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Foraging behaviors of wildlife in Muniya Conservation Reserve) MCR), Nagpur, Maharashtra State: A checklist approach of wild palatable grasses

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Abstract

MCR is a conservation reserve area declared by the State Government on 11/5/2021. The Muniya Conservation reserve area is spread over an area of 93.01 square meters and is rich in biodiversity. MCR is formed from the reserve forest and protected forest area of Butibori and North Umred territorial ranges. The Muniya Conservation Reserve) MCR) in Nagpur is home to a diverse range of wildlife, including herbivores that rely on wild palatable grasses as a major component of their diets. The study aimed to identify and document the wild palatable grasses consumed by wildlife in the conservation reserve, using a checklist approach. The findings of this research will contribute to a better understanding of the dietary needs and preferences of wildlife in the Muniya Conservation Reserve) MCR), and may inform future conservation efforts. A checklist of 147 wild palatable grass species belonging to 61 Genus was prepared through field observations and interviews with cowherds, cattle keepers, forest guards, and local peoples. The study highlights the importance of wild palatable grasses in the diet of wildlife and emphasizes the need for conservation of these grasses and their habitats.

Keywords: Muniya Conservation reserve, wild palatable grasses, ethnobotany, wildlife, foraging behaviors, Nagpur

1. Introduction

Maharashtra State Government declared Muniya Conservation Reserve) MCR) by notification dated 11 may 2021.) Notification no. WLP.0321/CR-67/F-1) Situation, limit and area of Muniya Conservation Reserve) MCR) is in Butibori and North Umred ranges of Nagpur Forest Division of Nagpur Forest Circle having area is 9601.43 Ha.) 96.01sq. km).The forests are widely spread and mainly situated on hilly slopes surrounded by cultivated plains. The majority of forest areas in the district are plain, undulating, and hilly area contain heterogeneous landscape like grassland, zudapi Jungle, dense forest, wetlands, undulating and hilly rocky forest having clear eco-tone. Soil types in the division are strongly influenced by dominant metamorphic rocks and the Deccan trap. Soil is mostly sandy-loam, which is eminently suited to the tree growth. Nagpur has hot and dry climate with distinct three seasons. Very hot summer adversely affects vegetation growth more so because of highly radiating exposed quartzite and basalt in the tract. The rainy season generally starts from the second week of June and continuous up to the end of September every year. The forests of Nagpur Division belong to the Sub Group 5A – Southern Tropical Dry Deciduous Forests as per 'Revised classification of Champion and Seth'.)Working Plan of Nagpur Forest Division, Volume I, Period 2015-16 to 2024-25 by P. Kalyankumar and T.K. Choubey).

Animals have a natural instinct to forage for food that is necessary to sustain them. Wild palatable grasses are a significant component of the herbivorous diet of wild animals. Wildlife in MCR relies heavily on natural resources for their survival. Understanding the foraging behavior of wildlife and identifying the resources they depend on is crucial for the conservation of these species. Wildlife Conservation reserve are an important conservation tool for protecting biodiversity and preserving natural habitats. The Muniya Conservation Reserve in Nagpur, Maharashtra, India, is one such protected area that is home to a variety of wildlife species, including herbivores that depend on wild palatable grasses as a major component of their diets.

Despite the importance of wild palatable grasses in the diets of herbivores, little is known about the specific grass species consumed by wildlife in the MCR. In this study, we focused on MCR as a study area. This research paper aims to identify and document the wild palatable grasses consumed by wildlife in this region, using a checklist approach.

2. Literature review

The foraging behavior of animals has been subject to numerous studies in recent times. According to a study by Anna R. Stoate *et al.*) 2001) [28], wild grasses are a vital source of nutrition for herbivores that feed on them. Specifically, they reported that wild grasses provide significant nutrition for rabbits, voles, and hares. Similarly, a study by L. R. Fraser *et al.*) 2004) [8] reported that wild grasses have high nutritional value and are a significant component of the diet of grazing animals such as deer and wild horses. Furthermore, a study by D. K. Maiti *et al.*) 2008) [18] reported that wild grasses are an important food source for wild elephants in the Jaldapara Wildlife Sanctuary in West Bengal, India. Dhiman *et al.*) 2015) [33] conducted a study on the foraging behavior of ungulates in the Great Himalayan National Park in India. The study found that ungulates primarily fed on grasses and herbs, with grasses constituting a major portion of their diet. Kothari *et al.*) 2013) [34] studied the foraging behavior of chital (*Axis axis*) in the Sariska Tiger Reserve in India. The study found that chital primarily fed on grasses and herbs, with grasses constituting 60-70% of their diet. Sultana *et al.*) 2016) conducted a study on the foraging behavior of wild boar in the Sundarbans mangrove forest in Bangladesh. The study found that wild boar fed on a variety of plant species, including grasses and herbs. Mucina *et al.*) 2016) [35] conducted a study on the foraging behavior of ungulates in the Kruger National Park in South Africa. The study found that ungulates primarily fed on grasses, with some species showing a preference for particular grass species. Studies have shown that herbivores in sanctuaries consume a variety of plant species, including grasses, to meet their nutritional

requirements.) Gill and Beardall, 2001) [36]. Palatability is consumption of plant or plant parts with relish by grazing animal) Husain and Durrani, 2009) [13]. Generally palatability and preference are used as synonymous, though preference is essentially behavioral, which is totally depending on the choice of the grazing animals)Ivins, 1952) [14]. “A List of Grasses and Sedges of the Nagpur and Telankheri Farms” was prepared by Graham) 1913) [11], enumerates 122 grass species. Ugemuge) 1986) [31] reported 133 species belonging to 66 genus of grasses. In the MCR, Nagpur, various species of wild animals such as Sambar, Barking deer, Spotted deer, Bluebull, Black Buck, Indian Guar, Chousinga, Indian hare, Indian palm squirrel and wild Pig inhabit the Conservation Reserve, and their diet consists of wild palatable grasses along with other vegetation. Identifying the wild palatable grasses consumed by wild animals can help in the management and conservation of their habitats.

3. Material and Methodology

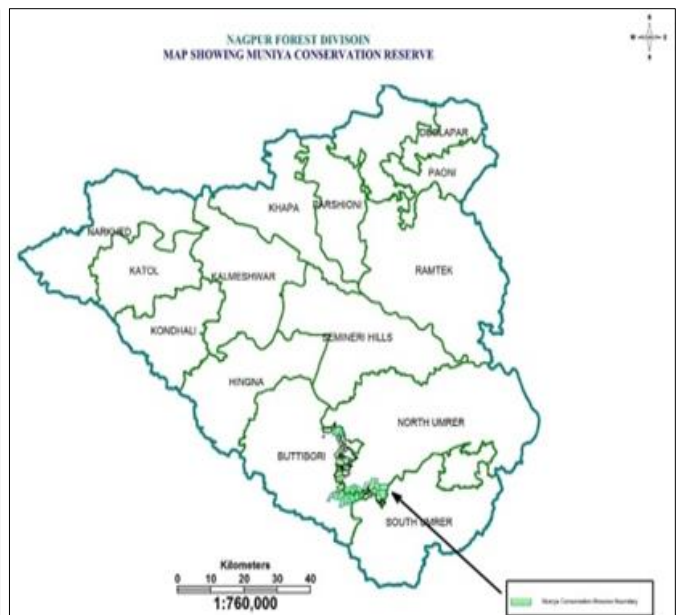
A) Study area

Situation and limits of “Muniya Conservation Reserve” located in Butibori and North Umred forest ranges of Nagpur forest division of Nagpur district and lies between 79.00 East and 79.15 East longitude and 20.40 North and 21.00 North latitude, covered with heterogeneous landscape and beautiful forest with some hilly area.

Table 1: Area showing of Muniya Conservation Reserve) MCR)

Sr. No.	Range	Compartment No.	Forest Area		Total Area (Ha.)
			RF	PF	
1	Butibori	23	3038.51	2317.47	5355.98
2	North Umred	15	3044.12	1201.33	4245.45
		38	6082.63	3518.80	9601.43

For study of wild palatable plants covered all 38 compartment of reserve forest and protected forest having total area of MCR is 9601.43 Ha. i.e. 96.01sq. km.) Chandewar *et al.*, 2023)



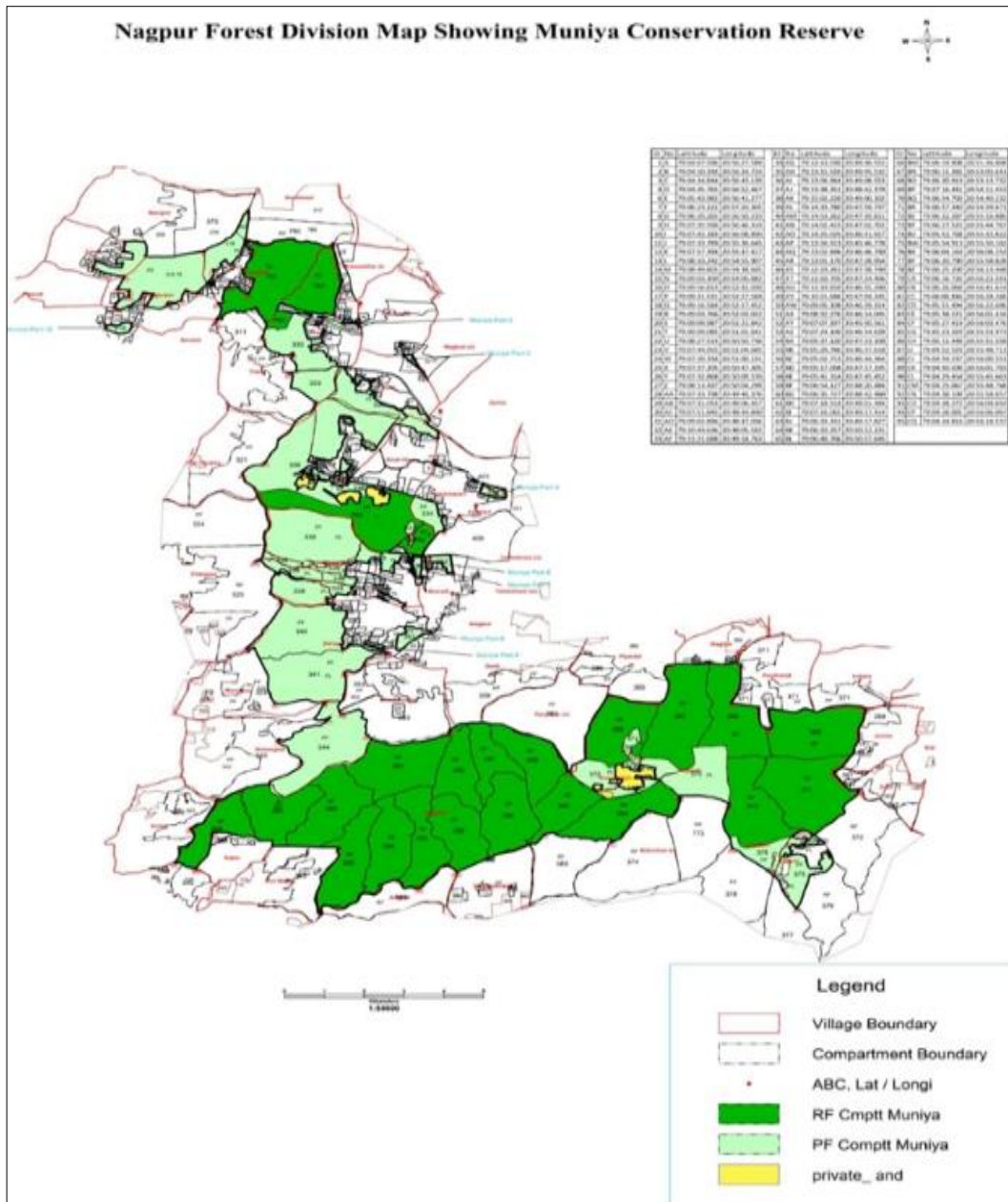


Fig 1: Map showing MCR) study area)

B) Methodology

To identify the wild palatable grasses consumed by the wildlife in MCR, Nagpur, a checklist was created of all the wild grass species. The preliminary checklist was developed through a comprehensive survey of the Conservation Reserve, which included field observations and interviews with local experts, forest staff and taking details about flowering season, habitats, vernacular names of grass species and palatability status was compiled) Blatter and McCann, 1935; Bor, 1960; Patunkar, 1980; Kulkarni, 1995; Potdar, 2012; Muratkar, 2012; Badawe, 2011) [2, 3, 25, 16, 39, 1]. Online World Grass Flora available at Royal Botanic Garden, Kew) RBG) website was also assessed for documentation.) Gorade *et al.*, 2014) [37]. The next step was to observe the wildlife in the MCR, specifically what grasses they ate and if they had any preference for a particular species of grass. The observations were conducted for a period of one year i.e. April 2021 to March 2022 and in different seasons to account for seasonal variations in the diet of wildlife.

The survey of wild palatable plants were taken in all 38 compartment of both the ranges) MCR) and was carried out generally at early morning with the help knowledgeable people in the region, forest labour and forest guard. The survey method adopted according to standard technical method and data was collected using observation taken and detailed information on indigenous knowledge, local name, preference given by wild animal and season availability was listed and noted down for further confirmation and data analysis. Grass species were collected, taken photographs and identified by using different relevant technical books and scientific literature.)Ref.-1,3,4,6,10,15,16,23,22,25).

C) Observation

The data collected from field was identified, listed out and arranged in a tabulated manner. The wild palatable grass species reported during the study period have been enumerated and shown in Table 3 with their botanical name, preference towards grass species i.e. palatability and season of availability.

Table 2: Palatability classification

Preference Class A	Very good or excellent fodder which were preferred the most by domestic animals	HP- Highly Palatable
Preference Class B	Good fodder grass Species, Species with usual preference by the livestock.	MP- Mostly Palatable
Preference Class C	Species with less first choice	LP- Less Palatable
Preference Class D	Species not often grazed under compulsion when no other feed exist	RP- Rare Palatable

Gorade *et al.* 2014; Khan *et al.* 2012; Hussain *et al.* 2009) [37, 38, 13]

4. Result and Discussion

The wild palatable grass species recorded during baseline data collection have been presented in table 2 with their vernacular name, botanical name with, preference/palatability and season of availability. The recorded 147 Grass species belonging to 61 Genus having 4 preference grade. Based on palatability potential, grasses are provided with four artificial grades. Out of 147 grasses 22 are A class, 60 are B class and 39 belong to C class and 26 belong to D class. Details about these classes are given in Table 3.

The research identified 147 species of wild palatable grasses that were consumed by the wildlife in the Muniya Conservation Reserve, Nagpur. Out of these wild palatable grass species, dominant Genus of grass species are- *Eragostis spp.*, *Panicum Spp.*, *Themeda Spp.*, *Sorghum Spp.*, *Pennisetum Spp.*, *Setaria Spp.*, *Aristida Spp.*, *Sehima Spp.*, *Dichanthium Spp.*, *Digitaria Spp.* It was also observed that each species of animal had a different preference for the

grass species they consumed. During observation, Sambar preferred *Dichanthium spp.*, *Cenchrus spp.* and *Pennisetum spp.* while Bluebull preferred *Cynodon dactylon* and *Eleusine indica*. Wild pig preferred rhizomes, suckers, runners and stolen of grasses species of *Cynodon spp.*, *Zea spp.*, *Dendrocalamus spp.*, *Bambusa spp.*, *Dichanthium spp.*, *Panicum spp.*, *Sorghum spp.*

The study highlights the importance of wild palatable grasses in the diet of wildlife in the MCR. These grasses not only provide nutrition to wildlife but also play an important role in maintaining the ecological balance of the region. The identification of wild palatable grasses consumed by wildlife in the MCR can aid in the conservation of these grasses and their habitats.

The findings suggest further investigation on nutritional aspects, medicinal properties, nursery techniques, harvesting techniques and conservational strategies of the reported wild palatable grass species.

Table 3: Observation on wild palatable Grass species found in Muniya Conservation Reserve.

S. No.	Name of Grass	Flowering Time	Vernacular Name	Preference Class
1	<i>Andropogon pumilus</i> Roxb.	Aug-Jan	Lalgavat	A
2	<i>Brachiaria mutica</i> (Forssk.) Stapf.	Aug-Jan	Pyara gavat	A
3	<i>Cenchrus ciliaris</i> L.	Jul-Dec	Anjan	A
4	<i>Chloris barbata</i>	Aug-Dec	Rai gavat	A
5	<i>Chloris gayana</i> Kunth.	Jul-Oct	Rhodes	A
6	<i>Capillipedium filiculme</i> Hook. f.) Stapf	Aug-Nov		A
7	<i>Dichanthium annulatum</i> Forssk)	Oct-Mar	Marvel	A
8	<i>Dichanthium caricosum</i> L.) A.	Sep-Dec	Motha Marvel	A
9	<i>Ischaemum afrum</i> J. F. Glem)	Sep-Jan	Kunda	A
10	<i>Ischaemum indicum</i> Houtt) Merr	Sep-Jan	Ber gavat	A
11	<i>Iseilema anthephoroides</i> Hack.	Aug-Dec	Tambadgota	A
12	<i>Iseilema laxum</i> Hack.	Aug-Dec	Moshi	
13	<i>Panicum miliaceum</i> L.	Oct-Dec	Varai	A
14	<i>Pennisetum hohenackerii</i> Hochst. ex.	Aug-Feb	Ran bajara	A
15	<i>Pennisetum pedicellatum</i> Trin.	Aug-Jan	Dinanath	A
16	<i>Sporobolus indicus</i> L.) R.Br.		Ghorla	A
17	<i>Sehima nervosum</i> Rottl.) Stapf		Paunya	A
18	<i>Sehima sulcatum</i> Hack.) A.		Sheda	A
19	<i>Sorghum bicolor</i>	Aug-Sept	Jwar	A
20	<i>Sorghum vulgare</i>	Aug-Dec	Jwar	A
21	<i>Pennisetum americanum</i> L.	Aug-Dec	Bajara	A
22	<i>Zea mays</i> L.	Jul-Dec	Maka	A
23	<i>Apluda mutica</i> L.	Oct-May	Moti tura	B
24	<i>Apluda varia</i>	Oct-April	Moti tura	B
25	<i>Arthraxon lanceolatus</i> Trin.) Hochst.	Aug-Dec	Chakkarpatti	B
26	<i>Arthraxon ciliate</i>	Oct-Dec	Turda	B
27	<i>Bothriochloa bladhii</i> Retz.) S.T. Black	Sep-Jan	Vaidya gavat	B
28	<i>Bothriochloa pertusa</i> L) A. Camus	Oct-Dec	Ghanda	B
29	<i>Brachiaria ramosa</i> L.) Stapf.	Aug-Nov	Chapsura, chapar gavat	B
30	<i>Brachiaria reptans</i> L.) C.A. Gardner & C.E. Hubb.	Sep-Oct	Chimanchara	B
31	<i>Chloris virgata</i> Swz.	Sep-Dec	Gondali	B
32	<i>Chrysopogon polyphyllus</i> Hack.) Blatt.	Sep-Dec	Fulora gavat	B
33	<i>Chrysopogon fulvus</i> spr) Chiov	Jul-Dec	Dongari	B
34	<i>Coix aquatica</i> Roxb.	Sep-Nov	Mothi Ranjondhal	B
35	<i>Cynodon dactylon</i> L.) Pers.	Throughout The year.	Durva	B
36	<i>Cynodon radiates</i> Roth.	Aug-Nov	Harali	B
37	<i>Dichanthium foveolatum</i> Delile.)	Sep-Dec	Ghandel	B

38	<i>Digitaria abludens</i>) Roem. &Schult.)	Aug-Oct	Sondri gavat	B
39	<i>Digitaria ciliaris</i>) Retz.) Koeler.	Aug-Feb	Shikari gavat	B
40	<i>Dinebra retroflexa</i>) Vahl) Panz	Sep-Feb	Lona gavat	B
41	<i>Echinochloa colona</i>) L.) Link.	Jul-Feb	Ranborat	B
42	<i>Eleusine indica</i>) Linn.) Geart.	Sep-Feb	Mendala	B
43	<i>Eragrostis amabilis</i>) L.) Wight & Arn	Sep-Mar	Belakuda	B
44	<i>Eragrostis ciliaris</i>) L.) R.Br.	Sep-Jan	Undir-kan	B
45	<i>Eragrostis gangetica</i>) Roxb.) Steud.	Jul-Mar	Todha,Asara	B
46	<i>Eragrostis japonica</i>) Thunb.) Trin.	Sep-Mar	Chiksi	B
47	<i>Eragrostis nutans</i>) Retz.) Neesex. Steud.	Oct-Dec	Chikta	B
48	<i>Eragrostis pilosa</i>) L.)P. Beauv.	Jul-Oct	Chiriakadana	B
49	<i>Eragrostis unioloides</i>) Retz.) Nees Ex	Aug-Feb	Chimandara	B
50	<i>Eragrostis diandra</i> Retz	Aug-Dec	Chimanchara	B
51	<i>Eragrostis bifara</i>)Vahl.) Wight & Stend	Aug- Dec	Chiraka	B
52	<i>Eragrostis stenophylla</i> Hochst.	Aug-Dec	Chhota Chimanchara	B
53	<i>Heteropogon ritchiei</i>) Hook. f.) Blatt.	Aug-Nov	Pochati	B
54	<i>Hygroryza aristata</i>) Retz.) Nees. Ex Wight & Arn	Nov-Mar	Deobhat	B
55	<i>Isachne globosa</i>) Thunb.) Kuntze.	Aug-Feb	Daura	B
56	<i>Isachne meeboldii</i> C.E.C. Fisch	Aug-Dec		B
57	<i>Ischaemum semisagittatum</i> Roxb.	Oct-Dec	Ber	B
58	<i>Iseilema Prostratum</i>) L.) Andersson.	Oct-Jan	Sona gavat	B
59	<i>Oplismenus burmannii</i>) Retz.) P. Beauv.	Jul-Feb	Kudak	B
60	<i>Oplismenus composites</i>) L.) P. Beauv	Aug-Dec	Shara	B
61	<i>Panicum paludosum</i> Roxb	Aug-Feb	Borati	B
62	<i>Panicum muticum</i> Forssk	Sep-Nov	Sava	B
63	<i>Panicum maximum</i> jacq.	Sep-Nov		B
64	<i>Paspalidium flavidum</i>) Retz.)A.	Jul-Oct	Bodelya gavat	B
65	<i>Paspalidium geminatum</i>) Forssk.)	Sep-Mar	Bodelya gavat	B
66	<i>Paspalum scrobiculatum</i> L.	Aug-Apr	Pakodi	B
67	<i>Perotis indica</i>) L.) Kuntze.	Oct- Aug	Kurad	B
68	<i>Pseudanthistiria heteroclita</i>) Roxb.) Hook. f.	Sep- Jan	Pokalya	B
69	<i>Rottboellia cochinchinensis</i>) Lour.)	Sep- Dec	Lahu gavat	B
70	<i>Pseudanthistiria heteroclita</i>) Roxb.Hook. f.	Sep- Jan	Pokalya	B
71	<i>Sacciolepis indica</i>) L.) Chase.	Sep- Dec		B
72	<i>Sehima ischaemoides</i> Forssk.		Paunat	B
73	<i>Sehima notatum</i>) Hack.) A. Camus.		Pavana	B
74	<i>Setaria pumila</i>) Poir.) Roem. &Schult.		Bindi	B
75	<i>Sorghum controversum</i>) Steud.) Snowden.			B
76	<i>Sorghum deccanens</i> Stapf. Ex Raizada.		Kakla	B
77	<i>Sorghum arundinaceum</i>) Desv) Stapf	Aug-Sept	Jangli jwari	B
78	<i>Sorghum halepense</i>) L.)Pers	Aug- Dec	Barwad	B
79	<i>Sporobolus helvolus</i>) Trin.) T.			B
80	<i>Sporobolus maderaspatanus</i> Bor.			B
81	<i>Tetrapogon tenellus</i>) Roxb.) Chiov.			B
82	<i>Urochloa panicoides</i> P. Beauv		Padhya	B
83	<i>Acrachne racemosa</i>) B. Heyne. Ex Roth.) Ohwi.	Jul- Dec	Chinke	C
84	<i>Aristida funiculate</i> Trin. &Rupr.	Sep- Dec	Tamberi kusal	C
85	<i>Aristida stocksii</i>) Hook. f.) Domin.	Sep- Nov		C
86	<i>Aristida hystrax</i> L.	Aug-Jan	Kusal	C
87	<i>Arundinella pumilla</i>) Hochst) Steud	Sept- Nov	Chimanchara	C
88	<i>Brachiaria distachya</i>) L.) Stapf.	Aug- Dec	Motia	C
89	<i>Brachiaria erusiformis</i>) Sm.) Griseb.	Sep- Jan	Shimpi	C
90	<i>Cenchrus biflorus</i> Roxb.	Oct- Dec	Kukar	C
91	<i>Chionachne gigantean</i>) J. Koenig) Veldkamp	Sep- Dec	Kanta- karvel	C
92	<i>Coix lacryma jobi</i> L.	Aug- Jan	Ranjondhal	C
93	<i>Dactyloctenium aegyptium</i>) L.) Willd.	Aug- Feb	Gandhi	C
94	<i>Digitaria stricta</i> Roth.	Aug- Feb	Kovita gavat	C
95	<i>Eragrostis aspera</i>) Jacq.) Nees	Oct- Dec		C
96	<i>Eragrostis cilianensis</i>) All.) Janch	Aug- May	Ranpohe	C
97	<i>Eragrostis viscosa</i>) Retz.) Trin.	Jul- Dec	Chitki	C
98	<i>Eriochloa procera</i>) Retz.) C.E. Hubb.	Oct- Jan		C
99	<i>Eulalia trispicata</i>) Shult.) Henr.	Oct- Dec		C
100	<i>Heteropogon contortus</i>) L.) P. Beauv. Ex	Aug- Feb	Kali- kusali	C
101	<i>Imperata cylindrica</i>) L.) Raeusch.	Aug- Nov	Dabhi gavat	C
102	<i>Ischaemum rugosum</i> Hack	Aug-Dec	Lendiya gavat	C
103	<i>Leptochloa chinensis</i>) L.) Nees	Sep- Feb	Chenhel	C
104	<i>Leptochloa fusca</i>) L.) Kuntz.	Sep- Oct		C
105	<i>Paspalidium punctatum</i>)Burm.) A.	Sep- Dec	Petnar	C

106	<i>Pennisetum purpureum</i> Schumach.	Oct- Dec	Elephant grass	C
107	<i>Saccharum ravennae</i>) L.) L.	Dec	Bochari	C
108	<i>Saccharum spontaneum</i> L.	Sep- Dec	Darbha, kans gavat	C
109	<i>Setaria intermedia</i> Roem. & Schult.		Pandar	C
110	<i>Setaria verticillata</i>) L.) P. Beauv.		Lapti	C
111	<i>Setaria glandulosa</i>	Aug- Dec	Chikta gavat	C
112	<i>Thelepogon elegans</i> Roth.		Kharbadi	C
113	<i>Themeda cymbaria</i> Hack.		Fulgavat	C
114	<i>Themeda quadrivalis</i>) L.) Ktze.		Fulora	C
115	<i>Themeda tremula</i>) Nees. ex stued.)Hack.		Gundi	C
116	<i>Themeda triandra</i> Forssk.		Murar	C
117	<i>Themeda australis</i>	Aug-Feb	Gondhal	C
118	<i>Themeda ciliate</i>	Aug-Dec	Motha moti tura	C
119	<i>Ripogon jacquemontii</i> Stapf.			C
120	<i>Sporobolus diander</i>) Retz) P. Beauv	Aug-Dec	Chimanchara	C
121	<i>Sporobolus multiflorus</i> L	Aug- Dec		C
122	<i>Brachiaria decumbens</i>	Sep- Oct	Signal grass	D
123	<i>Arachne racemosa</i>	Sept-Dec		D
124	<i>Aristida indica</i> L.	Aug-Jan	Lahan Pandhari kusal	D
125	<i>Dendrocalamus strictus</i> Nees.	Throughout the year	Bamboo	D
126	<i>Bambusa arundinacea</i>) Retz.)wild	Throughout the year	Bamboo	D
127	<i>Bambusa striata</i>	Throughout the year	Bamboo	D
128	<i>Chasmanthium latifolium</i>	Aug-Nov	Mal gavat	D
129	<i>Cymbopogon citrates</i>) DC) Stapf	Aug-Nov	Gavati chaha	D
130	<i>Cymbopogon martini</i>) Roxb.) Wats	Aug-Nov	Tikhadi	D
131	<i>Dactyloctenium aegyptium</i>) L.) wild	Aug- Dec	Rathiya gavat	D
132	<i>Manisuris granularis</i> L.	Aug-Dec		D
133	<i>Melanocenchris jacquemontii</i> jaub	Sep-Dec		D
134	<i>Oplismenus burmannii</i>) Retz.) P. Beauv.	Sept-Dec		D
135	<i>Oryza rumpphi</i>	Aug- Dec	Deodhan	D
136	<i>Panicum psilopodium</i> Trin.	Nov- Feb	Waghnakhi	D
137	<i>Pennisetum orientale</i> L.	Octo-Jan		D
138	<i>Pennisetum polystachyon</i>) L) Schult	Oct-Dec	Shivati	D
139	<i>Pennisetum glauccum</i>) L) R Br	Aug-Jan	Kolhe gavat	D
140	<i>Paspalum compactum</i> Roth.	Aug-Dec		D
141	<i>Pseudanthistiana heterochita</i>	Aug- Dec		D
142	<i>Rottboellia aquatic</i> L.	Aug- Dec	Lahu gavat	D
143	<i>Sehima glauca</i>)L) P. Beauv	Aug- Dec	Bindra gavat	D
144	<i>Setaria faberi</i>	Aug-Dec	Chikata	D
145	<i>Thysanolene maxima</i>	Aug-March	Zadu gavat	D
146	<i>Vetiveria zizanioides</i>	Oct-April	Khas gavat	D
147	<i>Zoysia japonica</i>	Aug- Dec	Ghoda gavat	D



Fig 2: Preference given by wild animal to recorded grass species.

Table 4: List of Herbivores wild animal, population density and grass preference

S. No.	Common Name	Scientific Name	Population Density	Grass Preference
1	Spotted Deer	<i>Axis axis</i>	H	A, B
2	Blue Bull	<i>Boselaphus tragocamelus</i>	H	A, B, C
3	Barking Deer	<i>Muntiacus muntjak</i>	L	A
4	Black Buck	<i>Antelope cervicapra</i>	M	A, B
5	Sambhar	<i>Rusa unicolor</i>	M	A,B,C
6	Wild Pig	<i>Sus scrofa cristatus</i>	H	A, B, C, D
7	Indian Guar	<i>Bos gaurus</i>	L	A, B, C
8	Chousingha	<i>Tetracerus quadricornis</i>	L	A,B
9	Indian Hare	<i>Lepus capensis</i>	M	A, B
10	Indian Palm Squirrel	<i>Funambulus palmarum</i>	L	A

Abbreviation: H- High, M- Medium, L- Low)

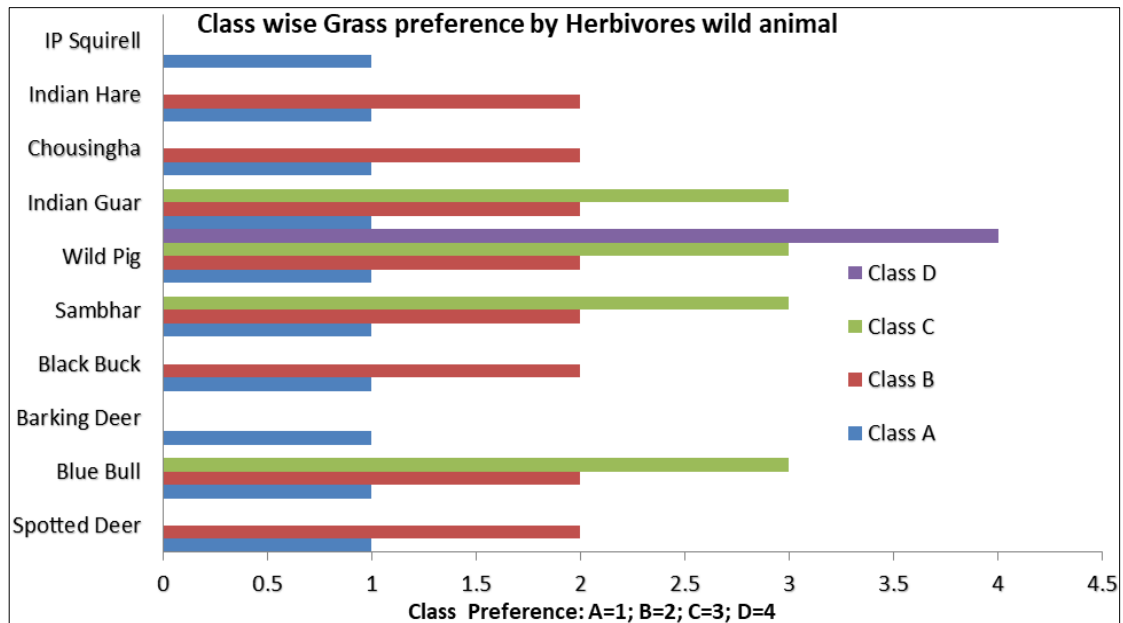


Fig 3: Class wise grass preference by Herbivores wild animal



Fig 4: Photos of some of the collected wild palatable Grass species from MCR

5. Conclusion

Muniya conservation reserve) MCR) having excellent biodiversity in wild palatable grass species. This is the first of its kind of attempt in the study area as the area declared as conservation reserve by the State Government. The study and prepared checklist of 147 species of wild palatable grasses consumed by wildlife in the MCR, Nagpur, highlighting the importance of wild palatable grasses in the diet of herbivorous animals. Furthermore, the study showcased that each species of animal had a unique preference for the grass species they consumed. Understanding the foraging behavior of wild animals is crucial in enhancing conservation efforts and managing their habitats. The present study helps to the forest department for preparation of management plan and execution of plan for management of conservation reserve. This study also used as a raw data for the creation of Fodder Nursery, for the creation of Meadow Development and Grass plantation in the MCR.

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7. References

1. Badwe Subhash. Kuran Vikasache Tantra, Sanwad Tradeprints, Pune; c2011.
2. Blatter E, McCann C. The Bombay Grasses. Imperial Council of Agricultural Research. Scientific Monograph. 1935;5:323.
3. Bor NL. The Grasses of Burma, Ceylon, India and Pakistan. Pergamon Press Oxford, London, New York Paris; c1960. p. 767.
4. Champion HG, Seth SK. A Revised Survey of the Forest Types of India. Gov. of India Press, Delhi; c1968.
5. Clayton WD, Vorontsova MS, Harman KT, Williamson H. Grass base - The Online World Grass Flora; c2006. <http://www.kew.org/data/grasses.db.html>.
6. Dabadghao PM. The Place of Grasses and Grasslands in our National Economy. Science and Culture. 1951;17:233-237.
7. Dabadghao PM, Shankarnarayan KA. The Grass Cover of India. ICAR, New Delhi; c1973. p. 711.
8. Fraser LR, *et al.* Effects of fire on a wild grass community in Semiarid Australia. The Journal of Ecology. 2004;92(4):767-777.
9. Gadgil MD, Malhotra KC. Ecology of a pastoral caste: Gavli Dhangars of peninsular India. Human Ecol. 1982;10(1):107-143.
10. Gadgil MD. Restoring the productivity of Indian savannas. Man Biosphere Series. 1993;12:221-221.
11. Graham RJD. List of Grasses and Sedges found on the Nagpur and Telankheri Farms. Govt. Press. Nagpur; c1913.
12. Heady FH. Palatability of Herbage and Animal Preference. J Range Managem; c1964. p. 76-82.
13. Hussain F, Durrani MJ. Seasonal Availability, Palatability and Animal Preferences of Forage Plants In Harboi Arid Rangeland, Kalat, Pakistan. Pak J Bot. 2009;41(2):539-554.
14. Ivins JD. The Relative Palatability of Herbage Plants J Br Grassl Soc. 1952;7:43-54.
15. Javed IS, Inam-Ur-Rahim Haq N, Muhammad Y, Javed I. Mineral Composition, Palatability and Digestibility of Free Rangeland Grasses of Southern Grasslands of Pakistan. Pak J Bot. 2008;40(5):2059-2070. [http://www.pakbs.org/pjbot/PDFs/40\(1\)/PJB40\(1\)237.pdf](http://www.pakbs.org/pjbot/PDFs/40(1)/PJB40(1)237.pdf)
16. Kulkarni DK, Kumbhojkar MS. Palatable Fodder Grasses from Pachgaon Parvati Area in Pune District. J Econ Tax Bot. 1995;19(3):529-532.
17. Lakshminarsimhan P. In Sharma DB, Karthikeyan S, Singh NP) Eds.). Flora of Maharashtra State-Monocotyledons. Botanical Survey of India, Calcutta; c1996. p. 794.
18. Maiti DK, *et al.* Food habits of elephants in Jaldapara Wildlife Sanctuary, West Bengal, India. Current Science. 2008;94(7):916-920.
19. Mani MS. Biogeography of Peninsula. Monographiae Biologicae; c1974. p. 614-647
20. Mirza SN, Muhammad N, Quamar IA. Effect of Growth Stages on the Yield and Quality of Forage Grasses. Pakistan J Agric Res. 2002;17(2):145-147.
21. Moretto AS, Distel RA. Effect of selective defoliation on competitive interaction between palatable and unpalatable grasses native to temperate semiarid grassland of Argentina. J Arid Environm. 1999;42(3):167-175.
22. Muratkar GD. Melghatatil Gavati Prajati, Melghat Vyaghra Prkalp, Swardhan Pratisthan, Amaravati; c2012.
23. Oke JG. Studies in grassland community in Maharashtra State: ecological classification of grassland patterns found in different ecological habitats and their botanical characterization. Indian Forest; c1973. p. 86-106.
24. Kalyankumar P, Choubey TK. Working plan of Nagpur Forest Division, Volume I, Period 2015-16 to 2024-25.
25. Patunkar BW. Grasses or Marathwada. Scientific publishers, Jodhpur; c1980.
26. Pemadasa MA. Grasslands of the World. J Biogeograp. 1990;17:395-400.
27. Singh Y, Gurjwar RK, Lodhi R, Rao RJ. People perception on wildlife in national Chambal sanctuary, Madhya Pradesh, India. International Journal of Biology Sciences. 2020;2(1):08-15. DOI: 10.33545/26649926.2020.v2.i1a.16
28. Stoate Anna R, *et al.* Ecological impacts of arable intensification in Europe. Journal of Environmental Management. 2001;63(4):337-365.
29. Suttie JM, Reynolds SG, Batello C. Grasslands of the World. Food and Agriculture Organization of the United Nations, Rome; c2005. p. 514.
30. The Plant List. Version 1.11 Published on Internet; c2013. <http://www.theplantlist.org/>.
31. Ugemuge NR. Flora of Nagpur District, Shree Prakashan, Nagpur; c1986.
32. Young MD, Solbrig OT. The world savannas economic driving forces, ecological constraints and policy option for suitable land use. Man and the Biosphere Series. 1993;12:350.

33. Dhiman M, Chalke B, Polshettiwar V. Efficient synthesis of monodisperse metal(Rh, Ru, Pd) nanoparticles supported on fibrous nanosilica(KCC-1) for catalysis. *ACS Sustainable Chemistry & Engineering*. 2015 Dec 7;3(12):3224-30.
34. Kothari M, Svensson P, Jensen J, Kjærsgaard A, Jeonghee K, Nielsen JF, Ghovanloo M, Baad-Hansen L. Training-induced cortical plasticity compared between three tongue-training paradigms. *Neuroscience*. 2013 Aug 29;246:1-2.
35. Mucina L, Bültmann H, Dierßen K, Theurillat JP, Raus T, Čarni A, *et al.* Vegetation of Europe: hierarchical floristic classification system of vascular plant, bryophyte, lichen, and algal communities. *Applied vegetation science*. 2016 Nov;19:3-264.
36. Gill RM, Beardall V. The impact of deer on woodlands: the effects of browsing and seed dispersal on vegetation structure and composition. *Forestry: An International Journal of Forest Research*. 2001 Jan 1;74(3):209-18.
37. Gorade VN, Chavan LS, Jagtap DN, Kolekar AB. Response of green gram(*Vigna radiata* L.) varieties to integrated nutrient management in summer season. *Agricultural Science Digest-A Research Journal*. 2014;34(1):36-40.
38. Khan AS, Yu S, Liu H. Deformation induced anisotropic responses of Ti-6Al-4V alloy Part II: A strain rate and temperature dependent anisotropic yield criterion. *International Journal of Plasticity*. 2012 Nov 1;38:14-26.
39. Potdar GG, Salunkhe CB, Yadav SR. Grasses of Maharashtra. Shivaji University Kolhapur. MS; c2012.