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Promoting rangeland biodiversity conservation and utilization through participatory approaches in China

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Introduction The natural rangeland in China are important areas for the conservation of biodiversity, with their many distinctive species; there are around 5000 species of forage plants, of which 1150 are grasses and 1130 are legumes (Su Jiakai et al., 1995). This paper will introduce the importance of rangeland biodiversity conservation in China, analyze the main limitations of rangeland biodiversity conservation, and promote best practice model for biodiversity conservation through participatory approaches and the paper will set out recommendations for biodiversity conservation in China.

Why conserve the rangeland biodiversity in China A number of China's rangeland ecosystems are recognized as global priority areas for conservation of biodiversity, as they contain highly distinctive species, ecological processes, and evolutionary phenomena. Despite their extent and importance, China's rangelands are degrading seriously, and the country's range managers face many challenges. The main challenges included 1) rangelands overgrazed and severely degraded; 2) medicinal herbs (such as *Ephedra spp.* and *Glycyrrhiza spp.*) overcorrected and vegetation cover removed; 3) animal and plant resources overexploited and utilized; 4) unfavorable effects on biodiversity from tourism, mining, reclamation and other human activities; 5) low income groups whose livelihoods depend heavily on rangeland production particularly affected. Decisions will have to be made to reduce the extent of land degradation and loss of biodiversity and to safeguard this vital resource for China's future generations.

Main limitations of rangeland biodiversity conservation Although some conservation actions have been taken, such as relevant law made, grassland protected areas established, more than 10,000 accessions of forage germplasm collected (Zhang Jiyu, et al., 2003), long-term and medium-term genebank established, and *In situ* conservation carried out, there are still some obstacles for biodiversity conservation, including 1) biodiversity conservation mainly depend on the governmental supports, which resulted in no sustainability for some conservation activities; 2) market forces are the underlying cause of transformation and intensified use of rangeland, rangeland biodiversity conservation are generally not considered as a high priority in national research programs; 3) research on linking biodiversity conservation to herb's livelihood is only beginning.

Promoting participatory approaches and integrating nomad's indigenous knowledge Plant genetic resources (PGR) are largely conserved in seed bank and field gene-bank *Ex Situ* by scientists. In this way to conserve PGR is not only costly but also difficult. Therefore it is reasonable to consider that participatory genetic resources management (PGRM) approach through involving local herds will play an important role in conserving and enhancing rangeland biodiversity. Bioversity International supported a project entitled "Participatory approaches to PGR conservation and use in Yunnan province of China" since 1999, which can be a good practice for involving the co-operation of different stakeholders on conservation of biodiversity. The main results achieved through this project are 1) public awareness increased in conserving and utilizing local resources in particular indigenous resources, 2) market value of landrace explored, market demand on landraces benefits biodiversity conservation. It is helpful to identify new value of indigenous variety and increase public awareness about the value of landrace in order to increase price of landrace.

Recommendations Main recommendations proposed as follow: 1) developing participatory technology on rangeland conservation to let rangeland biodiversity conservation and sustainable use gained more and more social attention; 2) understanding the economic value of biodiversity of rangeland to link the biodiversity conservation to livelihood improvement and benefit the local herds; 3) establishing the protected area and conserving the threatened and endangered species, which can be indicators of environmental disturbance; 4) controlling grazing pressure in moderate intensity to enhance rangeland diversity in long-term.

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