

FAILURE OF MOOSE TO USE THE SAME STANDS IN CONSECUTIVE
WINTERS

Michel Crête

Service de l'aménagement et de l'exploitation de la faune,
ministère du Loisir, de la Chasse et de la Pêche, 13, rue
Buteau, Hull, Québec, J8Z 1V4.

Abstract: Observations on the use of the same forest stands by moose (*Alces alces*) in consecutive winters were made in two areas of south-western Quebec. No evidence of repeated utilization was found when stratifying the habitat according to forest types or food abundance.

Résumé: Des observations sur l'utilisation pendant des hivers consécutifs de mêmes peuplements forestiers par l'original (*Alces alces*) ont été faites dans deux régions du sud-ouest québécois. Aucune évidence de fréquentation soutenue n'a pu être décelée en stratifiant l'habitat selon les types forestiers ou l'abondance de la nourriture.

The concentration of a game species in a particular area during consecutive years can allow intensive habitat or population management. This principle is used for managing winter yards of white-tailed deer (*Odocoileus virginianus*) in northeastern North America (Telfer 1978).

The present study furnishes information for evaluating the usefulness of such a management technique for moose (*Alces alces*) in winter.

METHODS

The data were collected during a study on moose habitat preferences in southwestern Quebec (Crête 1977). The study area was located in Mont-Tremblant Provincial Park (MTPP) in 1974 and in part of Pontiac County (PC) in 1975: those areas are located at the same latitude (47° L.N.) and 200 km apart. Both belong to the forest zone 2 described by Brassard et al. (1974). Moose density was estimated through aerial counts at 0,4 moose per km² in MTPP and at 0,1 moose per km² in PC (Crête and St-Hilaire 1979).

Two aerial surveys carried out in January and March helped to delineate the general area frequented by moose during the 1974 winter in MTPP and during the 1975 winter in PC. These general areas encompassed forest stands that were used and unused by moose. A ground sampling of the general areas followed the next spring and observations were made on evidence of moose activity (browsed twigs and/or pellet-groups) in and around each plot. Plots (2X 80 m) were designed for pellet-group counts and they were systematically distributed along transect lines; minimum distance between two plots was 60 m. Evidence of moose activity was noted for the last and the previous winters: dead twigs and growth of lateral shoots helped to recognize browse from the previous winters, while dead leaves on pellet-groups also indicated activity during the previous winters.

Table 1. Number of plots used or not by moose during the surveyed and the preceding winters according to study areas and to major forest types (H_t = stands containing shade-tolerant hardwoods; H_i = stands containing shade-intolerant hardwoods).

	H_t		H_i	
	used during the surveyed winter	unused during the surveyed winter	used during the surveyed winter	unused during the surveyed winter
MTPP (1974) ¹				
used during the preceding winter	5	6	9	8
unused during the preceding winter	43	48	30	55
PC (1975)				
used during the preceding winter	7	16	11	19
unused during the preceding winter	37	63	52	46

¹ Surveyed winter

RESULTS AND DISCUSSION

Table 1 shows the frequency of use of the same forest stands in consecutive winters for both study areas according to the major forest types. The classification of the habitat was based on the presence of shade-tolerant (H_t) or intolerant (H_i) hardwoods (regardless of the abundance of conifers) because each type had a different potential for moose in winter (Crête 1977). Both forest types were generally made of mixed stands, but hardwoods dominated H_t type and conifers H_i type (Crête 1977). When comparing used and unused stands during the surveyed winter, the χ^2 test indicated that moose did not tend to frequent the same stand in consecutive winters no matter the forest type or the study area ($P > 0,1$) although a great difference in moose density existed.

Since woody browse is a major factor attracting moose to an area (Ahlen 1975; Brassard et al. 1974; Crête 1977; Peek et al. 1976), and since more browse was available in younger stands (Crête 1977), the data were also analysed according to the age of the stand (Table 2). However the comparison of used and unused stands of the same age class by the χ^2 test did not indicate a tendency for moose to utilize the same stand during consecutive years according to food availability ($P > 0,1$).

The results show that moose do not tend to winter in the same stands during consecutive winters. The low density of moose in the study areas can probably explain much of the phenomenon. These results allow me to conclude that moose management should be approached in an extensive way rather than in an intensive one in southwestern Quebec.



Table 2. Number of plots used or not by moose during the surveyed and the preceding winters according to the age (years) of the stands (grouped in three age classes) and the major forest types (H_t = stands containing shade-tolerant hardwoods; H_i = stands containing shade-intolerant hardwoods). Data from the two study areas were pooled.

	Used during the surveyed winter	Unused during the surveyed winter
H_t		
Used during the preceding winter		
0-20	10	13
21-40	0	1
40 ⁺	2	8
Unused during the preceding winter		
0-20	54	66
21-40	9	5
40 ⁺	17	40
H_i		
Used during the preceding winter		
0-20	4	5
21-40	5	3
40 ⁺	11	19
Unused during the preceding winter		
0-20	23	34
21-40	20	18
40 ⁺	39	49

ACKNOWLEDGMENTS

I want to thank D. St-Hilaire, M. Bédard, F. Goudreault, V. Dubé and R. de LaDurantaye for field assistance, R. Latreille for advice in English and D. Fraser for reviewing the initial manuscript.

REFERENCES

- Ahlen, I., 1975. Winter habitats of moose and deer in relation to land use in Scandinavia. *Viltrevy* 9 (3): 45-192.
- Brassard, J.-M., E. Audy, M. Crête, and P. Grenier, 1974. Distribution and winter habitat of moose in Quebec. *Naturaliste Can.* 101 (1/2): 67-80.
- Crête, M. 1977. Importance de la coupe forestière sur l'habitat hivernal de l'orignal dans le sud-ouest du Québec. *Can. J. For. Res.* 7 (2): 241-257.
- Crête, M., and D. St-Hilaire. 1979. L'hélicoptère et l'avion pour dénombrer les orignaux dans le sud-ouest du Québec. *Naturaliste Can.* 106 (5): in press.
- Peek, J.M., D.L. Urich, and R.J. Mackie, 1976. Moose habitat selection and relationships to forest management in Northeastern Minnesota. *Wild. Monogr.* 48.

Telfer, E.S. 1978. Silviculture in the eastern deer yards. For. Chron.
54 (4): 203-208.