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Titolo	Ecosystem Services, Biodiversity and Environmental Change in a Tropical Mountain Ecosystem of South Ecuador // edited by Jörg Bendix, Erwin Beck, Achim Bräuning, Franz Makeschin, Reinhard Mosandl, Stefan Scheu, Wolfgang Wilcke
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Soggetti	Ecosystems Sustainable development Regional planning Urban planning Climate change Environmental management Conservation biology Ecology Sustainable Development Landscape/Regional and Urban Planning Climate Change Environmental Management Conservation Biology/Ecology Andes Region Ecuador
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	The Study Area -- Environmental Changes Affecting the Andes of Ecuador -- The Challenges of Sustainable Development in the Podocarpus-El Cónдор Biosphere Reserve -- The Concept of Ecosystem Services and its Application in the Research Unit RU 816 -- Landscape History, Vegetation History and Past Human Impacts -- Past Dynamics

of Speciation in Andean -- Mountain Rainforests -- Diversity in Soil Fungi and Invertebrates -- Plant Diversity and its Relevance for the Provision of Ecosystem Services -- Supporting, Regulating and Provisioning Hydrological Services -- The Carbon Balance of Tropical Mountain Forests Along an Altitudinal Transect -- Current Regulating and Supporting Services: Nutrient Cycles -- Natural Landslides which Impact Current Regulating Services: Environmental Preconditions and Modelling -- Conservation, Management of Natural Forests and Reforestation of Pastures to Retain and Restore Current Provisioning Services -- Mycorrhiza Networks Promote Biodiversity and Stabilize the Tropical Mountain Rain Forest Ecosystem -- Perspectives for Understanding Complex Communities -- Current Provisioning Services: Pasture Development and Use, Weeds (Bracken) and Management -- Current Provisioning Ecosystem Services for the Local Population: Landscape Transformation, Land Use, and Plant Use -- Sustainable Agriculture and Conservation Payments are Key Factors in Mitigating Tropical Forest Loss -- Climate Change Effects on Biodiversity and Ecosystem Functioning -- Global Climate Change Impacts on Local Climate and Hydrology -- Impacts of Local Land-Use Change on Climate and Hydrology -- Current and Future Variations of Nutrient Depositions and Influences on Tree Growth -- Nutrient Additions Affecting Matter Turnover in Forest and Pasture Ecosystems -- Effects of Nutrient Addition on the Productivity of Montane Forests and Implications for the Carbon Cycle -- Climate Change and its Impact on Current and Future Vegetation Dynamics and Carbon Cycling -- Sustainable Use of Tropical Forests: A Plea for a Landscape View -- Future Provisioning Services: Repasturisation of Abandoned Pastures, Problems and Pasture Management -- Towards a Sustainable Land Use Portfolio -- Knowledge Transfer for Conservation and Sustainable Management of Natural Resources -- a Case Study from Southern Ecuador -- The Role of Biodiversity Research for the Local Scientific Community. .

Sommario/riassunto

An interdisciplinary research unit consisting of 30 teams in the natural, economic and social sciences analyzed biodiversity and ecosystem services of a mountain rainforest ecosystem in the hotspot of the tropical Andes, with special reference to past, current and future environmental changes. The group assessed ecosystem services using data from ecological field and scenario-driven model experiments, and with the help of comparative field surveys of the natural forest and its anthropogenic replacement system for agriculture. The book offers insights into the impacts of environmental change on various service categories mentioned in the Millennium Ecosystem Assessment (2005): cultural, regulating, supporting and provisioning ecosystem services. Examples focus on biodiversity of plants and animals including trophic networks, and abiotic/biotic parameters such as soils, regional climate, water, nutrient and sediment cycles. The types of threats considered include land use and climate changes, as well as atmospheric fertilization. In terms of regulating and provisioning services, the emphasis is primarily on water regulation and supply as well as climate regulation and carbon sequestration. With regard to provisioning services, the synthesis of the book provides science-based recommendations for a sustainable land use portfolio including several options such as forestry, pasture management and the practices of indigenous peoples. In closing, the authors show how they integrated the local society by pursuing capacity building in compliance with the CBD-ABS (Convention on Biological Diversity - Access and Benefit Sharing), in the form of education and knowledge transfer for application.
