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TRADE IN WILD ANIMALS (MOLLUSCAN, REPTILIAN AND AVIAN SPECIES) FOR TRADITIONAL AFRICAN MEDICINE IN OGUN STATE, NIGERIA

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A steady rise in the patronage for Traditional African Medicine (TAM) has caused a corresponding increase in the demand for the ingredients used in the preparation of the trado-medicines. These ingredients are the various wild animals and plants parts, cropped from the wild. The attendant rise in demand for ingredients calls for a need to document the extent of utilisation of these natural resources as a measure of the impact of such trade on biodiversity conservation. This paper examined diversity of molluscan, reptilian and avian species traded for use in TAM; the quantity of each species traded over a period of time, and, seasonal fluctuations in abundance and utilisation of these species. A multi-stage stratified random sampling technique was employed. An open-ended questionnaire was administered on vendors in selected market stalls for six consecutive markets days in each of dry and rainy seasons. The study identified twenty-three species, 8 were listed in CITES and Nigerian Decree 11(1985). A total of 3196 (molluscan), 2527 (reptilian), 2894 (avian) carcasses were traded over an average period of twenty days. The mean number of carcasses traded per dealer per month in the two seasons were: Molluscs (24.0 ± 1.6); Reptiles (19.0 ± 1.9) and Aves (21.7 ± 2.3). Trade in, and utilisation of wild animal species in TAM had no consideration for conservation status, hence it involved species under various degree of conservation threats. There seems to be no implementation of regulation of trade in wild animal species, including those purportedly protected by Decree 11 (1985). A twin approach of increase in yield and decrease in demand is required to stem the negative impact of trade and utilisation on biodiversity. Massive conservation education and extension services for the entire populace, capacity building and involvement of indigenous communities in conservation projects are also urgently required.

WOOD DENSITY FOR FOREST CONSERVATION: TOWARDS IMPROVEMENT OF BIOMASS AND CARBON STOCKS IN TROPICAL REGIONS

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The assessment of forest biomass has important consequences for climate-related policies, including conservation and activities related to deforestation and forest degradation. Tree and forest biomass are most efficiently assessed by a combination of remote-sensing, ground-based measurements and allometric models to predict tree and forest characteristics such as tree volume and biomass. The accuracy of these allometric models and therefore of biomass estimates can be improved greatly if wood density is used as an input variable. It is the most commonly used species functional trait in multispecies biomass models, which are frequently used in tropical ecosystems. However, wood density is difficult to measure accurately and thus is not included in large-scale forest inventories. This issue can be bypassed by using species average values, but often wood density values are only available at coarse taxonomic and/or spatial scales. Applying regional multi-species averages reintroduces to the models the potential bias originally removed by the use of wood density values. Therefore more wood density data is needed to cover the diversity of species and environments. This paper presents the work carried out to complement current initiatives aiming to collect, harmonize and share existing wood density data stored in national research institutes across the tropics. The database compiles raw data and calculated averages, with 70 information fields including GPS coordinates, measurement methods and sample size, when available, for a wide range of taxonomic and environmental values. Where precision in both taxonomic and environmental scales remains difficult to meet, the trade-off between the two can be better understood as the database includes both very accurate data and coarse averages. This database will improve forest biomass estimates, towards increasing the potential of climate change mitigation initiatives in the forestry sector.

HOW PERVASIVE IS BIOTIC HOMOGENIZATION IN HUMAN-MODIFIED TROPICAL FORESTS?

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Land-cover change and forest degradation in the tropics is leading to large-scale biotic homogenization (BH), or the simplification of regional biotas to a subset of generalist and resilient taxa. However, we still have poor understanding of how patterns of BH play out across different land-cover types, taxa and spatial scales. Here we analyse a multi-taxa tropical forest data set from the Brazilian Amazon, with 335 samples from 36 landscapes to assess how the species diversity of five taxonomic groups (plants, birds, ants, dung beetles and orchid bees) responds to land-cover changes at site, landscape and regional scales. We used multiplicative diversity partitioning and generalized linear models to examine how patterns of species loss at both site (α diversity) and landscape (γ diversity) scales change as a function of land-cover change; as well as how differences in species composition (β diversity) respond to land-cover changes at both scales. We also assess the contribution of nestedness and turnover in determining changes in assemblage composition within different land-cover types.While α diversity exhibited a steady decline with increasing land-cover intensification as expected, γ diversity was found to only decline in production areas. β diversity patterns were highly scale and land-cover dependent, with greater differences between species assemblages among forest vs. non-forest sites, while β diversity between landscapes remained high irrespective of land-cover type. At both site and landscape scales, the contribution of nestedness to β diversity, and hence the degree of biotic homogenization, increased with land-use intensification. Our finding highlights the importance of underlying environmental heterogeneity, spatially heterogeneous pressures, and stochastic processes in driving divergence in species composition across landscapes that have already been widely modified by humans. We discuss the role of effective conservation strategies on private land.

ENVIRONMENTAL AND BIODIVERSITY IMPACTS OF VARIABLE RETENTION FORESTRY IN TIERRA DEL FUEGO (ARGENTINA)

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Variable retention (VR) harvesting was suggested to maintain postharvest continuity of structural and compositional diversity, and a series of studies for Nothofagus pumilio forests in Tierra del Fuego (Argentina) seem to confirm this suggestion. VR applied in Nothofagus forests combines two types of retention: aggregates of original forest (AR) and dispersed single trees (DR). This study assesses the assumption that VR maintains mature forest conditions after harvesting by synthesizing 605 individual results from two regions of Tierra del Fuego with permanent monitoring. VR effects on (i) microenvironment, (ii) forest structure, (iii) forest reproduction, and (iv) biodiversity were investigated. AR had no effect on microenvironmental variables and forest structure, but increased the values of forest reproductio. DR did not affect microclimate and forest reproduction, but negatively affected forest structure. Species richness and abundance of native plants were significantly increased in AR; in DR richness of native plants was increased while their abundance was slightly decreased. Alien plants significantly increased in both treatments, with particularly strong effects in DR. Insect richness and abundance were hardly affected by the treatments, whereas for birds, these indicators were significantly increased in AR and in DR. Species of N. pumilio forests maintained their populations only in AR, whereas species of neighboring environments were positively affected by DR. We conclude that the ecological conditions of N. pumilio forests are influenced by VR, but direction and magnitude of the effect depend on the treatment and the kind of variable. Inside aggregates several primary forest components and conditions were maintained. Due to the considerable increase of alien species and of such from associated environments, particularly in DR, VR has still significant ecological impact over the original forest characteristics.

156 - MODELING FRAMEWORKS FOR IDNA DATA ANALYSES

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Invertebrate-parasite-derived, iDNA, has recently emerged as a powerful tool to detect vertebrate species, and has been discussed as a new non-invasive method to survey wildlife populations. But so far little attention has been given to whether and how iDNA-derived data can be combined