

# REWILDING the



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- Rewilding = Bringing back nature to where it belongs
- Rewilding aims to restore ecosystems and reverse the decline of biodiversity by allowing wildlife and natural processes to reclaim areas no longer under human management
- Rewilding helps rebalance ecosystems suffering from overuse and abuse



Probably the most famous example of rewilding of a wilderness is the reintroduction of wolves to Yellowstone National Park in 1995



- Since westward expansion first brought settlers and their livestock into the Yellowstone region in the 1800s, wolves had been villainized
- Their crucial role in the balance of the Yellowstone ecosystem was not recognized
- Wolf predation on animals like elk was viewed as “wanton destruction” of more desirable species



- In the late 1800s, predator control was enforced in Yellowstone National Park, including the poisoning of wolves
- By the mid-1920s, more than 130 wolves had been killed in the park in the name of conservation
- The last wolf pack was reported to have been killed in 1926



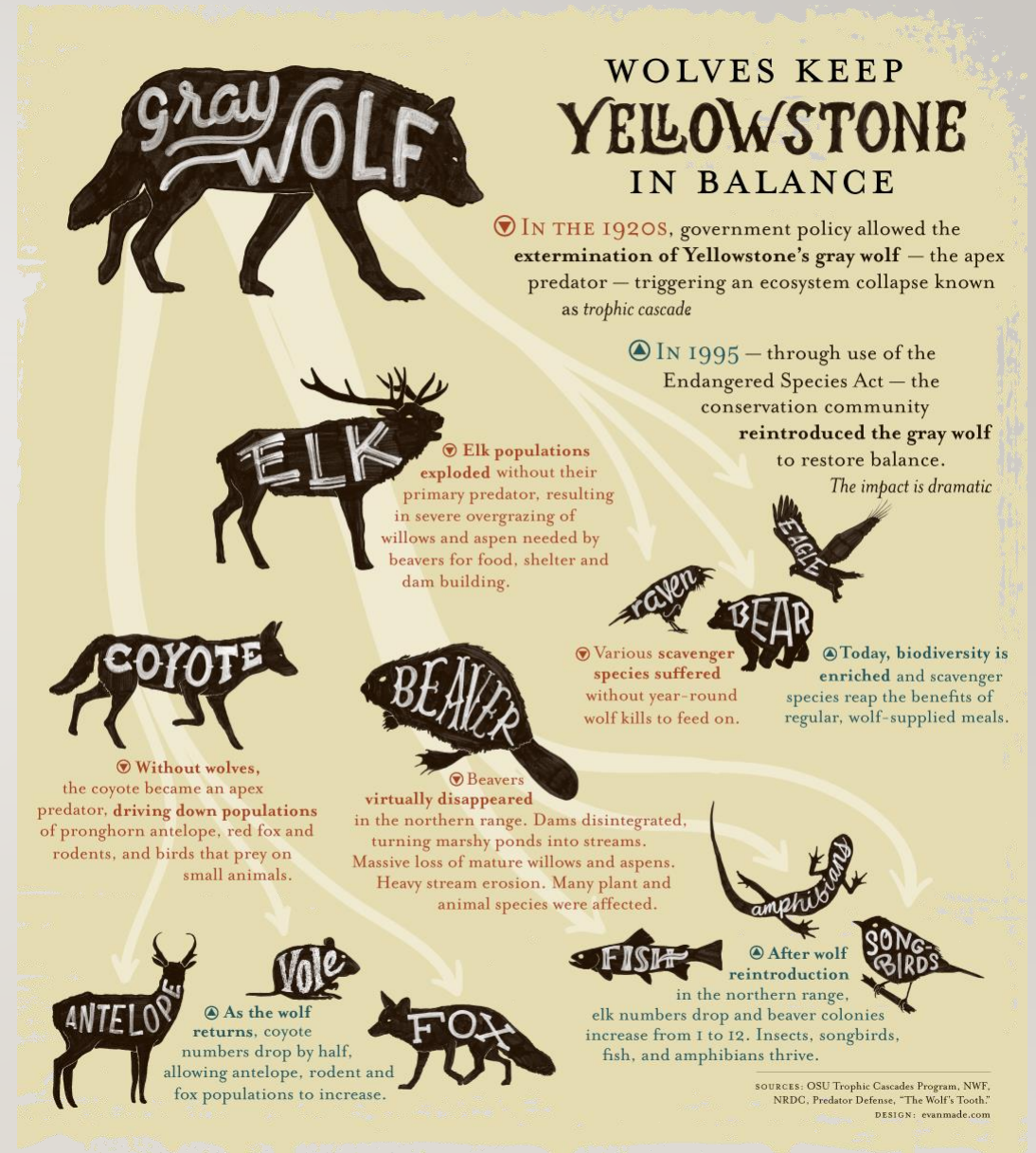
The absence of Yellowstone's top predator reaped havoc within the wider ecosystem, including increasing the elk population that led to an overwhelming decline of plant species like aspens, willows, and grasses (eaten by the elk)





- In 1994, an environmental impact statement was completed for the reintroduction of wolves into central Idaho and Yellowstone National Park. The chosen alternative was reintroducing wolves as an experimental population.
- In 1995, 14 wolves were introduced from Jasper National Park in Alberta, Canada.
- In January 2023 there were 108 wolves in Yellowstone.

- Wolf reintroduction has helped parts of the ecosystem bounce back
- Today, nearly 30 years after wolves were reintroduced, the elk population is significantly reduced, opening the door for willow, aspen, beaver, and songbird populations to recover

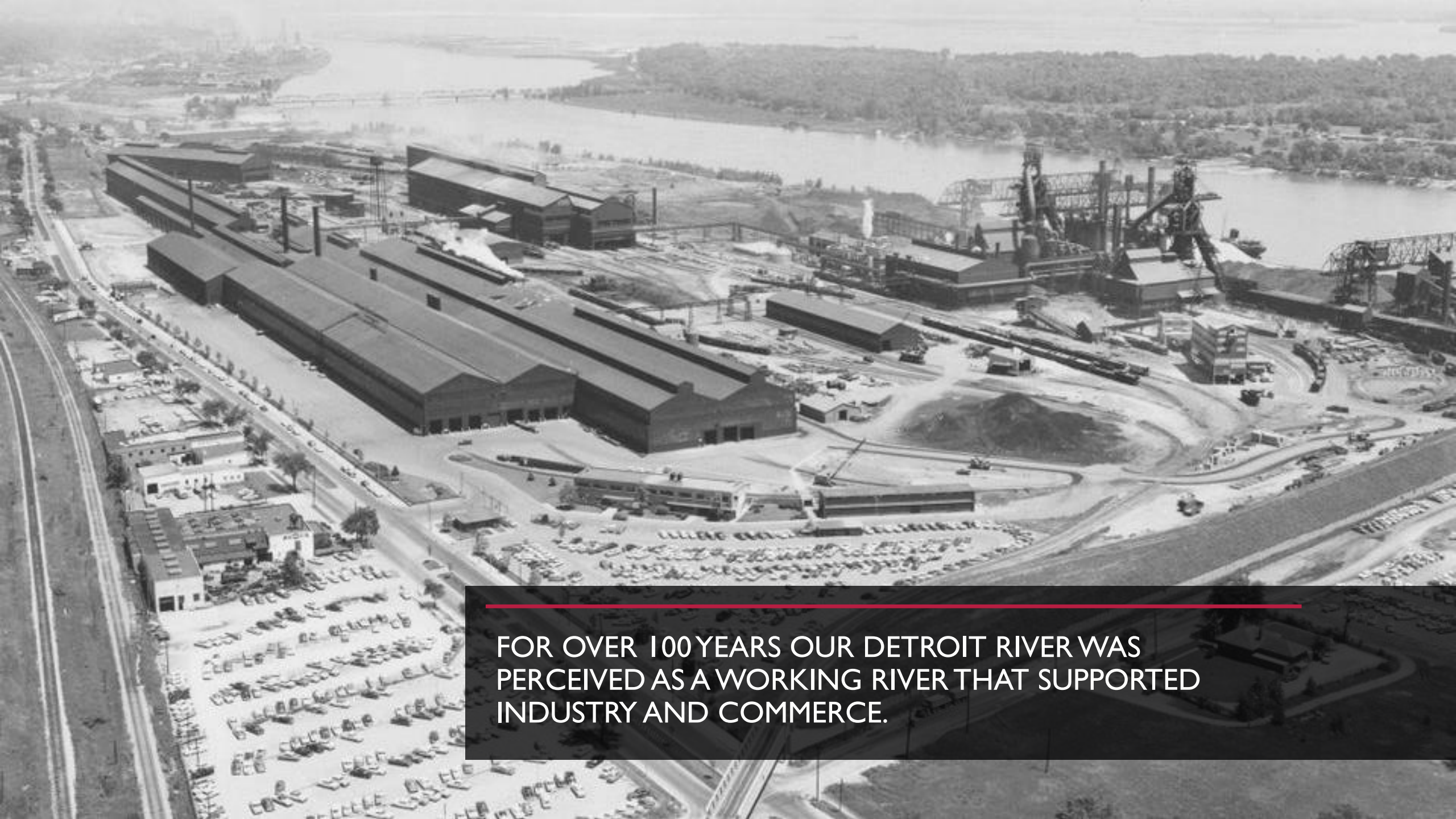




- Although cities were once as wild as Yellowstone, introducing top predator species to Detroit or New York City would not be practical
- Instead, rewilding in urban areas often looks quite different and often includes reintroducing native plant species or certain animals, building greenways or parks on vacant lots, incorporating green features into the design of new buildings, building green infrastructure to better manage stormwater and enhance habitat, or simply allowing nature to reclaim space



**YOU MIGHT BE SURPRISED TO LEARN  
THAT DETROIT HAS BECOME A  
LEADER IN URBAN REWILDING!**



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FOR OVER 100 YEARS OUR DETROIT RIVER WAS  
PERCEIVED AS A WORKING RIVER THAT SUPPORTED  
INDUSTRY AND COMMERCE.



WATER POLLUTION WAS JUST PART OF THE COST OF DOING BUSINESS.

**IN THE 1960s,  
FEDERAL WATER  
POLLUTION  
CONTROL  
ADMINISTRATION  
IDENTIFIED THE  
DETROIT RIVER AS  
ONE OF THE MOST  
POLLUTED RIVERS  
IN THE UNITED  
STATES**

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## WINTER DUCK KILLS DUE TO OIL POLLUTION

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- In 1960, 12,000 ducks and geese died from oil pollution
- In 1967, another 5,400 ducks and geese died from oil pollution



# DETROIT WASTEWATER TREATMENT PLANT

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- In the 1960s, this plant was only achieving primary treatment (removal of material that would either float or settle out and disinfection) and Detroit's regional combined storm and sanitary sewer system was discharging over 31 billion gallons of untreated wastewater per year from combined sewer overflows





IN THE 1960s,  
REPRODUCTIVE FAILURE OF  
BALD EAGLES, PEREGRINE  
FALCONS, AND OSPREY WAS  
OCCURRING, DUE TO  
EGGSHELL THINNING FROM  
PESTICIDES LIKE DDT

Left: Normal Peregrine Egg; Right: DDT Exposed Egg



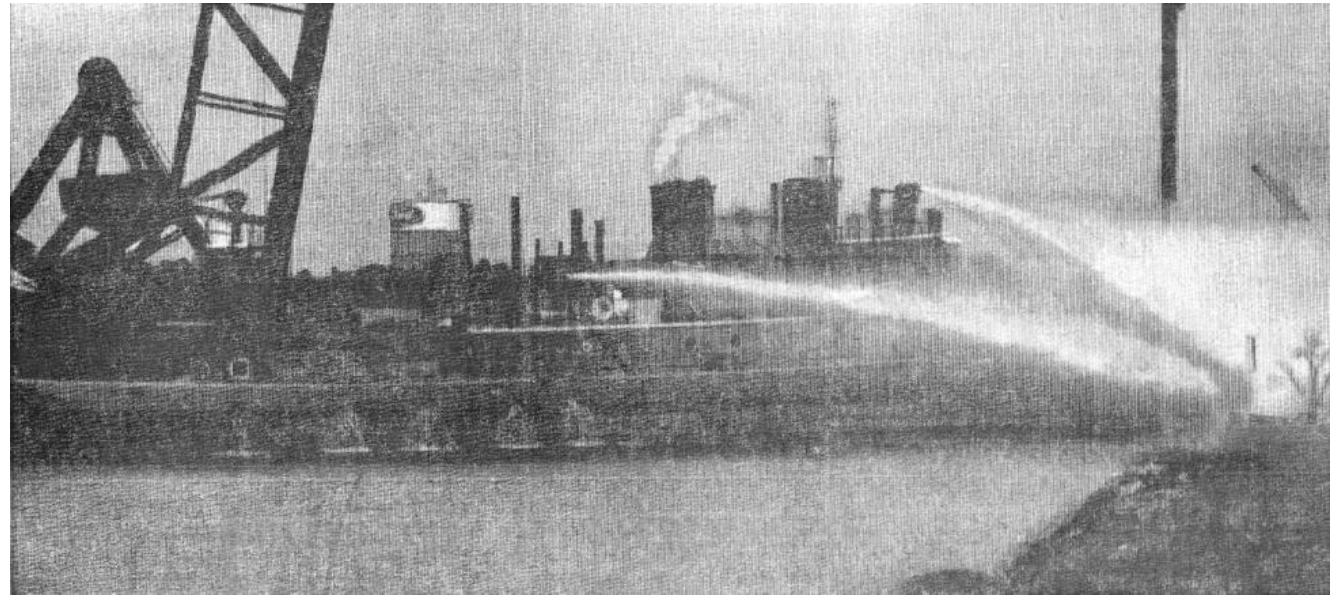


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NO LAKE STURGEON OR LAKE WHITEFISH  
SPAWNING IN THE DETROIT RIVER

**THEN ON  
OCTOBER 9, 1969  
THE LOWER  
ROUGE RIVER  
CAUGHT ON FIRE**

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**EARTH DAY 1970**

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## Public outcry over water pollution led to:

- The U.S. National Environmental Policy Act of 1970
- The Canada Water Act of 1970
- The U.S. Clean Water Act of 1972
- The U.S.-Canada Great Lakes Water Quality Agreement of 1972
- The U.S. Endangered Species Act of 1973

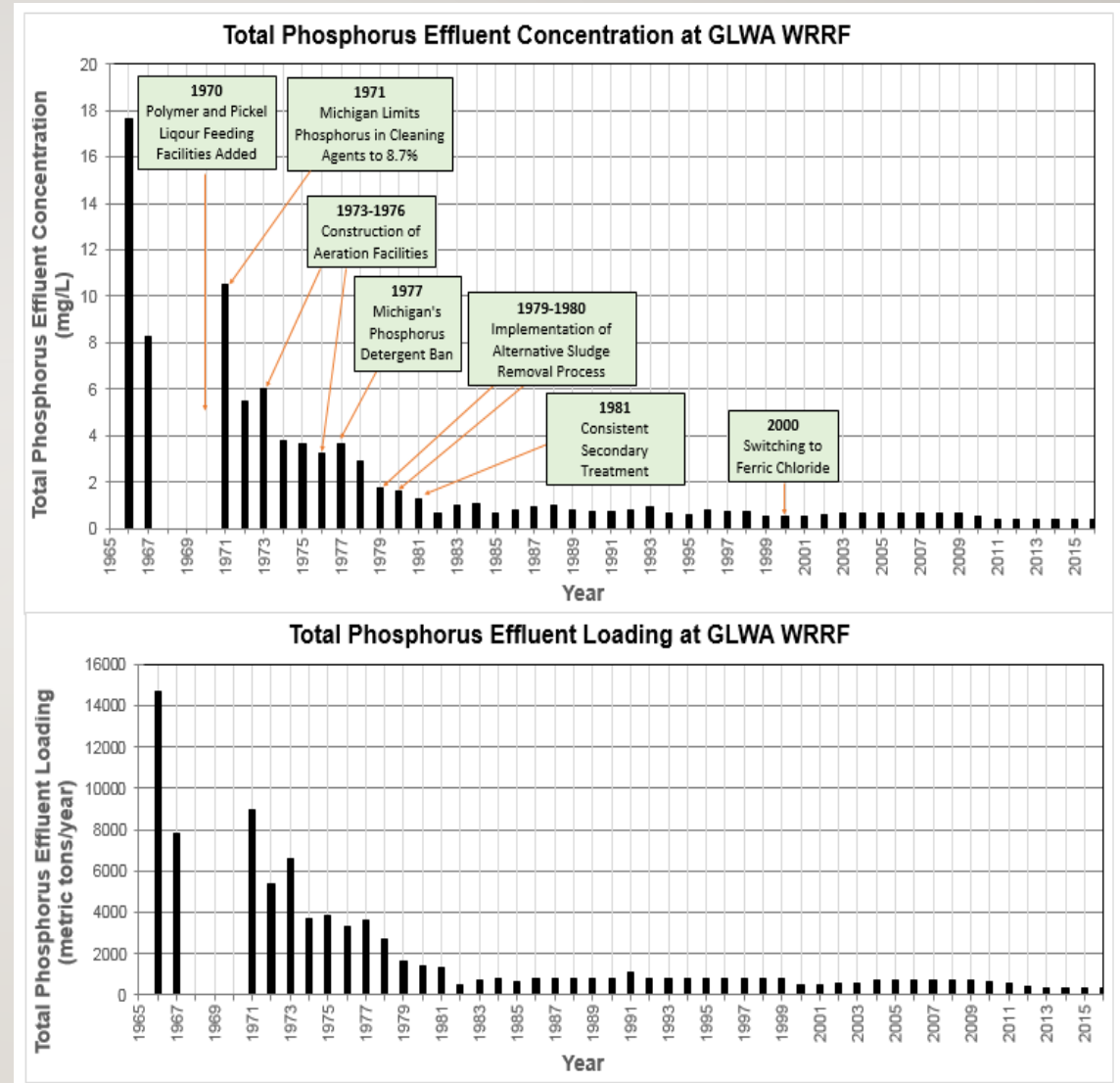


*THESE LAWS, IN TURN, PROVIDED THE FOUNDATION FOR CLEANUP OF THE DETROIT RIVER*

- Substantial reductions in oil discharges and spills have occurred, and winter duck kills due to oil pollution have been eliminated
- Billions of dollars have been spent on municipal wastewater treatment, achieving 2<sup>o</sup> treatment with phosphorus removal



- Greater than 90% decline in phosphorus concentration and loading from the Detroit WWTP – now called the Water Resource Recovery Facility (effluent phosphorus standard now 0.7 mg/L)
- Since 1960 there has been a more than 90% reduction in untreated CSO volume from communities in SE MI, but more is needed



- Between the 1960s and 1980s there was an over 4,000 tonnes/day decrease in chloride loadings to the Detroit River
- 80% decline in mercury in walleye (yet health advisories remain in effect on certain species and size classes)
- 88% decline in DDE and 90% decline in PCBs in herring gull eggs
- 293,000 m<sup>3</sup> of contaminated sediment remediated on the Detroit River, 397,000 m<sup>3</sup> on the Rouge River



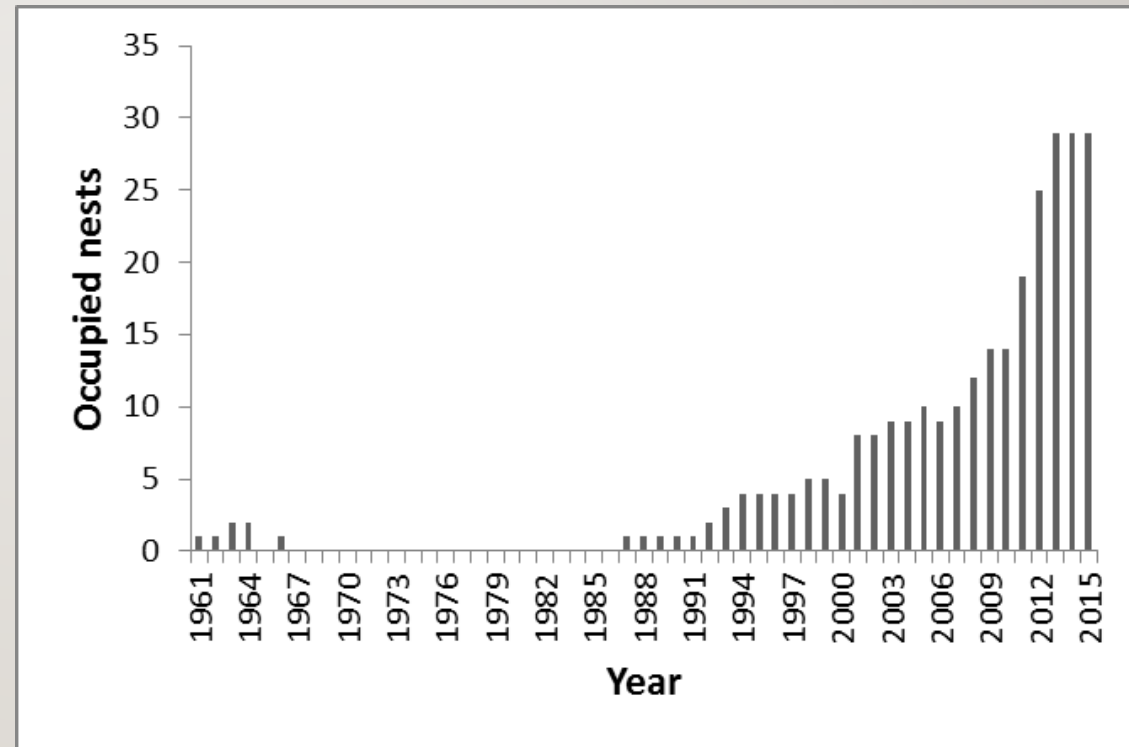
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***THESE ENVIRONMENTAL  
IMPROVEMENTS ARE HEARTENING,  
BUT THAT IS NOT THE BEST PART  
OF THE STORY!***



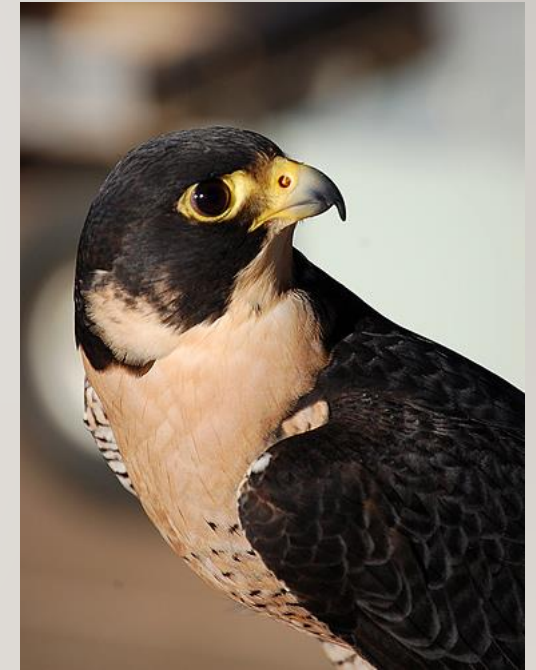
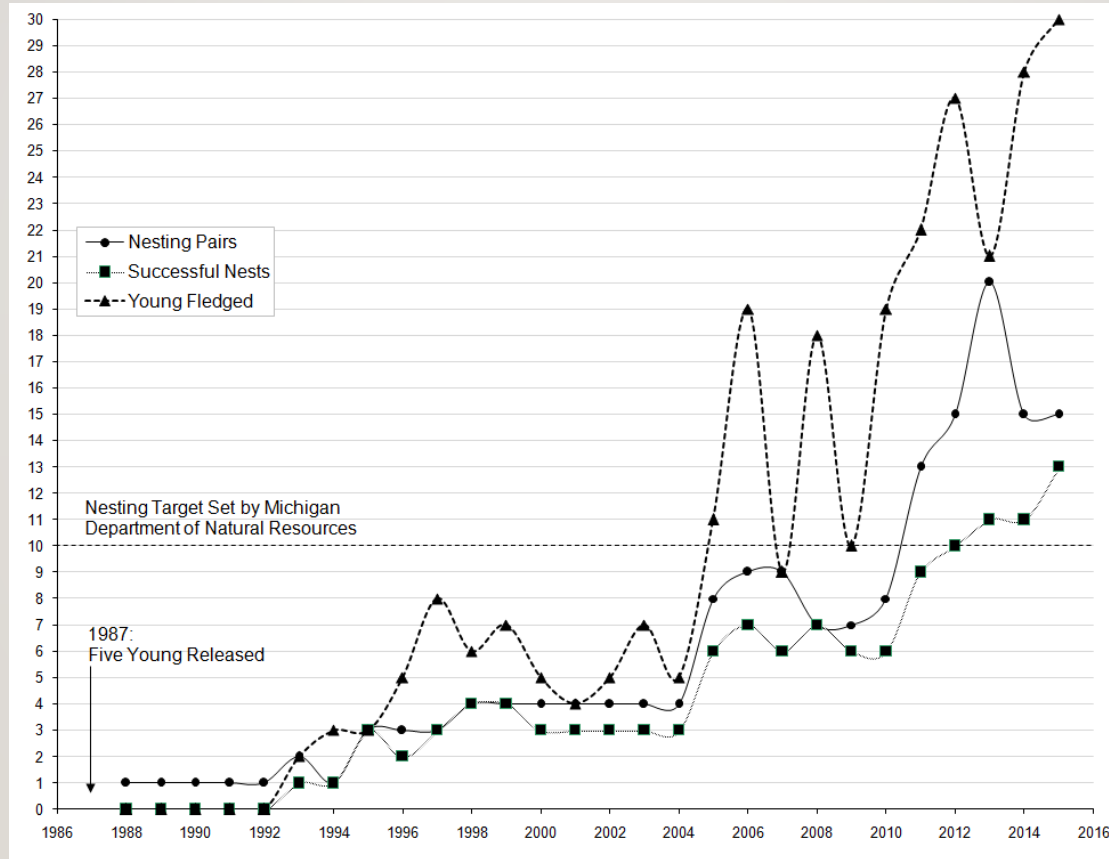
# SURPRISING ECOLOGICAL RECOVERY

- The Bald Eagle population has recovered
- There are over 25 active nests in SE MI after a 20-year absence



# PEREGRINE FALCON RECOVERY

- Peregrines reintroduced in Detroit in 1987
- 20 or more young fledged in SE Michigan, 2011-2015





## RETURN OF OSPREY

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- **Osprey population rapidly declining in early-1960s**
- **By 1999 only one active nest in southern Michigan**
- **Osprey re-introduction starts in late-1990s**
- **50 nesting pairs in SE MI in 2016 and 52 in 2017**
- **Goal: 30 nesting pairs by 2020 in MI's Lower Peninsula**

# RETURN OF LAKE STURGEON

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- Substantial decline in sturgeon population between the late 1800s and early 1900s
- No sturgeon spawning recorded from 1970s to 2000
- Sturgeon reproduction first documented in 2001 (first time in 30 yr)
- 10 spawning reefs have now been constructed



- Today, the estimated population size in the Detroit River is 4,422 individuals
- In 2021, U.S. Fish and Wildlife Service biologists caught a 6' 10" 240-pound lake sturgeon in the Detroit River – one of the largest ever caught in the United States (believed to be 100+ years old)



# RETURN OF LAKE WHITEFISH

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- Substantial decline in whitefish population between the late-1800s and early-1900s
- In 2006, whitefish spawning in the Detroit River was documented for the first time since 1916



# WALLEYE

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- In the 1970s, the walleye population was considered in “crisis”
- Lake Erie and Detroit River considered “Walleye Capital of the World”



Walleye fishing  
along brings in  
over \$1 million  
each spring to the  
local Downriver  
economy





# EVEN BEAVER HAVE RETURNED

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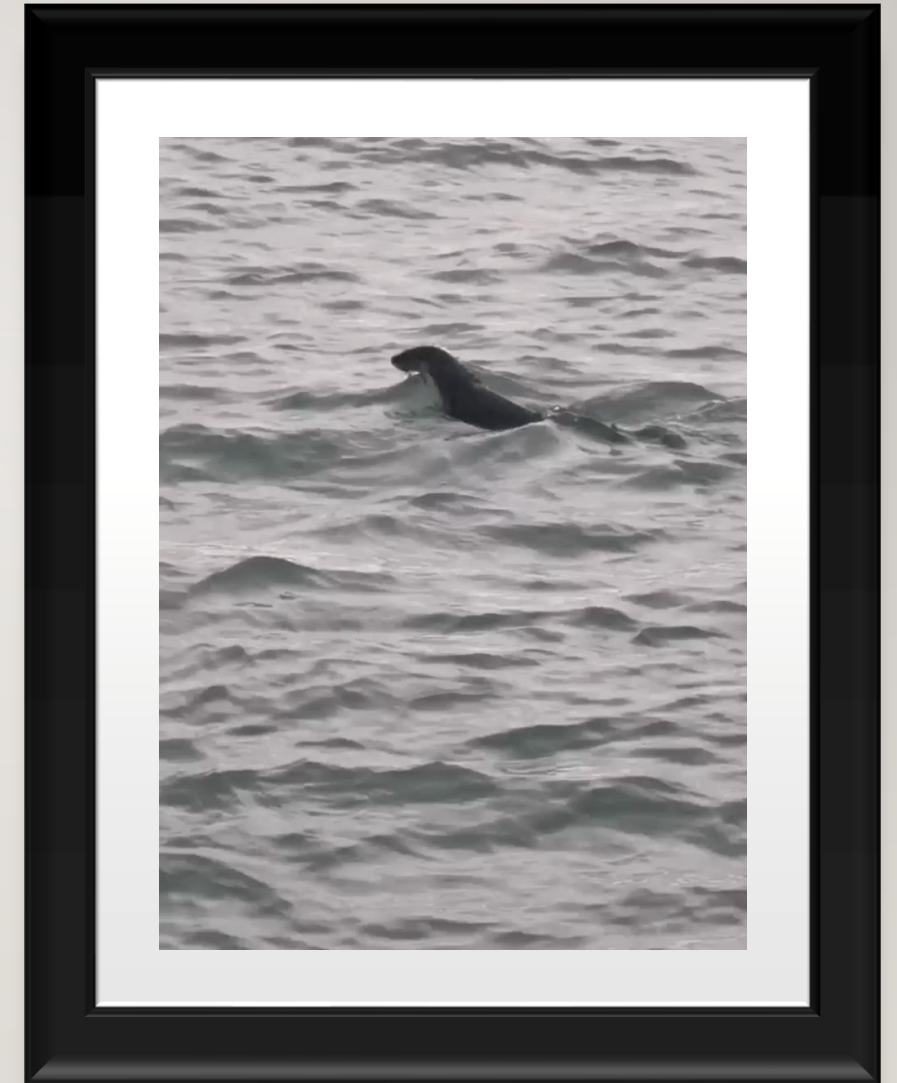
- Beaver were hunted to near extinction during the “fur trade era”
- During the height of oil pollution (1940s-1970s), beaver could not have survived
- In 2008, a pair of beaver built a lodge at DTE’s Conner Creek Power Plant
- In 2009, this pair produced at least two pups
- Beaver have been reported from six locations in the watershed



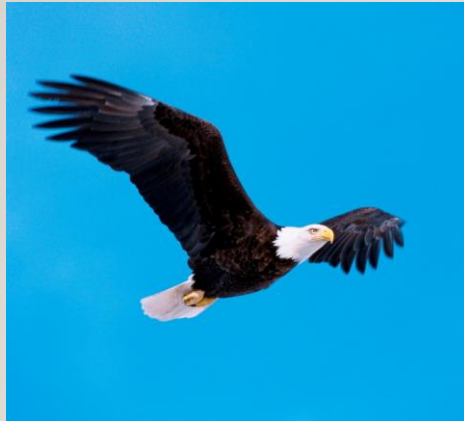
# RETURN OF RIVER OTTER

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- River otter hunted to extirpation during the “fur trade era”
- Like beaver, they could not have survived during the height of oil pollution (1940s-1970s)
- Confirmed in the Detroit River in 2022
- Last time seen in the Detroit River was over 100 years ago



# ONE OF THE MOST REMARKABLE URBAN REWILDING STORIES IN NORTH AMERICA!



- Rewilding the D has occurred through the reintroduction of peregrine falcons and osprey, and a return of other sentinel species like bald eagles, lake sturgeon, lake whitefish, walleye, beaver, and river otter
- Rewilding has helped showcase the value and benefits of environmental protection and restoration, ecosystem services, habitat rehabilitation and enhancement, and conservation



# BENEFITS OF REWILDING

- Healthier ecosystems
- Enhanced biodiversity
- Helps lead to the development of a conservation ethic
- Studies show that spending time in nature improves mental and physical health
- Canadian doctors are now prescribing free passes to national parks to improve people's mental and physical health





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- Rewilding is teaching us about the power of nature to heal itself and in the process to help heal us
  - It is also a process that gives hope for our future



“IF WE HAVE SPACES ON OUR DOORSTEPS IN WHICH NATURE IS ALLOWED TO DO ITS OWN THING, IN WHICH IT CAN BE TO SOME EXTENT SELF-WILLED, DRIVEN BY ITS OWN DYNAMIC PROCESSES, THAT, I FEEL, IS A MUCH MORE EXCITING AND THRILLING ECOSYSTEM TO EXPLORE AND DISCOVER, AND IT ENABLES US TO ENRICH OUR LIVES, TO FILL THEM WITH WONDER AND ENCHANTMENT.”

**GEORGE MONBIOT, BRITISH AUTHOR AND ENVIRONMENTALIST**