An Environmental History of the Upper Peninsula of Michigan: An Outline

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Most of us occasionally indulge in fantasies of an idealized past where life was less complicated by technology, less automobile-centered, where divorce was less likely and violence less frequent. History-themed restaurants comfort us; and we are enthralled by the detritus of the past that bespeaks of simplicity that we discover in antique stores, museums, and historic homes and in our own attics. As we age, we create museums of ourselves and include in these special places those things that remind us of childhood and youth. So we carefully guard school photos, remembrances of those who have passed, perhaps a school report card, maybe a high school yearbook or a pressed flower from a long-ago prom. For most of us, the past is a place of nostalgia and sentiment, and the present is just the present.

The white pine is a stunning tree that once grew in enormous stands in the Upper Peninsula. The Estivant Pines Nature Sanctuary is one small stand of mature trees protected by the Michigan Nature Association near Copper Harbor on the Keweenaw Peninsula.[1] My wife Kathy and I walked through this forest, which may be the last stand of virgin white pines in the entire Upper Peninsula. I imagine forests of these giants scattered all over this land. They soar skyward and even the two of us holding each other's hands cannot get our arms around the trunks. Standing in these pines is a step back in time, before the rapacious felling of the region's forests. Now it is difficult to imagine a nineteenth century mindset in which forests are the antithesis of civilization and conversion of wild lands to farmlands the ideal.[2]

Not long ago we visited the Kingston Plains located between Pictured Rocks National Lakeshore and the picturesque former lumber mill and fishing village of Grand Marais on Lake Superior. This is a landscape of desolation. Once it was covered with white pines, like the ones that remain in the Estivant preserve, but now it is one hundred year old stumps for as far the eye can see. It is a ghost forest. This forest was logged, and the waste leftover from the logging fed repeated vicious forest fires that sterilized the land, while wind carried away most of the topsoil. My exquisite pleasure in the midst of the Estivant Pines is replaced with a sense of sadness and loss here on the Kingston Plains. I imagine that the Upper Peninsula was a better place before the arrival of peoples from Europe who trapped and hunted some animals to extinction, mined it with

little thought for the consequences, clear cut forests, commercially fished until the lakes were nearly empty, introduced devilish interlopers like sea lamprey, and populated and polluted it. The Estivant Pines and the Kingston Plains are artifacts too; they feed my tendency to fantasize about the past as better than the present. These places also are occasions of nostalgia and sentiment.

I did not like working in my father's fruit and vegetable garden on the south side of the bluff overlooking Ishpeming where we lived. Dad pulled a rusted, but serviceable spring- tooth harrow around the garden with an army surplus Jeep with me straddling and balanced on the top of the harrow to add my weight to make the teeth dig deeper into the soil. Dig it did, loosening rocks and boulders along with the dirt. The follow-up chore was mine and involved monotonously picking up and removing the rocks yanked loose by the harrow. Some were small, some were oval and large, shapes and colors varied, but none of them contributed anything to the fertility of the garden in which crops were marginal in a good year because of the truncated growing season.

Drummond Island, only reachable by ferry from Detour Village, is the eastern most edge of the Upper Peninsula. The Nature Conservancy has a 1210-acre preserve on the Island called the Maxton Plains, and includes a very rare ecosystem called an alvar. Parts of the road into it seem paved, but really it is just limestone bedrock. The plant growth is eerie. Because of the extremely thin soil, some species of trees are stunted versions of varieties we were familiar with. It is, according to the Nature Conservancy, "a mix of arctic tundra and Great Plains prairie plant species."[3] This beautiful bizarre landscape and my father's rocky garden are both the product of glaciers that scoured the Upper Peninsula and shaped the land and the waters of today.

Dates are estimates, but the last glaciers in the Upper Peninsula melted away about ten thousand years ago. Glacial ice was thousands of feet thick, and so heavy that it depressed the earth's surface by hundreds of feet, altering the shape of the Great Lakes, changing river courses and obliterating everything in its pathway.[4] Plants and animals disappeared with each advance. Imagine ice flows thousands of feet thick bearing on the land, receding, advancing and changing everything.

To study geology and life is to study change. This is to be a study of how humans impacted and continue to impact the natural environment and ecosystems of the Upper Peninsula. The glacial history of this

place is a reminder that wrenching environmental change occurred long before humans arrived in the numbers and with the tools necessary to significantly alter this land and to threaten the plants and animals that live upon it.

There is no idealized past, historical or natural. In the environmental history of the Upper Peninsula there is not a perfect past beckoning us. The story is about change wrought by volcanoes, glaciers, fires, wind, rain and humans. We need to discern what change we can influence and how best to do that. We have little influence over future glaciation, but we have great influence in the near term over the quality of life enjoyed here.

Lifestyles of native people in the Upper Peninsula had minimal adverse impacts on the world they inhabited. Before 1620, Étienne Brûlé, became the first European to see the Upper Peninsula when he hiked and paddled the north shore of Lake Huron and reached the St. Mary's River and Lake Superior. Henceforth humans, not glaciers, became the primary agents of environmental change in the Upper Peninsula.

This land was rich in animal, timber and mineral resources. From the beginnings of the fur trade in the seventeenth century on, the Upper Peninsula was connected to the global economy as the source of raw materials that were processed, marketed and consumed elsewhere. Further, the investments needed to harvest furs, cut timber, and dig for minerals came from distance places. It was, and remained, an extractive colonial economy. Those who profited most from the resources of the Upper Peninsula did not live here, and hence did not see and did not live with the environmental consequences of the activities financed by their money nor the profits they made. This fostered a cut-and-run attitude where resource exploitation was conducted with little concern for long-term environmental consequences. In the twentieth century, people slowly realized that human activity could devastate places in ways that were ugly, sometimes irreparable and not healthy for people.

So while an environmental ethic grew in our nation, in the Upper Peninsula that ethic conflicted with a need for jobs in an isolated region where good jobs are too scarce and unemployment rates are high. Recent, sometimes rancorous debates over the development of the Eagle Mine on the Yellow Dog Plains prompted some people to erect signs and glue bumper stickers on their cars that urge others to "stop the whining and start the mining."[5]

A ledger records the shipment of animal hides of nearly twenty species from Michilimackinac at the straits in 1767. The accounting is staggering; more than 1000 bears, nearly 6,000 otters, almost 10,000 martins, 1500 fishers, 51,000 beavers, 27,000 deer, elk and moose, and lesser numbers of more than a dozen other species.[6] Only an unknown percentage of the peltry take came from the Upper Peninsula, but since the area was contiguous to the straits, it was certainly trapped and hunted before more distant areas to the north and west. The fur trade decimated the animals of the Upper Peninsula and led to the elimination of some such as fishers, moose, wolves, woodland caribou, and probably wolverines.[7] The Upper Peninsula ecosystem was profoundly altered by human predation.

Industrial scale copper and iron mining commenced in the 1840s. Population boomed on the copper and iron ranges in the years that followed. Untreated sewage and toxic mining by-products flowed into streams and lakes. Hardwoods were clear-cut to supply charcoal kilns that produced fuel for iron forges and furnaces, and to provide timber to support underground shafts and tunnels. Pits were dug to extract iron ore deposits close to the surface. The three iron ranges, Marquette, Menominee and Gogebic, and the copper range are pock marked with caving grounds, old shaft openings, waste rock piles, and in the case of the Keweenaw, stamp sands and slag containing heavy metals. Dumping of sand and slag displaced twenty percent of Torch Lake, and the water was contaminated with PCBs and other chemicals. Fish from the lake were deformed and had tumors.[8] Deer Lake, outside of Ishpeming, was contaminated with mercury as water flowed out of underground mine workings and into the lake, and raw and partially treated sewage from the City of Ishpeming caused algae blooms.[9] Huge chunks of land in the Upper Peninsula will not recover from the deleterious impacts of mining.

The waste rock piles from the Empire Mine dwarf the little town of Palmer. The pit is now twelve hundred feet deep and a mile wide and rock piles tower above the town and the highway. No one will put it on the record, but I am told by those who should know, that the Empire and Tilden mines contain the highest and lowest points in the entire State of Michigan. The impact area encompasses hundreds of square miles. Selenium from the mine has contaminated area watersheds, streams and lakes.[10] When I drive from Gwinn to Marquette on cloudy days, the clouds are tinged pink with emissions from the concentrating and pelletizing operations. There are other sources of point pollution, including power plants, sites such as the former Cliffs-

Dow Chemical site in Marquette and other scattered industrial sites. There is run-off phosphorus pollution in Lake Superior near Marquette and other inhabited areas and along the northern Lake Michigan shoreline.[11]

In the closing decades of the nineteenth century the last white pine forests stood tall in the Upper Peninsula, but by century's end, the pines were cut for construction on midwestern treeless plains and burgeoning American cities. Within a short time span, forests that some thought would last forever, were clear cut, fires raged repeatedly fed by the detritus of the pine logs, and rivers were ruined by incessant log drives, seasonal dams to float logs, and dynamiting to eliminate obstructions to the careening logs and to break up logjams. Sawmills at river mouths spewed sawdust into rivers and lakes. The Manistique River is still recovering. An Environmental Protection Agency report describes contamination with chemicals, heavy metals and undecomposed sawdust in the harbor and river sediments from the white pine era, and sterile sandy sediment eroded from riverbanks during the log drives.[12] Wetlands were drained, habitats for fish and animals destroyed.

The three Great Lakes surrounding the Upper Peninsula changed too. Fish populations were in precipitous decline by the last decade of the nineteenth century because of overfishing, and numbers were further decimated by the twentieth century onslaught of invasive species. Catches of lake whitefish, lake trout, herring and sturgeon all peaked in the late 1880s and early 1890s.[13] In the early twentieth century, the beautiful slate blue Grayling, a relic of the glaciers, went extinct in waters surrounding the Upper Peninsula.[14] As the fisheries declined, large-scale industrial-fishing operations like A. Booth and Company monopolized upper Great Lakes fishing and attempted to maintain harvests with huge steam tugs and gill nets, further depleting fish.[15] It is not hyperbole to say that the fish were just scooped out of the lakes.

Well-intentioned people who did not foresee the disastrous results deliberately introduced some invasive species like alewives.[16] But most invasive species arrived as a result of the Erie Canal, Welland Canal and finally the St. Lawrence Seaway. Since the prehistoric formation of the lakes, Niagara Falls provided a natural blockade between the Atlantic Ocean and the lakes above Lake Ontario. The Erie Canal connected Lake Erie to the Hudson River and to the Atlantic and was completed in 1825. The first Welland Canal bypassing Niagara Falls opened in 1829. The first lock at Sault Ste. Marie opened in 1855, and for the first time, commercial vessels could sail from Lake Huron into Lake Superior. A new Welland Canal was

completed in 1919 and the engineering allowed water from Lake Ontario to flow through the canal into Lake Erie. Now aquatic species could swim undeterred from the Atlantic through the canal and into all of the Great Lakes.

The ugly, predatory sea lamprey, the preeminent symbol of aquatic disaster caused by invasive species, became prevalent in the upper lakes. It may have arrived early through the Erie Canal or later through one of the iterations of the Welland Canal, but the devastation of whitefish and lake trout was disastrously apparent. In the three short years from 1936 to 1938, lampreys were discovered first in Lake Michigan, then Huron and finally Superior.[17] Sea lampreys reproduced prodigiously and by 1960 the fish catch was just two percent of its previous level.[18]

But the deluge of invasive species in the lakes really began in the summer of 1959 when the St. Lawrence Seaway opened for business. Now ocean ships from anywhere on globe could sail up the St. Lawrence through the lakes and to every port. The evil came in the ballast water pumped on board to balance the ships on ocean voyages and dumped into the Great Lakes before taking on cargo. Duluth is the busiest Great Lakes port; hence millions of gallons of infested ballast water and ballast tank sediments were discharged into Lake Superior.[19] Zebra mussels, quagga mussels, round gobies, Eurasian ruffe, bloody red shrimp and spiny water fleas just begin the list of hundreds of alien species in our lakes.[20] Native species were crippled. Food chains were disrupted. Ecosystems were permanently altered.

By the end of the nineteenth, and in the early twentieth century, many began to understand that resources were finite; that we would run out of trees to cut, that mile long gill nets could kill all the fish, that mining left a trail of ruined land, that indiscriminate disposal of toxic waste was not good for people, and that a new balance between development and healthy ecosystems was necessary if the very qualities that made the Upper Peninsula an attractive place were to persist.

In the late nineteenth century, sportsmen were the first to insist upon laws regulating the taking of game and the eventual banning of commercial hunting. In 1873 the state began operation of fish hatcheries to restock depleted whitefish and trout fisheries. In 1881, a bill passed that made it illegal to kill deer, ruffed grouse, quail or wild turkey for any reason other than consumption as food within the state, effectively killing commercial hunting.[21] While the laws proved difficult to enforce they did reflect a changing ethic.

The barren and burned cutover timberlands were of no economic value to their owners who reaped the rewards of the one-time cut. Some attempts were made to convert the charred stump lands into farmland, with predictable outcomes, given the Upper Peninsula's short growing season and thin soils. The companies that owned and logged the land had huge liabilities for taxes owed on now worthless parcels that they refused to pay. Huge chunks of this land reverted to the state and the National Forest Service purchased other giant parcels for next to nothing. The Upper Peninsula has 16,452 square miles of land, and of that the state and federal governments own 7,000 square miles.[22] The rapacious logging gave the Upper Peninsula a fortuitous windfall of land that is now part of a public trust that gives the region a wilderness character and outstanding recreational activities, as well as sustainably managed timberlands.

The Civilian Conservation Corps opened twenty-three camps in the Upper Peninsula during the Great Depression. The young men recruited for the Corps replanted deforested areas, built fire towers, bulldozed truck trails, suppressed forest fires, built bridges and created new campgrounds. Simultaneously the federal government continued to purchase cutover lands and add them to the Hiawatha and Ottawa National Forests.

Other lands were protected from development. The Seney National Wildlife Refuge was created in 1945. Congress passed legislation to make Isle Royale a National Park in 1931 and in 1966 Pictured Rocks became the first National Lakeshore. Other national and state parks followed. The State of Michigan created the first wilderness area in the Porcupine Mountains in 1945. Other federal wilderness areas were created, as were state parks and wild and scenic rivers designations. This movement to protect forests and the life they sustain reflects an evolving view of nature, not as a resource to be consumed but rather as a living system to be enjoyed and conserved because of its intrinsic beauty and value.

As sea lampreys were effectively controlled, commercial fishing regulated and fishing licenses drastically reduced in number, game fish populations in the lakes surrounding the Upper Peninsula rebounded.[23] Upper Peninsula waters are now primarily managed for recreational, instead of commercial fishing.

The prospect for future health of Upper Peninsula ecosystems has improved because of changed attitudes, heightened concern and the growth of grassroots citizen's organizations that are advocates for environmental responsibility and watchdogs over adverse impacts of all types. Some organizations like the

Nature Conservancy and the Sierra Club are national, but others such as the Upper Peninsula Environmental Coalition, Save the Wild U.P., the Upper Peninsula Land Conservancy, the Superior Watershed Partnership and many more are locally or regionally based.

The moose, wolves and eagles are back. Waters are less polluted. Lake trout and whitefish have rebounded and the forests have regrown. Yet threats remain, and some such as invasive species, mineral extraction, chemical run-off and atmospheric pollution are on the rise. Introduction of non-native species has not stopped and control of the dumping of ship ballast has not completely halted.

We live in a thirsty world. Nearly a billion people do not have access to adequate supplies of drinking water, and we need only tune into the news to hear stories of drought and related disaster in our country. The Upper Peninsula sits in the middle of the largest bodies of clean fresh water on the surface of the planet and nearly ninety percent of the freshwater in the United States. Covetous eyes are upon these lakes. There are pressures to divert water, although the states and provinces that border the lakes have routinely opposed such schemes.[24] The lakes are a one-time gift of the glaciers. Once consumed, they are gone forever.

There are hard questions for all of us. Lake Superior and the Upper Peninsula are less polluted than other places because very few people live here. Many roadside cafes and shops in the Upper Peninsula sell Lon Emerick's little volume, *You Wouldn't Like it Here*." The book is full of tongue-in-cheek descriptions of mosquito hordes and horrid winters. It reflects one side of the Upper Peninsula schizophrenia that understands that dramatic population increases will destroy the qualities residents' value most.[25] But the Upper Peninsula has historically high unemployment rates in a boom and bust economy. Lack of population growth means that the children leave to find jobs. Many wish it were not so.

This peninsula is not in stasis, but is ever changing. Humans are now the principal agents of change. What we see here is not so much a natural world, but one made by human decisions and ingenuity. The Porcupine Wilderness exists because humans made it so. Bald eagles fly because we reduced contaminants. Moose are here because after humans killed all the animals other people re-introduced them. Sea Lampreys are here because humans let them in. The Upper Peninsula is an artifact of human making. It will be whatever we decide we want it to be.

[1] Michigan Nature Association, Estivant Pines, https: //michigannature.org/home/sancts/estivant.shtml.

[2] Charles E. Twining, "The Lumbering Frontier," in *The Great Lakes Forest: An Environmental and Social History, ed. Susan L. Flader, 121 (*Minneapolis: The University of Minnesota Press, 1983).

[3] Maxton Plains Preserve, The Nature Conservancy, accessed July 20, 2015. Also see Stephen N. Stephenson, "Maxton Plains, Prairie Refuge of Drummond Island, Chippewa County, Michigan in Richard Brewer, Ed., Proceedings of the Eighth North American Prairie Conference: 1-4 August 1982, Western Michigan University, Kalamazoo, Michigan.

[4] See discussion in John A. Dorr, and Donald F. Eschman, *Geology of Michigan* (Ann Arbor: The University of Michigan Press, 1970), 165-176. Although dated this remains a ready reference on Michigan geology with especially good sections on glacial history.

[5] Editorial, "Stay Request Little More Than Obstructionist," Marquette Mining Journal, September 12, 2011.

[6] Lart, Charles E., "Fur Trade Returns, 1767," *Canadian Historical Review,* Vol. 3, December 1922, p. 358.

[7] Evers, David C., *A Guide to Michigan's Endangered Wildlife,* (Ann Arbor: University of Michigan Press, 1992) pp. 96-97.

[8] Environmental Protection Agency, "Great Lakes Area of Concern," www.epa.gov/greatlakes/aoc/torchlake/#background. Also see Ankita Mandelia et. al, "Analysis of PCB contamination in the Torch Lake Area of Concern," Department of Civil and Environmental Engineering, Department of Social Sciences, Michigan Technological University, www. mtcws/Education/_Posters-Mandella-Ankita_PCB Poster v6 smaller.pdf.

[9] Environmental Protection Agency, "New Releases from Region 5: EPA and City of Ishpeming Complete Work in the Deer Lake Area of Concern, 11/05/2013," yosemite.epa.gov/opa/admpress.nsf.

[10] Selenium Monitoring Work Group, June 2009, "An Assessment of Environmental Selenium Levels Around Empire and Tilden Mines, Marquette County, Michigan," www.michigan.gov/documents/deq/sb-swas-report_287994_7.pdf

[11] Great Lakes Environmental Assessment and Mapping Project, www.greatlakesmapping.org

[12] Environmental Protection Agency, "Manistique River Area of Concern, Lake Michigan," www.epa.gov/great lakes/aoc/ manistique/index.html

[13] Margaret Beattie Bogue, *Fishing the Great Lakes: An Environmental History, 1783-1933,* (Madison: University of Wisconsin Press, 2000), 149-171.

[14] Eugene T. Petersen, "Wildlife Conservation in Michigan," *Michigan History, XLIV,* (June, 1960}, 129-146. Also see Michigan Department of Natural Resources, "Michigan Grayling Only a Memory", www.michigan .gov/dnr/0,4570, 7 – 153 - 10364_18958-53612—00.html

[15] (Bogue, 2000, 264-272)

[16] (Bogue, 2000, 162-163)

[17] Jeff Alexander, *Pandora's Locks: The Opening of the Great Lakes – St. Lawrence Seaway* (East Lansing: Michigan State University Press, 2009), 28, 29.

[18] Great Lakes Fishery Commission, "Protecting Our Fishery," www.glfc.org/sealamp/

[19] (Alexander, 2009, 92)

[20] (Alexander, 2009, 375)

[21] Dave Dempsey, *Ruin and Recovery: Michigan's Rise as a Conservation Leader* (Ann Arbor: University of Michigan Press, 2001), 37-42.

[22] These numbers are derived from statistics on Upper Peninsula forest management units which can be found at Michigan Department of Natural Resources, "Find a Forest," www.michigan. gov/dnr/0,4570,7-153-30301_68515---,00.html

[23] Michigan Department of Natural Resources, "The Story of State-licensed Commerical Fishing History on the Great Lakes," www. Michigan.gov/dnr/0,4570,7-153-10364_52259-316019--,00.html

[24] International Joint Commission, "Protection of the Waters of the Great Lakes: Report to the Governments of Canada and the United States," www.ijc.org/php/publications/html/finalreport.html

[25] Lon L. Emerick, *You Wouldn't Like It Here: A Guide to the Real Upper Peninsula of Michigan,* (Michigan: North Country Publishing, 2007)