Influence of Different Sampling Strategies on the Relationship of Biodiversity and Grassland Primary Production

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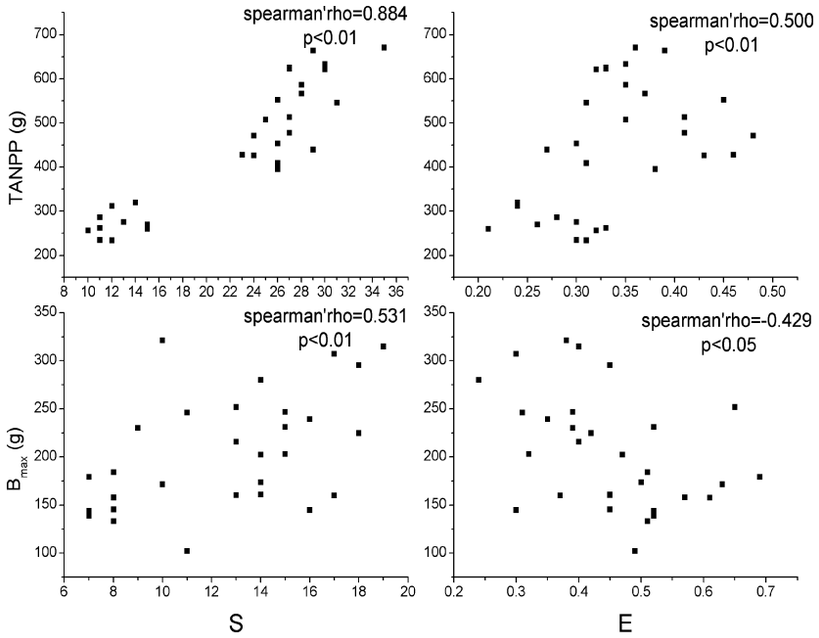
Introduction The relationship between biodiversity and ecosystems function (primary production shown in most studies) is a key issue for ecologists . The maximum community biomass in August was used as production in almost all studies . Some researchers suggested that a multi-harvest sampling strategy may be better in grassland communities (Hooper and Dukes , 2004) . A three-year study was conducted in a natural grassland community to test the influence of the sampling strategy on the relationship between biodiversity and grassland primary production .

Materials and methods Three plots were selected , and fenced in different years . From May to September , all live grass was clipped every two weeks for three years . The maximum biomasses for each species during the growing season were summed as the total annual primary production (TANPP) , while the maximum biomass of the community in lateAugust was indicated B_{max} . Both species richness (S) and independent species evenness (E) were used as diversity indices .



Results and discussion Species richness had a positive relationship with both TANPP and B_{max} in all three years . Species evenness had a positive relationship with TANPP in all three years while it had a negative relationship or non correlation with B_{max} . These results showed that complementary effect and sampling effect were confused with different sampling strategies (Mulder et al . , 2004) . This may suggest that phenological separation is an important factor for interpreting the relationship between diversity and production in seasonal grassland communities .

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