

## Evaluation of the Body Condition of Wild Herbivores of Panna Tiger Reserve

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**Abstract** India is standing 6<sup>th</sup> in the list of 12 mega biodiversity country in the world. The physical status and general health of wild animals can be judged by evolution of their body condition, which can be done from a safe distance without disturbing the wild animals. The point scale methods was used in this study for the evaluation body condition of 191 wild herbivores chital or spotted Deer (*Axis axis*)–79, sambhar (*Rusa unicolor*)–48, nilgai (*Boselaphus tragocamelus*)–33, chikara (*Gazella gazella*)–31. The key areas selected for the assessment were skin coat, flank ribs, pelvic girdle, vertebral column and lumbar shaft, accordingly, points were allotted to each animal.

**Keywords** Body condition evaluation, Wild herbivores, Infection.

### Introduction

India is standing 6<sup>th</sup> in the list of 12 mega biodiversity country in the world. Wild animals are important constituent of ecosystem. Wild animals are of very high social and economic value to human societies. For that reason, diseases with significant impacts on wild animal populations pose important socio-economic risks to society.

A number of factors threaten the existence of wild animals in this country including wildlife diseases and disorders arising from different type of pathogen like bacterial, viral, fungal and parasitic.

Extrinsic infection owing to gastrointestinal parasitism is capable to reduce the potential and agility of the susceptible hosts. Subsequently, frequent emergence and reemergence of infectious diseases in wild animals may take place in free ranging condition. Outbreak of many infectious diseases in wild animals is evident in many parts of the country, tempted towards the surveillance of diseases in wild animals, which reflects the status of parasitic diseases in protected and non protected areas as compare to domestic animals of adjoining areas [1].

The exchange of disease is a concern for wildlife conservation both outside and inside the boundaries of parks and reserves. The presence of tourists, researchers and park personnel has created a

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situation that may facilitate disease transmission between humans, livestock and wildlife [2].

Wildlife health management is an essential component for conservation of wild fauna. The physical status and general health of wild animals can be judged by evaluation of their body condition, which can be done from a safe distance without disturbing the wild animals. Evaluation body condition of wild animal is based on point scale method in which the key areas selected for the assessment were skin coat, flank, ribs, pelvic girdle, vertebral column and lumbar shaft, and accordingly, points will be allotted to each animal [3].

### Materials and Methods

The present study was conducted for a period of one year (2013-14) at Panna Tiger Reserve, located in Panna and Chhatarpur districts (Bundel khand region) of Madhya Pradesh in India and spread over 542.67 km<sup>2</sup>(209.53 sq miles). This study was plan to evaluate the body condition of free ranging herbivores and adjoining domestic animals of Panna Tiger Reserve. The park is surrounded by two major river of bundal khand region e.i.Ken and betawa. These rivers play a important role in micro climate of Panna Tiger Reserve. Body condition of 191 wild herbivores (chital-79, sambhar-48,nilgai-33,chinkara-31) was evaluated in this study on point scale method.

Body condition evaluation involved judging the physical condition of the animals based on visual examination of the degree of protuberance of bony processes on the body surface and the condition of skin coat. The key areas for the assessment were skin coat, flake, ribs, pelvic girdle,vertebral column and lumbar shaft,and on the basis of these, points were allotted to each animal [4].

### Results and Discussion

#### Evaluation of body condition of wild herbivores

The body condition of 191 wild herbivores chital (n=79), sambhar (48), nilgai (n=33), chinkara (n=31) was evaluated on point scale, which involved judg-

**Table 1.** Evaluation of % body condition of wild herbivores.

Sl. No.	Species	Zones	Body condition		
			Good (%)	Average (%)	Poor (%)
1.	Chital (n=79)	Zone-I	8.86 (7)	30.37 (24)	8.86 (7)
		Zone-II	10.12 (8)	24.05 (19)	5.06 (4)
		Zone-III	5.06 (4)	6.32 (5)	1.26 (1)
		Total (%)	24.05	60.76	15.19
2.	Sambhar (n=48)	Zone-I	10.41 (5)	18.75 (9)	14.58 (7)
		Zone-II	10.41 (5)	18.75 (9)	6.25 (3)
		Zone-III	12.5 (6)	8.33 (4)	0.00 (0)
		Total (%)	33.32	45.83	20.83
3.	Nilgai (n=33)	Zone-I	21.21 (7)	6.06 (2)	3.03 (1)
		Zone-II	9.09 (3)	27.27 (9)	3.03 (1)
		Zone-III	6.06 (2)	18.18 (6)	6.02 (2)
		Total (%)	36.36	51.52	12.08
4.	Chinkara (n=31)	Zone-I	9.67 (3)	29.03 (9)	0.00 (0)
		Zone-II	6.45 (2)	22.58 (7)	3.22 (1)
		Zone-III	12.09 (4)	16.12 (5)	0.00 (0)
		Total (%)	28.21	67.74	3.22

ing the physical condition of the animals, based on visual examination. The key areas for the assessment were skin coat, flank, ribs, pelvic girdle, vertebral column and lumbar shaft, and on the basis of these, point were allotted to each animal. Animals scoring 0-5 points were graded in poor, 6-8 in fair and 9-12 in good body condition (Table 1)

Among (n=79) chital 24.05, 60.76 and 15.19% comes under good, average and poor body condition, respectively. In case of (n=48) sambhar 33.32% 45.83% and 20.83% fall under good, average, and poor body condition. Whereas in (n=33) nilgai 36.36%, 51.52% and 12.08% are ranked in good, average and poor body condition. Among chinkara (n=31) good body condition recorded in 28.21% whereas 7.74% animals comes in average body condition and 3.22%, comes under poor body condition.

Evaluation of body condition involves visual examination for judging the physical health status of the animals, based on the degree of protuberance of bony processes on the body surface and the condition of skin coat. among wild herbivores 29.31% animals were judged to be in good condition, 56.54% average and 15.70% in poor body condition. However, majority of the domestic animals of adjoining places were in poor body condition may be due to

higher overall higher parasitic prevalence. The findings thus suggest that the wild animals are comparatively in better body condition.

The nilgai (36.36%) are in better body condition in compare to sambhar (33.32%) chinkara (28.21%) and chital (24.05%). The reason attributed to current scenario might be higher parasitic load and stress condition. Similar observation were recorded by Nagar with the findings that the helminthes-affected wild herbivores showed overall reflection towards the decline of body condition. The nilgai is a species which can survive even in poor habitat [5]. In the wild, animals might have a natural resistance against parasitic infection or live in a balanced system with their parasites and its seldom lead to harmful infection unless stressed [6]. Singh et al. also reported body condition of wild animals depend upon parasitic load and microclimate of the protected areas [3]. Parasitism, especially endoparasitic infection produces ill effects such as weakness, emaciation, inappetance and predisposes the animals to various potential pathogens [6]. A number of factors threaten the existence of wild animals in India. Parasitic infection may negatively influence the health status of animal [7]. Helminth parasites are significant pathogens of wildlife and are responsible for unthriftiness, decreaseing fecundity rates and sometimes death [8]. Wild animals have been documented to suffer from a plethora of common or shared pathogens with humans and livestock. Due to their proximity to each other within the zoological garden, there is opportunity of transmitting diseases or parasites to species which would not normally come into contact with the pathogens and thus are highly susceptible to infection [9]. The wild animals in free range are generally infected with numerous parasites, but causes little harm, unless they are stressed. Increasing tourism pressure on Protected Areas by the virtue of air and water pollution, commercial exploitation, livestock grazing , might be rendering the wild

animals in stress. Therefore, it is essential to monitor the health status periodically in wild and domestic animals; furthermore, it is necessary to restrict their neither intermingling. The existing infection of endoparsites in livestock can be controlled by adopting suitable antihelminthic therapy and management procedure. This study identified that there is scope for improvement in the management practice adopted by park by re-scheduling anthelmintic program in around live stock, regular surveillance of major bacterial, parasitic and viral diseases, examination of body condition of wild herbivores and surrounding livestock and early season treatment to prevent infection.

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