

Preface

Ecosystem is the life support system and the foundation of human survival and socioeconomic development. Land use changes directly and indirectly affect the sustainable development of ecosystem services. Optimization of land use management based on impact assessment is a hot spot in the academic circles. How land use changes affect the ecosystem services, and how to conduct the evaluation of the interactive effects between them are some of basic scientific questions in this field under investigation. This book aims to uncover the linkage among the land use, ecosystem services, and also human well-being, to describe the effects of land use changes on ecosystem services and human well-being, and to develop the models to quantitatively analyze the impacts in typical areas. These regions play significant roles in the sustainable development of China and even the world. For instance, the Three River Source Area is regarded as the “China water tower” and the North China Plain is one of the major grain production bases of China. Based on the influence mechanism of land use changes on ecosystem services and human well-being, this book serves as valuable decision-making references for land use management in terms of conserving ecosystem services as well as improving human well-being.

Quantitative analysis for the impacts of land use changes on ecosystem services is crucial for shaping the ideas of sustainable development. This book starts with revisiting the relevant studies on impact assessments of land use changes on key ecosystem services in Chap. 1. The impact assessment of land use conversions on land degradation and agricultural productivity was introduced in Chap. 2. Chapter 3 mainly evaluates the ecosystem services and conducts the impact assessment of land use conversion and land use management measures on the economic valued ecosystem services. Subsequently, Chap. 4 narrows down the impact assessments of land use changes and climate changes on ecosystem services in terms of the grassland, including the changes in grassland productivity due to land use and climate changes, as well as the changes in economic returns of livestock production in grassland. Chapter 5 focuses on the impact assessment on water and heat fluxes of terrestrial

ecosystem due to land use changes. Finally, Chap. 6 investigates land use conversion and climate change-oriented measures, and then it introduces strategies on conserving sustainable development and building resilience of ecosystem services.

The authors claim full responsibility for any errors appearing in this work.

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