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Sabaragamuwa University of Sri Lanka

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PEER-REVIEWED JOURNAL ARTICLES

A Bioregionalization of South Africa Based on Beetles (Coleoptera)

Amy K. Summersgill, Şerban Procheş, Syd Ramdhani, and Sandun J. Perera

ABSTRACT

Beetles represent the most diverse group of living organisms on Earth, yet there has been very little in the way of using beetle distributions in bioregionalization exercises. Here, we combine several small data sets for beetle distributions in South Africa to produce a list of morphospecies and to analyze their presence within twenty geographic units spanning the entire country. We find a diversity of fine scale assemblages in the east, but also a disjunction between the western arid/winter-rainfall and eastern summer-rainfall half of the country, which is in line with several previous studies based on diverse groups of animals and plants. We recommend the use of the increasing citizen science data sets in studying biogeographic patterns in groups such as beetles, which have so far received limited attention.

About the Journal

Diversity

Impact Factor – 2.1

<https://doi.org/10.3390/d16080454>

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CONFERENCE PROCEEDINGS

Governance Landscape of Sri Lanka Elle

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ABSTRACT

Sri Lanka Elle (SLE) is a batting team sport unique to Sri Lanka. SLE unique qualities and skills not seen in any other internationally recognized sport ensure its presence on the international stage. This study aimed to develop the first step in preparing an Elle game for the international stage. Using the UMAP tool identifies the research questions and the main three quotations are to identify internal stakeholders along with their capacity and demographics, to identify the stakeholder landscape, and to create a stakeholder map. The study employed thematic analysis as part of a qualitative research methodology, with a sample size of ten (n=10) individuals selected from the Sri Lanka Elle Federation (SLEF) and School Elle Association (SEA) through purposive sampling. Semi-structured interviews were conducted with the selected individuals.

In examining the first research question, it became evident that human resources are the most crucial asset within the SLE sector. Internal stakeholders with control authority are primarily driven by self-gratification. There is a recognized need for these stakeholders to acquire a deeper understanding of organizational structures, as well as a growing demand for training in financial attraction and management to further enhance their capabilities.

The second research question, which focuses on identifying the stakeholder landscape, it was revealed that the foundation of SLE lies in political and financial power. While Elle has historically settled in areas where political and financial power intersect, it has struggled to attract political support to the sport and generate commercial value. According to the third question, it was possible to create a self-sufficient pool of internal stakeholders. What was special about this was that they were motivated only by the satisfaction of playing and waited for an opportunity to dedicate themselves to the game's development without expecting financial benefits.

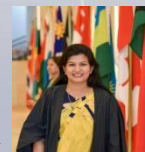
The study suggests that organizations should explore Drucker's organizational management principles to improve operational efficiency. Recommendations include developing strategic plans for SLE to motivate and attract new players, generating income, cultivating a public voice through engaging Elle fans, directing efforts towards the ministry, creating a website, engaging with mass media and modern technology, extending the executive board's term, and establishing district executive boards.

About the Conference

13th Sri Lanka Economic Research Conference
(SLERC) 2024
09 Aug 2024
Forum of University Economists (SLFUE)

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Paleoenvironment of Eocene-Oligocene Transition on Mannar Basin, Sri Lanka

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ABSTRACT

The Eocene-Oligocene transition denotes the final significant greenhouse-icehouse climatic state, signifying the shift from a global warm climate devoid of ice during the early Paleogene period to the glaciated climate observed in the Oligocene epoch and lower atmospheric conditions [1]. Calcareous nannoplankton assemblages could be used to reconstruct the paleoenvironmental, paleoclimatic, and paleoeutrophication of the region. A comprehensive study of paleoenvironmental, paleoclimatic and paleoeutrophication reconstruction during the Eocene-Oligocene transition in Sri Lanka has been noted. Smear slide samples obtained from the Dorado-hydrocarbon exploration well in the Mannar Basin were observed in this study using the Axio polarized Microscope and Scanning Electron Microscope (EVO LS15). A total of 54 species, belonging to 17 genera and 7 families were identified. According to Bown and Young (1998) [3] criteria, good overall species diversity and productivity were recorded. The identified species were divided into distinct nannofossil zones (NP23 to NP16) [2] corresponding to the Bartonian to early Rupelian ages. The index nannofossil are *Coccolithus formosus*, *Coccolithus pelagicus*, *Cruciplacolithus neohelis*, *Discoaster deflandrei*, *Reticulofenestra dictyoda*, *Umbilicosphaera bramlettei*, and *Umbilicosphaera detecta*. The warm-water species such as *Coccolithus pelagicus* and *Umbilicosphaera bramlettei* implies the existence of increased sea surface temperatures, while the presence of species like *Reticulofenestra dictyoda* may indicate the presence of cooler water layers or upwelling zones. The rapid extinction of the warm water *Discoaster spp.* group, *Helicosphaera spp.* group, and *Sphenolithus spp.* group during the Eocene-Oligocene climate transition suggest a significant decrease in temperature. The complete extinction of certain warm water taxa, such as *Discoaster spp.*, was observed. The top portion of the research region is characterized by cool water conditions. The examined materials are associated with the transition from the late Eocene to the early Oligocene epochs. The samples show a decline in K-mode taxa's abundance, including *Coccolithus*, *Discoaster* and *Ericsonia*. This suggests a shift in climate from a warm and eutrophic state to a cooler and oligotrophic state.

About the Conference

The Goldschmidt Conference 2024

18 – 25 Aug 2024

Chicago, Illinois, USA

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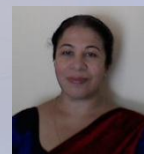
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Ionic Liquid Treated Non Polymer Gel Electrolyte for Magnesium-ion Battery Application

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ABSTRACT

This study focuses on the design and synthesis of a novel, cost-effective non-polymer gel electrolyte incorporating magnesium borohydride ($\text{Mg}(\text{BH}_4)_2$), ionic liquid (IL) (1-butyl-1-methylpyrrolidinium bis (trifluoromethanesulfonyl) imide ($\text{PYR}_{14}\text{TFSI}$)), ethylene glycol (EG), and fumed silica (SiO_2) to address the problem of low ionic conductivity in electrolytes for rechargeable magnesium batteries. Under this project, a liquid electrolyte sample series was prepared by varying the molar ratio of EG to $\text{Mg}(\text{BH}_4)_2$ ([200:1], 200:2, [200:2.5], [200:3], and [200:4]) at room temperature (27 °C). Their conductivity measurements were taken for the sample series at room temperature. The highest conductivity achieved was 4.628×10^{-4} S/cm, and the molar ratio of EG to $\text{Mg}(\text{BH}_4)_2$ for the corresponding sample was (200:2.5). Ionic liquid was added to the best conducting sample ($\text{Mg}(\text{BH}_4)_2$ / EG) by varying the volume of the ionic liquid (30.0, 50.0, 70.0, 80.0, and 100.0 μl), and another liquid electrolyte sample series was prepared. Their conductivity measurements were taken for the sample series at room temperature. The highest conductivity achieved was 1.0728×10^{-3} S/cm, and the corresponding sample consisted of a volume of ionic liquid of 70.0 μl . Finally, fumed silica (SiO_2) was added to the best conducting sample ($\text{Mg}(\text{BH}_4)_2$ / EG / ionic liquid) by varying the weight of fumed silica (20.0, 40.0, 60.0, and 80.0 mg) and the final gel electrolyte sample was prepared at room temperature. The gel electrolyte sample was optimized ($\text{Mg}(\text{BH}_4)_2$ / EG / ionic liquid / SiO_2), and the corresponding sample consisted of the mass of fumed silica (80.0 mg). Their conductivity measurement was taken for the gel electrolyte sample at room temperature. The conductivity of the gel-electrolyte was 5.5701×10^{-3} S/cm. The ionic conductivity of this gel electrolyte can be improved further, and it can be used to check performance with magnesium-ion batteries.

About the Conference

iPURSE 2024

29- 30 Aug 2024

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