



**Cynodon
dactylon (L.) Pers.:
a Pinch Period
Fodder Resource
for Wild Ungulates
and Nesting
Habitat for Certain
Ground-nesting
Birds**

Introduction

Cynodon dactylon L. Pers., (Vern. 'Doob Ghas', Darb, Durva, Harali) or Bermuda grass, is a mat forming perennial grass widely distributed in warmer parts of the world. It spreads mainly by rhizomes, stolons, and less frequently through seeds (National Plant Data Center). Being an excellent soil binder, this species has been widely used the world over for erosion control, turfing and as a fodder grass. It can withstand sedimentation and long periods of inundation and prefers full sun, growing rapidly at air temperatures exceeding 30°C. It is associated with several religious ceremonies and Hindu rituals and has been widely used for curing several ailments as an ingredient of Indian ayurvedic medicine since ancient times (Ambasta, 2012; Ashokkumar et al., 2013). Though its fodder value and soil binding properties are well known, its role in supporting wild ungulate populations, especially during the pinch period has not been highlighted adequately except for a few studies (Biswas and Sankar, 2002; Wegge et al., 2006; Nayak et al, 2013). Similarly, importance of *Cynodon glades* as a nesting habitat for certain ground-nesting birds do not find a mention in literature. Here, we present some anecdotal observations on use of this species by wild ungulates and birds as a pinch period forage and nesting habitat respectively, mainly from the shores of Hirakud reservoir fringing Debrigarh Sanctuary, Odisha and underline its conservation significance.

Observations

Use of *Cynodon* patches by ungulates

It has been observed that besides borders of cultivated fields, roadsides and abandoned places, *Cynodon* colonizes seasonally inundated and draw-down areas of reservoirs and dams in many parts of tropics. Extensive glades of *Cynodon* can be seen along the margins of Hirakud reservoir in Odisha, Kalagarh reservoir in Corbett Tiger Reserve in Uttarakhand, Periyar Tiger Reserve in Kerala and Tawa reservoir and Pench Tiger Reserve in Madhya Pradesh to name a few.

Debrigarh Wildlife Sanctuary covering an area of 353.81 km², located in the Bargarh district of western Odisha is fringed by the sprawling 746 km² Hirakud reservoir in its North and East. The sanctuary with its relatively undisturbed forests is well-known in the state of Odisha for its excellent sightings of wildlife. During the peak summer in mid May-June, the reservoir level reaches a minimum at about 590 feet and the shoreline recedes to a kilometre or more in certain places. During this time along the exposed shoreline, wherever soil cover is present, a dense growth of short mat-like growth of *C. dactylon* proliferates. Apart from Asian elephant (*Elephas maximus*) the sanctuary has a sizeable population of Gaur (*Bos gaurus*), Sambar (*Rusa unicolor*), Spotted Deer (*Axis axis*), Nilgai (*Boselaphus tragocamelus*), Chousingha (*Tetracerus quadricornis*) and Wild pig (*Sus scrofa*). The forest type is largely dry deciduous with a good growth of the solid bamboo (*Dendrocalamus strictus*) apart from a large number of grazing and browsing species. However, during the summer months starting from March to May, most of the trees shed their leaves and the undergrowth becomes sparse. Further, except for a few rocky pools almost all natural water sources also dry up. Therefore, food and water becomes scarce for wildlife during this period and particularly, the month of May constitutes the crucial pinch period when the shoreline is clothed by a profuse growth of *C. dactylon*, except for the highly eroded bouldery slopes. The grass spreads quite rapidly forming a dense mat-like growth. Observations during the summer seasons of 2010, 2011 and 2012 revealed that four species of ungulates, viz., Gaur, Sambar, Chital and Chousingha regularly forage on the doob grass. During this time, herds of Gaur and Sambar come down from the hills and spend the entire peak summer in and around the reservoir fringes, primarily for utilising the grass fodder. Elephants too tend to spend most of their time around the reservoir during this period and feed heavily on *C. dactylon*, often using their feet to unearth tussocks of grass, which they then feed upon. Though focused studies are required to validate these observations, it is likely that *C. dactylon* probably constitutes the

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most important fodder for the afore-mentioned species during the crucial pinch period and thus helps the Sanctuary in supporting relatively high densities of these species. Further studies in some of the afore-mentioned sites elsewhere in India might reveal a similar pattern.

Nesting habitat for birds

Apart from being an important fodder resource, the thick carpet of doob grass was also observed to be a favoured nesting habitat for a number of ground-nesting passerine birds such as Oriental Skylark (*Alauda gulgula*) and Indian Paddy field Pipit (*Anthus rufulus*). These species were noticed to build their nests inside the thick cover of the *C. dactylon*. However, one species which showed a marked preference for *C. dactylon* was Oriental Pratincole (*Glareola maldivarum*), which seemed to be obligatory to such patches, particularly where it was interspersed with boulders and rocks. Black-winged Stilt (*Himantopus himantopus*) and occasionally, the Little Tern (*Sterna albifrons*) were also seen to nest in *C. dactylon* covered islets, using the grass as a nesting material to line their skimpy ground nests (Plate 18.1 - 18.3).

Conclusion

Though not published, similar observations on the role of *Cynodon* as a crucial pinch period resource exist from other reservoirs of Odisha such as Kuldih, Rengali and Hadgarh (M.V. Nair *pers. obs.*; Pratyush Mohapatra and Aditya Panda *pers. comm.*) as well as other parts of the country such as Pench (Biswas and Sankar, 2002), Kanha-Pench corridor (Nayak et al., 2013); Ramganga reservoir area of Corbett TR (Bivash Pandav *pers. obs.*). Other than wild herbivores, the domestic livestock residing inside protected areas are also heavily dependent on *C. dactylon* during the dry season. With the onset of dry season, Gujjar communities residing in Kalagarh (part of Corbett Tiger Reserve) and Lansdowne forest divisions in Uttarakhand move in to the banks of Sonanadi, Palain and Ramganga along the Kalagarh reservoir with their buffaloes to exploit the lush growth of *C. dactylon*, thereby leading to intense competition with wild herbivores such as spotted deer and elephant. Hence, the role of *Cynodon dactylon* as a pinch period resource could be very important, especially in dry deciduous forest areas where inland waterbodies / reservoirs exist. Therefore, Protected Area managers having reservoir fringes within their sanctuaries can attempt to propagate *C. dactylon* artificially through rhizomes, stolons or transplanting matted rolls. Once established, this hardy fodder grass spreads rapidly, can withstand long periods of submergence and can really serve to supplement the available fodder resources for wild ungulates during the resource crunch period. However, it has to be borne in mind that it can also be highly aggressive, crowding out most other grasses and invading other habitats. Hence, care should be exercised in planting it in areas harbouring unique and habitat-specialist indigenous plant communities.



Plate 18.1: Lark sp in *Cynodon* grassland



Plate 18.2: Eggs of Black-winged Stilt



Plate 18.3: Oriental pratincole

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