Conservation Of Bears: Polar Bear, Giant Panda, Brown Bear, Sloth Bear, Sun Bear, Spectacled Bear, American Black Bear, And Asian Black Bear

Executive summary:

Introduction: This report aims to research the ecology of bears and their conservation under the context of taxonomy. In the taxonomy, the family of bears species is belonging to Ursidae and there are eight types of bears existing in the world, which are a polar bear, giant panda, brown bear, sloth bear, sun bear, spectacled bear, American black bear, and Asian black bear. The method to study the knowledge of bears is mainly relying on the internet.

Finding: There are two sections to describe finding: (1) the research of the ecology of bears (including bears' appearance, population, distribution, and diet); and (2) the conservation of bears (including bears' conservation status, threats, and conservation method).

Conclusion: Different bears have different characteristics, while they also have some commons from appearance, diets, population and threat situation. Besides, most of the bears are suffering endanger affected by human activities, but people are trying to implement solutions to prevent it.

Implication: Bears data is dynamic so that people should find the source as the latest as possible. When people finding sources from the Internet, it is necessary to consider if the website is reliable. Besides, reading books and visiting zoos also are useful ways to research knowledge of bears.

1. Introduction

1.1. Background

a), Taxonomy and bear species

Taxonomy is a method to help people to identify and classify different organisms in the world. "All organisms, both living and extinct, are classified into distinct groups with other similar organisms and given a scientific name" (www.basicbiology.net, 2019). The most contributor for taxonomy inventing is Carl Linnaeus with his book Systema Naturae (The System of Nature), which classified nature in a hierarchy, which included domain, kingdom, phylum, class, order, family, genus as well as species, respectively.

Bear family is classified to Ursidae in the taxonomy and there are totally eight species of bear still existing in the world, which are polar bear (Ursus maritimus), giant panda (Ailuropoda melanoleuca), brown bear (Ursus arctos), sloth bear (Melursus ursinus), sun bear (Helarctos malayanus), spectacled bear (Tremarctos ornatus), American black bear (Ursus americanus) and Asian black bear (Ursus thibetanus), respectively.

1.2. Purpose for the report

In this report, it aims to describe knowledge of ecology and conservation of different types of bears. Ecology means the relationship between organisms and their environment. Therefore, this report will involve bears' appearance, population, distribution, diet, threats, and conservation situation. Besides, it will show the method of how to collect these data and give some recommendations.

2. Method

[bookmark: OLE_LINK329][bookmark: OLE_LINK330]In this report, the main findings are cited on the Internet. These resources come from different famous and authoritative organisations, including the National Geographic, the World Wide Fund for Nature (WWF), the SeaWorld & Entertainment, the ICUN, and the Bear Conservation. The reason for choosing them is these organisations did lots of contributions to natural protection and have deeper knowledge and experience about bears. When searching for resources, it is also considering if the sources are dated, academic or related to the report.

3. Ecology of Taxon

3.1. Bears' appearance

In these eight types of bears, their common characteristics of appearance are they are large body size with small round ears and a short tail. From the graph 1, the first bear is brown bear, which fur is not fully dark brown. Besides, some brown bears' colours of fur can be different varying with areas. The second bear is polar bear and their fur is white-off, which is similar to snow colour. Therefore, their fur colour can help them hide in the snow to forage. The third one is sloth bear and its fur is black and "V" or "Y" shape of white fur on the chest. Sloth bear also has long fur and mane around their face. The number 4 and 5 bears both have different colours fur in on their chest, which is Asian black bear and sun bear (Bear Conservation, 2015).

For number 6, It is American black bear and their fur colour is various, including white, blonde, and cinnamon, etc. The rest of the two bears are spectacled bears and giant panda and they both have two colours of fur. Spectacled bear fur is black and cream colour patches on their muzzle, chest and around eyes, while giant panda is white and black, which black part of fur includes their eyes, ears, shoulders, and arms.

3.2. Bears' population and distribution

According to World Wide Fund for Nature (WWF) data, there are at least 600,000 American black bears in Northern American and around 200,000 brown bears distributed to European, Asia, Western Northern American, and Morocco. American black bear and brown bear ranked the largest population from all eight types of bears and that is the reason why they are not concerned in the threatened species. However, the third-largest population is the polar bear, which has only around 25,000 to 31,000 living in the Arctic circle. The population of polar bears only exists one twenty comparing with the American black bear. Concerning the population of sloth bear and spectacled bear, they are both under 20,000 now. Sloth bear lives in India, the Southern lowland of Nepal and Sri Lanka. People found that spectacled bears mainly distribute

to northern and western South America and little bears located in eastern Panama. The least population from bear species is giant panda, which mainly spread in China and just over 2000 in 2013, but the population of the giant panda is recovering gradually every year. The difference between the largest population of bears and the least population of bears is huge. The two largest population bears (American black bear and brown bear) have a wider area distribution than other bears, which also have some benefits to their population.

Besides, there is no accurate data for the population of Asian black bears and sun bears. Asian black bear located in various countries, which across the whole Asian from Southern Asian to eastern Asian. Therefore, people are hard to calculate all of the Asian black population. The situation of sun bear living place is too poor to take research so that it directly affects the measurement of its population for researchers.

3.3. Bears' diet and feeding

The polar bear is carnivore animals and in the top of food chain, which means poplar bears like eating other animals. SeaWorld & Entertainment researched that "Polar bears feed mainly on ringed and bearded seals. Depending upon their location, they also eat harp and hooded seals and scavenge on carcasses of beluga whales, walruses, narwhals, and bowhead whales". Polar bear needs lots of energy through feeding to resist cold weather and seals are a high energy resource for polar bears. To the giant panda, although polar bear and giant panda are both carnivores, the giant panda is more likely an herbivore. Alina (2019) indicated that "one adult giant panda can eat around 12.5kg bamboo every day". Eating meat is easier to digest than eating bamboos for panda but bamboos also can offer enough energy to panda. Will, (2015) argued that the "giant panda is downright miserly in the amount of energy it expends daily and thanks to low levels of physical activity and low levels of thyroid hormones". Except for giant panda, spectacled bear mainly eats vegetation and meat only occupies about 5 to 7% in their diet.

The rest of the bears including brown bear, sloth bear, sun bear, American black bear as well as Asian bear are all omnivores, which means they not only eat animals but also eat plants. Except for sun bear primarily eat ants or termites, other bears have much common food diets, like eating grasses, honey, fish, carrion and fruits. These bear diets normally depend on their habitat. For instance, the bears who live near the river will eat fish relative frequently.

4. Conservation of Taxon

4.1. Bears' threat situation

a), Conservation status

According to graph 1, it is seven different levels of conservation status from the ICUN red list. "The IUCN Red List of Threatened Species is the world's most comprehensive inventory of the global conservation status of plant and animal species. It uses a set of quantitative criteria to evaluate the extinction risk of thousands of species" (ICUN Red List, n.d.). People can through the conservation status of a species to know if it is endangering and need to protect them. Graph 2 indicated the current eight bear species conservation status and population situation. From eight types of bears, American black bears and brown bears are both the degree of least

concern in conservation status and the rest of them are vulnerable. Moreover, there are four types of bear species population (sun bear, sloth bear, spectacled bear, and Asian black bear) that are still decreasing and their conservation status is vulnerable. Therefore, most of the bears are in a threat situation and some of the threat situations continue to get worse. It is a certain degree to show that people need to take more actions to protect bears and prevent them to be extinction. However, the giant panda population is increasing, which reflects that protection also works.

b), Threats

Habitat loss is the main reason caused bear population loss. As the population of humans increasing, people have to use more land for living and getting more resources. Thus, original bear habitats are replaced by human constructions led to bears do not have enough place to live. “Increasingly bears throughout the world are facing human encroachment into their habitat, be it in the form of housing development, industry, logging, agriculture, road-building or tourism” (Bear Conservation, 2019). Moreover, there are several reasons causing bears decreasing affected by humans, including bile bears, dancing bears, trophy hunting. Firstly, some people will utilise bear bile to produce medicine, which is called bile bears or battery bears. Secondly, some people will capture bears (normally is a sloth bear) to be a dancing bear. Dancing bear means a bear trained by people to dance in the street to earn money. “During the Middle Ages, dancing bears were a common and popular form of street entertainment throughout Europe and Asia” (Bear Conservation, 2019). For the trophy hunting, it is a competition to hunt bears or other animals.

Besides, the low birth rate for bears directly affects the population of the bear. Normally, there are only 1 to 3 cubs were born for each bear at a time and they will gap several years to reproduce again. After the industrial revolution and steam power was invented, it accelerates the emission of carbon dioxide. Carbon dioxide trapped solar energy on the earth so that it will cause global warming. Global warming will melt ice in the Arctic. Ice can help polar bears forage seals because seals are hard to be captured in the sea. Thus, global warming will make polar bears difficult to get food resources and increase mortality.

4.2. Bears’ conservation

Recently, lots of countries have made some laws to protect bears. “An indigenous community reconnects with its heritage by working to end hunting and promote bear-watching in Columbia’s Great Bear Rainforest” (Krista, 2017). Making laws is an effective way to warn and prohibit some behaviours of people in society. A series of activities affecting bear species loss is due to lack of official laws to restrain people, like trophy hunting, deforestation and bear bile producing. Some laws are voted by the public so that people are more willing to obey them. Besides, once laws published, people have to obey it or otherwise they will be punished by the police.

people’s awareness of protecting bears is stable increasing as time goes by. ICUN Red List of Threatened species can be useful to let people know the current conservation status of bears. People can know what animals are in danger in recent years. It is like a warning alarm to remind people that they need to start protecting bears. Besides, some organisations also attract volunteers to protect bear species. WWF organisation offered some courses to teach pupils

about nature knowledge and encourage them to protect animals (WWF, 2018). By teaching students some nature knowledge to improve their awareness of natural protection.

5. Conclusion

5.1. Conclusion

In conclusion, different bears have common and different things. To bears appearance, they all have round ears and a short tail, while they also have different fur colours. Their difference in population and distribution vary widely. The population of brown bears and American black bears is several times higher than the rest of the bears and they also distributed in various places. From the eight types of bears, most of the bears are omnivorous, except for carnivorous polar bears. These omnivorous bears all like to eat fruits, grasses, honey, fish, and carrion, while the giant panda mainly eats bamboo and sun bear primarily eat ants or termites. All bears are vulnerable in the ICUN Red List, apart from brown bears and American black bears are the least concern. The most two key points of conservation methods are making laws and improving public awareness.

5.2. Limitation and recommendation

During finding data, it will be limited by the lack of the latest sources because bear data is swiftly changed as time goes by. Besides, some bears living in the extremely hard places affected people to take research, like polar bear living in a cold environment and sun bear living place is too poor. The recommendation is as far as possible to find the latest sources and reliable website.

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