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CS120G
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Group #1
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Group Thesis Statement

Conservationists should prioritize saving keystone species in their efforts to prevent the extinction of endangered species because they have a dramatic impact on many other species within their ecosystem.

Keywords

Endangered species, extinction, habitat loss, ecosystem, food web, keystone species, conservationist, biodiversity hotspots, habitats, saving species, biotic communities, conservation status, IUCN red list, population, America, priority

Group Summary

An endangered species refers to any species that due to a loss of habitat or rapid decrease in population is at risk of going extinct. These drivers of extinction are predominantly a result of human activities, the most damaging of which are the increase in commercial agriculture, logging, and infrastructure development leading to habitat loss. Additionally, extinction tends to have a domino effect on the ecosystems it occurs in as the organisms within it are all interconnected in a complex food web, so the loss of one species can quickly result in the decline and eventual loss of another. This domino effect will gradually spread throughout the entire ecosystem and possibly into other ecosystems resulting in their eventual collapse.

We are currently experiencing the sixth mass extinction event in the Earth's history. A mass extinction event is when a vast number of species are at risk of or are going extinct at the same time. To cope with the sheer number of endangered species they are faced with saving, conservationists have developed a system called the IUCN Red List. The list tracks the number of endangered species and ranks each species according to its likelihood of going extinct. A variety of factors are used to determine this likelihood including overall increase or decrease in population over time, breeding success rates, and known threats. The IUCN Red List is an invaluable tool that helps conservationists organize the ever-growing number of endangered species.

Unfortunately, the sheer number of at-risk species means that it is impossible to save all of them. Therefore, conservationists must find a way to prioritize which species to save. One option is to focus conservation efforts on keystone species, which are organisms that have a particularly large influence over their environment. The presence of keystone species influences the number and type of species present in their ecosystem, thereby enabling them to maintain the basic structure of the ecosystem. Loss of a keystone species means upsetting the delicate balance of an ecosystem and the eventual loss of the entire ecosystem. However, preventing keystone species from going extinct means that the ecosystem has a better chance of continued survival.

Rebuttal

While saving keystone species is the best way to prioritize saving endangered species, some individuals argue that protecting biodiversity hotspots is the best way to prioritize saving endangered species. Biodiversity hotspots are places on earth that are biologically rich in many kinds of living species, yet threatened by industrialization, pollution, climate change, and more. Individuals feel that since these spots have tons of endangered species, they should be protected first. Conservationists and individuals in charge of protecting, and saving wildlife possess a limited budget when it comes to saving, and protecting endangered species. This makes it difficult for them to protect biodiversity hotspots as it is extremely expensive. It is easier for conservationists to prioritize keystone species. For conservationists, it is projected to cost around "$70 billion dollars," to protect and save biodiversity hotspots. This is an issue, as their annual budget is roughly "$42.3 million dollars." It is much easier to find the most keystone species to our environment and start with them as it is more in the budget. Study shows that "in 1990, nearly $30 million was spent on just four species." Showing that focusing on a smaller number of keystone and valuable species is where conservationists should start in the long journey of protecting and saving endangered species. Saving biodiversity hotspots is too big to accomplish currently in society and conservationists need to start smaller, so they can actually make a difference.

Preliminary Outline

Introduction

Thesis Statement:

Conservationists should prioritize saving keystone species in their efforts to prevent the extinction of endangered species because they have a dramatic impact on many other species within their ecosystem.

Body:

I. Finding out what animals have the greatest chance to go extinct (Amari Browne Johnson)
- The most important and valuable species; what needs more attention
- Giant Pandas, Leatherback Sea Turtles, Snow leopards, African Elephants
- Identifying the role Humans have played in the decline of these species and habitats

II. The importance of keystone species in their ecosystems (Kyle Bennett)
- Ecological Balance
- Population Control
- Examples of Keystone Species

III. Conservation Status (Logan Bell)
- Conservation Listings/Rankings (IUCN Red List)
- Factors used for to establish the Conservation Status (Overall increase or decrease in population over time, breeding rates)

IV. Preventative measures for the Endangered Species in America (Kendra Blount)
- The Endangered Species Act
- Endangered Species in North America

V. Rebuttal (by: Rylie Barbee)
- The huge price difference between prioritizing keystone species and protecting biodiversity hotspots.
- Yet the thesis stands.

VI. Conclusion: Saving keystone species is the best way to prioritize saving endangered species as it is cheaper and more effective.

References

Fisheries, N. (2020). Endangered Species Act. Retrieved February 5 from https://www.fisheries.noaa.gov/national/endangered-species-conservation/endangered-species-act#:~:text=The%20Endangered%20Species%20Act%20of,habitats%20both%20domestically%20and%20abroad.

Freedman, B. (2014). Keystone Species. 5, 2469-2470.

Gibbo, Ann. (1992). Mission Impossible: Saving all Endangered Species. Science; Washington, *256*(5062), 1-2. Retrieved February 06, 2023, from https://www.proquest.com/scholarly-journals/mission-impossible-saving-all-endangered-species/docview/213547235/se-2

Page, J. (2017). When Deciding Which Endangered Species to Prioritize, What Role Do Biodiversity and Ecosystem-Level Assessments Play? In (pp. 1). Center for Progressive Reform. Retrieved January 25, 2023, from https://progressivereform.org/cpr-blog/when-deciding-which-endangered-species-to-prioritize-what-role-do-biodiversity-and-ecosystem-level-assessments-play/

The Cost of Biodiversity. (2012). The Cost of Biodiversity. Science, *338*(6104), In (pp. 177). Retrieved February 06, 2023, from DOI: 10.1126/science.338.6104.177-a

Wilson, B. A., Evans, M. J., Gordon, I. J., Pierson, J. C., Brockett, B. M., Wimpenny, C., . . . Manning, A. D. (2023). Roadmap to recovery revealed through the reintroduction of an IUCN Red List species [Article]. *Biodiversity &*

Conservation, ***32***(**1**), **227-248. Retrieved February 05, 2023, from**

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