

Global Historical Distribution Range of Brown Bear (*Ursus Arctos*)

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Abstract : Brown bear (*Ursus arctos*), a member of the family Ursidae, is distributed in a wide range of habitats in North America, Europe and Asia. Suspectedly, the global distribution range of brown bears is decreasing at the moment due to various factors. The carnivore species is categorized as 'Least Concern' globally by the IUCN Red List of Threatened Species. However, there are some fragmented, small populations that are on the verge of extinction, as is in Pakistan, where the species is listed as 'Critically Endangered', with a declining population trend. Importantly, the global historical distribution range of brown bears is undocumented. Therefore, in the current study, we reconstructed and estimated the historical distribution range of brown bears using QGIS software and also analyzed the network of protected areas in the past and current ranges of the species. Results showed that brown bear was more widely distributed in historic times, encompassing 52.6 million km² area as compared to their current distribution of 38.8 million km², resulting in a total range contraction of up to approximately 28 %. In the past, a total of N = 62,234 protected Areas, covering approximately 3.89 million km² were present in the distribution range of the species, while now a total of N= 33,313 Protected Areas, covering approximately 2.75 million km² area, are present in the current distribution range of the brown bear. The brown bear distribution range in the protected areas has also contracted by 1.15 million km² and the total percentage reduction of PAs is 29%.

Keywords : brown bear, historic distribution, range contraction, protected areas

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