

and riparian forest, respectively, and are within 12 km of each other. At the first census (1991) the number of stems ranged from 374 to 700 among the four plots, the number of species from 45 to 59. In each plot five to six species accounted for 50% of stems, while 15 to 19 species were represented by only one stem. Thirty-three species, of 118 total over all four plots, were represented by just one stem over all plots. Only 13 species were found in all plots. Growth and stem turnover were relatively high in riparian and palm/hardwood forests and low in upland forests. Parts of the upland forests were exceptionally slow growing and stable. This forest landscape is a mosaic of forest types differing in both composition and dynamics. Based on our results, and using a landscape perspective, we suggest actions for use and protection of this forest reserve.

D8r: FOREST BIODIVERSITY IN THE FRAMEWORK OF GLOBAL CHANGE AND THE ROLE OF LANDSCAPE

Saracá-Taquera National Forest: a case study of native terrestrial mammals in Pará, Brazil

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One of the most diverse mammal assemblage inhabits the Amazonian rainforest, not found anywhere around the World, therefore this species richness is still poorly understood. Many studies including inventories or monitoring are important for the comprehension of the ecology of many species and still provide basic data for conservation actions. During two decades of sampling in the Saracá-Taquera National Forest, we recorded at least 72 species of small - nonvolant, medium, and large mammals, considering 30 families in 10 orders. We also found 29 endemic species to the Amazon forest, some of them were classified as endangered. In summary, we found one of the most mammal species richness recorded in the Amazonian basin, probably greater than that already found in other sites elsewhere, indicating high levels of diversity in a biogeographic narrow scale. Our findings indicate the importance of this national forest for the maintenance of the mammalian fauna and highlight how important is the sustainable use of the forest, especially when we have to conciliate the rational exploitation and the protection of the biodiversity.

Changes in natural resources and the effect on landscapes in important tourist areas in Southern Chile / Alteración de los recursos naturales y su efecto en el paisaje en zonas de interés turístico al sur de Chile

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El plan de acción propuesto al sur de Chile en el territorio de Panguipulli, Región de los Ríos, tiene como objetivo promover la actividad turística en la zona, diversificación de la economía local, generación de empleo y la valorización de los recursos naturales, a través de estrategias competitivas de tipo pública y privada, siguiendo las tendencias del mercado nacional e internacional. Sin embargo es necesario establecer que la intervención humana genera entropía que influye en el cambio climático y el calentamiento global, acciones que repercuten directamente en las características del territorio, generando transformación, alteración del paisaje y desaparición de recursos naturales indispensables para el desarrollo turístico. El objetivo de la presente investigación es revelar y cuantificar las transformaciones de los recursos naturales que ha sufrido la zona de interés turístico (ZOIT) de Panguipulli. Para el análisis de los cambios de uso del suelo en la zona, se utilizaron imágenes satelitales LANDSAT y técnicas geoestadísticas. Determinando alteraciones importantes en el cambio uso del suelo, principalmente el aumento de plantaciones forestales industriales, disminución de las praderas y del bosque nativo, de gran valor endémico que alberga sistemas de alta biodiversidad.

Exploring indicator species for evaluating forest degradation in Andean forests in Peru

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It has been recognized that as well as deforestation, forest degradation has a great impact on forest ecosystems at global scale. However, the methodological approach is still not fully developed to appropriately evaluate the impact of forest degradation on forest structure and function. Utilizing indicator species has a potential to represent levels of forest degradation. We aimed to explore indicator species for forest degradation in relation to forest types (primary forest or secondary forest), forest structure and species composition. We conducted field survey to collect ground-based forest inventory data in Cusco region, Peru. Our study area covers upland tropical forest connecting to Amazon forest and Andean montane forest (ranged from 600 m to 3500 m a.s.l.). Using indicator species analysis, we found 12 tree species at low elevation sites (600 to 1000 m), four tree species at mid elevation sites (1000 to 2400 m) and one tree species at high elevation sites (> 2400 m). Not all, but some of the detected indicator species corresponded to primary/secondary forest classification of the stands based on field observation. Our results suggest that indicator species has a potential to evaluate current condition of forest degradation on a regional scale in the Andean region, but its availability might vary with elevation zone.

Tree strata structure in an ecotone among Amazon Forest types: a comparative study

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As it is an ecotone composed by two forest types, high composition complexity is expected in the Transitional Amazonian Forest. Thus, we aimed to describe the structural dynamics of the Transitional Amazonian Forest in Mato Grosso State, Brazil, and to evaluate whether the most abundant tree species present a structural pattern. Forest analysis occurred with six 100% inventories data considering all trees with 1.30 m diameter above the ground ≥ 40 cm, totalizing up to 5 thousand ha. The study areas were compared in terms of tree density, number of species and importance value of the most abundant species. The Morisita index and the cluster analysis tested the forests similarity. We also evaluated importance value of species in the upper and middle strata. Differences between study areas were detected regarding tree density and number of species. However, the forests presented more than 75% similarity and were grouped in 3

structural clusters. Some species showed alternations of dominance in the middle and upper strata. Although it is an ecotone, the trees had a structural pattern, where the same species dominate large areas, allowing us to apply results in a huge scale of approach.

Conservation of biodiversity in Boreonemoral Forests

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Boreonemoral forests have distinct floral and faunal communities and they provide multiple ecosystem services. Extensive tracts of boreonemoral forests are actively managed for timber production, but actions aimed at increasing timber yields may also affect other forest functions and services. An essential component of forest certification schemes (e.g. FSC) is that landowners should voluntarily set aside forest stands for biodiversity; maintain ecological quality in EU protected habitats and leave retention trees. It is now unclear how functional are all these conservation tools in the context of ecological quality and its linkage with land-use intensity. The aim of this study is to evaluate how existing forest conservation tools contribute to the conservation of biological diversity and the provision of ecosystem services. In order to investigate the relative roles of different types of conservation tools for sustainable forest management, field data were collected on ecological quality of 40 study areas in Latvia (including vegetation assessment, diversity of structural features and presence of rare species). The results allow developing cost-efficient tools, used in the sustainable management of forests in the boreonemoral biome. These preferences can be important knowledge to sustainable forest management complexity and policies balancing economic, ecological and social interests in the production forest landscape. Acknowledgments: This study was financially supported by the ERDF Post-doctoral Research Support Program (project nr.1.1.1.2/16/1/001) Research application "Balancing ecological interests with increasing demands for natural resources in production forests" (nr.1.1.1.2./VIAA/2/18/294).

Analysis of fragments of the Atlantic Forest biome in municipalities within the Recife micro-region: a focus on environmental management / Análise de fragmentos florestais do Bioma Mata Atlântica em municípios situados na Microrregião do Recife: um enfoque na gestão ambiental

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A fragmentação da Mata Atlântica, motivada por um intenso processo de transformação da paisagem, tem tornado mais difícil a tarefa de preservar o bioma. Neste contexto, os instrumentos de gestão ambiental surgem como alternativa para viabilizar a conservação ambiental de fragmentos florestais em ambientes cujo uso antrópico predomina. A análise da paisagem apoiada com recursos do sistema de informações geográficas (SIG) é de suma importância na caracterização dos fragmentos florestais e respectivo planejamento ambiental. O trabalho baseou-se na análise de fragmentos florestais situados na Microrregião do Recife, para o ano de 2011 e de 2016. As métricas de ecologia utilizadas para caracterizar os fragmentos florestais e a verificação da significância estatística das diferenças observadas para as duas épocas propostas permitiu constatar que houve efetiva diminuição no tamanho dos fragmentos sem, contudo causar alteração expressiva mancha de vegetação geral. Sob o enfoque da gestão ambiental, os fragmentos florestais remanescentes mais expressivos estavam submetido a proteção legal. Fragmentos de supressão observados demandam ações de gestão ambiental orientada de acordo com a situação político-organizacional do município e o contexto socioeconômico do local. Fragmentos ligados a recomposição da vegetação indicaram práticas de gestão ambiental focadas na minimização do potencial degradador dos impactos antrópicos. Fragmentos ligados a recomposição da vegetação indicaram práticas de gestão ambiental focadas na minimização do potencial degradador dos impactos antrópicos.

Reflections on managing land for conservation / Reflexões sobre a gestão do território para a conservação

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O planejamento para a conservação em geral se baseia em dados geobiofísicos e tem como objetivo o subsídio a ações predominantemente no espectro do comando e controle, como a criação de unidades de conservação ou outros instrumentos de ordenamento territorial. O custo (político, social e econômico) de implementação dessas ações é alto, o que limita sua adoção e dificulta o alcance dos objetivos pretendidos. A inclusão dos fatores políticos e sociais no planejamento – conjuntamente com os geobiofísicos – pode possibilitar o desenvolvimento de projetos, programas e ações cooperativas e de suporte, que conjuguem o atendimento a demandas coletivas (globais, nacionais ou regionais) com as demandas locais ou até individuais. Embora essas ações possam ter um custo semelhante ou até maior do que as de comando e controle no início, tem um potencial maior de se sustentarem ao longo do tempo e se difundirem no território sem a ação direta do Estado. A transição para esse novo paradigma – que não necessariamente substitui o existente, mas o complementa – ainda necessita de maior sustentação política, normativa e institucional para ser amplamente adotado como política de Estado. Essa questão será discutida com base na experiência do Projeto Conexão Mata Atlântica no Rio de Janeiro.

Deforestation and wildlife management: are elephants attracted by recently deforested areas?

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Deforestation is a major cause of wildlife decline in tropical ecosystems. The conversion of mature forest to fields by shifting cultivation leaves behind fallow lands with secondary vegetation. Paradoxically, secondary forest regrowth that provides abundant forage in comparison with mature forests can benefit some species as the African elephant (*Loxodonta africana*) but they are also attracted towards human communities and cultivations raising conservation issues. The