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CASE REPORT **ZOOS' PRINT JOURNAL I-XIV(1-10): 125-127**

SPOTTED DEER (*AXIS AXIS* ERXLEBEN) HERD IN OSMANIA UNIVERSITY DEER PARK, HYDERABAD

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Introduction

The Osmania University Deer Park was established on 30 July 1990 with a breeding group of 10 (2 Males and 8 Females) spotted deer (*Axis axis* Erxleben). Since then the group has bred successfully and the present population consists of about 90+ animals. Due to habitat constraints the threshold level of the carrying capacity has been reached. To study the herd characteristics and assess the habitat conditions the present team conducted a three-month observation. This report elaborates the findings of these surveys and deals largely with the population status of the herd and management conditions of the park.

Study Area

Established in the year 1918, Osmania University is the ninth oldest and one of the most prestigious universities of India. Located on the northeastern flank of Hyderabad (*circa* 24^{0}N and 32^0 E), its campus forms an extensive expanse of about 679 ha. of semi wilderness. The general topography is rocky with altitude ranging between 500-538m. Of the vast expanse, 400-440 ha. of land is developed as *Dalbergia*, *Eucalyptus* and *Leucaena* plantations under various Urban-Forestry Development Plans. About 12.8 ha. of land is maintained as University (Landscape) Garden where a variety of vegetation is grown.

Vegetation is represented by more than 900 species, of which the important and dominant ones are *Acacia arabica*, *Acacia nilotica*, *Azadirachta indica*, *Bauhinia variegata*, *Bauhinia vahli*, *Butea monosperma*, *Cassia fistula*, *Cassia auriculata*, *Casuarina equesitifolia*, *Annona squamosa*, *Polyalthia longifolia*, *Pheltophorum roxburghianum*, *Dalbergia latifolia*, *Ficus religiosa*, *Mangifera indica*, *Delonix regia*, *Randia dumetorum*, *Prosopis juliflora*, *Erythrina indica*, *Holoptelia integrifolia*, *Syzizium cumini*, *Lawsonia glauca*, *Terminalia tomentosa*, *Tamarindus indicus*, *Thespesia populnea*, *Pongamia pinnata*, *Parkinsonia* spp., *Calophyllum inophyllum*, *Borassus flabelifer*, *Phoenix sylvestris*, *Lantana camara*, *Zizyphus jujuba* and *Ziziphus oenoplia.*

The Deer Park covers an expanse of about 24 ha. or 60 acres and is located south of the Vice-Chancellor's Lodge (Figure 1). Natural vegetative cover within the Deer Park is rather sparse due to the scrubby nature of the habitat. Chief cover is that of *Leucaena leucocephala* and *Dalbergia sissoo* planted under the Energy Plantation Scheme of the University. Principal woody species include *Azadirachta indica*, *Prosopis juliflora*, *Acacia* spp. and *Albizzia* spp. Undergrowth includes *Lantana camara*, *Calotropis gigantea*, *Calotropis procera*, *Zizyphus jujuba*, *Cassia auriculata*, *Randia dumetorum*, etc. Herbaceous species are sparse and are represented by *Achyranthus aspera*, *Hemidesmus indicus*, *Tephrosia purpurea*, *Tribulus terrestris*, etc.

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Table 1. Herd composition and visual body condition of Spotted Deer in Osmania University Deer Park, Hyderabad

Sex & Age Class	Total	Good	Fair	Bad	% Population
Adult Males	11	4(5.06)	6(7.59)	1(1.26)	13.92
Sub-adult Males	24	9(11.39)	15(18.98)	0	30.37
Adult Females	23	12(15.18)	11(13.92)	0	29.11
Sub-adult Females	21	8(10.12)	13(16.45)	0	26.58
Fawns	9	-	-	-	-

Values in parentheses are percentages

Results and Discussion

Population Status

During preliminary survey, attempts were made to conduct total counts of the deer herd at three different stages during which a maximum total of 88 animals could be counted. Of these, 11 were adult males, 24 sub-adult males, 23 adult females, 21 sub-adult females and nine fawns. Excluding the fawns, the density of Spotted Deer within the park was about 3.29 animals/ha or 1.31 animals/acre, and including the fawns the values were 3.66 and 1.46 respectively. The observed sex ratio is 1:1.25 in favour of females, and the adult female to fawn ratio is 1:0.39.

When compared to the density of Spotted Deer in other semi-captive parks of the state the density is within the safe limit. In the case of Jannaram Deer Breeding Centre (Kawal Wildlife Sanctuary, Adilabad District) the density had been recorded to be 3.18 animals/ha, while that at Jawahar Deer Park (near Shameerpet Lake, Ranga Reddy District) it was as high as 7.4 animals/ha. In some of the Parks with large areas and fewer number of animals the density was recorded to be lower than 2 animals/ha. At Guindy National Park, Chennai, it was between 1.84 to 2.39 animals/ha (Raman *et al.*, 1996) while at Pochermal Deer Breeding Centre I, Pocharam Wildlife Sanctuary, Medak District, it was 1.42 animals/ha (Srinivasulu, 1998b).

The population growth of about 88 animals from 10 animals after a span of eight years account for a growth rate of 0.27 which is much better than the highest growth rates recorded elsewhere within the state (Srinivasulu, 1998a).

Among the various body condition indices used to assess the well being of the animal as well as the constraints of the habitat on the animals, the Visual Body Condition (VBC) Index is the easiest to measure (Srinvasulu, 1998b). Physical condition of the animal is a sensitive and easily measured response to the condition of its habitat (Riney, 1982). Of the total of 79 animals (excluding the fawns) only one male was in bad condition (an animal with injured leg), while the rest were either in fair or good body conditions. Table 1 depicts the overall population status as well as the VBC measures.

Management Inferences

Though the Deer Park can be categorized as a well managed one, it was found during the present study, that serious steps have to be taken to augment the existing resources to sustain animals without any strain. The importance of browse especially that of the preferred species has to be taken into consideration and the availability of these during the pinch period has to be seriously studied. It has been noted that the deer herd mainly relied on tender leaves of *Lantana camara.* The leaf litter during the summer seems to be the only natural source of nutrition besides fresh grass and feed supplied by the caretakers. In the wild deer probably move from one place to another in response to changing quality and quantity of available forage. Overuse of certain areas and available browse species lead to resource depletion during summer. An increase in forage supply from outside during the summer will help the herd to overcome such strains. The deer management has to be cared through environmental enrichment by artificially improving the habitat by selectively planting preferred species and guarding these for some months/years from being browsed or otherwise suffer damage.

The optimum deer density can be defined as maximum number of animals that can be maintained in a healthy condition. The herd size is maintained naturally, with a high fawn productivity during herd buildup and a decline following habitat overuse. Several studies have shown that it is not a good management practice to allow deer to overuse the preferred forage species. Once habitat deterioration has occurred restoration becomes a big problem, which means one should either bring about a substantial reduction in herd size or preserve areas for natural or artificial improvement of the habitat. A similar trend was noticed in the present study area which, if unchecked will lead to severe consequences, such as high mortality rates.

Recommendations

1. Augmenting the existing browse by planting preferred species in selected suitable habitat segments
2. Increasing the area of the Deer Park by including open flat and undulating terrain on the southern side towards the Mohini Cheruvu.
3. In selected areas within the park *Stylo hemata* can be raised artificially to supplement the browsing needs.
4. The freshwater sources have to be increased by tapping ground water; a bore within the park or nearby will suffice the demand.
5. The naturally occurring depressed areas within the park have to be modified to hold water during rains to supplement freshwater supply.
6. The existing water supply (the one originating from the River Musi) should be diverted as it may contain contaminants that can be harmful to animals in the long run.
7. Arrangement of increased quantity of green fodder from areas outside the Deer Park is also suggested as unavailability of the natural browse within the Park is one of the greatest limiting factors to the well being of the herd.
8. Long term strategy about the manner to accommodate the growing population of deer has to be chalked out in consultation with the wildlife wing of the Andhra Pradesh Forest Department.

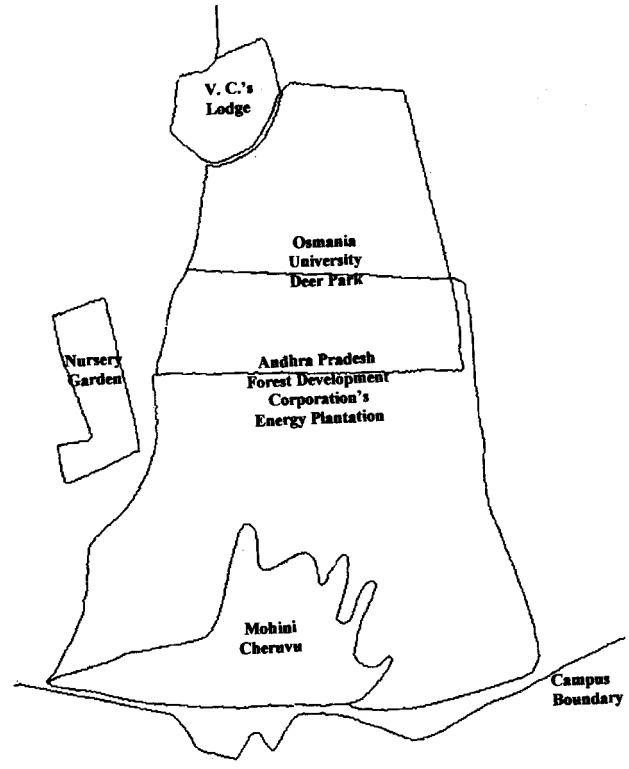

Figure 1. Map of Osmania University Deer Park.

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