

Study of characteristics of soil animals in halophilous plant communities of *Leymus chinensis* grasslands of northeast in China

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Introduction We have researched soil animals in 8 types of halophilous plant communities of *Leymus chinensis* grasslands of Northeast China to characterise soil animal groups and explain the role and function of soil animals in grassland ecosystems (Richard & Roger, 1998) and provide a scientific basis for research to improve alkaline lands in these grasslands.

Methods We investigated within *Leymus chinensis* grasslands the plant communities *Aeluropus litoralis*(A), *Puccinellia tenuifolia* (B), *Suaeda hetroptera* (C), *Suaeda glauca* (D), *Suaeda corniculata* (E), *Kochia sieversiana* (F), *Artemisia anethifolia* (G) and *Puccinellia chinampoensis* (H). Each plant community was sampled randomly at 4 sites. Sample sizes were 50cm × 50cm (for large-scale soil animals) and 10cm × 10cm (for middle-small-scale soil animals). We sampled at depths of 0-5cm, 5-10cm, 10-15cm, 15-20cm and 20-30cm. Animals were separated from soil by handpicking, Tullgren funnels and Baremann funnels (Jun-ichi AOKI, 1973).

Results A total of 784 soil animals belonging to 50 groups of 3 phyla, 4 classes, 14 orders and 36 families were found. There were 25 groups of large-scale soil animals. There were 3 dominant and 7 frequent groups. The individual numbers of both dominant and frequent groups accounted for 93.8% of the total. There were 35 groups of middle-small-scale soil animals. There were 3 dominant and 12 frequent groups. The individual totals of dominant and frequent groups accounted for 90.9% of the total. All of these groups were the basic components of soil animal populations and they were distributed widely in *Leymus chinensis* (Yin Xiuqin, 2003). Trends in group numbers and individuals for both large-scale and middle-small-scale soil animals in different halophilous plant communities were different (Figure 1). In order to analyse the relationship between soil animals and different communities, we calculated the diversity index of large-scale and middle-small-scale soil animals in different halophilous plant communities. The results are shown in Table 1. Vertical changes of large-scale and middle-small-scale soil animals in different halophilous communities were different.

Table 1 The diversity index of soil animals in different halophilous plant communities

Community No.	A	B	C	D	E	F	G	H
Large-scale	1.82	1.74	0.90	2.30	1.61	1.98	1.82	1.50
Middle-small-Scale	1.40	2.71	2.43	2.29	2.41	2.46	1.16	2.07

Conclusions In the horizontal structure, for large-scale soil animals, the individual numbers of C was highest and B was lowest. However, the group numbers of D was highest and H was lowest. For middle-small-scale soil animals, the individual numbers of G was highest, B was lowest. While the group numbers of C was highest, A and B were the lowest. The group number and diversity index of soil animals were positively correlated. In 8 types of halophilous plant communities the numbers of groups and individuals of soil animals decreased with increasing soil depth.

References

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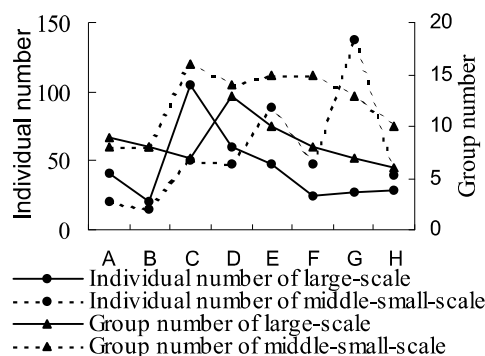


Figure 1 Number of individuals and groups of large-scale and middle-small-scale soil animals in different halophilous communities