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# Pragmatic management increases a flagship species, the Himalayan brown bears, in Pakistan's Deosai National Park

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### Abstract

Deosai Plateau in Northern Pakistan was designated a national park to protect the largest remnant population of brown bears in Pakistan. The natural resources of this high elevation (3500–5000 m) park make a significant contribution to the livelihood of local and nomad communities. The present legislation excludes people from a park, which increases conflicts between management and local people. However, a pragmatic approach was adopted to involve people in conservation in Deosai. Community participation, achieved by recognizing rights and introducing incentives, reduced resistance against the conservation efforts, reduced grazing pressure in bear habitat and helped reduce poaching. The size of the brown bear population was set as an indicator of park success, and was monitored annually from 1993 through 2006. We observed a 5% annual growth of the brown bear population, suggesting that the conservation program

has been successful due to a successful cooperation between an NGO, people, and the park management.

The increase of the bear population is significant, because we observed an extremely low reproductive rate, due to late age of first reproduction (8.25 years), a long reproductive interval (5.7 years), and a small litter size (1.33). The reproductive rate of the Deosai population is the lowest yet documented for brown bear populations. Poor habitat quality, low quality food, high seasonality, and extreme weather conditions in the Himalaya probably explain the poor reproductive performance. Considering such low reproduction and known exchange of individuals with neighboring populations, we believe that the observed growth was a sum of reproduction and immigration. Brown bears are declining throughout South Asia and often have low-productive rates. Therefore, conservation efforts for brown bears in this region must target reducing human-caused mortalities, particularly of adult females. Involvement of people can increase efficiency in conservation, in addition to reducing cost and conflicts.



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## Keywords

Demography; Pakistan; Population growth; Protected area; Reproduction; *Ursus arctos*

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