DESIGN AND IMPLEMENTATION OF AN OPEN ACCESS ECO-INFORMATICS PLATFORM FOR BIODIVERSITY CONSERVATION AND ECOSYSTEM MANAGEMENT

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Abstract: Eco-informatics plays a vital role in ecological research, biodiversity conservation, and sustainable ecosystem management. It is a combination of information technology and environmental science. This framework enables to generation of new knowledge through innovative tools and by the collection, integration, and dissemination of ecological data from various sources. The objective of this research was to design and implement an eco-informatics web-based system by collecting biodiversity, environmental, remote sensing, historical, population, and community dynamics data. The methodology includes several key steps as platform development, data governance model, data integration, data visualization, collaboration features, and community engagement. The flexibility of this platform allows researchers, ecologists, and conservation practitioners to upload, store, and manage their ecological data from different ecosystems. To establish a robust data governance model that effectively addresses data privacy, intellectual property, and ethical considerations while fostering open access and responsible data sharing, the platform will combine datasets from various sources to create comprehensive ecosystem assessments. The implementation will include data visualization tools, empowering users to generate customizable and easily shared maps, graphs, and other visual representations of ecological data. Additionally, collaboration features like discussion forums, project management tools, and user profiles will be integrated into the platform. Through this approach, the platform aimed to indicate several important outcomes. Those are enhanced collaboration, data-driven and informed decision-making, community empowerment, and improved data sharing. This platform is capable of providing data on its usage and can be implemented in field research.

Keywords: Collaboration; Eco-informatics; Ecological data; Ecosystem; Platform