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# AUGMENTATION OF NATURAL PREY REDUCES CATTLE PREDATION BY PUMA (*PUMA CONCOLOR*) AND JAGUAR (*PANTHERA ONCA*) ON A RANCH IN SONORA, MEXICO

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**ABSTRACT**—Retaliatory killing of large carnivores due to livestock predation is one of the major threats for the conservation of many declining populations of predators. According to empirical observations, there is a higher incidence of livestock predation when native prey abundance is low. In this study, we applied a treatment consisting of augmentation of prey abundance by translocation of peccaries (*Pecari tajacu*) and placement of four feed stations for white-tailed deer (*Odocoileus virginianus*) on a cattle ranch in Sonora, Mexico, with verified calf predation by puma (*Puma concolor*) and jaguar (*Panthera onca*). We quantified and compared consumed prey over two periods—phase I (8 months before the augmentation of prey) and phase II (8 months after the augmentation of prey)—through investigation of kill sites from Global Positioning System-collared jaguar and puma, prey identification from analyzed scat using molecular DNA techniques, and opportunistic discoveries of recently killed animal remains by either predator. We calculated the relative abundance of species (17 mammals [one species with two distinct age classes] and 1 bird species) through camera traps and for the most relevant prey species for this study (deer, calf, and peccary), we also estimated prey use by the predator, based on their availability during each period (prey preference). In the prey composition analyses of scat, we observed a significant reduction in the consumption of bovids and a significant increase in the consumption of peccaries during phase II. In the analyses of prey use, during phase I, predators consumed peccaries and calves at a higher proportion in relation to their availability. During phase II, consumption of calves declined from being preferred, to being consumed at the same proportion as their availability. Application of these results can contribute to the decrease of livestock predation and therefore conservation of pumas and jaguars.

**RESUMEN**—La matanza de grandes carnívoros por venganza debido a la depredación del ganado, es una de las principales amenazas para la conservación de muchas poblaciones de depredadores que están en declive. Según observaciones empíricas, existe una mayor incidencia de depredación del ganado cuando la abundancia de presas nativas es baja. En este estudio, aplicamos un tratamiento que consistió en aumentar la abundancia de presas mediante la translocación de pecaríes (*Pecari tajacu*) y la colocación de cuatro estaciones de alimentación para venados cola blanca (*Odocoileus virginianus*) en un rancho ganadero en Sonora, México, con depredación verificada de becerros por puma (*Puma concolor*) y jaguar (*Panthera onca*). Cuantificamos y comparamos las presas consumidas durante dos períodos—fase I (ocho meses antes del aumento de presas) y fase II (ocho meses después del aumento de presas)—a través de la investigación de sitios de caza del Global Positioning System—jaguar y puma con collares, identificación de presas a partir de heces colectadas y su análisis utilizando técnicas de ADN molecular, y hallazgos oportunistas de animales recientemente cazados por cualquiera de los depredadores. Calculamos la abundancia relativa de especies (17 mamíferos [una especie con dos clases de edades diferentes] y una especie de ave) a través de cámaras trampa y para las especies de mayor relevancia para este estudio (venado, becerro y pecarí), también estimamos su uso por parte del