ready to be put back into its native breeding habitat. Animals found in such a way should only remain in a captive state if their injury is too severe for it to be able to sustain itself in the wild. Cases in zoos sometimes exist where an injured bird has been treated and has recovered from an initial injury but is still kept in the confinement of an aviary, where it can no longer soar and find the right mate. As guardians of the natural world, we must try to work with neighbouring wildlife without exerting our power and control in ways that are harmful and detrimental to the animal's welfare and overall adaptive success. Wildlife overpasses over highways as illustrated in Canadian parks such as Killarney and Banff can help create a collision buffer zone where habitat fragmentation poses a severe risk of migratory disruption and lowered mating success. Similar buffers also exist in urban areas with high-rise glass structures that are built to certain 'green' standards to reduce collisions with migratory birds. Also, it has been found that in busy urban areas when light pollution is reduced at night-time during spring and fall migration season, not only are we saving valuable energy but we are further reducing such hidden anthropogenic hazards. An integrated model allowing wildlife to safely co-exist in human-occupied areas is needed to challenge the norms of human settlement supremacy which are all too prevalent in the world of today.

Sources:

(1) "Geometry for the Selfish Herd", W. D. Hamilton. J. theor. Biol. 31, no. 2 (1971): 295-311.

(2) "Bat Predation and the Evolution of Frog Vocalizations in the Neo-tropics.", Tuttle M.D. and M.J. Ryan. Science 214, no. 4521 (1981): 677-678.