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

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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 .

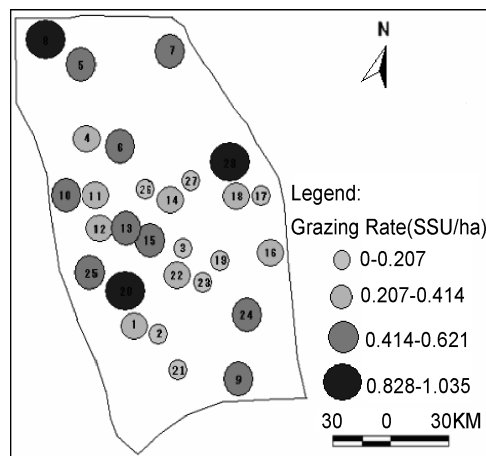


Figure 1 Livestock distribution of 28 sampled herders' households in Baiyintala in 2006 .

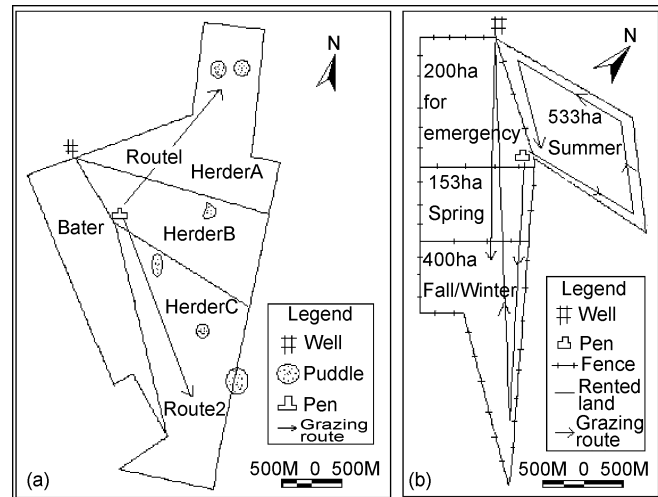


Figure 2 Multiplied grazing routes caused by HPRS implementation .

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) .