

Design and Development of Digital Repository of Biodiversity for Bharathidasan University

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Abstract

Organizing the information resources into different studies in physical form as well as in a digital form in a library is very much necessary to bring posterity of the knowledge which is available in the public domain. It is very relevant to carry out the collection and organization of specific resources which belong to a particular region and also exhibit the same to make aware of the importance of the resources pertinent to the particular region. It may be of social, it may be of cultural, it may be of historical, or it may be of lingual. In that context, heritage documentation is very relevant. The processes used to make sure that digital materials remain accessible are referred to as "digital preservation." All the procedures designed to maintain the availability of digital biodiversity resources for as long as they are required can be grouped under the umbrella term of digital preservation.

Keywords: *Cultural Heritage, Biodiversity, Digital Preservation*

Introduction

Preserving digital sources of biodiversity ensures accessibility, with international organizations like UNESCO, EU, and African Nations launching mission projects to document cultural, geographical, historical, religious, and social aspects of heritage, while initiatives are also being launched in India. In this context, the research intention at documenting the biological resources of flora and fauna collective documentation of biodiversity species existing in the both the campuses of Bharathidasan University.

Problem Statement

In the evolution of 21st Century, where some of the unique and rare biodiversity species are extinct in nature. In accordance with the sustainable development goals, there is an emergency of preserving those species of flora and fauna at any cost. The research on biodiversity conservation will address the preservation of flora and fauna species prevailing in the natural surrounding of an education institution and thereby making an emphasize on documenting them digitally to create global awareness on the significance of existing species habitat.

Objectives

- Identifying and documenting the exclusive plants and animal species existing in both the campuses of Bharathidasan University: Palkalaiperur Campus and Khajamalai Campus
- To design and develop a digital repository that would serve as a comprehensive and user-friendly resource for researchers, students, and enthusiasts interested in the Biodiversity of Bharathidasan University.
- To encourage this documentary of digital preservation system and thus creating a global awareness of cultural habitat existing in all Higher Education Institutions with an emphasis on sustainable environment.

Materials and Methods

The research aimed at digital documentation and preservation of native biodiversity species by developing a digital repository of collection representation the existing species prevailing in the study region surveyed. First and foremost, plants and animal species which are unique and rare existing in Palakalaiperur and Khajamalai Campuses were identified, traced and documented citing relevant taxonomic information of species. Photography in its natural environment is captured for evidence. A digital repository is built and designed using DSpace 6.3 version and the information collected is uploaded in the repository citing relevant taxonomic information.

Significant of the Study

Bharathidasan University, is renowned for its rich biodiversity, serves as a vibrant ecosystem and a diverse range of flora and fauna. The university's commitment in preserving and promoting biodiversity has led to planting of herbal, ornamental and aquatic plants which would attract various animal habitats. Accordingly, a vast array of biodiversity species through a collection of 146 plant species from 58 different families and a diverse range of animal habitation is included in the researcher's detailed photographic documentation captured in Bharathidasan University's natural surroundings.

Results and Discussions

- Log onto Bharathidasan University DSpace Repository with Login ID and Password
- Creating a Top-Level Community and Sub-Community

- Collection Building within sub-level community
- Submission of Information such as File Description, File Upload, Verification of Submission, Distribution of License etc.
- Search and Retrieval of Information in Bharathidasan University Institutional Repository.

The researcher has explored the potential of leveraging digital technologies to create a centralized platform using DSpace for preserving, accessing, and disseminating valuable information about the rich biodiversity within the university's premises. By gathering and organizing a vast array of biodiversity data, including species records, photographs and taxonomic information, the researcher has successfully created a centralized repository that captures the essence of the university's natural heritage.

Table 4.1 displays the sample list of some of plant species and its relevant taxonomic information is tabulated as in the institutional repository.

S. N	Common name	Binomial name	Tamil Name	Family	Category
1.	Indian Almond	<i>Terminalia catappa</i> L.	நோட்டு உதும்பை	Combretaceae	Edible, Medicinal
2.	Texas Sage	<i>Leucophyllum frutescens</i> (Berland.) I.M. Johnst.	செக்ஸோஸ்டி லர்லீப்	Scrophulariaceae	Ornamental
3.	Ashoka Tree	<i>Monoon longifolium</i> (Sonn.) B. Xue & R.M.K. Saunders	சுநட்டிலிங்கம்	Annonaceae	Ornamental

4.	Cluster fig	<i>Ficus racemosa</i> L	அத்தி	Moraceae	Medicinal
5.	New Zealand Rock Lily	<i>Arthropodium cirratum</i> (G.Forst.) R.Br.	நியூசெிலாந்து போமை அல்லி	Asparagaceae	Edible, Ornamental
6.	Song of India	<i>Dracaena reflexa</i> Lam.		Asparagaceae	Ornamental
7.	Golden Bamboos	<i>Phyllostachys aurea</i> Rivière & C.Rivière	சுபோன்முங்கில்	Poaceae	Ornamental
8.	Sago Palm	<i>Cycas revoluta</i> Thunb.	ஜவ்வோரி ரைம்	Cycadaceae	Ornamental
9.	Mauritius hemp	<i>Furcraea foetida</i> (L.) Haw.	பச்செமக் கத்தோமை	Asparagaceae	Ornamental
10.	Caterpillar tree	<i>Plumeria alba</i> L.	ரைத்தலேரி	Apocynaceae	Ornamental

The Fig 1 to Fig 4 depicts the pictorial demonstration of Bharathidasan University's Institutional Repository as the outcome of this project.



Figure: 1 Institutional Repository Bharathidasan University Biodiversity



Figure: 2 Searching By Name



Fig. 3 Search Results



Fig. 4 Final Search Result

Conclusion and Recommendation:

To conclude, the researcher summarizes the main contributions of the research, highlight the significance of the findings, and discuss the implications for future research and practical applications. As addressed in the problem, the research also recommends the global Higher Education Institutions to digitally document and preserve these kind of native biodiversity resources existing in its institution's premises as it would serve as a comprehensive and user-friendly resource for future researchers, students and biodiversity enthusiasts.

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