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Science in China Series C: Life Sciences
July 2008, Volume 51, Issue 7, pp 662-670

Evaluation of ecosystem services of Chinese pine forests in China

Abstract

Evaluation of forest ecosystem services is a hot topic, both in China and at abroad, but it has not yet obtained a consistency of evaluation indicator systems and evaluation methods. Under the framework of evaluation criteria to be implemented for forest ecosystem services, years of consecutive observation data from Long Term Ecological Research Stations affiliated to Chinese Forest Ecosystem Research Network (CFERN), forest resource inventory and public data were applied to carry out a detailed and dynamic evaluation on the physical quantity and value of ecosystem services of Chinese pine forests in China. The results showed that the above services had the total value and unit value of 1144.9640 billion (1.1449640×10^{12}) RMB and 52.074 thousand RMB per hectare per year, respectively during the 9th Five-year Plan (1996–2000), and of 1190.5461 billion RMB and 52.101 thousand RMB per hectare per year, respectively, during the 10th Five-year Plan (2001–2005). For Chinese pine forests, water conservation was 40.40 hundred million cubic meters annually, soil conservation was 67 million tons and C fixation 9 million tons annually, production of healthful negative ions was 1.96×10^{20} , absorption of SO_2 was 5.02 hundred million kilograms and dust-catching was 759.10 hundred million kilograms. Among the 15 provinces of China with Chinese pine forests, the biggest beneficiary from ecosystem services was Liaoning Province; while Hunan Province was the smallest beneficiary between the 9th Five-year Plan.

Supported by the 11th Five-Year Plan (Grant No. 2006BAD03A0702), National Key Foundation '973' Program (Grant No. 2002CB111501), Forestry Public Welfare Program (Grant No. 200704005), Key Program of State Forestry Administration (Grant No. 2006-67), Key Program of Beijing Science and Technology Committee (Grant No. D0706001000091), and Jiangxi Dagangshan Chinese National Forest Ecosystem Observation and Research Station Program (Grant No. 2007-01)



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References (23)

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Title

Evaluation of ecosystem services of Chinese pine forests in China

Journal

Science in China Series C: Life Sciences

Volume 51, Issue 7 , pp 662-670

Cover Date

2008-07-01

DOI

10.1007/s11427-008-0083-z

Print ISSN

1006-9305

Online ISSN

1862-2798

Publisher

SP Science in China Press

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