

WATER LOG

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Birds





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Cover photograph

Credit: Andy Morffew

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• UPCOMING EVENTS •

10.5 U.S. Symposium on Harmful Algae

May 25 – 27, 2021
Virtual Conference

<http://www.ushabs.com>

National Aquaculture Extension Conference

June 8 – 10, 2021
Virtual Conference

<http://bit.ly/naec2021>

Mid-South Agricultural and Environmental Law Conference

June 10 – 11, 2021
Memphis, TN

<https://nationalaglawcenter.org/midsouthcle2021>

The Earth Institute Managed Retreat Conference

June 22 – 25, 2021
Virtual Conference

<http://bit.ly/eimrc2021>

Bye-Bye Birdy?

How the Migratory Bird Treaty Act Works

Kristina Alexander

The mockingbird that wakes you up every morning. The Canada geese that poop all over. The swallows that build a nest on your porch. These birds are all protected under the Migratory Bird Treaty Act (MBTA).¹ The MBTA prohibits killing migratory birds, taking their nests, or selling their eggs or feathers. According to the U.S. Fish and Wildlife Service (FWS), there are 1,093 migratory birds in the United States.² Likely, the bird you hear singing or the one stealing fish from your pond is protected under this act.

Background of MBTA

The MBTA took effect in 1918 following a treaty between the United States and Great Britain (on behalf of Canada). Treaties were also entered with Mexico, Japan, and Russia (under the Soviet Union at the time). The goal of these treaties, and the MBTA, is to restrict the killing of migratory birds whose habitats extend beyond the borders of one country.

It did not take long for a state to challenge the MBTA. In 1920 the U.S. Supreme Court rejected the State of Missouri's argument that the law impermissibly restricted states' right to set rules for hunting.³ The Supreme Court held that states are bound by the law because the MBTA is based on a treaty, and the U.S. Constitution describes treaties (together with the Constitution and laws of the United States) as "the supreme law of the land."⁶

While the Supreme Court made it clear that states had to follow the MBTA, it is still not clear just how restrictive the law is. Its plain language makes illegal all types of harmful behavior:

it shall be unlawful *at any time, by any means or in any manner*, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, offer for sale, sell, offer to barter, barter, offer to purchase, purchase, deliver for shipment, ship, export, import, cause to be shipped, exported, or imported, deliver for transportation, transport . . . any migratory bird, any part, nest, or egg [or product]⁵ (emphasis supplied).

The issue that divides courts is whether unintentionally killing a bird during otherwise lawful behavior violates the act.

The Debate Over Strict Liability

Like all laws, not everyone who breaks the MBTA is charged with violating it. The key step between actions that the MBTA describes as illegal and behavior that actually brings you in front of a judge is enforcement: what violations are charged. Enforcement is conducted by FWS. Some dispute whether MBTA violations can be charged against people who did not intend to kill birds, i.e. whether the act holds people strictly liable or whether there must be intent. FWS maintains that it only enforces where a party was informed of the behavior that would lead to a bird's death and did not take reasonable steps to prevent it.⁶

In 2015 the Fifth Circuit Court of Appeals, which reviews federal cases from Mississippi, Louisiana, and Texas, broke with most precedent which held that a person or a company engaged in hazardous activities leading to bird deaths is strictly liable.⁷ In its decision, the Fifth Circuit instead found that taking or killing under the act was a violation only where there was human control of the take such as via hunting or trapping.⁸ Thus, the court found that an oil company's failure to cover its wastewater tanks as required by federal and state regulations, which led to the deaths of birds, was not an intentional act that was subject to liability under the MBTA.

Prior to that ruling, and not discussed in the court's decision, FWS assessed a \$100 million fine against BP for the 2010 Gulf Oil Spill which killed over a million birds. In 2013, BP admitted guilt for one violation of the MBTA and paid the fine.⁹

FWS Interpretations of Strict Liability

The Fifth Circuit opinion did not end the dispute. Whether the law imposes strict liability has ping-ponged during the

last three presidential administrations. FWS has changed its mind on the issue. Late in President Obama's term the top attorney for FWS, its Solicitor, issued an opinion on January 10, 2017, that said unintentional killing is a violation of the act if the take is direct, but not if it was caused indirectly through, for example, an action that reduced habitat.¹⁰ One of the facts that the Solicitor's Opinion relied on was that the underlying treaties protected more than game birds, therefore hunting was not the only regulated behavior.

On December 22, 2017, the Trump Administration withdrew that Solicitor's Opinion and replaced it with one that found that the law applied only to intentional direct acts such as hunting and trapping.¹¹ According to the new Opinion, so-called incidental takes, where a bird was killed as an unintentional result of an otherwise lawful activity, were not within the scope of the MBTA. The Opinion states that the statute's prohibitions "apply only to affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs." In order to violate the statute, the Opinion says the action would have to be "directed at" killing a bird. An FAQ document issued by FWS at the time gave the example of cleaning a bridge on which swallows were nesting in order to repaint it. If removing swallows nests was a first step before painting the bridge, that was a violation. However, if the bridge was pressure-washed, and swallows nests were removed as a result, that was not a violation because the nests would be "accidentally destroyed incidental to that [cleaning] process."¹² The December 2017 Opinion was withdrawn by the Biden Administration in March 2021, nullifying the accompanying memorandum and FAQs.

The ping-pong match had a second venue in the courts. Environmental plaintiffs and eight states sued claiming the Solicitor's Opinion issued by the Trump Administration and the subsequent memorandum applying that document to agency practice were contrary to law. The court agreed, describing the Opinion as "a recent and sudden departure from long-held agency positions backed by over forty years of consistent enforcement practices. The Opinion is also an informal pronouncement lacking notice-and-comment or other protective rulemaking procedures."¹³ The court found the statute's text was "unambiguous" in requiring strict liability for actions that kill birds "by any means or in any manner" (quoting from the MBTA). The Trump Administration appealed the decision, but the Biden Administration withdrew the appeal before it was reviewed by a court.

Certain Takes Are Allowed

The MBTA regulations authorize some intentional take of birds without liability.¹⁴ Certain military readiness activities and subsistence harvests by indigenous people are excused. Additionally, the regulations allow taking birds in specific circumstances when a permit is issued in advance. The permits are based on species in some cases, such as Canada geese, or for categories of activities, such as for raising and selling waterfowl. The fees vary. Some of the permits are issued without cost, such as to states wishing to control Canada geese, but permits to kill eagles require a \$36,000 fee.¹⁵

Permits to take depredating birds are also available. The term depredating is not defined in the regulations but is based on the common definition of causing plunder. Depredating birds harm things, such as personal property, natural resources, or agriculture, usually when in flocks. In some cases, FWS has issued a Depredation Order, which allows certain people to kill the birds after registering with FWS but without needing a permit. Species for which Depredation Orders are issued include blackbirds, cowbirds, grackles, crows, and Canada geese.

Permits authorize people to take birds causing an injury to crops "or other interests." Four things must be demonstrated to get the permit pursuant to 50 C.F.R. § 21.41(b):

- Where depredations are occurring;
- What crops or other interests are being injured;
- The extent of the injury; and
- The species of migratory bird(s) committing the injury.

Taking Birds Interfering with Aquaculture

When it comes to aquaculture, migratory birds can be a big problem. Birds such as herons and cormorants are known to congregate at aquaculture ponds and live off the immovable feast. In oyster mariculture, such as along the coasts of Alabama and Mississippi, the problem is different. The birds don't eat the oysters, but they rest on the cages and structures of the oyster farms. The bird congregation leads to fouled water due to increased excrement. The bird poop can cause fecal coliform contamination which renders the oysters unsalable until the water quality improves. Killing the birds is against the law. However, FWS could issue MBTA permits to allow the take of fouling waterfowl.

However, it is not clear whether a permitted take of seabirds would offer relief for oyster farmers. It is not an

environment that is easily controlled. More birds would flock in to take the place of the removed ones. Instead, oyster farmers are turning to devices to scare away the birds, from simple zip ties that interfere with bird's ability to land on the cages, to drones and cannons. However, loud displays to chase away birds might lead to oyster farming becoming unpopular along shores. Foreseeably, fewer coastal landowners would want to lease to farms buzzing with drones and bursting with cannon fire. Additionally, many of the fixes require constant human attention, making them financially prohibitive. Others, such as shiny pinwheels or streamers, work only until birds get used to them, and they risk adding plastic pollution to the Gulf.

State Restrictions

People wishing to take birds also must comply with state law. In Alabama, it is prohibited to take anything other than game birds, crows, pigeons, and non-native species without a permit from the Department of Conservation and Natural Resources.¹⁶ Similarly, Mississippi allows killing of certain birds without a permit where they are harming ornamental trees or agriculture.¹⁷ Those birds are: blackbirds, cowbirds, starlings, crows, grackles, and English sparrows. Birds in these two states' rules – cowbirds, crows, pigeons, and grackles – are identified as migratory birds under 50 C.F.R. § 10.13. However, most of those birds are covered under a Section 21.43 Depredation Order that allows killing without a permit when the birds are causing serious injury to agriculture or pose a health hazard. Notably, there is no depredation order for pigeons. It is not clear how Alabama allows taking pigeons consistent with the MBTA without a permit.

Conclusion

For almost all of the 100-year history of the MBTA and for almost all of the enforcement by FWS, killing a migratory bird, even if accidental, may be considered a violation of the act. FWS has discretion in enforcing its violations and chooses to prosecute after providing notice and education of the behavior that is harming birds. At present, while a permit may be available to oyster farmers to target depredating birds that contaminate the water, it appears that oyster farmers are limited in how they control the birds, partly due to the MBTA restrictions but also due to the fact that easy solutions are not available in natural environments. 🐦

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Endnotes

1. 16 U.S.C. §§ 703-712.
2. FWS, *Migratory Bird Treaty Act Protected Species* (10.13 List) (as of March 2020).
It is known as the 10.13 list as it appears at 50 C.F.R. § 10.13.
3. *Missouri v. Holland*, 252 U.S. 416 (1920).
4. *U.S. Constitution*, Art. VI, cl. 2. This provision is known as the Supremacy Clause.
5. 16 U.S.C. § 703(a). The maximum punishment for a violation is \$15,000 and six months in jail. 16 U.S.C. § 707(a).
6. *See* NRDC v. U.S. Department of the Interior, 478 F. Supp. 3d 469, 473-74 (S.D.N.Y. 2020).
7. *See* United States v. Apollo Energies, Inc., 611 F.3d 679 (10th Cir. 2010) (following a wide campaign notifying oil companies of the harm to birds from ventilation pipes, the court held liable the oil company that received notice of the harm as it could have prevented migratory bird deaths by capping the exhaust stacks); *Seattle Audubon Society v. Evans*, 952 F.2d 297 (9th Cir. 1991) (holding that Forest Service did not violate MBTA, as the act did not apply to harming birds' habitat by cutting down trees); *United States v. FMC Corp.*, 572 F.2d 902, 908 (2d Cir. 1978) (finding that dumping highly toxic waste water into an outdoor pond which killed birds violated the MBTA but that such finding "does not dictate that every death of a bird will result in imposing strict criminal liability on some party"). The Eleventh Circuit, which reviews cases from Alabama, Georgia, and Florida has not ruled on the issue.
8. *United States v. CITGO Petroleum Corp.*, 801 F.3d 477 (5th Cir. 2015).
9. FWS Press Release, *BP Deepwater Horizon Oil Spill Settlement Funds Migrate North* (April 27, 2015).
10. Department of the Interior, *Incidental Take Prohibited Under the Migratory Bird Treaty Act*, Solicitor's Opinion M-37041 (Jan. 10, 2017).
11. Department of the Interior, *The Migratory Bird Treaty Act Does Not Prohibit Incidental Take*, Solicitor's Opinion M-37050 (Dec. 22, 2017).
12. FWS, Memorandum from the Principal Deputy Director, *Guidance on the Recent M-Opinion affecting the Migratory Bird Treaty Act* (April 11, 2018).
13. *NRDC v. U.S. Department of the Interior*, 478 F. Supp. 3d 469 (S.D.N.Y. 2020).
14. On May 7, 2021, FWS announced it would revoke the previous administration's regulations that said incidental takes did not violate the MBTA. 86 Fed. Reg. 24573.
15. FWS, *Migratory Bird Permitting Process Fees*.
16. Ala. Admin. Code r. 220-2-.92(1)(d).
17. Miss. Code Ann. § 49-1-39.

Microplastics: They're in the Birds

Jared Feura, Spencer Weitzel, and Mark Woodrey

GUEST EXPERTS

Plastic pollution and its degradation into microplastics has become an increasing concern globally, with estimates of plastics entering the oceans annually in the millions of metric tons. These plastics are then transported and spread by oceanic currents and tides where they can eventually end up in coastal ecosystems such as tidal marshes. Once flooded into the marshes, plastics can be deposited in the sediment and vegetation, where it can further degrade into smaller pieces, and when they reach a size smaller than 5mm, referred to as microplastics. Once microplastics settle into coastal marsh ecosystems, organisms such as marsh birds that live and feed in the marsh may potentially ingest, or swallow, these small particles.

Birds living in aquatic environments have been documented ingesting plastics and microplastics both inadvertently during foraging and purposefully by mistaking them as food items. Since other water-dwelling bird species have been found to ingest microplastics, scientists at Mississippi State University studied birds inhabiting tidal marshes to assess the level of those birds' microplastic ingestion.

Two types of birds were studied: clapper rails (*Rallus crepitans*) and seaside sparrows (*Ammospiza maritima*). Both bird species reside in tidal marshes of the Atlantic Coast and Gulf of Mexico. In the northern Gulf of Mexico these two species spend their entire lifecycle in tidal marsh systems. While both species rely on tidal marshes, they have differing foraging and life-history strategies and are very different in size and body shape. Clapper rails weigh roughly 300g and seaside sparrows weigh only 20g. The differences between these species may result in differing levels of exposure to these microplastics in the water and marsh substrate.

Clapper rails spend much of their lives primarily foraging for fiddler crabs, snails, and other invertebrates; although in winter months when food is scarce, they will also eat dead fish and vegetation to survive. While they often capture food on the marsh surface they also probe into the marsh mud with their elongated bills to capture fiddler crabs and



Credit: Mike Gray

Clapper Rail

other invertebrates. Therefore, clapper rails may swallow microplastics either directly from water or from the mud in which they probe and subsequently ingest. Further, they may be exposed to microplastics indirectly through the prey items they consume that have themselves ingested microplastics.

Seaside sparrows use their short, stubby bills to glean the marsh surface and vegetation for insects like moths, grasshoppers, and spiders. They will skim insects from the surface of both water and mud possibly resulting in the direct consumption of microplastics but likely resulting in fewer microplastics consumed relative to clapper rails. However, they may also fall victim to the plight common to many marine species by possibly mistaking certain microplastics for food items.

The content of these birds' stomachs tells the story of what they are eating. Assessing stomach contents, including microplastics, in birds can be done fairly easily through the procedure of gastric lavage, also called stomach flushing. This non-lethal process involves sliding a small semi-flexible tube down the bird's throat to pass through the bird's crop

Microplastic Sampling Locations Along the Mississippi Coast

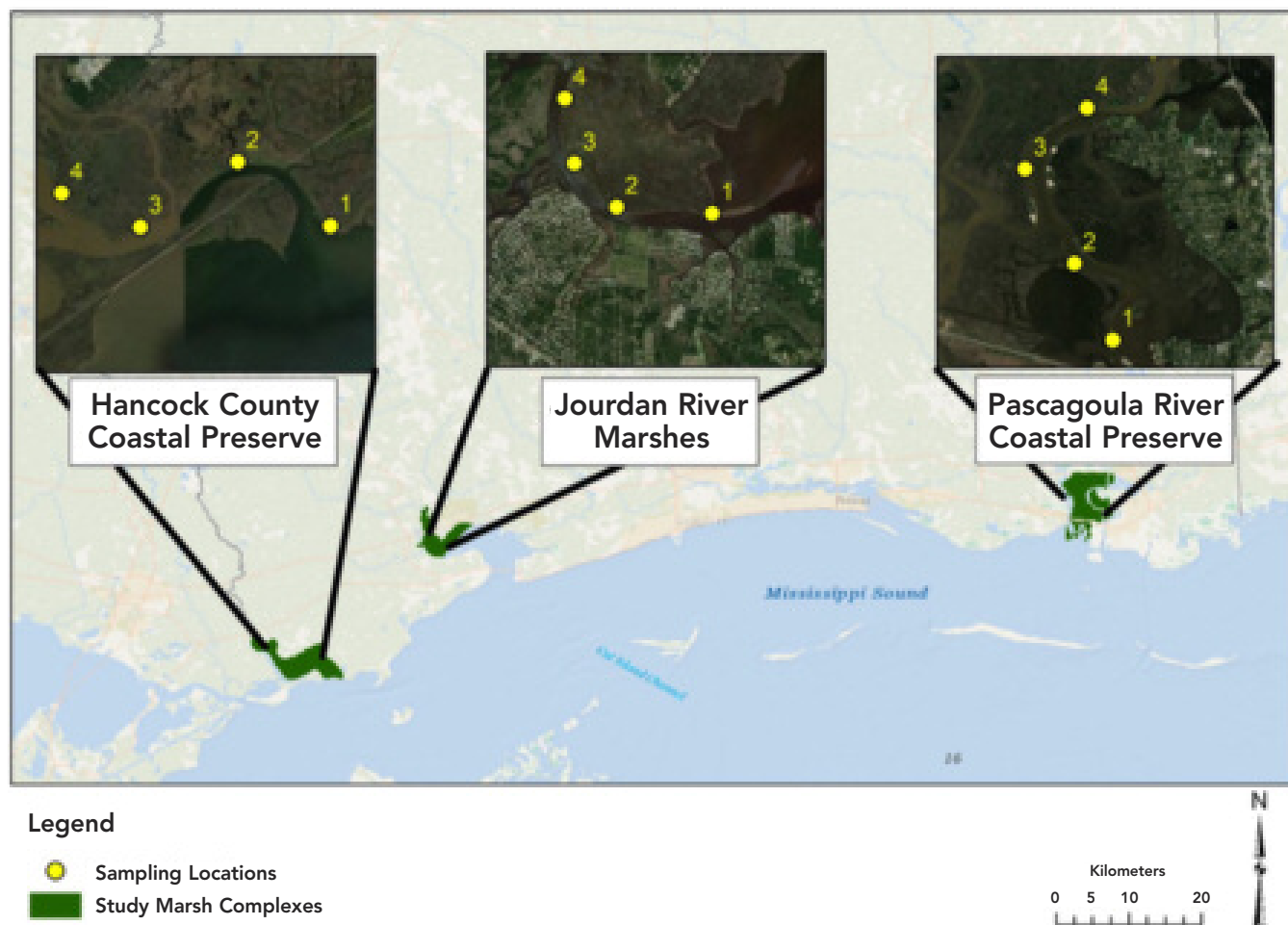


Figure 1: Microplastic Sampling Locations Along the Mississippi Coast
 Spencer Weitzel et al., *Availability and assessment of microplastic ingestion by marsh birds in Mississippi Gulf Coast tidal marshes*, Marine Pollution Bulletin (May 2021).

and gizzard and into their stomach. Once the tube is clearly in the stomach, distilled air-temperature water is pumped slowly and gently into the stomach, causing the bird to regurgitate the water, along with stomach contents into a collection tray. The water and other contents can then be stored for later examination. In almost all cases, the non-lethal gastric lavage is a preferred alternative over lethal methods to assess stomach contents, because the birds can be released unharmed and continue their lives in the marsh.

Clapper rails and seaside sparrows had to be captured to have their stomachs flushed. Birds were caught at three different river-dominated estuarine tidal marshes in coastal Mississippi: the Hancock County Marsh Preserve; the Jordan River Preserve in Hancock and Harrison counties; and the Pascagoula River Marsh Preserve in Jackson County. Each of these marshes had four capture locations with the first point

being located at the mouth of the river on the Gulf of Mexico and the remaining points placed upriver at equal distances (Figure 1). At each of these points, three seaside sparrows and three clapper rails were captured. Additionally, three sediment samples were collected at each site. These sediment samples were meant to represent the abundance of microplastic pieces at each point for comparison across marsh systems and in relation to bird stomach samples.

Clapper rails were caught by luring the birds into nets by [playing rail calls](#) over a speaker. Once the rail was caught in the 9-foot net, it was carefully removed, banded, and measured. Seaside sparrows were captured using mist-nets, a thinner delicate net that is difficult for birds to see, that were set into a 12m long and 2.5m tall line across the marsh. Sparrows were herded and flushed into the nets, then carefully removed, banded, and measured.

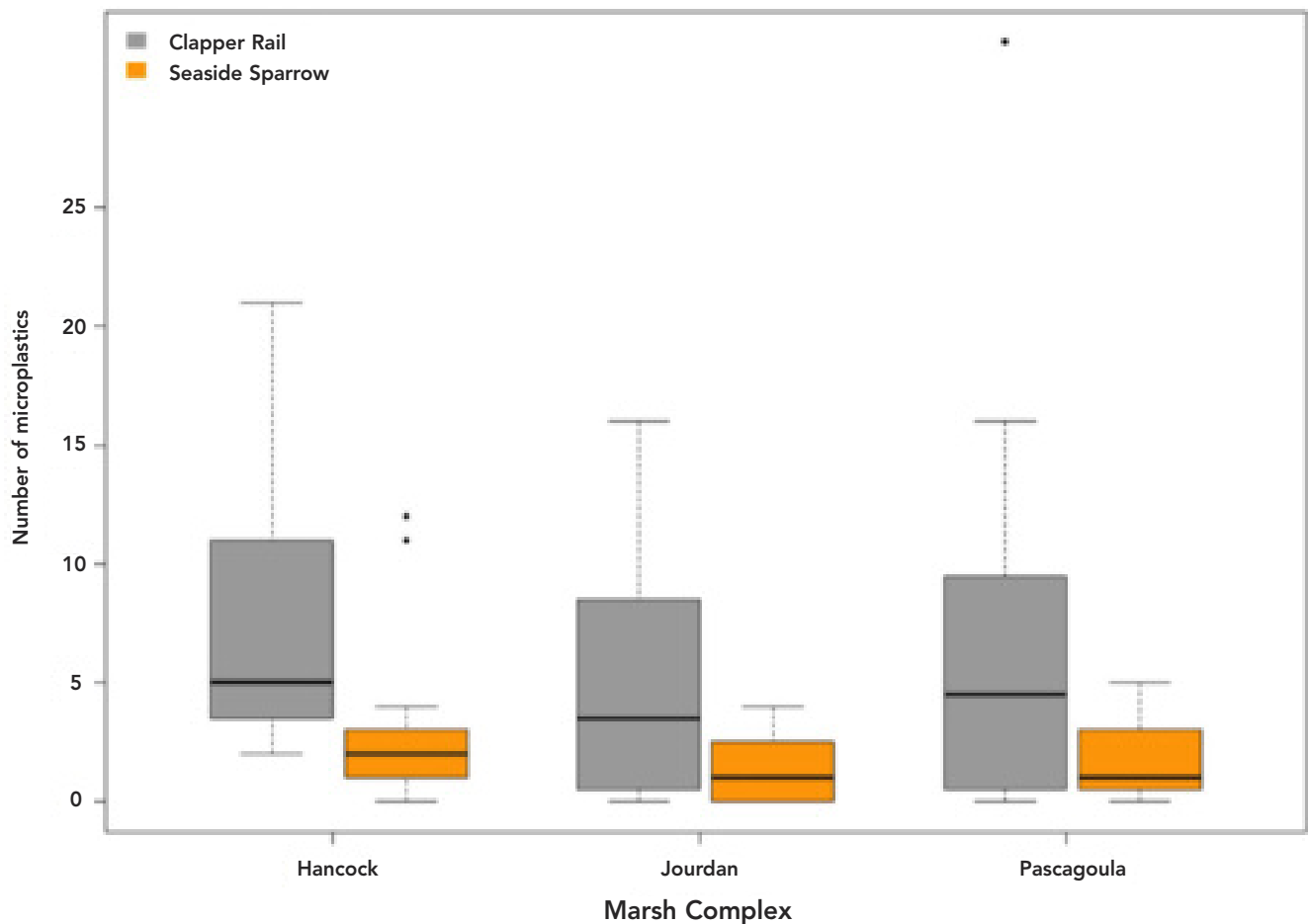


Figure 2: Number of Microplastics by Species and Location

Spencer Weitzel et al., *Availability and assessment of microplastic ingestion by marsh birds in Mississippi Gulf Coast tidal marshes*, Marine Pollution Bulletin (May 2021).

After being banded and measured, rails and sparrows had their stomachs flushed. Stomach and sediment samples were processed to remove organic material and other non-plastics to allow for easier counting and categorizing of microplastic pieces into their four categories: beads, fibers, films, and fragments. Once the microplastic pieces were isolated, the samples were examined using a microscope to count the number and type of microplastics in each sample.

Microplastics were detected in 63% of all sediment samples, 83% of clapper rail samples, and 69% of seaside sparrow samples. In stomach samples where microplastics were present, an average of 6 microplastic pieces were found in clapper rails and an average of 2 were found in seaside sparrows, with one clapper rail sample containing over 30 pieces of microplastics. On average, clapper rail stomach samples also contained more microplastic pieces than seaside sparrows (Figure 2). In these bird species, nearly all the microplastics detected were fibers, with only 2%

being fragments. The sediment samples showed no significant difference in microplastic concentration between sites or sampling locations at each site. This also resulted in no relationship between microplastic concentrations in sediment to the bird stomach samples collected at each site.¹

While clapper rail stomach samples had a higher percentage containing microplastics than seaside sparrows, the explanation for these results are still uncertain. These results could be due to a difference in foraging strategy or stomach volume between the two species. Another possibility is that microplastics present in the stomach may simply be passing through the digestive tract and haven't had enough time to be evacuated. Clapper rails are capable of regurgitating pellets containing crab and snail shells, and would likely move some microplastics out with the shells and other undigested material. Seaside sparrows, however, are not capable of regurgitating pellets, and would likely only be able to pass microplastics through their entire digestive system, to be finally expelled through feces. If so,



Seaside Sparrow

these samples may not represent total microplastics consumed, and they may be more representative of a bird's ability or inability to purge microplastics from their systems.

The presence of microplastic in the birds' stomachs indicates that species like seaside sparrow may be at future risk, should environmental microplastic concentrations increase, if they are mistakenly consuming microplastics that appear to be food items. When too many plastics are ingested, they may become lodged in the digestive system creating blockages and causing damage or provide a feeling of satiation with no caloric value; or both problems may occur. Severe instances of either scenario could ultimately lead to a bird's starvation. This phenomenon is seen in larger seabirds, such as albatross, and with plastics larger than 5mm.

These results set a baseline for evidence of microplastic ingestion by these two tidal marsh species. However, the direct effects of these levels of microplastics on clapper rails and seaside sparrows are still unknown. While detrimental effects of microplastic ingestion on these birds may be minor or non-existent currently, the increase in plastic pollution in the environment and its potential settlement in tidal marsh systems in the coming years may continue to increase ingestion rates to hazardous levels. While this project is not currently continuing, plans to improve and expand upon this work in the future would include collecting more samples in addition to capturing birds throughout the year. 🐦

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Endnotes

1. Spencer Weitzel et al., *Availability and assessment of microplastic ingestion by marsh birds in Mississippi Gulf Coast tidal marshes*, Marine Pollution Bulletin (May 2021).



IN SUM.

A Summation of the Facts and Figures of Interest in this Edition

★ Number of U.S. birds FWS lists as migratory:	1,093
★ Number of wildlife bridges and crossings on I-75 in Alligator Alley, FL:	60
★ Average number of pieces of microplastic found in Mississippi clapper rails' stomachs:	6
★ Percentage of seaside sparrows captured having ingested microplastic:	69%

Bycatch:

Fishing Practices Threaten Seabirds in the Gulf

Jacob D. Hamm

Bycatch is the unintentional, and often unknowing, taking of non-target fish and marine life due to contact with fishing gear and fishing boats. The federal government has taken steps to reduce seabird bycatch in America's fisheries, but regional fishery management councils have focused primarily on bycatch of fish, sea turtles, and marine mammals rather than birds. Failure to comply with existing bycatch statutes and regulations threatens seabird populations and is also a statutory offense punishable by law. The bycatch prevention methods currently employed by fisheries have led to a reduction in national seabird bycatch numbers over the last thirty years.¹ However, if the regional fishery management councils adopt more stringent methods of bycatch prevention, they will be in compliance with requisite legislation and better protect the nation's seabird populations.

Types of Bycatch

Trawling (dragging large nets behind one or more boats to harvest fish), longlining (a long line of baited hooks attached to a boat), and use of underwater crab traps are popular fishing practices in the Gulf of Mexico that cause seabird bycatch. Birds often become ensnared in trawl nets while diving to eat fish caught in the trawl. Birds also suffer broken bones by unintentionally striking trawl warps, lines, and wires. Injured seabirds settle on the water when they are unable to fly. If a bird is unable to fly, it will eventually either starve or drown. Likewise, birds often become hooked or caught in longlines while diving to eat fish off the lines when they are being pulled in or when they are being soaked. The greatest danger for seabirds with longlines is when the lines have just been baited and are being put into the water. Birds try to eat the bait, are hooked, and then drowned as the lines sink. Seabirds dive to eat crustaceans and bait out of underwater crab traps. Once in the trap, the birds are unable to escape and ultimately drown.

Bycatch Laws

The United States has enacted statutes and entered into international treaties to protect birds. For example, in 1996 Congress amended the Magnuson-Stevens Fishery Conservation and Management Act (MSA) National Standards for Fishery Management Plans to include National Standard 9, codified as 16 U.S.C. § 1851(a)(9), requiring fishery management councils to consider the bycatch effects of existing and planned conservation management measures. In 2007, Congress enacted the Bycatch Reduction Engineering Program as an amendment to the MSA. This required regional fishery management councils to establish local bycatch reduction programs "based upon the best scientific information available." These programs were meant to incentivize compliance with bycatch regulations by setting bycatch quotas, promoting use of gear proven to lower bycatch rates, and implementing measures that will reduce bycatch and seabird interactions within fisheries.

While the 2007 amendment to the MSA addressed bycatch in general, it also specifically addressed seabirds, requiring the National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce to improve information and technology to reduce seabird bycatch. The amendment authorized NOAA to undertake projects with members of the fishing industry to establish outreach programs, contact international fishing organizations, and initiate projects to mitigate seabird mortality. It also required NOAA to transmit an annual report to the Senate describing the improvements and reductions in seabird bycatch, as well as new proposals to address remaining bycatch issues.²

The MSA amendments require fishery management councils to include in their fishery management plans methods of calculating bycatch, fishing practices that will minimize bycatch, and incentives for fishers to employ fishing practices

that result in less bycatch. They also require the councils to implement measures that will minimize the bycatch mortality of marine mammals and seabirds. NOAA promulgated regulations for National Standard 9 in 50 C.F.R. § 600.350, defining bycatch and requiring fishery management councils to consider economic and environmental impacts when establishing bycatch standards.

Bycatch requirements have been the basis for lawsuits by conservation groups. In *Pacific Marine Conservation Council, Inc. v. Evans*, a coalition of conservation groups brought suit against NOAA under the Magnuson-Stevens Act.⁴ The coalition alleged that an amendment the National Marine Fisheries Service (NMFS) adopted for the Pacific Coast Groundfish Fishery Management Plan violated MSA requirements for fishery management plans to establish a standardized reporting methodology to assess bycatch and include conservation measures to minimize bycatch. According to the plaintiffs, NOAA failed to adopt a method for assessing bycatch of any form and did not adopt two bycatch reduction methods shown to be valid. The federal district court held that NOAA's dismissal of the valid bycatch reduction methods and failure to add a bycatch assessment method to the amendment violated the MSA. The court returned the amendment to the agency for redrafting in order to comply with the MSA.

Statutes that Prohibit Harming Birds

In addition to bycatch laws under the MSA, seabirds are protected broadly by statutes that prohibit the taking of certain bird species. Both the Endangered Species Act (ESA) and the Migratory Bird Treaty Act (MBTA) may serve as alternative causes of action in cases regarding seabird bycatch. Additionally, NOAA regulations at 50 C.F.R. § 600.350(e) require regional management councils to consider other applicable laws such as the ESA and the MBTA in order to fully comply with the National Standards.

The MBTA is a law which resulted from a series of treaties. In 1918, the United States entered a formal agreement with Great Britain, which acted on behalf of Canada, to ensure the protection and preservation of migratory bird species shared by the two countries. Other treaties comprising the MBTA are with Mexico, Japan, and the Soviet Union (on behalf of Russia). The law makes it unlawful to hunt, kill, take, trade, ship, or transport migratory birds, migratory bird nests, and migratory bird eggs.⁵



Every time a migratory seabird is caught in a Gulf of Mexico longline without a permit, it is a violation of the MBTA. For example, there are frequent reports of brown pelican bycatch in the Gulf of Mexico.⁶ Both brown and white pelicans are migratory birds, and, unless a permit was issued beforehand, any bycatch that includes the pelican is a violation of the MBTA.

In *Turtle Island Restoration Network v. U.S. Department of Commerce*, conservation groups brought action against NOAA Fisheries and the U.S. Fish and Wildlife Service (FWS) alleging illegal take of birds under the MBTA.⁷ The conservation groups alleged that FWS violated the MBTA by issuing “special permits” to the local longline fishery for the bycatch of migratory birds without demonstrating a “compelling justification” required for such a permit to issue under 50 C.F.R. § 21.27(a). FWS argued that the special permits were necessary because closure of the fishery would result in increased catch by foreign longline fleets who did not follow bycatch mitigation practices. The court noted that the MBTA made it unlawful to kill or take a migratory bird by any matter or method, even if it was unintentional. The court found that bycatch did not fit the exceptions under the MBTA for permitted takes, and nullified the permit.

In 1973, Congress enacted the Endangered Species Act to conserve endangered species and protect the ecosystems that they depend on. Under 16 U.S.C. § 1532, the ESA defines species as “endangered” (a species in danger of extinction) or “threatened” (a species that is likely to become endangered). FWS is responsible for the protection of terrestrial and freshwater organisms under the ESA, while NOAA Fisheries oversees the protection of marine life. The ESA works by prohibiting the hunting, taking, sale, transportation, or possession of endangered species.

Conservation groups in Hawai'i used the ESA in conjunction with the MSA to challenge a rule that they feared would increase seabird bycatch in a fishery. In *Conservation Council for Hawai'i v. National Marine Fisheries Service*, conservation groups alleged that a recently enacted quota-shifting rule would increase bycatch of non-target and endangered species, including seabirds.⁸ The new rule allowed NMFS to shift set percentages of the national longline fishery bigeye tuna catch limit in the form of fishing quotas to vessels based in the United States or other territories. The court noted that the quota-shifting rule required an annual review process wherein NMFS and the local fishery management council could take corrective actions in order to meet the conservation needs of non-target stock and protected species such as migratory seabirds. The conservation groups failed to show how this yearly assessment of the quota-shifting rule violated either the MSA or the ESA, and so the court upheld the new rule.

Proposed Solutions to Seabird Bycatch in the Gulf

There are a plethora of methods and protocols that can be implemented to reduce seabird bycatch in Gulf fisheries and ensure compliance with federal law. The first step in reducing bycatch is mandatory reporting and data collection for all instances of seabird entanglements in Gulf fisheries. NOAA's Southeast Pelagic Observer Program is currently the only organization that consistently monitors seabird bycatch in the Gulf. This group focuses solely on the nation's pelagic longline fleet, and it does not collect data on the other seven fisheries.⁹ An increase in data collection and bycatch monitoring would allow the management councils to better assess the amount of bycatch that is actually taking place and implement more effective bycatch reduction methods.

A second method of reducing bycatch in the Gulf is to adopt more bird-friendly fishing practices. Bycatch of birds can be reduced in longline fisheries by using "bird scaring lines" (a line that is covered with streamers and connected to a buoy that is towed behind the boat) and "weighted lines" (lines that rapidly sink so as to limit the amount of time on the surface). Deploying streamers on boats (similar to those in longline fisheries), using sirens when pulling in nets to scare away birds, decreasing the amount of time nets are above water, and maintaining clean nets are all methods to reduce seabird bycatch when trawling.

For traps, it is a best practice to ensure all old bait is removed and that the trap is left open so that diving birds have a way to escape.¹⁰

A third method of bycatch reduction for the Gulf is to establish mandatory bycatch limits for each fishery. This method is more complex than others because it requires extensive individualized research for each fishery, as well as a formal rulemaking process under the MSA to amend the existing fishery management plans. Groups such as Oceana, Inc., argue that a bycatch cap based on scientific data should be set for every fishery, and that the fishery should close for the season once its bycatch limit is reached.¹¹ While bycatch limits would force fisheries to stay below a set number of bycatch instances a year, there are conflicting studies as to whether bycatch limits are feasible for fisheries with thousands of vessels, such as the shrimp fishery in the Gulf of Mexico.¹² 🐡

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Endnotes

1. Lee R. Benaka, et al., *U.S. National Bycatch Report First Edition Update 3*, NOAA, p. 29 (NMFS-F/SPO-190 2019).
2. 16 U.S.C. § 1865.
3. 16 U.S.C. § 1853.
4. *Pacific Marine Conservation Council v. Evans*, 200 F. Supp. 2d 1194 (N.D. Cal. 2009).
5. 16 U.S.C. § 703(a).
6. Lee R. Benaka, et al., *U.S. National Bycatch Report First Edition Update 3*, NOAA, p. 30 (NMFS-F/SPO-190 2019).
7. *Turtle Island Restoration Network v. U.S. Dept. of Commerce*, 878 F.3d 725 (9th Cir. 2017).
8. *Conservation Council for Hawai'i v. National Marine Fisheries Service*, 154 F. Supp. 3d 1006 (D. Haw. 2015).
9. NOAA Fisheries, *Southeast Pelagic Observer Program*.
10. American Bird Conservancy, *Seabird Bycatch Solutions for Fishery Sustainability*, at 35-42 (2016).
11. Amanda Keledjian, et al., *Wasted Catch: Unsolved Problems in U.S. Fisheries*, Oceana, Inc., p. 39 (March 2014).
12. Sandra L. Diamond, *Bycatch quotas in the Gulf of Mexico shrimp trawl fishery: Can they work*, *Reviews in Fish Biology and Fisheries*, p. 227 (2004).

City Planning for Birds

Stephen Deal

To become more environmentally resilient, cities have pursued a wide range of policy actions. Many of these actions, such as land conservation and stream buffers, are implemented to preserve key natural features and keep human settlement away from critical habitats. The natural world is inherently dynamic, and there are countless situations where human settlement and natural habitat are one and the same. Birds, for example, frequently nest in artificial structures and small animals such as opossums and frogs are a common sight in urban neighborhoods. If cities are to become effective stewards of the environment, they should preserve more than pristine natural wilderness. They should also facilitate natural movement of wildlife over different types of terrain and land cover. To succeed in this undertaking, planners need to change their mindset. Rather than perceiving the city as an artificial construct with no redeeming environmental value, planners must strive to understand the city as a dynamic and ever-changing natural realm, home to many different flora and fauna.

A History of Urban Environmental Change

How does one define a city? In the recent past, the modern mind was predisposed to viewing the city as something distinct from the natural world. Famous modern architect Le Corbusier likened the city to a “living machine” and his Radiant City concept prioritized ordered symmetry and mechanical standardization.¹ Over the past few years as environmental concerns have become more prominent, a different concept of city life has emerged. Rather than understanding the city as a giant machine, many prominent thinkers have noted that human settlement patterns have strong parallels within natural systems.² For example, beaver dams and coral reefs are highly complex and intricate and they share a common trait with cities: namely they serve to reorganize existing natural components in a way that is advantageous to an individual species. From this standpoint, a city becomes less of an artificial construct and more of an



Credit: Tim Lumley

extension of the natural world. By understanding cities as arising from nature rather than standing apart from it, local planners can better devise policies that facilitate natural change and increase biodiversity.

So, if cities are an extension of the natural world, it should follow that the growth and development of a city should have direct impacts on the type of flora and fauna found within a city. In Charleston, South Carolina the historic significance of the black buzzard in the city’s growth and development is a good indicator of how cities affect the natural ecology of a region. Prior to the development of modern city sewer systems, Charleston was a popular gathering place for these large birds. The birds were especially prominent around the butcher stalls located on Market Street.³ Though buzzards are not prized for their beauty they had value to the residents of 19th century Charleston because of the useful city service they provided. When butchers in the city had to dispose of bone, gristle, or fat they would simply toss the discarded remains into the street to become a meal for the buzzards. The value of these birds was such that there was a fine of five dollars for killing a buzzard.

All this changed in the late 1910s, however, when the U.S. Public Health Service prohibited the open-air disposal of meat. Further sanitary improvements in Charleston, such

as the screening of butcher stalls and the installation of a city incinerator, ended up depriving the birds of their daily meal, so naturally the birds opted to fly elsewhere for food.

The Value of Monitoring

To quantify environmental change within a city, it is important to have organizations that can engage in ecosystem monitoring. Monitoring enables local governments to perceive the rate of environmental change and determine whether the larger urban ecosystem is trending in a positive or negative direction. While it is not practical to monitor every natural attribute that occurs in a city, there are a number of natural indicators municipalities can rely upon as broad measures of environmental health.

One basic monitoring tool cities can use is a tree inventory. Trees are an important indicator of environmental health for a number of reasons. Trees serve as habitat for animals, they improve air quality, and they can act as buffers to inclement weather such as hurricanes. One good example of a tree inventory in action occurred in 2015 when researchers funded by the Mississippi-Alabama Sea Grant Consortium partnered with the communities of Long Beach and Pass Christian, Mississippi, and Fairhope and Orange Beach, Alabama to identify and count trees within these communities.⁴ Using the Department of Agriculture's i-Tree program, researchers and volunteers inventoried plots within the selected communities. In addition to the tree inventory, the research team also created a mail-out survey that was sent to 2,000 residents to determine the type of value individual residents assigned to trees. Data collected found that over 70 percent of coastal residents were supportive of preserving waterfront open space and their willingness to pay for preservation ranged from a low of \$80 to a high of \$162.

Another environmental indicator cities can rely upon is birds. As a unique class of animals, birds offer a number of distinct advantages for environmental monitoring. One strong reason for monitoring birds is that birds respond to environmental changes in a predictable manner.⁵ For example, a wide variety of birds and bird species indicates a natural area that is high-quality habitat and rich in biodiversity. A study in the Central Appalachian Mountains found a high correlation between the quality of the forest habitat and the variety of birds found in the habitat.⁶ Using a Bird Community Index Score, which was worked out based

on the different bird types present, researchers were able to note a shift from specialist species to generalist species when a natural habitat was degraded.

The other important quality of birds as an environmental indicator is that there are many avid hobbyists and bird watching groups cities can partner with to monitor bird migration and habits. The Tucson Audubon Society organizes an annual bird count.⁷ Individual volunteers are assigned to a 1-kilometer site within the region. Once the sites have been assigned, each volunteer chooses a day during the bird count to travel to all the count locations within the site area. Volunteers will spend between 5 and 10 minutes at each site counting birds and marking down the quantity of each species heard and seen. In the year 2015, the bird count recorded 359,265 individual birds belonging to 188 distinct species. Of these 188 species, 170 of them are known to nest in the Tucson area.

Bird count data also helped inform research on the different ecosystem thresholds needed for a wide range of species to thrive. Using bird count data gathered from 2001-2003, researcher Will Turner determined that some species need a higher percentage of desertscrub cover to approach natural occurrence rates.⁸ Using bird count data, the researcher singled out two bird species, Gambel's quail and pyrrhuloxia, whose observed responses showed a high sensitivity to habitat cover. For those two species, it was determined that the minimum amount of desertscrub land cover needed was 10-15%. While this percentage sounds low, it is well above the mean desertscrub cover of the central Tucson region, which is 5.8%. From these observations, the research suggested that modest increases in desertscrub cover at the local and landscape level could restore the presence of some native species. From a local policy perspective, this research suggests that regional biodiversity could be improved through small-scale habitat restoration in spaces like private yards, gardens, and public right-of-ways.

Mitigation Strategies to Accommodate Natural Patterns

With successful monitoring in place, the next step to undertake is mitigation. One mitigation measure implemented by many states is a wildlife crossing. As the term implies, wildlife crossings are either bridges or underpasses that can be used by animals to safely cross roads to other habitats. While many of the largest wildlife crossings have been developed in western states like Washington and Arizona,⁹

this practice has been applied in coastal regions as well. In Florida, 60 wildlife crossings and bridges were installed along a segment of Interstate 75 known as Alligator Alley.¹⁰ These crossings, coupled with miles of exclusionary fence, help facilitate safe passage for large animals such as alligators and panthers. Also, by developing wildlife crossings, policy professionals are able to understand the passage preferences of certain species. An analysis of older wildlife passages by researchers with the Western Transportation Institute determined that black bears and cougars preferred smaller structures with less light and grizzly bears and wolves preferred the larger, open structures.

A wildlife crossing is a costly venture which might be too expensive for small communities. Fortunately there are other mitigation strategies communities can explore to accommodate the movement of animals. One valuable resource municipalities can consult when looking for alternate mitigation strategies is a planning document developed by the City of Edmonton, Alberta. In 2010, Edmonton developed design guidelines for constructing wildlife passages.¹¹ These guidelines go into immense detail about the movement of different species and outline many unique policy suggestions. The policy suggestions outlined within the document may be broadly delineated into two categories: retrofits made to roads and highways to accommodate animal life and retrofits made to natural corridors to facilitate safe wildlife passage. Signs that light up when animals are present and noise barriers that keep artificial sounds to a minimum are some examples of mitigation options cited in the document that can lessen transportation impacts on wildlife. For natural corridors, mitigation strategies are often focused on minimizing the impact of artificial structures on riparian corridors such as rivers and streams. For example, cities can improve the quality of riparian habitat connectivity by retrofitting large culverts through the addition of natural substrate. The presence of natural substrate helps facilitate the movement of aquatic life through the culvert. Transportation engineers can also opt to include multiple culvert cells, with one cell serving as a low flow channel, while other cells remain dry except during storm events to provide additional passage for animals.

Also, much like the bird count research conducted in Tucson, the Edmonton design guidelines identify certain thresholds, either natural or urban, that signify impediments to wildlife migration. Roads, which are one of the primary barriers to natural movement, are shown to be total barriers

to wildlife when they approach 10,000 vehicles per day. By comparison, local roads with traffic under 2,500 vehicles a day are generally not a problem for terrestrial animals. By using traffic count numbers as a guide, local planners can target city mitigation strategies on heavily trafficked corridors where wildlife impediments are at their greatest.

Conclusion

Open space preservation is an important, and necessary, component of environmental planning. However, it is not the only component needed to foster a culture of natural resilience. Accommodation is also a valuable strategy cities must consider when improving their relationship to the natural world. Accommodation entails recognizing the interplay between human settlement and natural change and migration. This interplay between cities and the natural environment is ever-changing which is why monitoring key environmental indicators is important. Through careful monitoring, cities can assess their environmental health and develop mitigation strategies that improve biodiversity and facilitate positive natural change. 🐾

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Endnotes

1. Scarlett Miao, *Future Cities: From Le Corbusier's Radiant City to the Dutch "Breathing City" 2050*, ArchDaily (Feb. 7, 2021).
2. Charles Whitaker, *The Beaver and the Coral Reef*, Medium (May 4, 2020).
3. David S. Shields, *Evicting the Eagles*, Charleston Magazine (Dec. 2015).
4. Tara Skelton, *Volunteers Inventory Gulf Coast Urban Forest*, Mississippi-Alabama Sea Grant Consortium (Sept. 1, 2015).
5. Jacob Hill, *Birds as Environmental Indicators*, EnvironmentalScience.org (2021).
6. Timothy J. O'Connell, et al., *Bird guilds as indicators of ecological condition in the central Appalachians*, Ecological Applications, 10(6): 1706-1721 (Dec. 2000).
7. Douglas Kreutz, *Tucson Bird Count: Citizen scientists at work*, tucson.com (April 27, 2016).
8. Will Turner, *Interactions Among Spatial Scales Constrain Species Distributions in Fragmented Urban Landscapes*, Ecology and Society (Dec. 2006).
9. Allen Best, *Keeping Hoofs Off Hoods*, Planning Magazine (March 2017).
10. Florida Fish and Wildlife Conservation Commission, *Wildlife Crossings*.
11. Stantec Consulting, *Wildlife Passage Engineering Design Guidelines*, City of Edmonton (June 2010).



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