WETLAND SOILS





Sedimental Journey: Soil Fertility of Fluvial Islands Increases with Proximity to An Amazonian White-Water River

Gilson de Souza Ferreira Neto¹ - Fabricio Beggiato Baccaro^{1,2} · Carlos Alberto Nobre Quesada¹ · Axa Simões Figueiredo¹ · Regison Oliveira¹ · Erison Gomes¹ · Wilson Roberto Spironello¹ · Adrian A. Barnett^{1,2}

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Abstract

The nutrient content of soils is considered a key productivity factor. Sediment input from Amazonian rivers is one of the natural sources of soil fertility for fluvial islands and riverbank flooded forests. Despite the importance of soil factors for ecosystems, few edaphic studies along fluvial islands sediment-gradients have been undertaken in tropical areas. The current study provides a step forward by describing a mixed water (sediment-poor black water with the input of sediment-rich white water) fluvial archipelago with an emphasis on soil characteristics of seasonally inundated forests. To investigate how geographic distance from a white-water river mouth affects island soil properties, soil chemical and physical attributes, we sampled 61 sites on 35 islands at Jaü and Anavilhanas archipelago. The studied Central Amazon fluvial islands showed high variability in hydromorphic soils properties. In general, the fluvial island soils were acid and with low fertility. Islands from Jaü and other sites closer to the sediment source (Branco River) had higher soil fertility than the Anavilhanas Archipelago islands, which are further away from the sediment source. Our results show that sediment inputs from the Branco River can play an important role in soil properties in a relatively nutrient-poor area, and shed light on the role of biogeochemical processes in the largest freshwater archipelago in the world. Given that soil fertility is often correlated with forest productivity, the results reported here may serve as a baseline to support conservation politics with scientific data for Central Amazonian fluvial island environments.

Keywords Soil factors - Mixed water - Fluvial archipelago - Hydromorphic soils - Central Amazonia

Introduction

Floodplains represent 3-4% of the Amazon basin, covering more than 750,000 Km² (Wittmann and Junk 2016). Such environments are subject to inundation for several months every year (Junk et al. 1989). The sediment input from large Amazonian rivers is one natural source of fertility for flooded forests growing on riverbanks (Junk et al. 2011). However, the volume of organic ions and sediments received vary with location. Flooded forests periodically inundated by sediment-rich white water (várzeas) grow on fertile soils, while those inundated by sediment-poor black and clearwater rivers (igapós) grows on oligotrophic and poorer soils (Prance 1979; Junk et al. 2011; Goulding et al. 2003). Although very useful, such categorical classification of water types simplifies a natural continuum. For example, the Branco River has an intermediate amount of organic ions, greater than that present in Guiana Shied-derived black water rivers, such as Negro River, but less than those found in rivers of Andean origin such as the Rio Amazonas, Rio Madeira, or Rio Solimões (Goulding et al. 2003). The Branco River is unusual because it is a sediment-rich whitewater river where all neighboring rivers are sediment-poor (black-water) (Leenheer and Santos 1980). This spatial comfiguration may directly affect the Anavilhanas Archipelago. a system of fluvial islands within the nutrient-poor Negro River domain (Marinho et al. 2020).

Fluvial islands are subjected to similar environmental constraints imposed by their inundating rivers. Due to the



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Sedimental Journey

W. B. Gerard, M-C. Newbould, Melvyn New

Sedimental Journey:

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nature of virtue unlike other writers of sentimental fiction Sterne insists on the inseparability of desire and feeling This new edition includes a selection from The Sermons of Mr Yorick which shed light on the concerns of the Journey The Journal to Eliza which records Sterne's feelings as he languishes for the company of Eliza Draper and A Political Romance the satire on a local ecclesiastical squabble that was the catalyst for Sterne's literary career ABOUT THE SERIES For over 100 years Oxford World's Classics has made available the widest range of literature from around the globe Each affordable volume reflects Oxford s commitment to scholarship providing the most accurate text plus a wealth of other valuable features including expert introductions by leading authorities helpful notes to clarify the text up to date bibliographies for further study and much more A Sentimental Journey Through France and Italy Laurence Sterne, 2006-01-01 In annotated texts based on those of the acclaimed Florida Edition of The Works of Laurence Sterne this edition features the two works Sterne produced in the final year of his illness plagued life the witty bawdy pathetic and thoughtful A Sentimental Journey through France and Italy and Continuation of the Bramine's Journal Sterne's correspondence to a twenty two year old married Englishwoman living in India a Diary as he put it of the miserable feelings of a person separated from a Lady for whose Society he languish d Together these mutually illuminating works offer rich insight into their author's hopes fears loves longings and philosophy as he prepared to face death and judgment Excerpts from related texts provide context for understanding the title works in relation to the earlier writings and life of this exuberant yet subtle genius of eighteenth century English literature Yorick's Sentimental Journey Continued John Hall-Stevenson, 1902 The Works of Laurence Sterne: A sentimental journey through France and Italy Laurence Sterne, 1894 A sentimental journey through France and Italy, by mr. Yorick. [Followed by] Yorick's Sentimental journey continued. 4 vols. [in 1]. Laurence Sterne, 1775 A sentimental journey through France and Italy, with an intr. by H. Paul Laurence Sterne,1902 The Works of Laurence Sterne: Sentimental journey Laurence Sterne, 1906 Sentimental **Democracy** Andrew Burstein, 2000-05-24 For more than two centuries Americans have used words of sentiment and sympathy passion and power to explain their country's unique democratic mission. Here Andrew Burstein examines the emotional dynamic and the metaphorically rich language which Americans developed to express their guiding principle that the New World would improve upon the Old Feeling he argues was a political and cultural phenomenon and in the impassioned rhetoric of feeling we can locate the sources of American patriotism Using newspapers and magazines private letters and public speeches diaries and books Burstein shows how the eighteenth century culture of sensibility encouraged early Americans to make a heartfelt commitment to the Enlightenment's optimism about a global society it would succeed they believed as much by sublime feeling as by intellectual achievement and political liberty Sentimental Democracy gives us a lively dual portrait of the American psyche and the American dream telling us as much about ourselves as about our morally passionate ancestors From publisher s description

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Table of Contents Sedimental Journey

- 1. Understanding the eBook Sedimental Journey
 - The Rise of Digital Reading Sedimental Journey
 - Advantages of eBooks Over Traditional Books
- 2. Identifying Sedimental Journey
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
- 3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Sedimental Journey
 - User-Friendly Interface
- 4. Exploring eBook Recommendations from Sedimental Journey
 - Personalized Recommendations
 - Sedimental Journey User Reviews and Ratings
 - Sedimental Journey and Bestseller Lists

- 5. Accessing Sedimental Journey Free and Paid eBooks
 - Sedimental Journey Public Domain eBooks
 - Sedimental Journey eBook Subscription Services
 - Sedimental Journey Budget-Friendly Options
- 6. Navigating Sedimental Journey eBook Formats
 - ∘ ePub, PDF, MOBI, and More
 - Sedimental Journey Compatibility with Devices
 - Sedimental Journey Enhanced eBook Features
- 7. Enhancing Your Reading Experience
 - Adjustable Fonts and Text Sizes of Sedimental Journey
 - Highlighting and Note-Taking Sedimental Journey
 - Interactive Elements Sedimental Journey
- 8. Staying Engaged with Sedimental Journey
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Sedimental Journey
- 9. Balancing eBooks and Physical Books Sedimental Journey
 - Benefits of a Digital Library
 - \circ Creating a Diverse Reading Collection Sedimental Journey
- 10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
- 11. Cultivating a Reading Routine Sedimental Journey
 - Setting Reading Goals Sedimental Journey
 - Carving Out Dedicated Reading Time
- 12. Sourcing Reliable Information of Sedimental Journey
 - Fact-Checking eBook Content of Sedimental Journey
 - Distinguishing Credible Sources
- 13. Promoting Lifelong Learning

- Utilizing eBooks for Skill Development
- Exploring Educational eBooks
- 14. Embracing eBook Trends
 - Integration of Multimedia Elements
 - Interactive and Gamified eBooks

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