The values of CO\textsubscript{2} fixation and O\textsubscript{2} release by vegetation ecosystem in Qinling-Daba Mountains of Shaanxi Province

REN Zhi-yuan, LI Jing

According to different vegetation types and their cover degrees in Qinling-Daba Mountains in Shaanxi, using an improved model of net primary productivity of natural vegetation, regional energy balance, water balance and model of evapo-transpiration, goods produced by different types of vegetation have been calculated. Based on net primary productivity of natural vegetation, using equation of photosynthesis, reforestation cost and industrial method of making O\textsubscript{2}, the value of CO\textsubscript{2} fixation and O\textsubscript{2} release by vegetation ecosystem in Qinling-Daba Mountains in Shaanxi can be estimated. The results are as follows: the total CO\textsubscript{2} fixation and O\textsubscript{2} release is 13.5\times10\textsuperscript{7} t/a, 9.93\times10\textsuperscript{7} t/a, respectively. Using reforestation cost, the value of CO\textsubscript{2} fixation is 352.24 billion RMB yuan/a. The temperate deciduous broad-leaved forest has the highest contribution rate, the second is subtropical deciduous shrub. This study can provide basic data and methods for setting up regional "green eco-account".

Key Words: vegetation CO\textsubscript{2} fixation O\textsubscript{2} release economic value Qinling-Daba Mountains in Shaanxi Province

Fund: 教育部重大项目 (2001DXM700012); 教育部重点项目 (01158); 国家自然科学基金资助项目 (30070083)

Categoy Index: Q948

References

1. WEI Bo et al (Department of Land Recourses and Tourism Sciences, Nanjing University, Nanjing, Jiangsu 210093): Assessment of Value of Ecological Function in Farmland [J], Journal of Anhui Agricultural Sciences, 2007-19

2. WANG Shilei, REN Zhiyuan, LI Jing (College of Tourism and Environment, Shaanxi Normal University, Xi'an 710062, China): The evaluation of ecological services from the vegetation ecosystems in the Taibai Mountains [J], Journal of Arid Land Resources and Environment, 2009-05


4. LIU Jun-hui, LIU Jin-song, FENG Xiao-miao, GAO Ji-xi (Institute of Ecology, Chinese Research Academy of Environmental Sciences, Beijing 100012, China): The economic value assessment of CO\textsubscript{2} fixation and O\textsubscript{2} release of vegetation ecosystem in the Tibetan Plateau [J], Research of Environmental Sciences, 2009-08

Citations

1. SONG Yu-Xiang (Changchun Institute of Geography, the Chinese Academy of Sciences, Changchun Jilin 130021): Eco-environment Protection and Construction of Green Community in Northeast China [J], Scientia Geographica Sinica, 2002-06
The values of CO₂ fixation and O₂ release by vegetation ecosystems of the Qinling–Daba Mountains of Shaanxi Province--

Chen Jia-bing, Zheng Da-xian, Chen Song-lin, Li Hui (Institute of Geography, Fujian Normal University);

Zong Yue guang, Chen Hong chun, Guo Rui hua, Xu Hong yan (The Department of Resources and Environment, Beijing Normal University, Beijing 100875, China);

Chen Guangqing, Kang Xingang (College of Resources and Environment, Beijing Forestry University; 100083, P. R. China.;

Ren Zhiyuan, Li Jing (College of Tourism and Environmental Sciences, Shaanxi Normal University, Xi’an 710062, China);

Chen Jia-bing, Zheng Da-xian, Chen Song-lin, Li Hui (Institute of Geography, Fujian Normal University; 350007, China).

【Co-references】

Chinese Journal Full-text Database


2. Su Wei~1, Nie Yi-min~1, Hu Xiao-jie~2, Zhang Yi-ling~3 (1. College of Resource and Environment, Shandong Agricultural University, Taian 271018; 2. Taian School of Science and Technology, Taian 271000; 3. College of Adult Education, Shandong Agricultural University, Taian 271018); Study on Spatial Variability of Soil Nutrients in Beima Town of Shandong Province by Using Kriging Method[J]; Journal of Anhui Agricultural University; 2004-01

3. Ma Qinyan (Forest Resource College, Shandong Agricultural University, Taian 271018); A Study on the Biomass of Chinese Pine Forests[J]; Journal of Beijing Forestry University; 1989-04

4. Cheng Kewu, Cui Guofa, Wang Jianzhong, Li Junqing (Institute of Geographic Sciences and Natural Resources Research, CAS, Beijing 100101, China); The systematic analysis on value of regional ecosystem services -- A case study of Heilongjiang City[J]; Geographical Research; 2000-02

5. Fu Guo bin, Li Ke rang (Institute of Geographical Science and Natural Resources Research, CAS, Beijing 100101, China); Progress in the study on the relationship between global warming and wetland ecological system[J]; Geographical Research; 2001-01

6. Ren Zhiyuan, Li Jing (College of Tourism and Environmental Sciences, Shaanxi Normal University, Xi’an 710062, China); Theories and Method of Evaluating Regional Ecosystem Environment Service Economic Value[J]; Economic Geography; 2003-01

【Secondary References】

Chinese Journal Full-text Database

1. Chen Jia-bing, Zheng Da-xian, Chen Song-lin, Li Hui (Institute of Geography, Fujian Normal University; 350007, China).

The values of CO$_2$ fixation and O$_2$ release by vegetation ecosy... Mountains of Shaanxi Province-- (Geographical Research) 2004年06期

【Secondary Citations】


1. CHEN Jia-bing, ZHENG Da-xian, CHEN Song-lin, LI Hui (Institute of Geography, Fujian Normal University, Fuzhou 350108, China): Effects of Land Use Changes on the Ecosystem Structure and Service Functions of Fujian Province [J]: Journal of Fujian Normal University (Natural Science Edition); 2009-06

CHEN Bai-ming (Institute of Geographical Sciences and Natural Resources, CAS, Beijing 100101, China): A Blue Print of Land Use Region Based on Regional Indicator System for Sustainable Land Use in China [J]: Progress in Geography; 2001-03

1. WANG Shaoliang 1, ZHOU Chenghu 1, LUO Chengwen 2 (1 The State Key Lab of Resources and Environment Information System, Institute of Geography, Beijing 100101; 2 Luo Chengwen, Zhanjiang Normal School, Zhanjiang 524000): Studying Carbon Storage Spatial Distribution of Terrestrial Natural Vegetation in China [J]: Progress in Geography; 1999-03

CHEN Bai-ming (Institute of Geographical Sciences and Natural Resources, CAS, Beijing 100101, China): A Blue Print of Land Use Region Based on Regional Indicator System for Sustainable Land Use in China [J]: Progress in Geography; 2001-03

1. LIU Hui (Institute of Geography, CAS, Beijing 100101): INDICATOR SYSTEM AND APPRAISAL METHOD OF REGIONAL AGRICULTURE SUSTAINABLE DEVELOPMENT [J]: Progress in Geography; 1997-02

1. LIU Yan (Institute of Geography, Chinese Academy of Sciences, Beijing 100101): Structural Pattern of Mountain Land Types and Optimal Allocation of Land Use [J]: Scientia Geographica Sinica; 1999-06

1. LIU Xingtu, MA Xuehui (Changchun Institute of Geography, Chinese Academy of Sciences, Changchun Jilin 130021): Influence of Large-Scale Reclamation on Natural Environment and Regional Environmental Protection in the Sanjiang Plain [J]: Scientia Geographica Sinica; 2000-01

1. LI Xiu Jun (Changchun Institute of Geography, Chinese Academy of Sciences, Changchun Jilin 130021): The Alkali-saline Land and Agricultural Sustainable Development of the Western Songnen Plain in China [J]: Scientia Geographica Sinica; 2000-01

1. Fu Guobin Liu Changming (Institute of Geography, Chinese Academy of Science, Beijing): ESTIMATION OF REGIONAL WATER RESOURCE RESPONSE TO GLOBAL WARMING——A CASE STUDY OF WANQUAN BASIN [J]: Acta Geographica Sinica; 1991-03

1. SUN Rui, Zhu Qijiang (Department of Resource and Environment Sciences, Beijing Normal University, Beijing 100875): Distribution and Seasonal Change of Net Primary Productivity in China from April, 1992 to March, 1993 [J]: Acta Geographica Sinica; 2000-01

1. LIU Yan (Institute of Geographic Sciences and Natural Resources Research, CAS, Beijing 100101, China): Structural Analysis and Optimal Use of Land Types in Mountainous Regions —— Taking Qinling Mountains of Shaanxi Province as an Example [J]: Acta Geographica Sinica; 2001-04

1. LI Kerang (Institute of Geography, Chinese Academy of Sciences, Beijing 100101): RESEARCH PROGRESS OF GLOBAL CLIMATE CHANGE AND ITS IMPACT AND FUTURE PROSPECT [J]: Acta Geographica Sinica; 1996-S1

©2006 Tsinghua Tongfang Knowledge Network Technology Co., Ltd. (Beijing) (TTKN) All rights reserved