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Wildlife conservation

Pack cohesion in the African wild dog *(Lycaon pictus)* and a "young-male first" protocol in the acquisition of dominance

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Observations of the African wild dog *(Lycaon pictus)* population in the Serengeti ecosystem (1989 - 1991), and published information from the Serengeti and other ecosystems, indicate that acquisition of alpha-male status in *Lycaon* is quite different from that in the grey wolf *(Canis lupus). Lycaon* packs typically contain an alpha (breeding) pair, subordinate founder adult males and females plus pups and/or yearlings born in the pack. Wild dogs have separate male and female dominance hierarchies and exhibit reproductive suppression. It is assumed, although not genetically established, that most offspring reared by the pack are those of the alpha pair. However, subordinate pairs can breed successfully in the alpha's pack. In a number of ecosystems it is reported that apparently viable *Lycaon* packs split into single sex groups ('pack dissolution'). In Serengeti, following the death of either of the alpha pair, founder females including the alpha female if she was the survivor plus adult females born in the pack dispersed, leaving behind an all-male adult group with any pups of both sexes in the former pack's range. Alpha status in the male hierarchy immediately transferred to one of the youngest sexually mature males without overt aggression. If the old alpha male survived he remained as a subordinate in the all-male group awaiting female immigrants at which point the new alpha pair immediately became apparent. I describe this event as resulting from the existence of a "young-male first" social protocol which prevents inbreeding in *Lycaon* packs and explains the phenomenon of "pack dissolution". The 'young-male first' social protocol explains why, following the death in the Serengeti of an alpha, some young male cohorts were recruited for life into their natal pack's male group whilst when both alphas were present with pups then yearlings of both sexes always dispersed in single sex groups. It also explains why a male from the youngest cohort becomes alpha when mixed cohorts emigrated together, why younger males become alpha when adopted by older unrelated males, and the cause of some social disruption in captive packs. This protocol thus has important implications for the conservation of this endangered species in relation to pack cohesion and persistence, the likely outcome of reintroduction involving individuals from different packs and dynamics within groups held in captivity. As breeding disruption follows "pack dissolution", alpha animals should not be targeted for immobilisation for radio-collaring and/or blood sampling due to the risk of inadvertent mortality.

PACK COHESION IN THE AFRICAN WILD DOG, *LYCAON PICTUS*, AND A YOUNG MALE FIRST PROTOCOL IN THE ACQUISITION OF DOMINANCE

Roger Burrows

Background

African wild dogs are social pack living canids with female reproductive suppression. Packs form when a group of males meets an unrelated group of females (founder adults). The alpha pair immediately becomes apparent.Thus a pack contains an alpha breeding pair, subordinate founder adult males and females plus pups and/or yearlings born in the pack.Yearling and founder adults help the alpha pair rear their offspring. Packs utilize large ranges that encompass relatively fixed geographical areas. In the Serengeti-Mara ecosystem *all* yearling females emigrate from their natal pack and *if younger males are present in the pack* so do all male yearlings. If two cohorts of males emigrate together then one of the younger males is alpha in the group and remains so when a female group is located and a new pack is formed.

Pack Dissolution. My observations of packs in the Serengeti-Mara ecosystem between 1989 and 1991and accounts published by others on the development of packs from this and and other ecosystems from 1964 to date, suggest that **apparently viable packs suddenly split into single sex groups of adults, following the death of *either* member of the alpha pair**.

DEATH OF ALPHA FEMALE

ALPHA MALE LOSES STATUS

Adult males remain on former pack's home range with the pups from the previous litter of the former alpha pair

YOUNG NATAL MALE BECOMES ALPHA

Alpha female dies

FEMALES DISPERSE

When an alpha female dies, her breeding partner loses the alpha male position and one of the youngest sexually mature natal males assumes alpha position without overt aggression. All adult females disperse.The old alpha male remain as a subordinate in the male group that awaits the arrival of immigrant females to form a new pack.

DEATH OF ALPHA MALE

Alpha male

Adult males remain on former pack's range with pups

YOUNG NATAL MALE BECOMES ALPHA

ALPHA, FOUNDER AND ADULT NATAL FEMALES DISPERSE

FEMALES DISPERSE

When an alpha male dies, the alpha female disperses from the pack with the other adult female pack members leaving the males and any pups in the pack's home range. The alpha female retains her status over all related females in any new pack formed with 'new' unrelated males.

As breeding is disrupted following 'pack dissolution' alpha animals should not be targeted for interventions that may inadvertently result in mortality.