

Traits and Ramifications of the African wild Dog

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Commentary

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ABOUT THE STUDY

The African wild dog (*Lycaon pictus*) is a wild canine native to Sub-Saharan Africa. It is also known as the African painted dog and the African hunting dog. It is Africa's largest wild canine and the sole existing member of the *Lycaon* genus, which is characterised from *Canis* by a highly specialised dentition for a hypercarnivorous diet and the lack of dewclaws. About 6,600 adults (including 1,400 mature individuals) are thought to dwell in 39 subpopulations, all of which are endangered by habitat fragmentation, human persecution, and disease outbreaks. The African wild dog has been categorised as endangered on the IUCN Red List since 1990, with the biggest group likely containing less than 250 individuals.

The species is a diurnal antelope hunter that captures them by chasing them to exhaustion. Lions and spotted hyenas are its natural enemies: the former would kill the dogs if they can, while hyenas are regular kleptoparasites. The African wild dog regurgitates food for its young, as do other canids, but it also does it for adults as part of the pack's social life. The young are allowed to eat carcasses first. Although it is not as well-known in African folklore or culture as other African predators, it was revered by various hunter-gatherer civilizations, including the predynastic Egyptians and the San.

Among the canids, the African wild dog has the most specialised adaptations for coat colour, food, and pursuing prey with its cursorial (running) abilities. It has an elegant skeleton, and losing the first digit on its forefeet shortens its stride and boosts its speed. This feature allows it to hunt prey over great distances across broad plains. Except for the spotted hyena, its teeth are carnassial-shaped, and its premolars are the largest of any extant carnivoran in

terms of body size. The talonid has evolved into a cutting blade for flesh-slicing on the lower carnassials as the post-carnassial molars have been lost or reduced (first lower molars).

Other hypercarnivores with this adaptation include the dhole and the bush dog. Among mammals, the African wild dog has one of the most diverse coat colours. Individuals have different patterns and colours, showing that the underlying genes are diverse. These coat patterns may serve as a communication, concealment, or temperature regulation adaptation. According to a study published in 2019, the Lycaon lineage split from Cuon and Canis 1.7 million years ago due to this set of adaptations, its prey, enormous ungulates, diversified at the same time.

The oldest *L. pictus* fossil was discovered in Israel's HaYonim Cave 200,000 years ago. Due to the scarcity of fossil findings, the development of the African wild dog is poorly understood. From the Early Pleistocene through the early Middle Pleistocene, the extinct Canis subgenus Xenocyon was thought to be ancestral to both the genus Lycaon and the genus Cuon, which roamed Eurasia and Africa. Others have suggested that Xenocyon be renamed Lycaon. *Canis (Xenocyon) falconeri* had the same missing first metacarpal (dewclaw) as the African wild dog, but its dentition was still unspecialized. Because *C. (X.) falconeri* lacks metacarpal, which is a poor indicator of phylogenetic proximity to the African wild dog, one author dismissed the relationship.

The Plio-Pleistocene *L. sekowei* of South Africa, with unique accessory cusps on its premolars and anterior accessory cusps on its lower premolars, is another evolutionary candidate. These adaptations are only discovered in Lycaon, a live canid that has the same adaptations to a hypercarnivorous diet as humans. *L. sekowei* retained the first metacarpal, which had been lost in *L. pictus*, and was more robust than the contemporary species, with 10% larger teeth.

The African wild dog has extraordinarily strong social relationships, much stronger than sympatric lions and spotted hyenas, making solitary living and hunting highly rare. Permanent packs of two to 27 adults and yearling pups dwell together. In Kruger National Park and the Maasai Mara, the average pack size is four or five adults, whereas in Moremi and Selous, the average pack size is eight or nine. Larger packs have been seen, and transitory assemblages of hundreds of people may have formed in reaction to the periodic migration of massive springbok herds in Southern Africa.

Females and males have different dominance hierarchies, with the eldest female usually leading the latter. Males may be headed by the eldest male, but younger specimens can take his place; as a result, some packs may contain elderly males who were once pack leaders. Breeding is usually monopolised by the dominant pair. Males stay in the natal pack while females disperse, which sets it apart from most other social species (a pattern also found in primates such as gorillas, chimpanzees, and red colobuses). Furthermore, males outweigh females in any given group. Dispersing females join other packs and evict some of the resident females who are linked to the other pack members, reducing inbreeding and allowing the evicted individuals to find and breed in new packs.

Males rarely disperse, and when they do, rival male-dominated packs almost usually reject them. Despite being the most gregarious canid, the African wild dog lacks the sophisticated facial expressions and body language seen in the grey wolf, most likely due to its less hierarchical social structure. Furthermore, whereas intricate facial expressions are vital for wolves in re-establishing ties after extended periods apart from their family groups, they are not as important for African wild dogs, who stay together for much longer periods of time.