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Tragelaphus strepsiceros Browse During the Wet Season in the Mopani Veld of Limpopo Province, South Africa☆

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ABSTRACT

Tragelaphus strepsiceros (greater kudu) has adapted to the harsh conditions of southern Africa's mopani woodland. However, there is still limited information on the diet composition and selection of browse by greater kudu, particularly during the wet season. This poses a challenge to manage these ungulates effectively within their habitat. The study used rumen content to quantify the diet composition of greater kudu during the wet season. The study was conducted at the Sandown Game Farm, Limpopo Province, South Africa. Rumen samples were collected from four adult female and four adult male greater kudu culled in March 2015 and statistically analyzed using the *t*-test: paired two sample for means and Pearson's correlation coefficient analysis. Findings show that *Combretum apiculatum* contributed most (43%) to the diet of greater kudu during the wet season. Other browse plant species were *Sclerocarya birrea* (24%), *Colophospermum mopane* (12%), and *Acacia nigrescens* (8%), with the contribution of the remaining species to the diet being insignificant. Leaves were the plant parts browsed most often and contributed 81% to the diet during this season. The remaining 19% of the diet consisted mainly of *S. birrea* fruit. Gender differences in diet selection were observed. The diet of female greater kudu consisted mainly of *C. apiculatum* (44%) and *C. mopane* (20%), while the diet of male greater kudu mostly contained *S. birrea* (38%) and *C. apiculatum* (34%). Implications for the management and conservation of greater kudu in mopani veld are discussed.

Introduction

Tragelaphus strepsiceros Pallas, 1766, commonly known as greater kudu (Ansell, 1972), is widely distributed in southern and eastern Africa. It is highly adapted to a diverse range of habitats in those areas (Skinner and Chimimba, 2005). It is a valued antelope in game reserves in South Africa's mopani woodland (Curlewis, 2014), attracting many tourists, and is treasured in the dried meat industry and for trophy hunting (Bonsma and Du Toit, 2010).

The mopane woodland is an extensive vegetation type that dominates the hot, dry valleys and adjacent plains in southern Africa (Werger and Coetzee, 1978; Timberlake et al., 2010). Its distribution ranges from southern Angola and northern Namibia across Botswana and Zimbabwe to central and southern Mozambique and from the Luangwa Valley in Zambia and central Malawi to northern South Africa (Mapaure, 1994). Tree and shrub forms of *Colophospermum mopane* (Benth.) J. Léonard, commonly known as mopane (Léonard, 1949), dominate this vegetation type (Mapaure, 1994; Timberlake et al., 2010; Siebert, 2012).

Various authors indicated that mopane provides essential forage for browsers (Mosimanyana and Kiflewahid, 1988; Macala et al., 1992; Timberlake, 1995; Styles and Skinner, 1997) such as greater kudu (Hooimeijer et al., 2005; Curlewis, 2014), especially during the dry season (Makhado et al., 2016). The selection of mopane browse by greater kudu, particularly during the dry season, is mainly due to the availability of this forage, when most other savanna species are leafless (Kos et al., 2012). In addition, the nutritional value of mopane browse causes it to be habitually selected by greater kudu during the dry period (Bonsma, 1942; Hooimeijer et al., 2005), when concentrations of secondary metabolites such as tannins and phenols are relatively low in leaf tissues (Wessels et al., 2007; Kohi et al., 2010). Browsing of mopane by greater kudu is limited during the wet season (Hooimeijer et al., 2005; Curlewis, 2014), mainly because of a high concentration of secondary metabolites (Wessels et al., 2007; Kohi et al., 2010). The consumption of browse with high concentrations of secondary metabolites can cause digestion challenges to herbivores (Van Hoven, 1991) and loss of appetite (Bailey, 1978) because such forage is of low palatability to the animals (Cooper and Owen-Smith, 1985).

Despite the reported nutritional value of mopane (Bonsma, 1942; Timberlake, 1995; Hooimeijer et al., 2005) and other species such as

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Combretum apiculatum and *Dichrostachys cineria* as a source of browse for greater kudu and other ungulates feeding in the mopani veld (Curlewis, 2014; Makhado et al., 2016), there is still limited information on the diet composition and selection of browse of greater kudu in mopani veld, particularly during the wet season, when the plant contains high levels of secondary metabolites. In addition, there is a lack of data on browse selection between male and female greater kudu, which is critical to any management plan. This deficiency in the current knowledge is hampering on the understanding of ecological requirements and adaptation mechanisms of greater kudu against the buildup of secondary metabolites in browsing plants during the wet season.

The purpose of this study is therefore to identify the species, types, and parts of plants that are mostly browsed by greater kudu in mopani veld during the wet season. The study also compares the diet selected by female versus male greater kudu. The results of this study should be of great importance for game farmers, ranchers, and reserve managers in the extensive mopane woodland, by enabling them to understand the diet requirements of greater kudu during the wet season better and to adjust their management interventions to favor browse species needed for best year-round nutrition of greater kudu.

Methodology

Study Area

This study was conducted at the Sandown Game Farm in the Musina Local Municipality. The farm is situated in the northern part of the Limpopo Province, South Africa at 22°28'S, 29°29'E. It covers 2070 ha of pristine environment. The altitude ranges from 400 m to 750 m above sea level.

Sandown Game Farm is in an arid to semiarid environment where rainfall typically occurs in summer and declines drastically in winter. The average annual rainfall of the area is 331 mm, and it typically ranges between 300 and 400 mm per annum (SA Weather Services, 1981-2014). The area is characterized by high summer temperatures. The highest annual maximum temperature is 45°C, and the annual average maximum temperature is 30°C. The average annual minimum temperature is 16°C, and there is zero probability of snow occurrence. Relative humidity is less than 30% (SA Weather Services, 1981-2014), which indicates that the area has more dry months than wet months and thus a high frequency of drought (Makhado et al., 2016).

The geology of the area consists mostly of rocks of the Beit Bridge Complex (Swazian Erathem), as well as sediments (including sandstones of the Clarens Formation) and basalt (particularly in the east) of the Karoo Supergroup. Soils are underlain by the Archaen Beit Bridge Complex, which consists of gneisses and meta-sediments. The soils are variable, ranging from deep red/brown clays to freely drained sandy soils and calcareous clayey soils (Mucina and Rutherford, 2006).

The Sandown Game Farm is located within the Musina Mopane Bushveld of the Mopane Bioregion. The Musina Mopane Bushveld vegetation unit is the most widespread vegetation unit in the northern part of South Africa. The tree and shrub component is dominated by *C. mopane*. Species such as *C. apiculatum*, *Terminalia prunioides*, *Adansonia digitata*, *Commiphora mollis, Sclerocarya birrea,* and *Acacia* spp. add to the mixture of this vegetation (Mucina and Rutherford, 2006).

The fauna at the Sandown Game Farm consists of a variety of ungulates. These include greater kudu, giraffe *(Giraffa camelopardalis),* wildebeest *(Connochaetes gnou),* impala *(Aepyceros melampus),* eland *(Taurotragus oryx),* waterbuck *(Kobus ellipsiprymnus),* gemsbok *(Oryx gazella),* steenbok *(Raphicerus campestris),* zebra *(Equus zebra),* and duiker *(Sylvicapra grimmia),* among others.

Greater Kudu Rumen Content Analyses Procedure

The parts (leaves, twigs, flowers, pods, and fruits) of major plant species browsed by greater kudu, as identified by Curlewis (2014), were collected from Musina Nature Reserve. The parts were individually placed in labeled and sealed transparent plastic bags and transported to the University of Limpopo in a cooler box. The collected plant materials were preserved in 70% ethanol for later use. Plant parts were fixed as a reference collection of slides, in order to assist in the identification of what is contained in greater kudu rumen. Photographs of these parts were also taken in the field in order to assist in the identification of plant fragments in the rumen.

In total, eight samples were collected from four adult male and four adult female greater kudu culled during the late wet season on 22 − 24 March 2015. The wet season in South Africa starts in October and ends in April. The wet mass of collected samples ranged from 982 g to 3021 g, with an average of 1705 g. Individual rumen contents were thoroughly mixed in a plastic container and washed several times with tap water until the particulates in the samples were quite clean. A 2 × 2 mm sieve was used to sift particulates (plant materials) from water. Using the reference collection, the sifted materials were grouped by plant species. The materials were identified by comparing leaf shape, structure, veins, hair, stomata, fruit, barks, seeds, pods, and flowers with the reference collection. A stereomicroscope (light detector) was used to identify fine plant parts, which could not be identified with the naked eye. The abundance of each species was calculated as a percentage of the total wet weight of particulates, identified from the rumen of each culled kudu. The grouped subsample (leaves, twigs, grass, forbs, flowers, seeds, and pods) were calculated in order to determine the parts most often browsed.

Statistical Analysis

Data were captured in a *Microsoft Excel 2010* spreadsheet. Descriptive statistics were used to determine the mean and standard deviations of species browsed by greater kudu. The percentage contribution of each species to greater kudu diet was calculated. The *t*-test: paired two sample for means was used to determine the species most often browsed. Spearman's rank correlation coefficient analysis was used to compare the diets of females and males. Significant difference was accepted when $P \leq 0.05$.

Results

Species Browsed by Greater Kudu

During the wet season, greater kudu diet in the study area was composed of a variety of species. Sixteen plant species were browsed by greater kudu during that period, including *C. apiculatum*, *S. birrea*, *C. mopane*, *Acacia nigrescens*, *T. prunioides*, *Commiphora mollis*, *D. cineria*, *Indigofera* spp., *Boscia albitrunca*, *Solanum panduriforme*, *Maerua parvifolia*, *Grewia* spp., *Acacia erioloba,* and *Acacia tortilis* (Table 1).

The average (± s.d.) wet weight of species mainly found in greater kudu rumen samples during the wet season were *C. apiculatum* (656 g ± 459 g), *S. birrea* (483 g ± 452 g), *C. mopane* (246 g ± 290 g), *A. nigrescens* (127 g ± 120 g), *T. prunioides* (66 g ± 61 g), *C. mollis* (77 g ± 23 g), *D. cineria* (43 g ± 28 g), *Indigofera* spp. (37 g ± 26 g), *B. albitrunca* (28 g ± 32 g), *S. panduriforme* (52 g ± 0.4 g), *M. parvifolia* (30 g ± 50 g) and *Grewia* spp. (27 g ± 39 g). Other less frequently browsed species such as *A. erioloba* (0.02 g ± 0.01 g) and *A. tortilis* (0.03 g ± 0.01 g) contributed far smaller amounts to greater kudu diet (see Table 1).

C. apiculatum, *S. birrea*, *C. mopane,* and *A. nigrescens* are the four tree species mostly browsed. Proportionally, *C. apiculatum* contributed most (43% ± 29%) to the diet of greater kudu in mopani veld. This was followed by *S. birrea* (24% ± 29%), *C. mopane* (12% ± 18%), and *A. nigrescens* (8% ± 8%). The contribution of the remaining species, such as *T. prunioides*, *C. mollis*, *D. cineria*, *Indigofera* spp., *B. albitrunca*, *S. panduriforme*, *M. parvifolia*, *Grewia* spp., *A. erioloba,* and *A. tortilis,* to the diet of greater kudu was < 5%, which is insignificant (Fig. 1).

Foliage from trees contributed much more (71%) to greater kudu diet composition compared with shrubs (14%) and forbs (14%). The

Table 1
Species and amount browsed by greater kudu during the wet season of 2015 in mopani veld, Limpopo Province, South Africa ($n = 8$)

Species	Family	Wet weight (g)					
		Sum	Min	Average	Max	STDEV	Variance
Combretum apiculatum	Combretaceae	5245.83	224.20	655.73	1719.05	459.06	210734.70
Sclerocarya birrea	Anacardiaceae	2899.08	98.75	483.18	1228.73	451.92	204228.60
Colophospermum mopane	Fabaceae	1474.73	56.07	245.79	822.70	289.87	84023.04
Acacia nigrescens	Fabaceae	1014.63	0.23	126.83	270.91	119.73	14335.17
Terminalia prunioides	Combretaceae	462.18	1.67	66.03	170.24	60.80	3696.16
Commiphora mollis	Burseraceae	306.97	52.87	76.74	105.51	22.71	515.58
Dichrostachys cineria	Fabaceae	214.04	0.03	42.81	71.07	27.57	760.19
Indigofera spp.	Fabaceae	185.31	13.82	37.06	79.81	26.02	676.91
Boscia albitrunca	Capparaceae	113.86	0.32	28.47	57.4	32.45	1052.91
Solanum panduriforme	Solanaceae	104.59	52.03	52.30	52.56	0.37	0.14
Maerua parvifolia	Capparaceae	86.87	0.05	28.96	86.74	50.04	2504.19
Grewia spp.	Malvaceae	81.01	0.33	27.00	71.86	39.08	1527.11
Acacia erioloba	Fabaceae	0.03	0.01	0.02	0.02	0.01	0.0001
Acacia tortilis	Fabaceae	0.05	0.02	0.03	0.03	0.01	0.00001
Unidentified fruit		0.08	0.03	0.04	0.05	0.01	0.0002
Unidentified forb		0.04	0.01	0.02	0.03	0.01	0.0002

parts of trees, shrubs, and forbs mostly consumed by greater kudu during the wet season were leaves, followed by fruit (Table 2). Leaves contributed most (81%) to the diet, while fruit contributed the remaining 19%. The fruit browsed was mainly from *S. birrea*. This study further showed that greater kudu also consume seeds, twigs, and pods from species such as *A. nigrescens*, *Indogofera* spp., and to a lesser extent *S. panduriforme* (see Table 2).

Comparison of Diet Composition of Male and Female Greater Kudu

The diets of female and male greater kudu were slightly different. Sixteen plant species (*A. erioloba, A. nigrescens, A. tortilis, B. albitrunca, C. mopane, C. apiculatum, C. mollis, D. cineria, Grewia* spp., *Indogofera* spp., *M. parvifolia, S. birrea, S. panduriforme, T. prunioides,* unidentified fruits, and unidentified forbs) were browsed by females during the wet season, while nine plant species (*A. nigrescens, C. mopane, C. apiculatum, C. mollis, D. cineria, Grewia* spp., *Indogofera* spp., *S. birrea,* and *T. prunioides*) were browsed by males (Table 3). Therefore, seven species (*S. panduriforme, M. parvifolia, B. albitrunca, A. tortilis, A. erioloba,* unidentified fruits, and unidentified forbs) were browsed by females but were not recorded in the diet of males (see Table 3). This study further showed that 64% of the female diet consisted of forage from just two species, *C. apiculatum* (44% ± 48%) and *C. mopane* (20% ± 24%). *Acacia nigrescens, S. birrea,* and *C. mollis* contributed 8% ± 10%, 7% ± 2%, and 6% ± 1%, respectively, to the female diet. In contrast, 71% of male greater kudu diet comprised *S. birrea* (38% ± 54%) fruits and leaves of *C. apiculatum* (34% ± 9%). *Acacia nigrescens, T. prunioides,* and *C. mopane* contributed 7% ± 13%, 6% ± 8%, and 5% ± 5%, respectively, to the male diet. The remaining plant species contributed < 5% to the diets of females and males (see Table 3). However, despite the difference in preference for particular species in the diet of female and male greater kudu, the browsing selection between females and males is statistically not significantly different ($t = 0.27$, $P = 0.79$; see Table 3), and proves to be positively correlated ($r = 0.68$; Fig. 2) in view of the great importance of *C. apiculatum* in the diets of greater kudus of both genders (see Table 3 and Fig. 2).

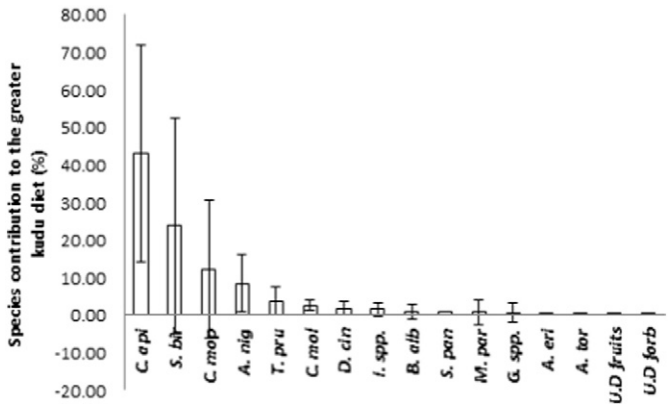

Figure 1. Species contribution to the greater kudu diet during the wet season in mopani veld, Limpopo Province, South Africa ($n = 8$). *Note*: *A. eri* = *Acacia erioloba*, *A. nig* = *Acacia nigrescens*, *A. tor* = *Acacia tortilis*, *B. alb* = *Boscia albitrunca*, *C. mop* = *Colophospermum mopane*, *C. api* = *Combretum apiculatum*, *C. mol* = *Commiphora mollis*, *D. cin* = *Dichrostachys cineria*, *I.* spp. = *Indigofera* species, *G.* spp. = Grewia species, *M. par* = *Maerua parvifolia*, *S. bir* = *Sclerocarya birrea*, *S. pan* = *Solanum panduriforme*, *T. pru* = *Terminalia prunioides* and U.D = Unidentified.

Discussion

The wet season is usually accompanied by rain in the savanna, which promotes the growth and development of plant species (Scholes and Walker, 1993). This study showed that during the wet season, an abundance of diverse plant species of presumed high nutritional quality are readily available to browsers. Hooimeijer et al. (2005) and Curlewis (2014) indicated that the availability of diverse and palatable plant species during the wet season allows greater kudu to select a diet composed of many different species. The forage choices for greater kudu during this period range from trees and shrubs to forbs. Grasses were not recorded in the greater kudu rumen, which confirms the findings of Curlewis (2014) that the diet of the greater kudu in mopani veld does not include grass. However, previous studies in the same locality recorded that a small proportion of grass, ranging from 2.9% (Hooimeijer et al., 2005) to 7% (Cooper, 1985; Owen-Smith and Cooper, 1985), was consumed by greater kudu during the wet season. In addition, Furstenburg (2010) indicated that 5–12% of grasses were consumed by greater kudu in the Eastern Cape Valley Bushveld of South Africa. Though the greater kudu seems to accept small quantities of grasses, especially new growth during the early wet season (Cooper, 1985; Hooimeijer et al., 2005; Furstenburg, 2010), its digestive anatomy is not designed to handle high-fiber forages such as grasses. Thus, greater kudus reject the mature grasses available during the late wet and dry seasons (Hofmann and Stewart, 1972). As also found in this study, greater kudu are predominantly selective browsers, mainly feeding on leaves, twigs, pods, seeds, and fruits of a wide range of trees, shrubs, forbs, and succulents (Furstenburg, 2010; Curlewis, 2014).

Various researchers indicated that *C. mopane* is an essential browse to the greater kudu (Hooimeijer et al., 2005; Curlewis, 2014), particularly during the dry season (Macala et al., 1992; Timberlake, 1995; Mosimanyana and Kiflewahid, 1988; Makhado et al., 2016). However, this study showed that during the wet season, the greater kudu selected

Table 2
Type of plants and parts browsed by greater kudu during the wet season of 2015 in mopani veld, Limpopo Province ($n = 8$)

Species	Type of plant	Parts browsed	Dominant parts
Acacia erioloba	Tree	Leaves	Leaves
Acacia nigrescens	Tree	Seeds, pods and leaves	Leaves
Acacia tortilis	Tree	Leaves	Leaves
Boscia albitrunca	Tree	Leaves	Leaves
Colophospermum mopane	Tree	Leaves	Leaves
Combretum apiculatum	Tree	Leaves	Leaves
Commiphora mollis	Tree	Leaves	Leaves
Dichrostachys cineria	Shrub	Leaves	Leaves
Grewia spp.	Shrub	Leaves	Leaves
Indogofera spp.	Forb	Flowers, twigs, pods, seeds, and leaves	Leaves
Maerua parvifolia	Tree	Leaves	Leaves
Sclerocarya birrea	Tree	Fruit	Fruits
Solanum panduriforme	Forb	Fruit, seeds, pods and twigs	Fruits
Terminalia prunioides	Tree	Leaves	Leaves
Unidentified fruits	—	Fruit and seeds	Fruits
Unidentified forb	Forb	Leaves	Leaves
	Tree		Leaves
	71.43%		81.25%
	Shrubs		Fruits
	14.29%		18.75%
	Forbs		
	14.29%		

mainly *C. apiculatum* leaves and *S. birrea* fruits. Although *C. mopane* is a dominant (Mapaure, 1994) and nutritious species in the mopani veld (Bonsma, 1942), it was not highly browsed during the wet season. However, some *C. mopane* was eaten in limited amounts during the wet season, especially by the female greater kudu. This study therefore concurs with the findings of Styles and Skinner (1997) and Hooimeijer et al. (2005) that the greater kudu still browse *C. mopane,* though in limited quantities, during the wet season regardless of the higher concentration of chemical defences (Owen-Smith and Cooper, 1983), such as tannins and phenols, in the nonsenescent leaves (Styles and Skinner, 1997; Wessels et al., 2007; Kohi et al., 2010). Plants that contain more than 5% of condensed tannins are rejected by ungulates (Cooper and Owen-Smith, 1985) because these tannins reduce the crude protein digestibility of browse (Cooper and Owen-Smith, 1985; Provenza et al., 2003; Wessels et al., 2007). However, *C. mopane* was browsed by the greater kudu during the wet season when secondary metabolites were at high levels, which proves that tannin-rich species are not totally rejected but consumed in limited quantity. Consumption of limited amounts of dry season browse species during the wet months may be a sampling behavior allowing the animals to monitor the changing dietary quality of the leaves throughout the seasons. Alternatively, the greater kudu inhabiting the mopani woodland may be metabolically adapted to coping with the tannins present in this widespread and abundant plant species. However, the ability of the greater kudu to diversify its diet selection seems to be a critical mechanism to limit the amount of secondary metabolites ingested in the diet. Consumption of limited quantities of a wide variety of plants probably ensures that the level of secondary metabolites does not exceed safety levels (Westoby, 1978).

S. birrea fruits, commonly known as marula, appear to be one of the favorites of the greater kudu, mainly browsed by the males, which could probably be due to the behavioral dominance of the males. Marula fruits ripen toward the end of the wet season and are readily eaten by ungulates during that period. The selection of marula fruits could be due to energy-providing sugars and their high vitamin C content. Fresh marula fruits contain up to 180 mg per 100 g of vitamin C (Shackleton et al., 2002), attracting not only the greater kudu (Hooimeijer et al., 2005), but also other browsers such as *Loxodonta africana* (Morris et al., 2006), *Giraffa camelopardalis*, *Kobus ellipsiprymnus,* and *Taurotragus oryx* (Venter and Venter, 1996).

During the wet season, the greater kudu mainly browsed leaves, probably because other plant parts such as pods and seeds were still unripe. Leaves thus contributed significantly to the diet of ungulates in the wet season (Owen-Smith, 1993). In addition, thorn species such as *A. nigrescens* and *D. cineria,* which are an integral part of greater kudu's diet during the dry season (Curlewis, 2014; Makhado et al., 2016), were not often browsed during the wet season. This implies that the greater kudu selectively avoid thorn species during the wet season (Curlewis, 2014), which could be due to the availability and accessibility of thornless species during that period. This would provide a higher rate of food intake and also avoid the physical challenge associated with browsing thorn species (Cooper and Owen-Smith, 1986).

This study further found that during the wet season, females browsed a greater variety of plant species than did males. This suggests that female greater kudu develop more appetite for food when it is abundant during the wet season, leading to consumption of a variety of species. This study further found that females browsed ripe fruits of

Table 3
Browsing selectivity between female ($n = 4$) and male ($n = 4$) greater kudu during the wet season of 2015 in mopani veld, Limpopo Province, South Africa

Plant species	Wet weight of amount browsed					
	Female			Male		
	Average (g)	STDEV	%	Average (g)	STDEV	%
Combretum apiculatum	709.72	691.29	44.01 ± 48.45	601.74	77.85	33.88 ± 9.27
Colophospermum mopane	325.66	337.52	20.19 ± 23.66	86.05	42.39	4.85 ± 5.05
Sclerocarya birrea	116.48	25.07	7.22 ± 1.76	666.53	453.54	37.53 ± 53.98
Acacia nigrescens	125.36	145.36	7.77 ± 10.19	128.30	110.97	7.22 ± 13.21
Terminalia prunioides	34.81	40.18	2.16 ± 2.82	107.65	64.17	6.06 ± 7.64
Commiphora mollis	94.05	16.21	5.83 ± 1.14	67.15	14.89	3.78 ± 1.77
Solanum panduriforme	52.3	0.37	3.24 ± 0.03	—	—	—
Indigofera spp.	46.82	46.66	2.90 ± 3.27	30.56	10.33	1.72 ± 1.23
Dichrostachys cineria	36.83	35.59	2.28 ± 2.49	51.77	15.49	2.92 ± 1.84
Maerua parvifolia	28.96	50.04	1.80 ± 3.51	—	—	—
Boscia albitrunca	28.47	32.45	1.77 ± 2.27	—	—	—
Grewia spp.	4.58	6.00	0.28 ± 0.42	36.10	50.58	2.03 ± 6.02
Acacia tortilis	0.03	0.01	0.00 ± 0.00	—	—	—
Unidentified fruit	0.04	0.01	0.00 ± 0.00	—	—	—
Acacia erioloba	0.02	0.01	0.00 ± 0.00	—	—	—
Unidentified forb	0.02	0.01	0.00 ± 0.00	—	—	—
Pearson correlation	T Stat			P(T ≤ t) 2-tail		
0.675	0.269			0.791		

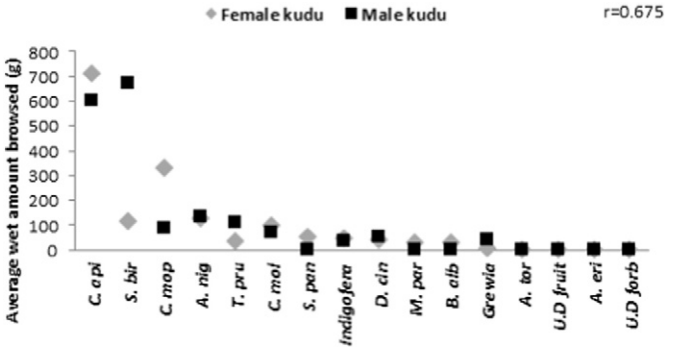

Figure 2. Spearman Correlation Coefficient correlation on the species browsed by female ($n = 4$) and male ($n = 4$) greater kudu during the wet season of 2015 in mopani veld, Limpopo Province. *Note*: *A. eri* = *Acacia erioloba*, *A. nig* = *Acacia nigrescens*, *A. tor* = *Acacia tortilis*, *B. alb* = *Boscia albitrunca*, *C. mop* = *Colophospermum mopane*, *C. api* = *Combretum apiculatum*, *C. mol* = *Commiphora mollis*, *D. cin* = *Dichrostachys cineria*, *M. par* = *Maerua parvifolia*, *S. bir* = *Sclerocarya birrea*, *S. pan* = *Solanum panduriforme*, *T. pru* = *Terminalia prunioides* and U.D = Unidentified.

S. panduriforme, which are generally considered inedible. However, Pooley (1998) indicated that they are also browsed by nyala *(Tragelaphus angasii)* and black rhino *(Diceros bicornis)*. Most *S. panduriforme* fruits were swallowed without being chewed, which suggests that it could be a mechanism employed by female greater kudu to avoid the unpalatable taste of the fruits when chewed. Green *S. panduriforme* fruits are toxic and were not recorded in the rumen but have high medical value in the treatment of infections, sores, and pain in animals (Madzimure et al., 2013).

Management Implications

During the wet season, great mixtures of plant species are available to be browsed by greater kudu. This is reflected in the wide dietary selection of these animals in the wet season. In the mopani veld, the diet of greater kudu was mainly composed of leaves from trees. The leaves of the deciduous tree, *C. apiculatum*, contributed significantly to the diet of both male and female greater kudu. Seasonably available fruits of *S. birrea* were also important food items, particularly to the males. In addition, to a lesser extent, greater kudu browsed species such as *C. mopane*, *D. cineria*, and *Acacia* spp., which are important dry season food plants but may have more chemical and physical defenses against herbivores. Female greater kudu appeared to have a wider diet selection than males, although the dominance of a limited number of species in the diet of both genders rendered the difference statistically nonsignificant. The dependency of the greater kudu on *C. apiculatum* and *C. mopane* as sources of browse indicates the importance of these species to the survival of greater kudu in the mopani woodland. These species have an important role to play in meeting the dietary requirements of the greater kudu, which thus necessitates careful management of mopani woodland in order to conserve the key food plants of the greater kudu effectively throughout this extensive habitat. This study was based on a small sample size, which therefore requires further studies in order to validate the current findings.

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