

# A history of earth's mass extinctions and the involvement humans have in the latt...

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## **AP Environmental Science Research Paper: The Sixth Mass Extinction**

The world is experiencing its sixth mass extinction, and it appears the humans are the perpetrators. In the past, mass extinction has been the product of volcanic eruptions, glacial movements, and asteroid impact. This time however, habitat destruction, anthropogenic climate change, and overpopulation are the primary outlets through which humans are causing damage. Is this reason to be worried though? Efforts to quell human-caused extinction would be incredibly expensive, so determining whether or not action is necessary is the first step.

The extinction crisis is vividly illustrated in the fish population. Fisheries are huge drivers of human driven extinction and are thinning the number of fish in the ocean at a rapid pace. The United Nations estimate that 32 percent of global fisheries are “overexploited,” or recovering from past depletion, and 53 percent of global fisheries are “fully exploited.”(Global Issues in Context Online Collection). When humans fish faster than the fish can reproduce and repopulate, they thin the population of the fish. This practice could ultimately end in extinction of the targeted species.

In some areas, fisheries have depleted the fish populations so much that they must push their operations into deeper water to find a denser population of fish. Deep water fish are not as plentiful as coastal fish and if they begin to feel the side effects of overfishing the ocean ecosystem could be in serious trouble; “More than one-third of global fishing now occurs in waters more than 200 m (656 ft) deep. Many deep-water fish are more

vulnerable to unsustainable fishing practices. These fish populations tend to be smaller, and sizable deep-water species take many more years to mature than most coastal fish species” (Global Issues in Context Online Collection). If deep water fish begin to become endangered and possibly extinct the loss of that species from an ecosystem could set off a troublesome chain reaction. This chain reaction could bring endangerment or even extinction to species that are not even targets of fishers. To end the overfishing epidemic the world’s nations will need to come together to develop new regulations and laws on overfishing and will need to work together to enforce the new regulations and laws.

Author Ron Wagler, in his journal *The Anthropocene Mass Extinction*, warns readers that if humanity continues down its current path, many of the benefits of biodiversity will be jeopardized. Wagler explains that members of an ecological community rely on each other, so losing one to extinction will have a domino effect on the rest of the ecosystem and ultimately humans. While the mass extinction at hand is yet to reach the level of the previous five, current rates project that it could reach that level in 240 to 540 years. If we want to avoid certain destruction, Wagler estimates humans have a generation’s time to act.

As affirmed by Wagler, obviously human caused species extinction is a problem. Unfortunately, the dangers that come with a loss of biodiversity will not be an immediate threat. Since there are other, more-current issues, the public may put the issue of human-caused extinction on the back burner. Therefore, there would need to be a major shift in public opinion in order for

the issue to be addressed. The innate short-mindedness of humans does not bode well for any hope to stop the species extinction.

According to writer David Biello's *Extinction Can be Stopped*, humans are indeed capable of reversing extinction. For example, black-footed ferrets were brought back with only seven ferrets. Biello claims we must strengthen conservation efforts to aggressive levels if we want to stop the mass extinction. He specifically emphasizes the necessity to relocate species in response to climate change. Conservation efforts will largely depend on how humanity decides to address climate change because the current treatment is not enough. He also advocated for the substitution of similar species in the place of extinct species. Ecosystems can be restored if the role of the extinct species is filled in. Humanity's outlook is interesting, Biello argues, in that unlike previous extinctions, we have a degree of control of our future.

There's still time for change, as taught by Biello. Be that as it may, there is no time for complacency. Unfortunately, the public disbelief and opposition of anthropogenic climate change slows down the mission. With how toxic the current political climate is, we must temper our expectations. Too drastic of an effort risks permanent objection to any rectification attempts. We can infer from Biello's commentary that a shift in public opinion regarding the impact humans have on climate change is vital to combating mass extinction. Recognizing that this may be unlikely, we now know ending the extinction is possible. By practicing some of the the methods Biello recommended, like species-substitution, we can limit the extent to which an ecosystem is affected by the extinction of a particular species.

Perhaps humans need some extra motivation to take action. Well, according to Russell Mclendon's 6 Things to Know about Earth's Sixth Mass Extinction, humans are not exempt from the crisis. The current rate of climate change could set humans back millions of years, in fact, humans would likely die off in the early stages. Humans are at risk because "civilization remains reliant on healthy ecosystems for food, water and other resources". The risk posed to humans should be at the forefront of any effort to end the extinction because of our inherent nature to act in our own best interest. If the movement can appeal to the egocentric side of people, it's more likely public support shifts in its favor.

In *Can We Stop the Sixth Mass Extinction*, author Robert Coburn identifies leadership as the key to conservation efforts. Ending the mass extinction would require global cooperation, which is a task that will likely face resistance. A strong leader will make or break the fight against mass extinction. Coburn preaches the need for a self-motivated leader that is concerned with the future of our ecosystem. Today's leadership lacks motivation due to a combination of political apathy and polarization. Society naturally is more concerned with tasks at hand compared to those of the future, which in turn worsens the conditions for our subsequent generations. Of course embracement and advancement of practices like rewilding and de-extinction must occur, but this is impossible without proper leadership.

Coburn's argument cannot be ignored if we hope to reverse the mass extinction. Such a daunting task cannot proceed without the type of leader Coburn describes. While an individual of such admirable character certainly

exists, it's unlikely they will ever reach a position of power. Even if they do, it is unthinkable that they would act against the wishes of their constituents. Strong leadership is absolutely essential to the process, but a mobilized society plays an even bigger role. Assuming the United States would lead the way, the President would captain the expedition. Being that the United States is an indirect democracy, an effective leader would need the support of the public to get elected. As aforementioned, Americans largely are unconcerned with how they are affecting the mass extinction. Therefore, a candidate running on a platform about the extinction faces an extremely uphill battle in getting to the White House.

Concession: Humans may be the driving force behind the 6th mass extinction, but humans also have created and developed several different technologies and programs to stop the process of extinction. With the rate that all technology has been developing recently it is not a far fetched idea to say that humans could possibly find a way to faze human-driven extinction out of the circle of life once and for all.

Human driven extinction is the depletion of a species directly or indirectly caused by humans and human activity. Human activities that are most responsible are overhunting, overfishing, destruction of habitat and pollution. Over hunting and fishing are large problems with simple solutions. However, even though the solution is quite forefront and simple, carrying out the solution is the tricky part. Even so, the impact of overhunting and overfishing cannot be understated: “ A team of 19 scientists from around the globe has concluded that overfishing and overhunting have had far worse effects on

coastal marine habitat than pollution or global warming.” (Weiss).

Overhunting and overfishing are big problems because they eliminate species, which throws off the food chains in ecosystems putting stress on other species. This offset in the food chain can be detrimental to an ecosystem and its inhabitants. The loss of a keystone species in an ecosystem could trigger a chain reaction that endangers or eliminates all other species in said ecosystem. In today’s world when an animal is deemed “endangered” the remaining animals in the species are kept under close watch and laws are put in place to protect the animal. Humans have become familiar with this experience since it happens so often. The ability to keep species out of extinction while they are on the brink of extinction is essential for humans in the battle for conservation and is one humans have mastered. Human driven extinction can only be stopped if humans drastically change their lifestyles and habits. Changes such as; limiting pollution, limiting hunting and fishing, limiting habitat destruction and displacement.

For humans to make these changes, it must make sense economically for any progress to be made. The common denominator in habitat destruction, pollution, poaching, and overfishing is economic benefit. So if helping the environment, limiting hunting, fishing and habitat destruction can gain economic benefits, they could become attainable. The most likely situation is that pollution, habitat destruction, overhunting, and overfishing will reach such extreme levels that they will not remain profitable. For example, hunters could over hunt so much that species die out, thus eliminating any economic benefit. Alternatively, new regulations that make the

aforementioned behavior economically irresponsible could encourage businesses to practice more sustainable methods. In conclusion, eliminating human driven extinction is not out of the realm of possibilities. With that in mind, imposing regulations on our most detrimental practices seems like the most effective way to discourage destructive behavior economically.

In the end, human caused extinction can be stopped. But will it? Most likely, no. The need for public support was ultimately too steep to for the effort to gain backing. Coupled with the political backlash from imposing regulations, it became clear that the mission was too dependent on long-term benefits that appeared economically risky. Without the leadership of the United States, there is virtually no chance any other countries tackle the global initiative. Humans should expect to feel the consequences of their inaction, but to what extent remains unknown. Humans are innovating at an exponential rate, so it would be naive to declare civilization doomed by the sixth mass extinction. We can only hope that technology advances fast enough that we can replace the growing number of species absent from their ecological role.