

39. Mitigating impacts of fuelwood collection on wildlife habitat through payments for ecosystem services

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Abstract: Natural environment provides humans with various ecosystem services, such as bioenergy and biodiversity. Excessive extraction of bioenergy, such as fuelwood, may lead to deforestation and loss of wildlife habitat. Conservation efforts, including payments for ecosystem services, have been increasingly invested to mitigate such impacts. However, the impacts of these policy interventions are not well understood. We study the impacts of conservation investments in China's Wolong Nature Reserve, home to the world-famous endangered giant pandas and over 6,000 plant and animal species and more than 4,500 indigenous people. In response to the rapid deforestation and loss of wildlife habitat due to factors including excessive fuelwood collection by indigenous people, Natural Forest Conservation Program (NFCP) has been implemented in Wolong since 2001. Under the NFCP, indigenous households are assigned natural forest parcels for monitoring to prevent illegal harvesting. Participants receive an annual payment that is about 10% of the average household income. Participants use much of their NFCP payments to purchase electricity to replace fuelwood. The NFCP also promotes cooperation among indigenous people to prevent forest harvesting. As a result, forest cover had increased by about 11% from 2001 to 2007. Our results suggest that conservation efforts that improve the involvement of local communities in forest monitoring and policy enforcement can substantially mitigate the impacts of fuelwood collection on wildlife habitat.

Keywords: bioenergy, China, Natural Forest Conservation, payment for ecosystem services, wildlife