

A response to Mr. Bob Bailey's Bill 205, An Act to Amend the Fish and Wildlife Conservation Act and his presentation to the Legislature (June 2, 2016) that would remove protection for Double-crested Cormorants in Ontario

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The purpose of this paper is to respond to the comments made by the Honorable Bob Bailey in the Ontario Legislature early last June about Bill 205. Bill 205 amends the Fish and Wildlife Conservation Act to remove protection for Double-crested cormorants.

Mr. Bailey: Bill 205, in essence, is a straightforward bill. Currently, section 5(1) of the Fish and Wildlife Conservation Act states, "A person shall not hunt or trap specially protected wildlife or any bird that belongs to a species that is wild by nature and is not a game bird." This section creates protections for all birds that are not otherwise protected by the federal Migratory Birds Convention Act.

Prior to legislated protection, many species, including the Great Egret (*Ardea alba*) and the Whooping Crane (*Grus americana*) were in serious decline and endangered. Many were extirpated from major sections of their range due to hunting and persecution, including the Double-crested Cormorant which was extirpated from the Great Lakes.

The Migratory Bird Convention Act, passed in 1917 was designed to protect most species of birds in Canada. However, cormorants were exempt from the Act, along with other fish-eating species, such as Ospreys (*Pandion haliaetus*), Belted Kingfishers (*Megaceryx alcyon*), and birds of prey, such as hawks and owls, as well as vultures (Cathartidae), all members of the jay and crow family (Corvidae), falcons (Falconidae); pelicans (Pelecanidae), owls (Strigidae) and barn owls (Tytonidae). These exemptions were made, in part, because scientists had yet to understand the role of predators in maintaining healthy populations in ecosystems, and because of prejudice by consumptive users, hunters, trappers, fishers and farmers that certain species would be damaging to their own interests.

The Double-crested Cormorant was eliminated as a breeding species from the Great Lakes and most of the rest of Ontario east of Lake of the Woods before substantive records such as specimens, photographs and site-specific reports could be obtained. However, one record from the turn of the previous century documented cormorant specimens taken in June (nesting season) of 1878 from the south side of Lake Erie, "...at or near the Winous Point Shooting Club on Sandusky Bay." (Bill Whan, personal communication, citing Milton B. Traugman, 2006, *Birds of Western Lake Erie, Documented Observations and Notes, 1850 – 1980*, unpublished).

In her highly regarded book, *The Double-crested Cormorant: Plight of a Feathered Pariah*, 2014, University Press, author Linda Wires relates other strong evidence, including from First Nations, of cormorants as a breeding species in the Great Lakes prior to them first being eliminated due to persecution by humans.

Through the 20th century, as scientists learned more about the role of predators within ecosystems, and as the science of ecology emerged, governments extended protection to these species, at the state or national level in the U.S., and at the provincial level in Canada. For many, including the Double-crested

Cormorant, it came too late to protect them from endangerment in part or all of their range, driving cormorant numbers to as low as 1,000 nesting pairs in the Great Lakes region.

Cormorants returned to the Great Lakes around 1920, and began to recover. Then following World War II, the population was again devastated by the world-wide use of DDT, driving their numbers down to just 100 nesting pairs until their second recovery began again in the late 1970s and early 1980s. That DDT is damaging to the survival of fish-eating and some other birds became widely known following publication of *Silent Spring*, by Rachel Carson, 1962, Houghton Mifflin. As a result of Carson's work DDT was largely banned and many bird species that were heading toward extinction in the 1950s and later, began to recover, including the Double-crested Cormorant.

However, their extended absence allowed island and peninsula landscapes to become treed and now has led to concerns about their impact on island habitats and fish and has resulted in the assertion that cormorants have returned in unprecedented numbers to eastern North America, a position finally and definitively challenged in 2006 (Wires, L. R., and F. J. Cuthbert, 2006. Historic Populations of the double-crested cormorant (*Phalacrocorax auritus*): Implications for conservation and management in the 21st century. *Waterbirds* 29: 9-37).

Mr. Bailey: Bill 205 amends the Fish and Wildlife Conservation Act of 1997 to permit the hunting and trapping of double-crested cormorants. This amendment to the Fish and Wildlife Conservation Act places double-crested cormorants in a category of birds along with the American crow, the brown-headed cowbird, the common grackle, the house sparrow, the red-winged blackbird and starling that section 5(1) does not apply to.

The American Crow (*Corvus brachyrhynchos*), the Common Grackle (*Quiscalus quiscula*) the Brown-headed Cowbird (*Molothrus ater*), the Common Sparrow (*Sturnis vulgaris*), the House Sparrow (*Passer domesticus*) and the Red-winged Blackbird (*Agelaius phoeniceus*) are all Passiformes, or songbirds, also known as the "perching birds", the most recently evolved order of birds, dating back some 33.9 to 23 million years. Cormorants belong to the vastly older order of Suliformes, dating back some 60 million years.

Songbird species have entirely different breeding strategies, behavior and environmental needs, and are therefore more resistant to the effects of persecution. All six exempted species are tolerant of or benefit from human-caused influences on the environment. The Common Grackle, Brown-headed Cowbird, House Sparrow, Common Starling, Red-winged Blackbird and the American Crow are all highly adaptive to human conditions. And four of the native exempted songbird species normally have more than one brood of young per year, reach sexual maturity in a year, have population sizes numbering in the tens or hundreds of millions and are widely distributed in a variety of habitats. As a result they are not vulnerable to threats posed by lack of protection.

Unlike the unprotected songbird species, however, Double-crested Cormorants are extremely vulnerable to persecution because they nest in colonies on islands and peninsulas, have only one brood a year and usually aren't reproductive until the age of two or three. And, because they congregate together it doesn't take much to endanger entire colonies. It should be noted that the entire population of Double-crested Cormorants across the continent consists of fewer individuals than there are people living in the City of Toronto.

Mr. Bailey: Madam Speaker, after researching this issue, speaking with stakeholders and considering the potential impact of this amendment, I believe that this is an appropriate and reasonable response to the issue of the rapid double-crested cormorant population growth in the Great Lakes region.

Research shows that when cormorants weren't protected, they were killed by "boatloads" in Ohio, near Lake Erie and were clubbed, burned, exploded, stomped and shot, driving them to precipitously low numbers. The impact of such actions on other colonial waterbirds such as Great Blue Herons, Great Egrets, White Pelicans (*Pelecanus erythrorhynchos*) and Black-crowned Night Herons (*Nycticorax nycticorax*) who nest with cormorants include significant disturbance, injuries, death to the adults and their dependent young.

Science and fact-based policy decisions are critical to wildlife management decisions. Papers by Wires and Cuthbert provide a scientific foundation for understanding the role of cormorants in the broader environment and debunks the misguided notion that cormorant are here in greater numbers than at any other time in history, that they deplete fish populations and destroy, as opposed to influence and alter, ecosystems. Removing protection for cormorants is based on bias and not on science and could have very serious, detrimental ecological consequences.

Often wildlife management approaches are developed by example. The Toronto Region and Conservation Authority (TRCA) manages Tommy Thompson Park, an urban wilderness park located at the foot of Leslie Street in the City of Toronto. The park "supports the largest colony of double-crested cormorants in the world, plus diverse communities of bird, fish, reptile, amphibian, mammal and vegetation species. It has been formally designated as a globally significant Important Bird Area (IBA) and an Environmentally Significant Area (ESA #120)." (<http://www.trca.on.ca/dotAsset/221708.pdf>)

TRCA staff have implemented an integrated non-lethal cormorant management approach that was developed through community consultation and science and fact-based policy and approved by the Authority. The overall goal of the programme was "to achieve a balance between the continued existence of a healthy, thriving cormorant colony and the other ecological, educational, scientific and recreational values of TTP." (<http://www.trca.on.ca/dotAsset/221708.pdf>) TRCA's extensive public process ultimately determined that they would celebrate cormorants as an important part of the environment rather than demonize them.

Mr. Bailey: I look forward to all of the comments on Bill 205 today. I've had many conversations with my colleagues in the official opposition regarding the impact of these birds on the delicate ecosystems in their ridings. I'm also very interested to hear the comments from both the members of the government and the members of the third party, because I know that the double-crested cormorants are also having a major impact in many of their ridings as well.

Cormorants require very specific habitat types, usually islands, and in most of Ontario those islands include other species of birds and other native wildlife.

Cormorants are a keystone species, or "bio-engineer" whose actions, like those of elephants, beaver, bison, wolves and various other wildlife species, affect the nature of the flora and fauna of some regions, specifically, in the case of most such species, where they occur in concentrated numbers. Cormorants nest both in trees and on the ground, usually on islands, but at times on headlands or sea cliffs.

On barren islands cormorant excrement provides concentrated nutrients which accumulate in the soil, enriching it and setting the environmental stage for vegetative growth. No cormorant colony is permanent. Eventually the islands where they and other aquatic birds once nested will grow vegetation and become treed.

Tree nesting cormorants remove branches for nesting material and they coat the leaf cover with their guano. The extent of the decline in tree and plant health is dependent on degree to which the leaves are coated and may cause the death of some trees. This is a natural phenomenon that has not been seen until recently, primarily because cormorants were removed from the environment in the 18th and 19th centuries, and again, in the 20th before they could repopulate the lakes regions of Ontario.

Ontarians today see more islands and shorelines with tree cover because cormorants and some other colonial waterbirds were artificially absent from the landscape. With their successful return, cormorants alter some island and peninsula habitats. That is normal and how nature works.

Mr. Bailey: The idea of this particular amendment of the Fish and Wildlife Conservation Act had been put forward during previous Legislatures by the former Liberal member for Algoma–Manitoulin Michael Brown in 2001, and the Liberal member from Prince Edward–Hastings Ernie Parsons in 2006. In the decade since those members first brought forward the issue of overpopulation, the double-crested cormorant population has exploded. This is stressing delicate ecosystems, impacting biodiversity and creating concerns for property owners and the fishing and tourism industry throughout the Great Lakes region. I also understand it's very damaging to the islands here just off Toronto. On Toronto Island, the people who boat in the harbour tell me that this is causing a lot of damage to a number of properties and to the islands there.

The "impact" that cormorants have on biodiversity is positive, not negative: that is to say their presence actually creates opportunities for a number of other species to be present in the ecosystem. The Toronto and Region Conservation Authority, which manages the largest Double-crested Cormorant colony on the Great Lakes, found that fish populations have flourished around the cormorant colony.

With regard to protection of property, Section 31(1) of the Fish and Wildlife Conservation Act allows for the removal of the birds. The Section states:

31. (1) If a person believes on reasonable grounds that wildlife is damaging or is about to damage the person's property, the person may, on the person's land,
(a) harass the wildlife for the purpose of deterring it from damaging the person's property; or
(b) capture or kill the wildlife. (<https://www.ontario.ca/laws/statute/97f41#BK34>)

Mr. Bailey: The double-crested cormorant, or the crow duck, is a large fish-eating bird found throughout the Great Lakes region, as well as large swaths of North America. A fact sheet issued by Environment Canada indicates that historically, the double-crested cormorant did not nest originally in the Great Lakes region. Evidence of double-crested cormorants around the Great Lakes did not appear until sometime around 1913, along the very western edge of Lake Superior. The nesting colonies of these large predatory birds continued to spread east to the Great Lakes, making it to the St. Lawrence River valley by 1945. In the 1950s, the number of double-crested cormorants in Ontario numbered at about 900 nesting pairs. By 1973, that number had dropped by 86% to approximately 125 nesting pairs. Scientists at that time believed that the decline in the cormorant population was a

result of the high levels of toxic contaminants such as DDT and PCBs that were present at that time in the Great Lakes.

Cormorants nested from Alaska to Labrador, where they were found by Audubon in 1833 and from northern Canada to Mexico and the West Indies, so it is inconceivable that they avoided the largest body of fresh-water in the world with a plentiful food source. Exhaustive research, especially by Wires and Cuthbert, cited above, plus other information that has emerged since, clearly indicate that cormorants bred in the Great Lakes before their numbers were reduced by human persecution.

The first four editions of the definitive Checklist of American Birds, published in 1886, 1895, 1910 and 1931, list the Great Lakes as part of the breeding range of Double-crested Cormorants. Charles Fothergill (1782 – 1840), spent time in the Peterborough region and did make a significant collection of such specimens, but sadly it was lost to fire. He did sketches and one that survived shows a Double-crested Cormorant with the breeding head plumes that only exist briefly in the nesting season, indicating that he encountered breeding birds in his travels near Lake Ontario. Thomas McIlwraith (1824 – 1903), based in Hamilton, said: “When the young are sufficiently grown, they gather into immense flocks in unfrequented sections, and remain until the ice-lid has closed over their supply of food, when they go away, not to return till the cover is lifted up in the spring...”.

The cormorant recovery should be seen as a spectacular good news environmental story but instead their population growth has been described negatively as “explosive”. For decades cormorant numbers were so low because of persecution and pesticides that they were rarely seen in the Great Lakes region. Any time a species is severely depleted, if there is enough left to do so, survivors will tend to reproduce more rapidly, peak at a level that may be higher than the average carrying capacity of the environment, and then the die off, until a stasis is achieved, as determined by food and habitat availability. The cormorant population has now stabilized below peak level and the regular census of the species was stopped in 2011.

In the paper titled Characteristics of Double-Crested Cormorant Colonies in the U.S. Great Lakes Island Landscape, Linda R. Wires and Francesca J. Cuthbert write:

“Islands used by cormorants comprised a small proportion (n = 90, 3%) of the U.S. Great Lakes island resource, and <1% of the total island area. Certain characteristics of breeding sites (e.g., small islands, proximity to mainland) may increase negative attitudes about cormorants. To understand cormorant impacts to island resources (e.g., vegetation; other colonial waterbird species), we suggest cormorant presence in the Great Lakes be considered in the broader context of island science, conservation and known threats, and at a landscape scale.” (University of Minnesota, Department Fisheries, Wildlife & Conservation Biology, 200 Hodson Hall, 1980 Folwell Ave., St. Paul, MN 55108-6124, USA Corresponding author. E-mail address: Wires001@umn.edu (L.R. Wires).

<http://www.researchgate.net/publication/228337782> Characteristics of Double-Crested Cormorant Colonies in the US Great Lakes Island Landscape)

The paper highlights the fact that of all the land area deemed to be potentially suitable for nesting cormorants, only about one percent was so used. The paper also points out that cormorants are most vulnerable on sites closest to humans, particularly on those islands in close view. While the change that the arrival of nesting cormorants can create is certainly significant, to put it in perspective it should be

measured within the broader context of what we know about the nature of islands, with regard to conservation concerns, and within context of the environmental whole.

We are starting to appreciate the role of “bioengineering” animals. For example it was once thought that it would be necessary to control African elephant numbers because they consumed so much vegetation, two to six hundred pounds per day. But now that poaching has driven elephants into such serious decline it is fully recognized that they play an ecological role in providing habitat for species that require regrowth and open areas and thus, as counterintuitive as it may be, they enhance biodiversity (see: <http://thinkelephants.blogspot.ca/2012/10/elephants-ecosystems-engineers.html>) . Beavers too, create viable habitat used by a wide range of wetland species. The introduction of wolves to Yellowstone National Park presented a prime example of how a species that at times comes as close to be loathed and hated as cormorants, actually enhances biodiversity (see <http://earthsky.org/earth/yellowstone-benefitting-from-return-of-wolves-oregon-scientists-say>).

Mr. Bailey: Six decades, or 60 years, later, we’re all thankful that the leaders of the day saw fit to take those actions that they did to protect the Great Lakes, our greatest natural resource. But, as a result of this confluence of factors—the banning of toxic pesticides, the steadily increasing numbers of smaller fish in the Great Lakes and the seemingly hands-off approach to population management by the MNRs of different governments—population numbers of the double-crested cormorant rebounded quickly from the 1970s through to the 1990s, and have exploded even more so in recent years.

From that original group of 125 nesting pairs in 1973, the most readily available government of Canada statistics from 2009 indicated that there were more than 58,000 nesting pairs in the Great Lakes. Some bird count surveys suggest that the population increase may be happening at the rate of 7% a year, which would be unsustainable if that is the case. And from the numbers, that probably is the case.

Although *Silent Spring* was published in 1962, it was not until the 1980s that DDT was finally banned by both Canada and the U.S., although it still persistent in the environment. According to Environment Canada (http://www.ec.gc.ca/doc/eau-water/grandslacs-greatlakes_e.htm) significant financial investment in cleaning up the Great Lakes began in 1989, 27 years ago. Cormorant recovery began parallel to the decline in the presence of DDT in the environment, peaked and stabilized by 2011. Populations have robust growth during their recovery period, leveling off when they reached their carrying capacity as has happened with cormorants in the last decade.

In the 1950s and 1960s, older people may well remember the massive die-offs of Alewives (*Alosa pseudoharengus*), a non-native herring-like fish that gained entry to Lake Erie and Lake Ontario. Alewives and Round Gobys (*Neogobius melanostomus*), non-native fish are now prevalent in Lake Erie and Lake Ontario and interestingly, the presence of both cormorants and Round Gobys have contributed to the ongoing recovery of the endangered Lake Erie watersnake (*Nerodia sipedon insularum*).

The number of “small fish” in the Great Lakes is a function of the ability of the fish involved to sustain themselves, each in competition to varying degrees with the others. The presence of increasing numbers of fish and the animals who eat fish is an indicator of returning health to the Great Lakes. Protection for such a highly vulnerable species as the Double-crested Cormorant is imperative.

Mr. Bailey: As a result of the rapid recovery and population explosion of the double-crested cormorant, the federal Committee on the Status of Endangered Wildlife in Canada has listed this bird as “not at risk” since April 1978. Various other national and international conservation groups, such as the International Union for Conservation of Nature, the North American Waterbird Conservation Plan, Wings Over Water and Wild Species Canada, all list the status of the double-crested cormorant as “least of concern” or “not at risk” or “secure.” This is obviously a testament to the resiliency of this species of bird. In only a few short decades, the double-crested cormorant has gone from relative rarity in the Great Lakes region to one of the most populous species of bird.

The Ministry of Natural Resources and Forestry protect many native species with “secure” populations, including deer, moose, bears, wolves and cormorants. Removal of this protection as is being proposed in Bill 205 means that cormorant persecution will increase, driving down their numbers and possibly qualifying them for at risk protection.

The goal of government programmes is to return “at risk” species to healthy populations and to protect and maintain health of native wildlife populations. Cormorants and other waterbirds often nest in large numbers but are not particularly abundant and are very vulnerable to disturbance. The largest colony of Double-crested Cormorants ever recorded in western North America, was at San Martin Island, Baja California, which once held what equals about half the world population, but is now gone as a result of human disturbance.

Mr. Bailey: Unfortunately, this explosive population growth has led to many concerns that these birds are negatively impacting Ontario’s fishing industry, vegetation base, sensitive island ecosystems and other protected water birds in our Great Lakes and freshwater system. The cormorant, a very sociable bird, almost always nests in large colonies. These nesting habits, while commendable in humans, result in the rapid destruction of existing site vegetation through breaking of branches, stripping of foliage, and loss of important ecosystem and canopy cover.

It is ironic that while Bill 205 will lift protection for cormorants in Ontario, a U.S. federal court ruled that the major culling of cormorants in the U.S., as a result of concerns that the birds were “eating all the fish”, was not justified. Last May 25th the court quashed “depredation” orders that allowed tens of thousands of cormorants to be killed each year in 24 eastern U.S. states.

In March, U.S. District Judge John D. Bates found that the U.S. Fish & Wildlife Service failed to provide adequate scientific analysis to justify “lethal removal” of Double-crested Cormorants “committing or about to commit predation” on fish in states east of the Mississippi River. In his ruling the judge said, “Now is the time for the Service to start demilitarizing wildlife management, starting with the double-crested cormorant.”

In another case, Sand Island, at the mouth of the Columbia River, Oregon, the U.S. Army Corps of Engineers, ignoring its own scientific evidence, conducted a cull of Double-crested Cormorants (and other wildlife species) as a means to enhance salmon populations. As a result, the surviving cormorants abandoned the colony, according to Oregon State University ornithologist, Dan Roby. “It’s certainly unprecedented in all the years we were out there working on that cormorant colony,” he said.

The U.S. Army Corps of Engineers suspended the slaughter under intense pressure and scrutiny from scientists, conservationists and news media. The cormorants were targeted as scapegoats for loss of

salmon as that was easier than addressing over-fishing; agricultural run-off and other pollution (see: <https://prezi.com/nnjgvehtyz0t/how-does-pollution-affect-salmon-in-the-puget-sound/> dredging; dams; upstream deforestation; climate change (see: <http://america.aljazeera.com/articles/2015/7/27/half-of-columbia-rivers-sockeye-salmon-dying-due-to-heat.html>) and other real factors.

The U.S. equivalent of our own Freedom of Information Act has produced internal documents showing what so many other studies have shown, that in a natural environment cormorants are not responsible for losses in fish stocks of importance to commercial or sport anglers (see: <http://audubonportland.org/issues/fws-cormorant-analysis>). In fact, the presence of nesting cormorants is a good indicator of the health of the adjoining waters as determined by numbers of accessible fish such as Alewives and Round Gobies.

Concerns about vegetation on island and peninsula habitat are often cited as reasons to kill cormorants. In fact, as the Wires and Cuthbert study cited above shows, the vast majority of habitat that could be utilized by nesting cormorants, is not used at all.

In addition, not all island flora and fauna thrive under closed canopy tree cover. Indeed, such conditions typically produce a decline in the number of species present. Some species of birds including the Common Tern (*Sterna hirundo*) and the Caspian Tern (*Sterna caspia*), nest in the open, on treeless islands and shorelines. Some of the plants identified on Lake Erie's Middle Island require exposed as opposed to canopied habitat.

When the first ornithologist (bird scientist) visited Middle Island, the year was 1908. Cormorants were missing because they had been wiped out, but also missing where Herring Gulls (*Larus argentatus*), Black-crowned Night-Herons (*Nycticorax nycticorax*), Great Blue Herons (*Ardea herodias*) and Great Egrets (*Ardea alba*), which are all now found there, and thus biodiversity could be seen as being enhanced in conjunction with the presence of the cormorants.

The affects that cormorants have on vegetation are in fact part of the natural, complex web of interactions between dynamic, living components or Ontario's natural environment.

Nature is not static like a museum diorama, but is changing and evolving over time. No cormorant colony is permanent. Cormorants perform an ecological function in maintaining biodiversity through their natural behavior, and have done so for tens of millions of years. For many years we have observed two uninhabited islands, both far from land, in the southern part of Lake Erie. One, Middle Island, has endured a carefully organized and conducted cormorant cull for many years. The other, East Sister Island, is of roughly similar size and has many of the same species of flora and fauna, including a cormorant colony of similar size to Middle Island where no cull has taken place. And through the years we have seen that while thousands of birds are annually removed from Middle Island, and none from East Sister, both islands still maintain comparable levels of vegetation. In fact, cull activities on Middle Island have chased cormorants and other bird species elsewhere, including to nearby East Sister Island.

Mr. Bailey: Moreover, the impact of the toxic guano of the hundreds of double-crested cormorants at a nesting site kills trees and vegetation, leaving roosting sites of double-crested cormorants ecologically barren in only a few short years. I know there's a case near Pelee Island—I think it's called Middle Island—where the ministry and the federal government went in and tried to repopulate and get that island ecosystem back, because these birds literally destroyed it.

Guano is a naturally occurring substance that, through time, enriches soil, thus encourages vegetation and should more accurately be called “organic”. Use of the inflammatory term “toxic” illustrates the kind of bias inherent to the arguments against cormorants.

We have attended Middle Island every year to monitor the cull and to compare the island with other area islands. Parks Canada has decided that they prefer a leafy, treed island, maintaining it in an unnatural, contrived ecological “stasis” by killing cormorants. They also claim they want to protect a few plants that are at the northern limits of their range and are therefore uncommon in Canada but that are common in the United States. If Middle Island was located just 150 metres further south, not one plant on the island would be considered endangered. The distinction is political not ecological. The cormorants and other birds are part of the Middle Island ecosystem and they contribute to the ecology of the island even if it looks different than it did years ago.

Mr. Bailey: This has been the case in many areas across the Great Lakes in Ontario. I hope to hear examples, from some of the other members who speak to the bill this afternoon, of the destruction caused by these birds in their own communities.

Moreover, there are ongoing concerns that the overpopulation and range expansion of the double-crested cormorant is having a significant impact on fisheries in the Great Lakes. Double-crested cormorants consume large amounts of fish in the areas they populate, and place a significant impact on species. A typical cormorant can consume 20% to 25% of its body weight, or roughly one pound of fish, each day. Dietary studies on these predatory birds have shown that cormorants consume a wide range of prey species and are opportunistic, generalist feeders. In other words, I guess they’ll eat pretty near anything.

There is no scientific determination that the fish consumed by cormorants negatively impact on what is available to commercial and recreational anglers. No species of fish, desired by commercial or recreational anglers, or otherwise, is at risk in the wild from cormorants. Cormorants are present where large numbers of fish are present and as has been demonstrated at Tommy Thompson Park, the fish populations around the largest cormorant colony on the Great Lakes are robust and healthy.

In addition, cormorants consume Round Gobies and Alewives, non-native species that compete with native species. The bulk of cormorants diets are now species that are not of value to anglers, nor significant in the diets of those species that are sought by anglers. Cormorants are “opportunistic, generalist feeders” and the fish they consume must occur in huge numbers, such as is the case with gobies.

In 2003 The American Ornithologists Union reviewed plans by the U.S. Fish and Wildlife Service to allow “depredation” of cormorants through most U.S. States east of the Mississippi River and found, based on a thorough search of the scientific literature, as did the courts just this year (<http://www.torontobirding.ca/toc-docs/CormorantsAOU07ConservationAddn5.pdf>) that the decision was primarily political and lacking in scientific merit.

Mr. Bailey: A report by the Michigan Department of Natural Resources indicates that cormorant prey selection primarily depends upon the abundance, availability and catchability of fish near their colonies. This includes fish up to 40 centimetres in length. The New York State Department of

Environmental Conservation has associated declines in smallmouth bass and yellow perch abundance in the eastern basin of Lake Ontario with cormorant population increases.

A recent Michigan study refers to the diets of cormorants (<http://greatlakesecho.org/2016/06/06/can-cormorants-help-control-great-lakes-invaders/>). In part, the abstract (summary) of the paper reads:

Invasive species, most notably alewife, round goby, and white perch, contributed over 80% and 90% of the diet of cormorants by biomass and number, respectively. No salmonine species were detected suggesting that negative effects on this important fishery would likely occur only via direct competition for prey (e.g., alewife). Predation on yellow perch, which occurred mainly prior to and during the perch spawning season (i.e., of age-1 and older individuals), may warrant further study to quantify the effects on the local yellow perch population. However, because yellow perch abundance is thought to be currently limited by poor recruitment at age-0, these results do not support the active management of the cormorants at this colony to protect or recover local fisheries.

In summary, the study has found that the bulk of fish species eaten by Lake Michigan cormorants are non-native species. Most of the larger salmon species, targeted by anglers, are also non-native. The predatory non-native large salmon, such as the Coho Salmon (*Oncorhynchus kisutch*), consume both native, economically “valued” fish, such as Yellow Perch (*Perca flavescens*), especially when they are immature, and non-native species, especially including Alewives. The study also indicates that invasive fish species compete with and reduce the number of native fish species.

Mr. Bailey: Some fishermen and hunters that I know tell me that they’ve seen them in action. They’ll see a school of fish and actually circle them, come down close to the surface of the water and beat their wings, drive the fish into the centre and then the other birds will catch them. They’re quite organized. Probably a lot of people could use organization like they can put together.

This unchecked predation by cormorants should be of concern to this provincial government, as their population growth has the potential to have a very serious consequence for fishing and fishing-related industries in Ontario, which we all rely on. A simple Google search will turn up numerous stories on the impact cormorants have had on public lands, private property, businesses and communities across Ontario. Unfortunately, despite all this information and the growing concern with the impacts of the cormorant population, the Ministry of Natural Resources has been slow to take action on this issue.

Cormorants have evolved to occupy an ecological niche that includes eating fish. Every native species of fish co-evolved with cormorants. The cormorant is limited by its need to fuel its metabolism with food – mostly fish. The fewer the fish, the less caloric return per caloric expenditure in pursuit; thus the fewer the number of fish, the greater the energy (calories) expended in pursuit. Long before the fish are depleted the predator reaches a point of diminishing returns and moves elsewhere.

The mutually co-operative feeding method mentioned above is similar to that used by other fish-eating species, including pelicans, whales and dolphins and large, predatory fish such as sailfish and is designed to concentrate a group of fish to reduce caloric output and time spent attaining necessary nourishment. The plumage of cormorants is not nearly as waterproof as it is in other aquatic birds, and so the time spent in pursuit is limited. As well, when nesting, energy expenditure increases significantly as the birds must return to the nest, to take time from feeding to incubate eggs or young, shade the young, transfer

water to them and build nests. We have not found any scientific reports or other evidence of any fresh or saltwater species of fish or any other wildlife species having been endangered by cormorants.

Mr. Bailey: Bill 205, the Fish and Wildlife Conservation Amendment Act, is designed as a simple first step that this government can take to control the growth in the numbers of this predatory bird. As I stated earlier, Bill 205 will add the double-crested cormorant to the list of unprotected birds in Ontario, which I listed earlier. I believe that removing this unnecessary protection of the Fish and Wildlife Conservation Act is a reasonable step for this government to take. It's one more tool that will be at the disposal of those dealing with the issue of cormorant overpopulation.

I hope that members of both the government and third party will join with the official opposition to support Bill 205. I would like to see this bill moved through to the committee stage where we can all learn more about the impacts that double-crested cormorants are having across this province.

The Fish and Wildlife Conservation Act (FWCA) provides the Ministry with management tools for cormorants, including lethal culls as was done at Presqu'ile Provincial Park. Under the Act, the Ministry has the right to determine if and when management is required and what type of management could be employed.

Similarly, the Act allows for Ontario residents to harass and kill cormorants to protect their property. But, at the same time, the Act protects cormorants from indiscriminate, wanton killing because cormorants have biological characteristics that render them highly vulnerable to endangerment.

Mr. Bailey: Let me make clear that in no way am I supporting the extinction of cormorants or any sort of mass culling, but I am asking the government to take action. By failing to take action for the last number of years—by all governments—we see a shift in the delicate balance of this ecosystem. This imbalance and the overpopulation of a predatory species must be addressed before the scope of the problem is too large to handle and the damage to our ecosystem is too great to recover from.

Thank you, and I look forward to all of the comments during this afternoon's debate.

Legislation and policy should be fact based and founded on science. Science has already shown us that cormorants are a normal, fully evolved and integral part of Ontario's natural environment. Their recovery from near extinction is a spectacular good news environmental story and their colonies should be considered one of Ontario's important natural biological assets. Public attitudes about cormorants and other wildlife are changing. The Toronto and Region Conservation Authority has embraced the cormorant colony at Tommy Thompson Park and staff are now teaching visitors about the ecological role and value of cormorants and the other colonial waterbirds nesting there.

We have an opportunity to be leaders in celebrating the return of cormorants to a safe, stable and healthy population level. Bill 205 will be damaging to the environment, to biodiversity and to conservation. It is based on fear and ignorance and we urge all Members of the Parliament of the Province of Ontario to vote against Bill 205.