

Significance of grasslands in protected forest areas

C.M. Mishra, A. Kumar, B.C. Tiwari and S.L. Singh

Forest Research Institute, U.P., Kanpur – 208024, India, Email: chandramm@rediffmail.com

Keywords: protected area, sanctuary, wildlife

Introduction This paper describes case studies of grassland formation in the protected forest areas of the Indian state of Uttar Pradesh. This state has a total forest/tree cover of 8.84%, whereas the protected forest areas comprise only 2.54%. The protected areas constitute, one national park, eleven wildlife sanctuaries and thirteen bird sanctuaries.

Ecological status of grassland at Dudhwa National Park The park is situated on the Indo-Nepal border in Lakhimpur Kheri district of Uttar Pradesh state and was established in 1977. The park is famous for the presence of swamp deer. According to a recent census the estimated population of herbivorous wildlife was about 20,000. The forest throughout the park is interrupted by wide stretches of mesophyllous grassland. Recent surveys have shown that these grasslands were organised into a number of recognisable assemblages, called communities. Each community in turn was characterised by one dominant species imparting a characteristic physiognomy to the vegetation. The area of grasslands was found using satellite remote sensing technique to be about 85.71 km², or 12.67% of the total. Table 1 indicates the value of different parameters, recorded during the study. The productivity was estimated through clipping quadrats of size 1 m², using the dry weight method (Milner & Hughes, 1968).

Table 1 Name, annual productivity (t/ha) and composition (% ground cover of dominant species) of the dominant grassland communities in the Dudhwa National Park

Community name	Productivity	Composition (%)
<i>Narenga porphyrocoma</i>	17.90	76
<i>Bothriochloa pertusa</i>	9.92	60
<i>Themeda arundinacea</i>	13.89	82
<i>Arundo donax</i>	20.84	69
<i>Desmostachya bipinnata</i>	15.86	56

Ecological status of Samaspur Bird Sanctuary at Raebareli The Samaspur Bird Sanctuary, covering an area of 8 km², is situated about 40 km from Raebareli city. It is an ideal habitat for migratory and native birds. An initial survey of the lake revealed a rich vegetational diversity of aquatic flora with vegetative production of approximately 4 t/ha per yr. However, there is ample scope to enrich the habitat by planting suitable tree, grass and legume species and to increase the carrying capacity of the sanctuary. Hence, to increase the carrying capacity of the sanctuary, afforestation with a suitable tree grass legume model with certain aquatic flora has been suggested in Table 2. The choice of species will be an important feature in seeking to achieve sustained productivity.

Table 2 Suitable tree, grass, legume species with a list of certain aquatic plants appropriate for Samaspur Bird Sanctuary

Tree spp.	Grasses and legumes	Aquatic spp.
<i>Acacia nilotica</i>	<i>Brachiaria mutica</i>	<i>Spirodela</i>
<i>Acacia leucophloea</i>	<i>Chloris</i> spp.	<i>Lemna</i>
<i>Acacia auriculiformis</i>	<i>Panicum maximum</i>	<i>Wolffia</i>
<i>Albizia lebbek</i>	<i>Panicum notatum</i>	<i>Wolffiella</i>
<i>Albizia procera</i>	<i>Stylosanthes</i> spp.	<i>Hydrilla</i>

Conclusions This investigation of one national park and one bird sanctuary revealed huge biological diversity with high productivity but at the same time all the sites require careful scientific management for sustained productivity for maintenance of a proper food-chain in between herbivorous and carnivorous wildlife.

Reference

Milner, C. & R.E. Hughes (1968). Methods for the measurement of primary production of grasslands. IBP Handbook No. 6, Blackwell Scientific Publication, Oxford, 70 pp.