

Coexistence and Conservation of Sympatric Large Carnivores in Gir Protected Area, Gujarat, Western India

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Abstract : Gir Protected Area (PA) is home to two sympatric large carnivores, the Asiatic lion and the common leopard, which share the same habitat. Understanding their interactions and coexistence is crucial for effective conservation management. From 2009 to 2012, we studied the availability and consumption of prey by these two carnivores to understand the dynamics of their interactions and coexistence. Ungulates provided approximately 3634.45 kg/km² of prey biomass, primarily composed of chital (ca. 2711.25 kg/km²), sambar (ca. 411.78 kg/km²), and nilgai (ca. 511.52 kg/km²). Other prey included peafowl (75.76 kg/km²) and langur (ca. 158.72 kg/km²). Both carnivores prioritized chital as their key prey species. The diet of Asiatic lions was predominantly composed of ungulates, with biomass contributions of chital (301.14 kg), sambar (378.75 kg), and nilgai (291.42 kg). Other prey species, such as peafowl and langur, contributed 1.36 kg and 2.40 kg, respectively, to the lions' diet. For leopards, the diet also heavily relied on chital (311.49 kg), followed by sambar (44.03 kg) and nilgai (172.78 kg). The biomass of other prey species in the leopards' diet included peafowl (2.08 kg) and langur (36.07 kg). Both species were found to primarily utilize teak-mixed forest, followed by riverine forest and teak-acacia-zizyphus habitats. The similarities in diet composition and habitat use indicate competition between these sympatric species. This competition may require one predator species to bear certain costs for the benefit of the other, which can influence conservation and management strategies. Effective conservation strategies are necessary to ensure the long-term survival of both the Asiatic lion and the common leopard equally and to maintain ecological balance in Gir PA.

Keywords : large carnivores, Gir PA, coexistence, resource utilization

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