

Large-scale Foraging Behaviour of Free-ranging Goats: Influence of Herd Size, Landscape Quality and Season

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Abstract : For animals living in herds, competition between group members increases as herd size increases. The intensity of this competition is likely greater across poor quality landscapes and during the dry season. In contrast to wild herbivores, herd size in domestic livestock is determined by their owners. This then raises the question, how do domestic livestock, like goats, reduce competition for food within these defined herds? To explore this question, large-scale foraging behaviour of both small (12 to 28 individuals) and large (42 to 83 individuals) herds of free-ranging goats were recorded in Tugela Ferry, KwaZulu-Natal, South Africa. The study was conducted on three different landscapes that varied in both food quality and availability, during the wet and dry seasons of 2013-2014. The goats were housed in kraals overnight and let out in the mornings to forage unattended. Thus, foraging decisions were made by the goats and not by herders. The large-scale foraging behaviours focussed on included, (i) total distance travelled by goats while foraging, (ii) distance travelled before starting to feed, (iii) travel speed, and (iv) feeding duration. This was done using Garmin Foretrex 401 GPS devices harnessed to two goats per herd. Irrespective of season, there was no difference in the total distance travelled by the different sized herds across the different quality landscapes. However, both small and large herds started feeding farther from the kraal in the dry compared to the wet season. Despite this, there was no significant seasonal difference in total amount of time the herds spent feeding across the different landscapes. Finally, both small and large herds increased their travel speed across all the landscapes in the dry season, but large herds travelled faster than small herds. This increase was likely to maximise the time that large herds could spend feeding in good areas. Ultimately, these results indicate that both small and large herds were affected by declines in food quality and quantity during the dry season. However, as large herds made greater behavioural adjustments compared to smaller herds (i.e., feeding farther away from the kraal and travelling faster), it appeared that they were more affected by the seasonal increases in intra-herd competition.

Keywords : distance, feeding duration, food availability, food quality, travel speed

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