The Application of Dynamic Evaluating Models of the Meteorological Condition Effects on Natural Grassland Vegetation in China

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Key words : climate suitability , meteorological condition comparison among years , natural grassland vegetation

Introduction The meteorological elements are the most changeable and important driving factor for grassland ecological environment . It is very important to evaluate meteorological condition effects on natural grassland vegetation . The objective of this study was to establish dynamic evaluating models of meteorological condition affecting natural grassland vegetation to evaluate the climate suitability and better or worse meteorological conditions among years .

Materials and methods The functions of sunlight , temperature , precipitation affecting to grassland vegetation have been setup respectively by utilizing the fuzzy mathematics on the base of ten days data . The comprehensive evaluation model of meteorological factors has been built . The accumulated effects of the meteorological factors on the grassland vegetation in certain period have been reflected by using the integral methods (Qian *et al* . 2007) . The climate suitability has been evaluated by using the meteorological condition indices . And better or worse meteorological conditions have been evaluated by comparing meteorological condition indices among years .

Results The methods were applied in China grassland from 2005 to 2007 . The climate suitability of grassland vegetation growth was reflected in certain period , the higher meteorological condition index , the more suitable for grassland vegetation growth , such as blue color part in Figure 1 . The meteorological condition index differences can also reflect the better or worse meteorological conditions among years for China nature grassland vegetation growth (Figure 2) , demonstrated by the grass yield and height observed in nature grassland among years .

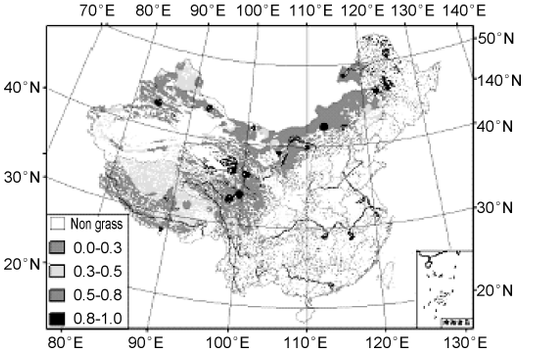

Figure 1 *Climate suitability in July* 2006 *for natural grassland vegetation in China .*

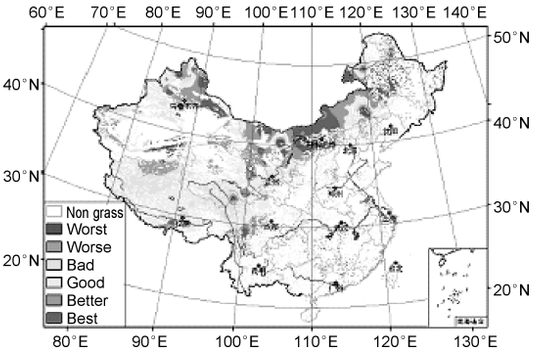

Figure 2 *Meteorological condition indices in July* 2006 *for natural grassland vegetation in China compared with* 2005 .

Conclusions The results of evaluation are satisfied in service . The information is the very important for the government department to make decisions to protect and recover grassland ecological environment .

Reference

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