

## A Hope for Conservation

In my home country, we didn't see much wildlife. The occasional deer or pheasant wandering across the field adjacent to our house was enough to spark excitement in my family. In Europe, 18% of vertebrates and 24% of invertebrates are threatened with extinction, while dozens of other species have already disappeared. This massive decline was caused by hundreds of years of unsustainable land exploitation. The European Union has done its best to reverse this loss, but the damage has already been done. This was the reality that my parents and I were used to...until we moved to Kentucky. Suddenly I found myself in a place where deer are a garden nuisance, where bears surprise unsuspecting hikers, where hummingbirds dash between suburban woodlots, and where nature seems to have retained much of its wild vigor. In Kentucky, there is hope for the fantastic array of wildlife and the ecosystems they inhabit to be preserved for future generations. Although it's too late for some, like green-blossom pearly mussels and Bachman's warblers, it's crucial that people take action to ensure that other species don't go down the same path.

One of the most important ways that wildlife can be preserved is through habitat conservation. Organisms cannot survive without the place and conditions that have shaped their evolution, because their adaptations only work for those conditions. Habitat conservation is preserving certain types of habitat in order to preserve the species that depend on it. Today, many habitats in Kentucky have been degraded by pollution, mining, clearcutting, agriculture, urban sprawl, alterations to natural water flow, and invasive species. The destruction of habitat has had a widespread and noticeable impact on Kentucky. Runoff from mining operations and dam construction caused native mussels to decline rapidly. Destruction of prairies and milkweed plants crashed populations of the monarch butterfly. Invasive feral pigs outcompete turkeys and

small mammals for food. This is why it's important to conserve the remaining pieces of healthy habitat by protecting them from these threats. State and federal action has been taken to conserve habitat by setting aside areas to be protected (ex: Jefferson Memorial Forest), but in a state where 95% of the land is privately owned, the importance of landowners in habitat management cannot be understated.

Habitat conservation is essential, but it's not enough to indefinitely support Kentucky's wildlife. Currently, only 7% of the state is protected land. And while half of Kentucky's land area is forested, most of these forests are small, disjunct woodlots consisting mostly of edge habitat. Edge habitat is prone to invasion by exotic species, and doesn't provide the stable conditions required by many organisms. Furthermore, some habitats have been almost completely destroyed, such as prairies and wetlands. There simply isn't enough of these habitats left to support the unique organisms that depend on them. That is why there needs to be habitat restoration. There are multiple ways to go about this. One of these is forming wildlife corridors. Wildlife corridors are strips of habitat that are created to join natural areas with each other. This is important because many patches of habitat in Kentucky are too small to provide enough resources for some species, and their disjointedness makes it difficult for migratory animals to travel. Linking together these bits of habitat effectively creates a web of nature that allows species to successfully forage and migrate.

Another method of habitat restoration is the restoration of natural processes. For example, fire was an essential component of Kentucky's landscape, and maintained large tracts of prairie throughout the state. However, fire suppression by European settlers caused most of these prairies to develop into closed-canopy woodland, thereby eliminating the open grassland habitat necessary for wildlife like the elk and greater prairie chicken. Returning fire to the landscape

would help restore these habitats. In Eastern Kentucky, Native Americans used fire for thousands of years to maintain grasslands and savannas, in order to support elk. When settlers arrived, they not only stopped this fire regime and let the grasslands turn to forest, but extensively hunted the elk. Unsurprisingly, elk were soon extirpated from the state. Yet, for the last twenty years, Kentucky Fish and Wildlife has been prescribe-burning land reclaimed from mining operations to support elk reintroduction. Originally, 1,500 elk were brought in from western states. Now, 10,000 elk roam the mountains of Kentucky, proving the importance of fire in habitat restoration.

The discussion on habitat restoration would not be complete without mentioning native plants. Being autotrophs, native plants are the foundation of all local ecosystems, and restoring habitat often starts with restoring them. For many insects, their habitats *are* the native plants themselves. Take the case of the endangered monarch butterfly. Their whole life cycle revolves around a single genus of plants: the milkweeds. When milkweeds declined because of human activity, so did monarchs. When conservation agencies encouraged people to plant milkweeds, monarch population increased. This rather simple way of restoring habitat via native plants is extensively discussed by entomologist Douglas Tallamy in his book, *Bringing Nature Home*, and is an important strategy for supporting wildlife in suburban areas.

Although Kentucky has changed drastically since the arrival of settlers, much of the indigenous fauna has persisted to this day. However, threats to the state's rich animal diversity have not only increased, but become more numerous with time. Wildlife conservation—through the protection and restoration of habitat, and restoration of native vegetation—is the only logical path forward. Ignorance of this matter would spell disaster not just for the animals themselves, but for Kentucky's environment as a whole. Similarly, we cannot treat habitat management as purely the responsibility of conservation agencies, as Kentucky is almost entirely private

property. It's imperative that everyone takes steps to support wildlife conservation, whether it's by incorporating native plants into their landscapes or advocating for the protection of wild areas. It's our responsibility, as stewards of this state, to ensure a biodiverse and sustainable future for the next generations by preserving land and *keeping it wild*.

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