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Biodiversity Information Hub for Cooperative Environmental Monitoring

Noura Slimani*

Department of Science, University of Carthage, 7021 Bizerte, Tunisia

Abstract

In general, the phrase "biodiversity" refers to variation at the molecular level in living things. It is a laborious procedure to gather scientific data on biodiversity, and it is currently difficult to provide proper data storage, maintenance, and interchange on a national and international scale. We require digitised, structured, and validated biodiversity data in order to accurately assess the status of biodiversity for the purposes of sound decision-making and management of biodiversity and ecosystems. Mechanisms for exchanging data, standards, and experiences must also be established. This can be done by reviewing and putting into practise regionally agreed-upon technical and biodiversity standards for data interchange, species and habitat lists, as well as by maintaining constant dialogue, coordination, and communication among all pertinent parties.

Keywords: Biodiversity information • Biodiversity • Environmental monitoring

Introduction

The components of a biodiversity information system are several thematic databases, programmes, and procedures, online services and protocols designed for the sharing, preservation, and storage of data connected to biodiversity and protection of nature. It's crucial to avoid seeing. as "one large database," but rather as an integrated system comprising numerous distinct and connected thematic databases (flora, fauna, habitats, protected areas, etc.) that need not be stored in the same institution or overseen by the same organisation. Each of these databases can function independently as well as as a component of a complex system by displaying data and metadata in line with the applicable technical standards [1].

Because of this, the focus of these Guidelines is on issues and factors that must be addressed during the planning, designing, and development of biodiversity information systems, as well as during the management and reporting of biodiversity data. The foundational requirement for all analysis and reporting is clean, structured data, which also serves as the system's core value. Therefore, the Guidelines provide particular attention to the methods for generating and ensuring high-quality data that can be conveniently managed, processed, and transmitted between various stakeholders and systems [2].

The Sixth Ministerial Conference on "Environment for Europe" in Belgrade, October 2007, invited the Economic Commission for Europe (ECE) of the United Nations to "continue its efforts, in cooperation with EEA1 and other partners, to make monitoring an effective instrument in environmental policymaking in countries of Eastern Europe, the Caucasus and Central Asia, and South-Eastern Europe". The guidelines for monitoring the quality of the air and water were created by the Working Group on Environmental Monitoring and Assessment and approved by the Committee on Environmental Policy and its Extended Bureau in 2010 and 2011, respectively. The format and structure of the current guidelines are the same as those of those documents. Targeted stakeholders are expected to have a basic grasp of how biodiversity data are collected and managed, as well as a working familiarity of the technical jargon that are employed. Each chapter of the Guidelines provides fundamental knowledge, application advice, and, where relevant, examples from real-world situations. A thorough list of references (from books, the internet, and other sources) is also provided in each chapter for those who want more information [3].

Description

Building BIS that effectively supports business activities requires good communication between IT and experts in biology and nature conservation. IT professionals need to make an effort to understand the particular requirements and business operations that BIS has to support, with assistance from specialists in biology and nature protection. This is crucial for avoiding oversights and errors that could lead to an information system that, despite investments of time, money, and effort, is unable to serve its goal.

Many BIS components share some of a BIS's content. This contains a database of literature references, a list of species or habitat types, and other information. For instance, the species catalogue may be required by both the habitats database and the Natura 2000 database, therefore it is not necessary to build and maintain separate species catalogues in each database. The objective is to make sure that such information is preserved in a single location or database and that it is simple for other BIS components to share and use [4].

It is crucial to take into account available open-source technologies and solutions when planning the software platform for the BIS because many of these solutions frequently offer the same possibilities, functionalities, and-most importantly-technical support as corresponding commercial software solutions. It frequently takes time and money to educate and train IT professionals who are in charge of maintaining the BIS in new technologies and software solutions when switching to open source technologies. However, this is a wise investment that guarantees a significant decrease in the cost of IS licence and maintenance. It is vital to take into account any strategies that will enable more cost-effective IS maintenance because, in addition to the initial investment in BIS development, this requires long-term sustainable finance to cover software, hardware, and service costs [5].

Numerous pieces of biodiversity information, such species or habitat occurrences, are only found in books and museum collections and aren't even available in digital form. The majority of data in digital form is not georeferenced, making it impossible to overlay it with other geographic biodiversity data and do other studies. A significant portion of historical literature data also includes information on the place where a certain species or habitat type was found, but this information is rarely as exact as GPS coordinates. Localities are merely

***Address for Correspondence:** Noura Slimani, Department of Science, University of Carthage, 7021 Bizerte, Tunisia; E-mail: noura.slimani104@edu.mnhn.fr*

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descriptive, general geographic designations like regions, towns, toponyms, lakes, rivers, or the like. Even though this data is frequently overly broad, it is nonetheless quite useful for analysis. It is crucial to distinguish between the various levels at which data can be collected and used, or kinds of biodiversity data.

Conclusion

Data on biodiversity might be specific to a region or a particular category of living things; it can include information on specimens, species, ecosystems, nomenclature, or any combination of these. The three basic categories to be distinguished are synthesised or interpretive data, taxonomic data (checklists and information about the identities of organisms), and primary biodiversity data.

Acknowledgement

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Conflict of Interest

None.

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