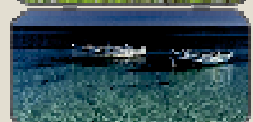
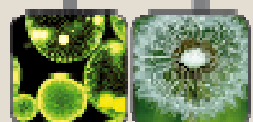


BioVeL



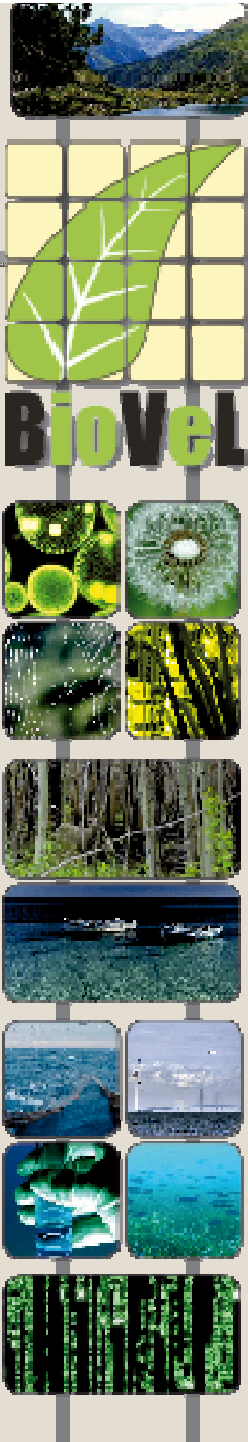
Biodiversity Virtual e-Laboratory

Project Overview

BioVeL is an e-laboratory that supports research on biodiversity using large amounts of data from cross-disciplinary sources.

1st EUDAT User Forum, 8/3/2012, Barcelona





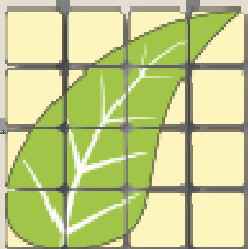
Biodiversity Virtual e-Laboratory

BioVeL is an international network of experts

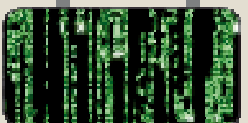
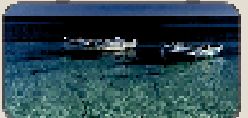
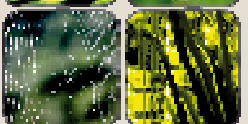
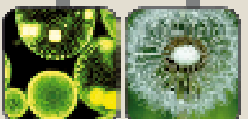
focusing on pilot topic areas:

- DNA sequence-based phylogeny and metagenomics services
- Taxonomy services
- Niche and population modelling for species
- Ecosystem functionality and valuation services, to improve modelling capabilities to ecosystem services and CO2 sequestration.

Joint research activities will investigate improvements to ease of use of workflows by exploring new middleware approaches to easier user interfaces.



BioVeL



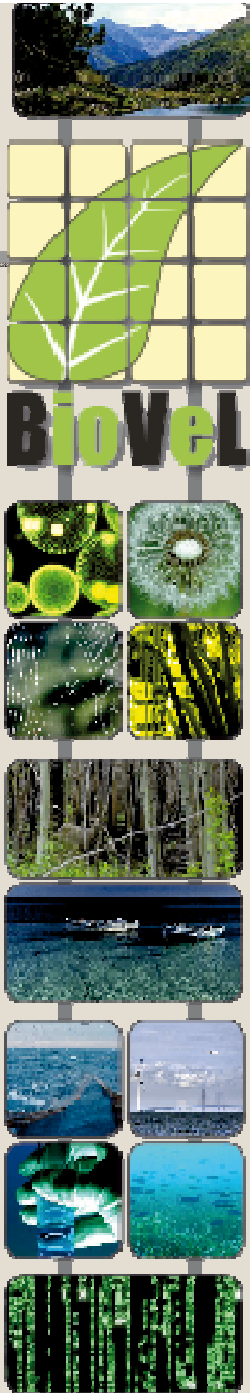
Biodiversity Virtual e-Laboratory

BioVeL is a consortium of 15 partners from 9 countries



Friends of BioVeL

- ViBRANT project
- Swedish LifeWatch
- You?

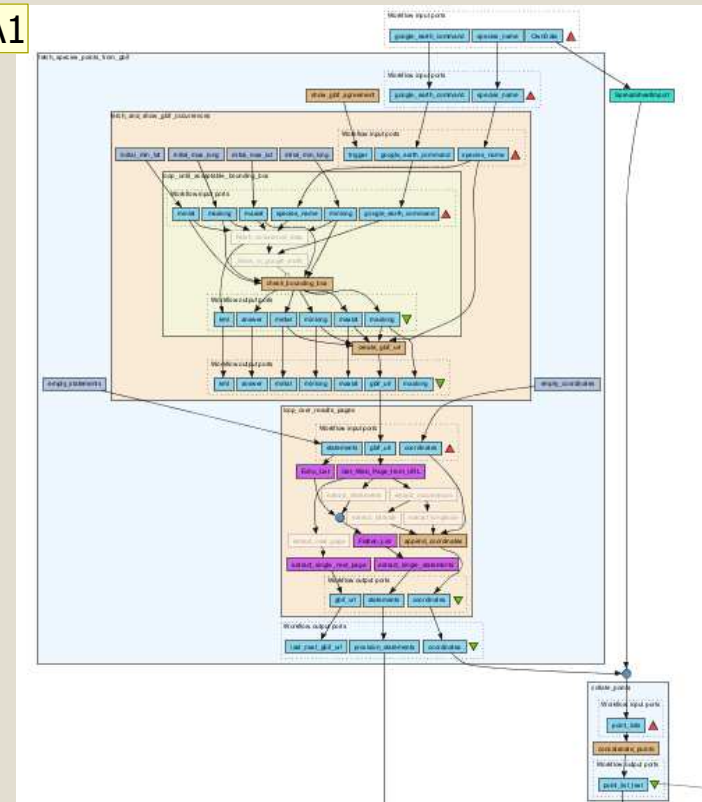


Biodiversity Virtual e-Laboratory

BioVeL is a powerful data processing tool

- “Workflows” allow to process vast amounts of data
- Building workflows: selection and connection of “services” (data processing techniques)
- Access a library of workflows and re-use existing workflows **my experiment**
- Cut down research time and overhead expenses.
- Contribution to LifeWatch and GEO BON.

CA1

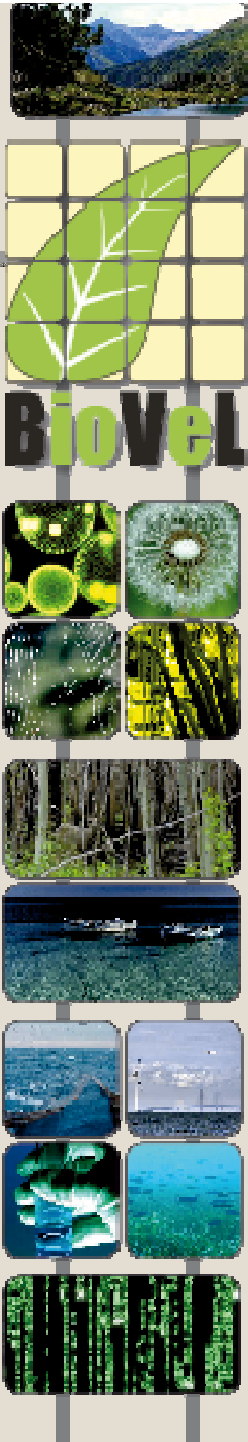


Part of a workflow to study the ecological niche of the horseshoe crab

Diapositiva 4

CA1

Elisabeth Leciak; 09/01/2012



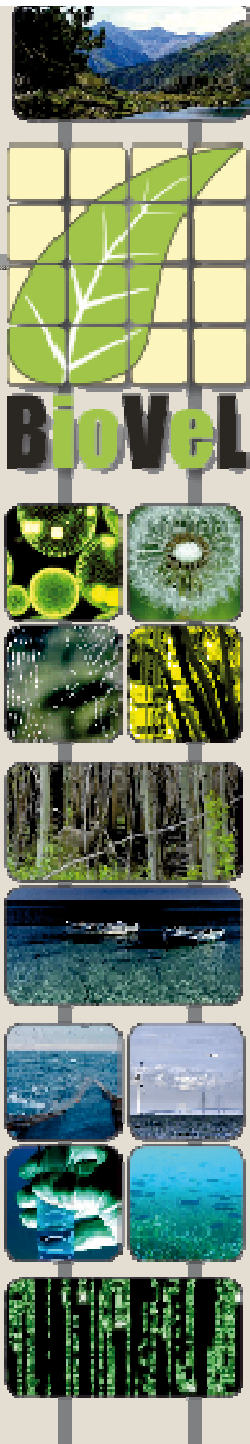
Biodiversity Virtual e-Laboratory

Biodiversity Data

Currently: Interdisciplinary, heterogenic, different vocabularies, may be access restricted

BioVeL Data management approach:

- ⇒ Definition of **common exchange formats** for each data type
- ⇒ **BioVeL Catalogues** allows discovery and access to curated data
- ⇒ Workflow specific **data repositories**: allow reproducibility, reduce network transfer
- ⇒ **Metadata**: reference to sources and versions, metadata extraction through services (TBD)
- ⇒ **Provenance**: Storage of workflow and data provenance, citation of source and data use agreements
- ⇒ Security: Definition of **user credentials**
- ⇒ GUID: no global unique Ids yet

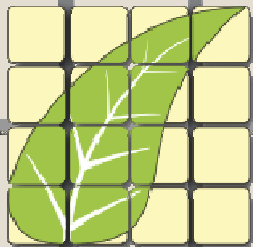


Biodiversity Virtual e-Laboratory

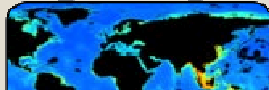
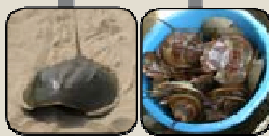
BioVeL Services

- SHIM Services: for data transformation and interoperability
- Data Management Services: transference of data links instead of content
- Data Visualisation Services: for user interaction
- “Workflows” as services
- Security: TBD, probably using Shibboleth
- Metadata Extraction Services: first for phylogenetic data
- Through use of gateways, workflows composed in the BioVeL environment can be executed on a wide range of computing resources, including European e-infrastructures (EGI, PRACE, etc.)

BioVeL seek to access services and data from existing e-Infrastructures, constructing appropriated shim services where necessary.



BioVeL

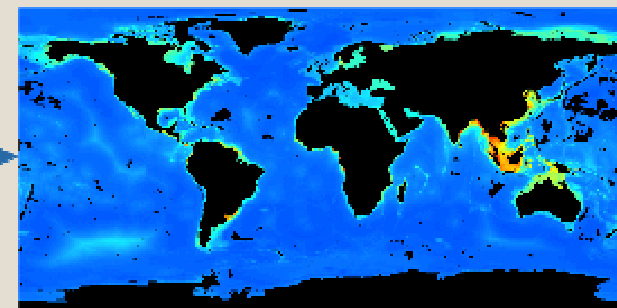
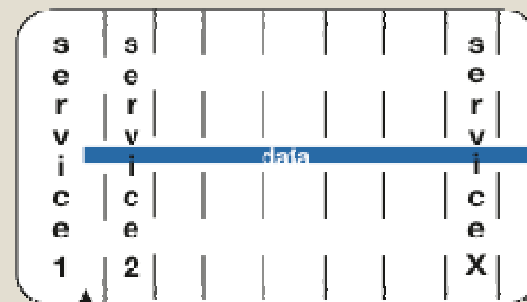


Biodiversity Virtual e-Laboratory

BioVeL Data & Services by example

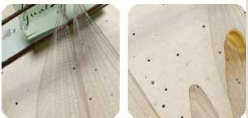
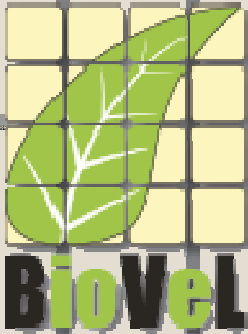
Showcase: Study on the ecological niche of the south east Asian horseshoe crab, an endangered species:

1. Import south east Asian data from user Excel spreadsheets and GBIF occurrences acquired via GBIF REST web Service
2. Apply succession of “services” = workflow
3. Result: ecological niche map (new data available through OGC services) and workflow definition and provenance (in repository)



results: map showing the potential ecological niche of the south-east Asian horseshoe crab





Biodiversity Virtual e-Laboratory

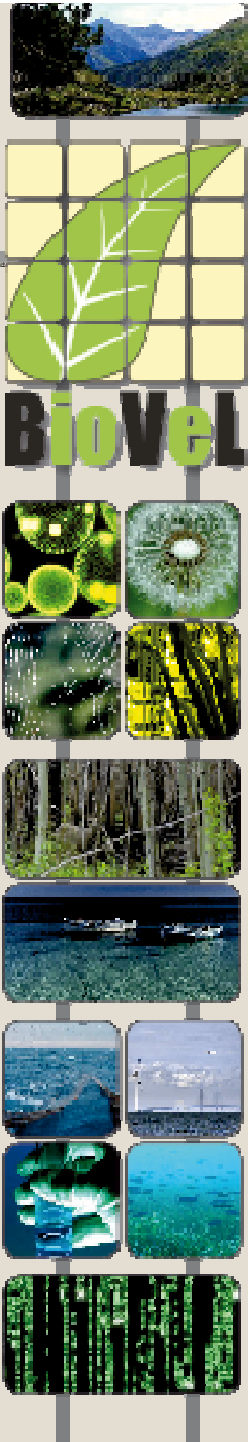
Contribution to



LifeWatch anticipates and encourages projects like BioVeL, acting in a local, bottom-up manner to contribute towards its construction.

BioVeL might handover results like :

- **BioVeL Catalogues:** facilitates the discovery of biodiversity data and services
 - **BioVeL Service Sets:** robust web services implementing the most used transformation, analysis, and visualization methods
 - **BioVeL Workflow Repository:** created from interdisciplinary real-use cases to be shared through the communities
 - **Best Practices:** a compilation of knowledge and expertise assembled during the project
- to LifeWatch for continued operation.

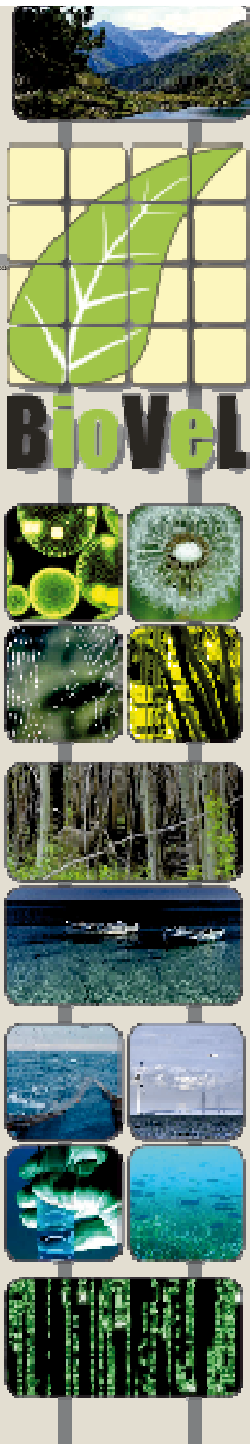


Biodiversity Virtual e-Laboratory

MS6 Workshop 10-11 May at Gothenburg

Objectives and scope

- Foster the scientific cooperation in the biodiversity science community
- Identify important (web)services from the fields of taxonomy and phylogenetics for integration in workflows for biodiversity research
- Discuss use-cases that employ taxonomic and phylogenetic web-services
- Train the participants in workflow construction and management



Biodiversity Virtual e-Laboratory

**BioVeL is funded by the European Commission
7th Framework Programme (FP7).**

It is part of its e-Infrastructures activity.

Start date: 01/09/2011, Duration: 36 months

Thank you!

Vera Hernandez Ernst

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