

Comparison of Home Ranges of Radio Collared Jaguars (*Panthera onca* L.) in the Dry Chaco and Wet Chaco of Paraguay

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Abstract : The Chaco Region of Paraguay is a key biodiverse area for the conservation of jaguars (*Panthera onca*), the largest feline of the Americas. It comprises five eco-regions, which holds important but decreasing populations of this species. The last decades, the expansion of soybean over the Atlantic Forest, forced the translocation of cattle-ranches towards the Chaco. Few studies of Jaguar's population densities in the American hemisphere were done until now. In the region, the specie is listed as vulnerable or threatened and more information is needed to implement any conservation policy. Among the factors that threaten the populations are land-use change, habitat fragmentation, prey depletion and illegal hunting. Two largest eco-regions were studied: the Wet Chaco and the Dry Chaco. From 2002 more than 20 jaguars were captured and fitted with GPS-collar. Data collected from 11 GPS-collars were processed, transformed numerically and finally converted into maps for analyzing. 8.092 locations were determined for four adult females (AF) and one adult male (AM) in the Wet Chaco, and one AF, one juvenile male (JM) and four AM in the Dry Chaco, during 1,867 days. GIS and kernel methodology were used to calculate daily distance of movement, home range-HR (95% isopleth), and core area (considered as 50% isopleth). In the Wet Chaco HR were 56 Km² and 238 km² for females and males respectively; while in the Dry Chaco HR were 685 Km² and 844.5 km² for females and males respectively, and 172 Km² for a juvenile. Core areas of individual activity for each jaguar, were on average 11.5 Km² and 33.55 km² for AF and AM respectively in the Wet Chaco, while in the Dry Chaco were larger: 115 km² for five AM and 225 Km² for an AF and 32.4 Km² for a JM. In both ecoregions, only one relevant overlap of HR of adults was reported. During the reproduction season, the HR (95% K) of one AM overlapped 49.83% with that of one AF. At the Wet Chaco, the maximum daily distance moved by an AF was 14.5 Km and 11.6 Km for the AM, while the Maximum Mean Daily Moved (MMDM) distance was 5.6 km for an AF and 3.1 km for an AM. At the Dry Chaco, the maximum daily distance for an AF was 61.7Km., 50.9Km for the AM and 6.6 Km for the JM, while the MMDM distance was 13.2 km for an AM and 8.4 km for an AF. This study confirmed that, as the invasion to jaguar habitat increased, it resulted in fragmented landscapes that influence spacing patterns of jaguars. Males used largest HR that of the smaller females and males covers largest distances that of the females. There appeared to be important spatial segregation between not only females but also males. It is likely that the larger areas used by males are partly caused by the sexual dimorphism in body size that entails differences in prey requirements. These could explain the larger distances travelled daily by males.

Keywords : Chaco ecoregions, Jaguar, home range, *Panthera onca*, Paraguay

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