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Qian Zhang  
*Peking University, China*

Wenjun Li  
*Peking University, China*

Yina Xie  
*Peking University, China*

Changling Li  
*Peking University, China*

Yanbo Li  
*Peking University, China*

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## Distributed overgrazing : a key cause of grassland degradation in Inner Mongolia

Qian Zhang , Wenjun Li , Yina Xie , Changling Li and Yanbo Li

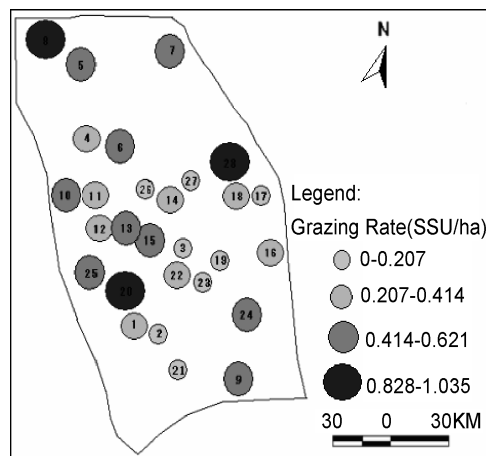
College of Environmental Sciences and Engineering (Room 310 , Laodixuelou Building) , Peking University , Beijing , P.R. China , 100871 . E-mail : zhangqian824@gmail.com ; wjled@pku.edu.cn

**Key words :** degradation , overgrazing , distribution , Household Production Responsibility System , Inner Mongolia

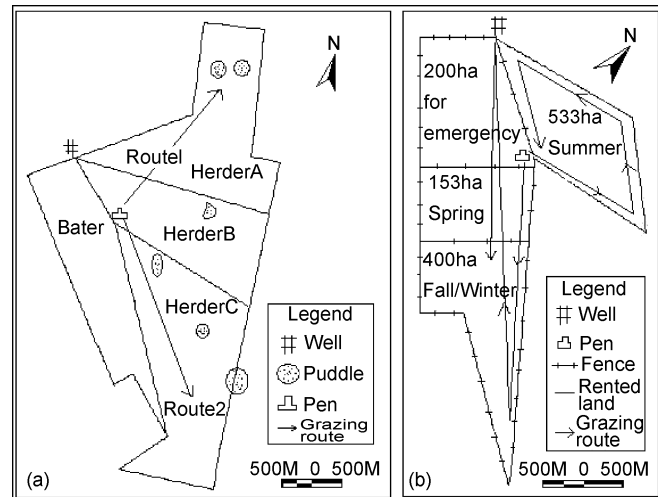
**Introduction** The common perception that overgrazing is the main reason for grassland degradation in China , is based on a simple formulaic statement that total livestock population exceeds the carrying capacity of grassland (SEPA , 2001) . However , the actual distribution of livestock has been consistently overlooked .

**Materials and methods** Our case study site of Baiyintala Village ( *Gacha* ) , is located in the low-yielding desert grasslands of northwestern Xilingol Prefecture , Inner Mongolia . Interviews were conducted with 28 herders , or one third households in this village , covering topics such as grassland utilization , availability of water resources and methods to combat drought .

**Results** Whereas quantitative overgrazing , simply emphasizes that total livestock numbers exceed grassland carrying capacity on a large spatial-temporal scale ( e.g . at the province or country , or for one year or longer ) regardless of how these livestock are actually distributed within the grassland , distributed overgrazing describes overgrazing where the livestock population exceeds grassland carrying capacity at a smaller spatial-temporal scale ( e.g . a natural village or *hot* , or for one season or longer ) and results from change in abiotic factors , such as precipitation or the system of sedentary animal husbandry linked to Household Production Responsibility System ( HPRS ) . There are five factors leading to distributed overgrazing : ( a ) an uneven livestock distribution among different households' grassland under HPRS ( Figure 1 ) ; ( b ) increased impact of livestock resulting in trampling caused by shortage of drinking water and grassland ( the red line replaces the green line under HPRS in Figure 2 ) ; ( c ) imbalanced grassland use caused by a simple livestock structure ; ( d ) over-trampling on fixed routes for water on every herder's grassland ; and ( d ) overuse in drought when livestock cannot be moved under HPRS constraints .



**Figure 1** Livestock distribution of 28 sampled herders' households in Baiyintala in 2006 .



**Figure 2** Multiplied grazing routes caused by HPRS implementation .

Note : ( a ) is hot before HPRS and ( b ) is Bater's grassland use under HPRS .

**Conclusions** Investigation of grassland use in the case study site indicates distributed overgrazing needs to be added to the current explanation for grassland degradation which merely emphasizes total livestock population . The change in livestock distribution under the HPRS has played an important role in grassland degradation .

### Reference

State Environment Protection Administration (SEPA) . 2001 Report on the State of Environment in China . *Environmental Protection* . 6 (2001) : 3-10 (in Chinese) .