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Abstracts

en.wikipedia.org/wiki/Fundamental_analysis]) to intangible (such as selective divestment [https://en.wikipedia.org/wiki/Divestment]). This study presents the portfolio optimization for the university forest enterprise in Czech Republic. Significant steps to achieve increased business profits were set in cooperation with business management as well as indicators of their achievement.

Working across disciplines to incorporate values of the public in an integrated decision support system (DSS)

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Forest managers are challenged with making decisions within complex social-ecological systems. Values (qualities and outcomes that are important to people) are a way of representing social parts of systems in decision-making. However, it is challenging to incorporate such values, with their social and political implications, into decision-making based in biophysical science and quantitative modelling. In this project, we used an action research methodology to contribute to, and observe, the early integration of a social concept of values into a biophysical DSS. Fifteen researchers at the University of Melbourne are developing the DSS to integrate their findings from many years studying biodiversity, carbon, water, fire and social values. As participants in this process, we identified key points where an imperative for integration across disciplines was perceived and then observed what followed. These points included a need to co-develop a definition of the term 'values' to enable decisions about what would be included within the scope of the DSS and a similar need to co-develop a definition of 'scenarios', to enable specification of scenarios for model testing. Development of these definitions began when team members realised they understood terms differently. They then needed to articulate and debate their different understandings, before integrated project definitions could be agreed. Some values of the public (identified through social research), such as experience of nature, were able to be incorporated together with ecosystem services and policy objectives to define an overall structure for the DSS. Other social values were not yet able to be adequately quantified.

C4s: ASSESSING AND MODELLING NON-TIMBER FOREST PRODUCTS

Resin yield from the wound tapping method, prior to timber harvesting in *Pinus pinaster* Ait. stands in Galicia (NW Spain)

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Studies of the wound tapping method plus chemical stimulation, carried out in Galicia between 1950 and 1970, reported a mean resin production of 2-3 kg per tree for *Pinus pinaster* Ait. stands. The crisis in the sector and the lack of tradition of resin extraction in the region paralyzed these studies and promotion of the methods. However, interest in resin production has been reactivated in Galicia if production of quality timber can be guaranteed. Since 2015, the Lourizán Forestry Research Centre has investigated resin production in research plots located in pine stands due to be harvested in the near future. The objective is to estimate resin production in relation to the wound size and the wound number per tree, and evaluate the influence caused by resin tapping on timber destined for sawmills. The overall purpose of the research is to develop a method of resin extraction that is compatible with harvesting quality timber.

Oleoresin tapping with the borehole method in *Pinus pinaster* Ait. stands prior to timber extraction in Galicia (NW Spain)

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The borehole method of resin extraction consists of making one or more perforations at the base of trees and collecting the oleoresin in closed containers. This method is compared with the wound tapping method, which is usually used in the Iberian Peninsula. The advantage of the borehole method is that the timber is not affected because the perforations are basal. In addition, the use of closed containers yields higher quality oleoresin and decreases the emission of volatile substances that can attract pests. The main limitation of the method is the rapid crystallization of resin around the perforation, which reduces the amount of oleoresin produced. The proposed improvements involve the application of organic stimulants to inhibit crystallization and thus increase the oleoresin yield, without altering the quality of the product. Early results indicate that this method may be a viable alternative to the wound tapping method, with quality as a goal.

Plant diversity associated with productive Brazil nut trees (*Bertholletia excelsa*) in the major producing regions of Amazonas, Brazil / *Diversidade vegetal associada a castanhais produtivos nas principais regiões produtoras do Amazonas*

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Bertholletia excelsa Bonpl., conhecida como castanheira, é uma espécie florestal que produz um fruto chamado ouriço, coletado por populações tradicionais que comercializam suas amêndoas, castanha-do-brasil, como alternativa na composição da renda familiar. Avaliou-se a diversidade vegetal associada a castanheiras no Amazonas, por meio da comparação das diferenças florísticas entre e dentro de seis castanhais naturais. A pesquisa foi conduzida nas principais regiões produtoras do Amazonas: Reserva de Desenvolvimento Sustentável Piagaçu Purus/Anori, Propriedade do Jutica/Tefé, Comunidade Jatuarana /Manicoré, Sítio Gostoso/Amaturá, Comunidade Mufuá/Lábrea e Reserva Extrativista do Rio Unini/Barcelos. As diferenças florísticas foram analisadas por meio da análise Cluster, agrupamento UPGMA (Média não ponderada entre pares de grupos). Todos os indivíduos com DAP≥ 10 cm, vizinhos às castanheiras selecionadas, foram marcados e identificados em 15 parcelas circulares de 15 metros de raio em cada castanhal. As parcelas foram instaladas ao redor de castanheiras selecionadas a partir da classe de produção de frutos (5 de alta, 5 de média e 5 de baixa produtividade). Foram registrados 3039 indivíduos, com Jatuarana tendo o maior número de indivíduos (577). Os ambientes florestais apresentaram grande diversidade florística –diversidade alfa, medida pelo índice de Shannon-Weaver, que vario entre 3,65 a 4,19; porém estes valores não foram estatisticamente significativos (Kruskal Wallis) entre as localidades. No contexto das classes de produção não se observou um padrão de agrupamento das parcelas de mesma classe. Observou-se que os castanhais com maior similaridade florística são Sítio Gostoso e Mufuá; Unini como o mais diferente entre eles.