

Information systems

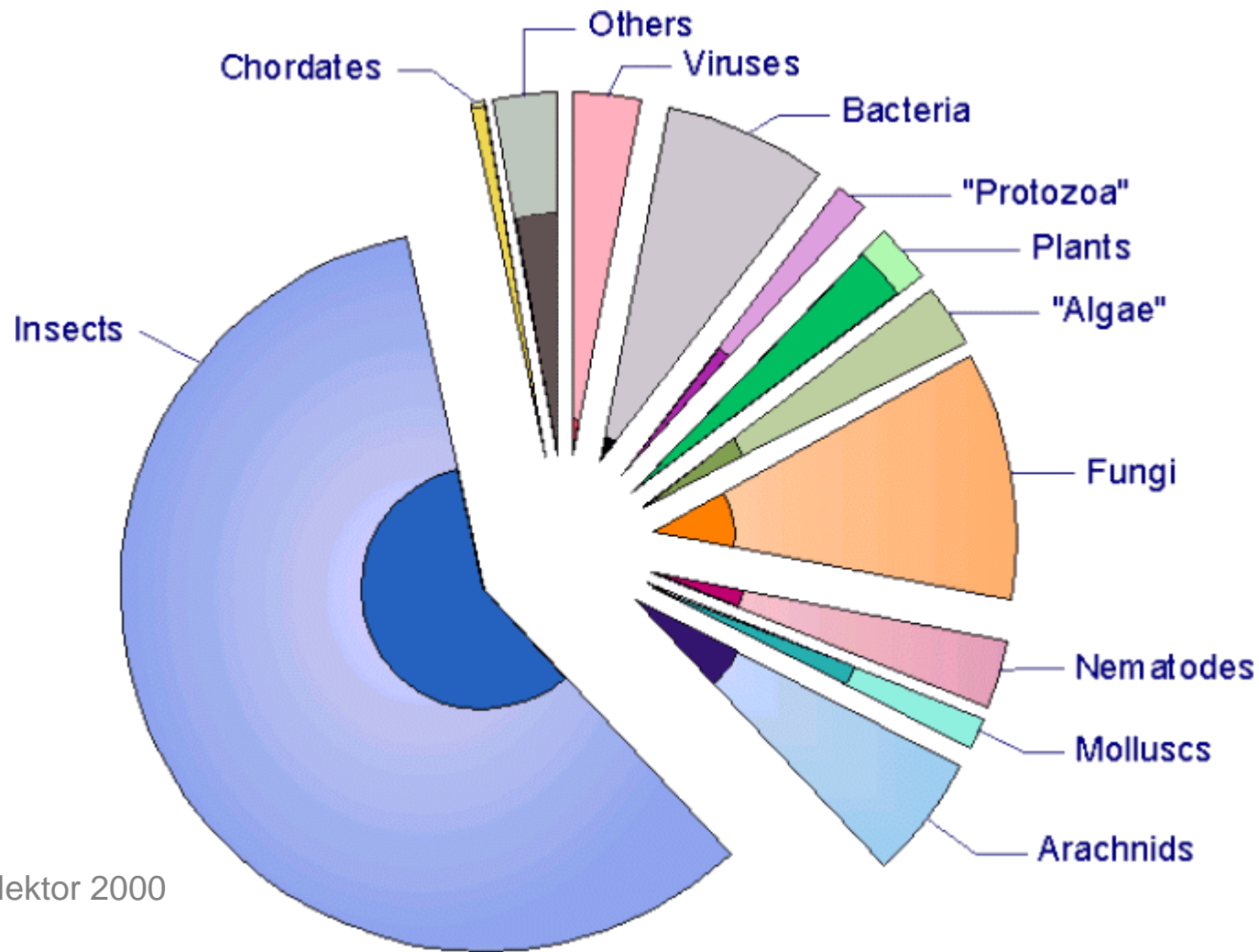
promote collaboration and
sharing of information to
improve the efficiency of biodiversity research



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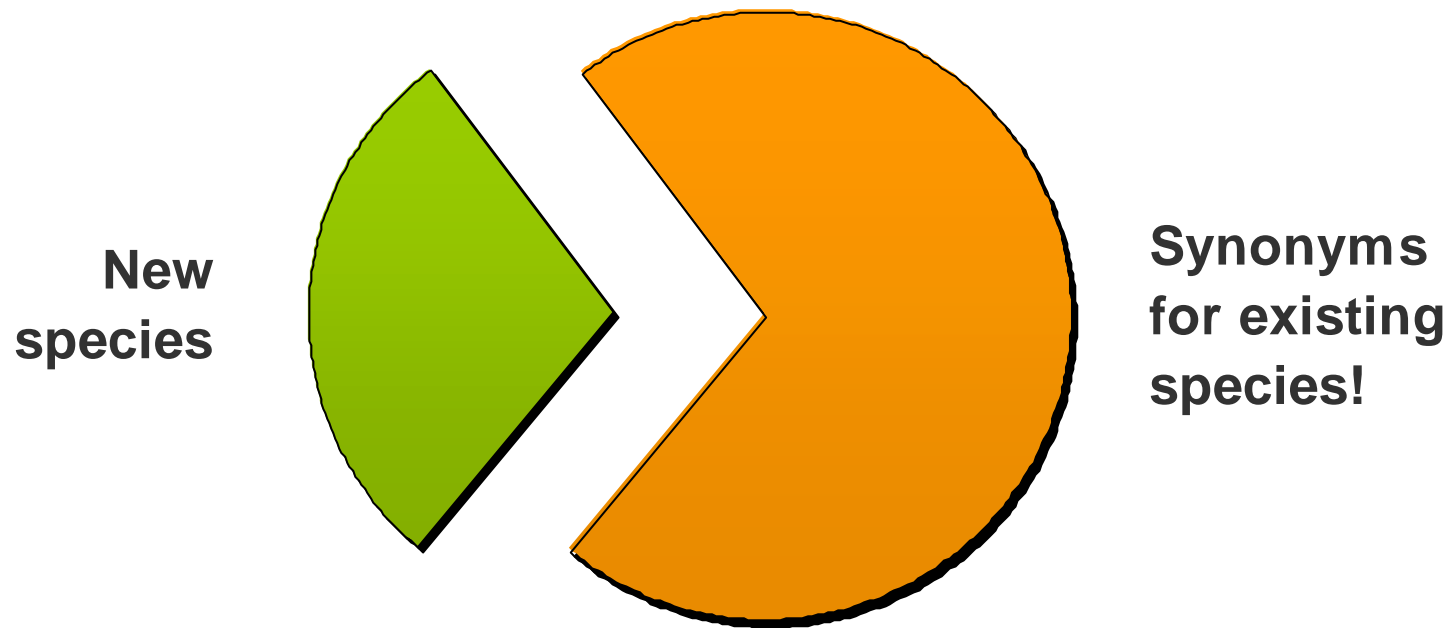
Species diversity of major groups



Purnis & Hektor 2000

Recognition of new species?

“... mycologists inadvertently redescribe already known species at the rate of about 2.5 : 1” (Hawksworth 1991)



Contributing to solutions



- Improving individual efficiency
- Sharing the workload

Improving efficiency



- Natural history collections as well as media collections
 - Digital catalog of objects
 - Online access to catalog
 - Online access to digitized objects (digital books, high resolution images of specimen, etc.)
 - Catalogs of taxonomic and geographic names
- Interactive identification tools
 - Guided keys (hyperlinked)
 - Picture keys
 - Multiple access interactive identification
- Automatic identification
 - Digital image / audio analysis
 - Automated molecular analysis

Knowledge management

Aspects:

- Information retrieval
- Information application
- Information building

... Biodiversity research:

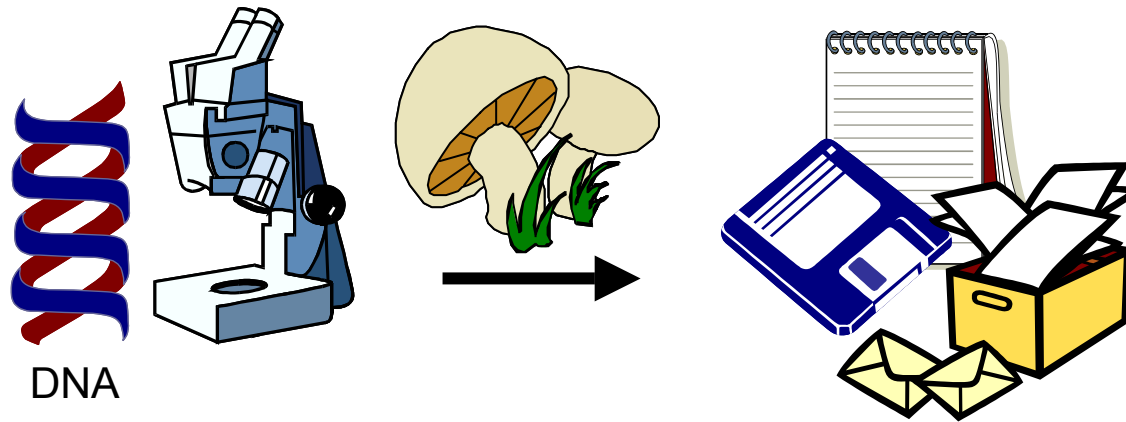
- Digital catalog & access
- Identification tools
- Integrated information systems?

Information building

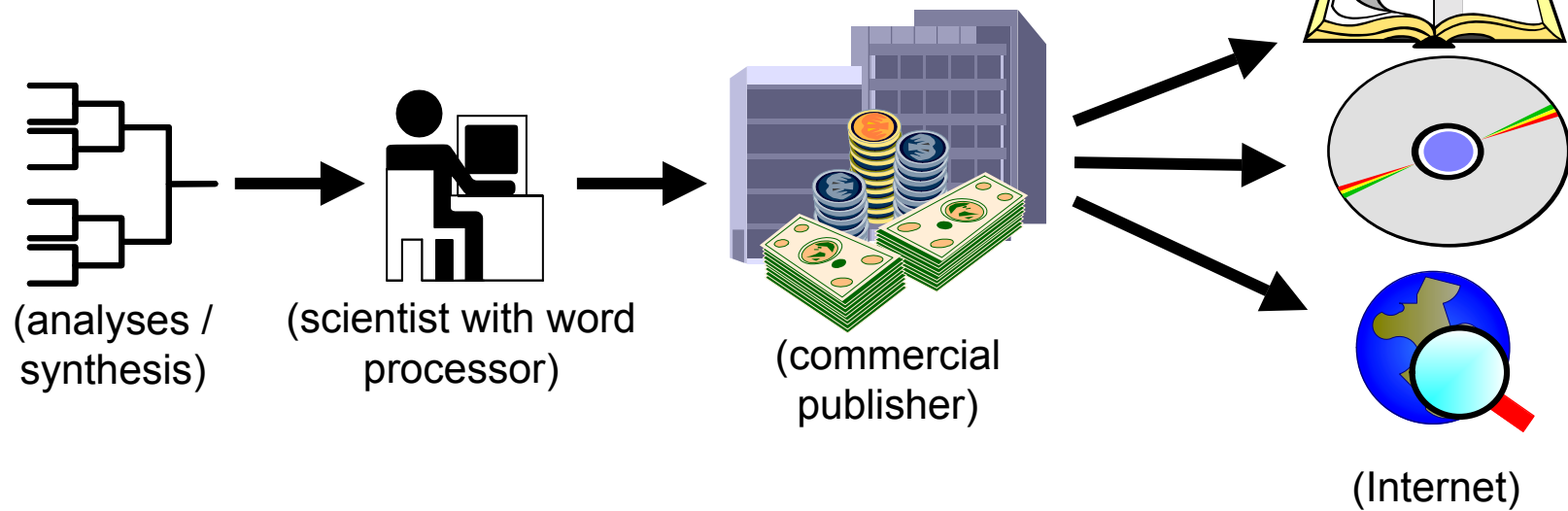


- **Information building**, e. g. describing new species, is the true bottle neck – not retrieval & application
- Improving information retrieval and application does help in information building
- However, integrated information systems can increase the efficiency of knowledge building far more!
- → Workflow optimization:

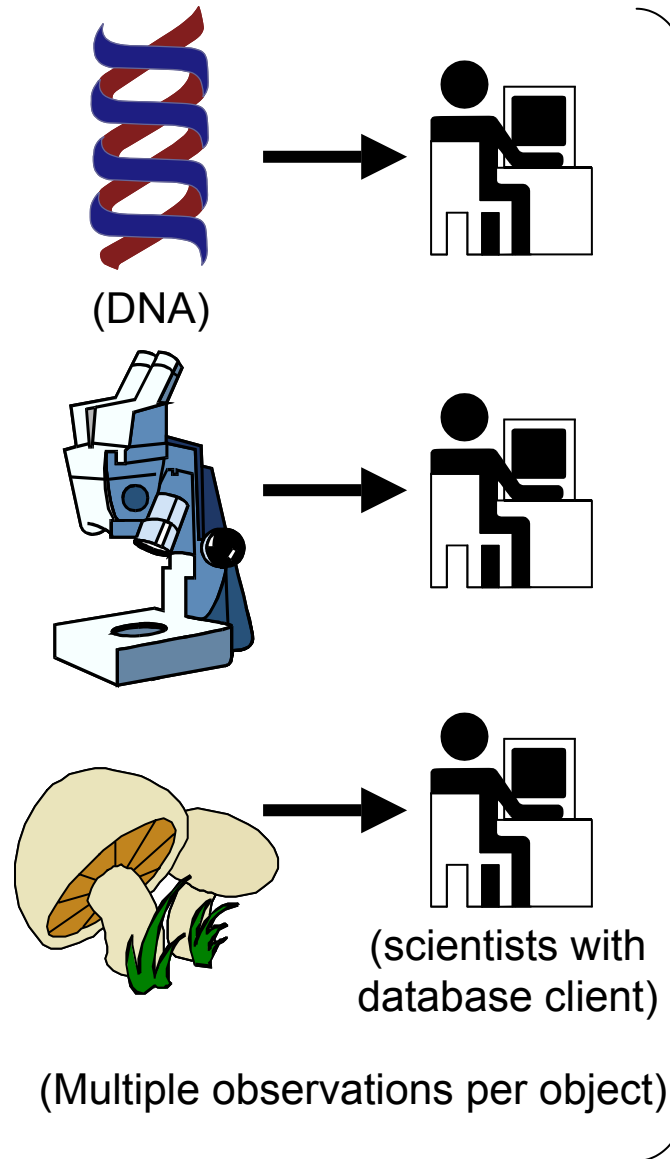
Recording observations



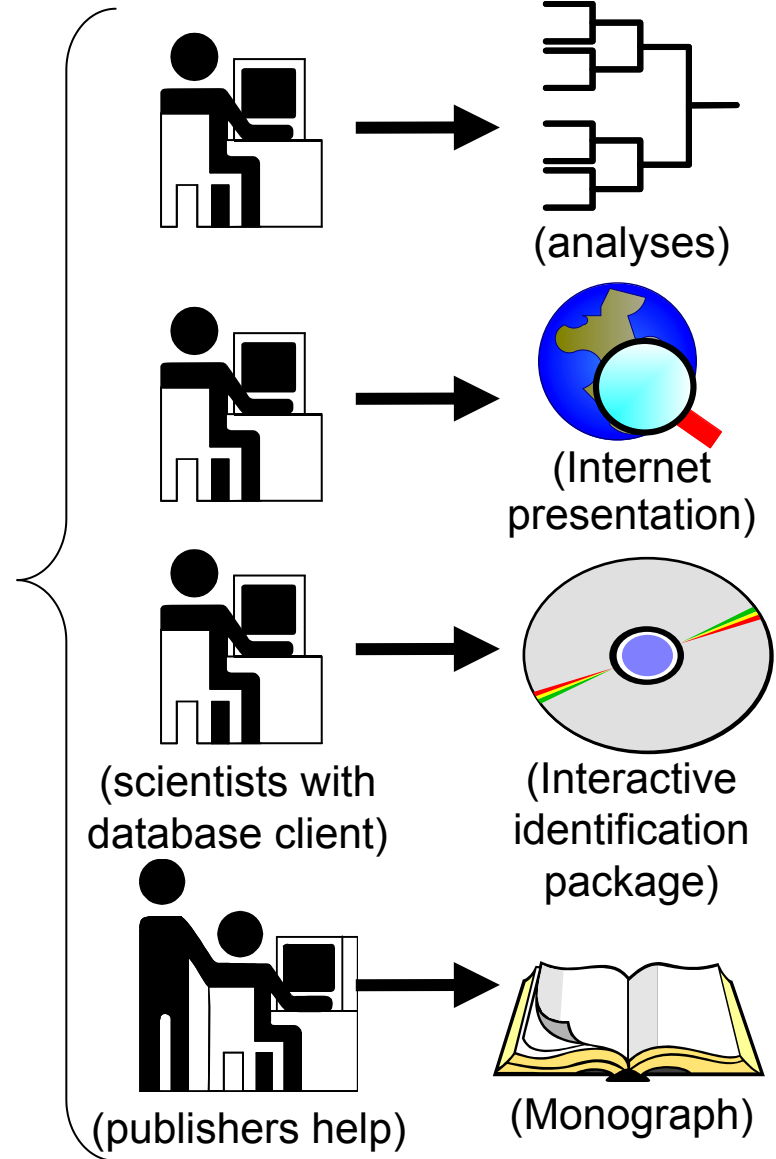
Analysis, writing & publishing



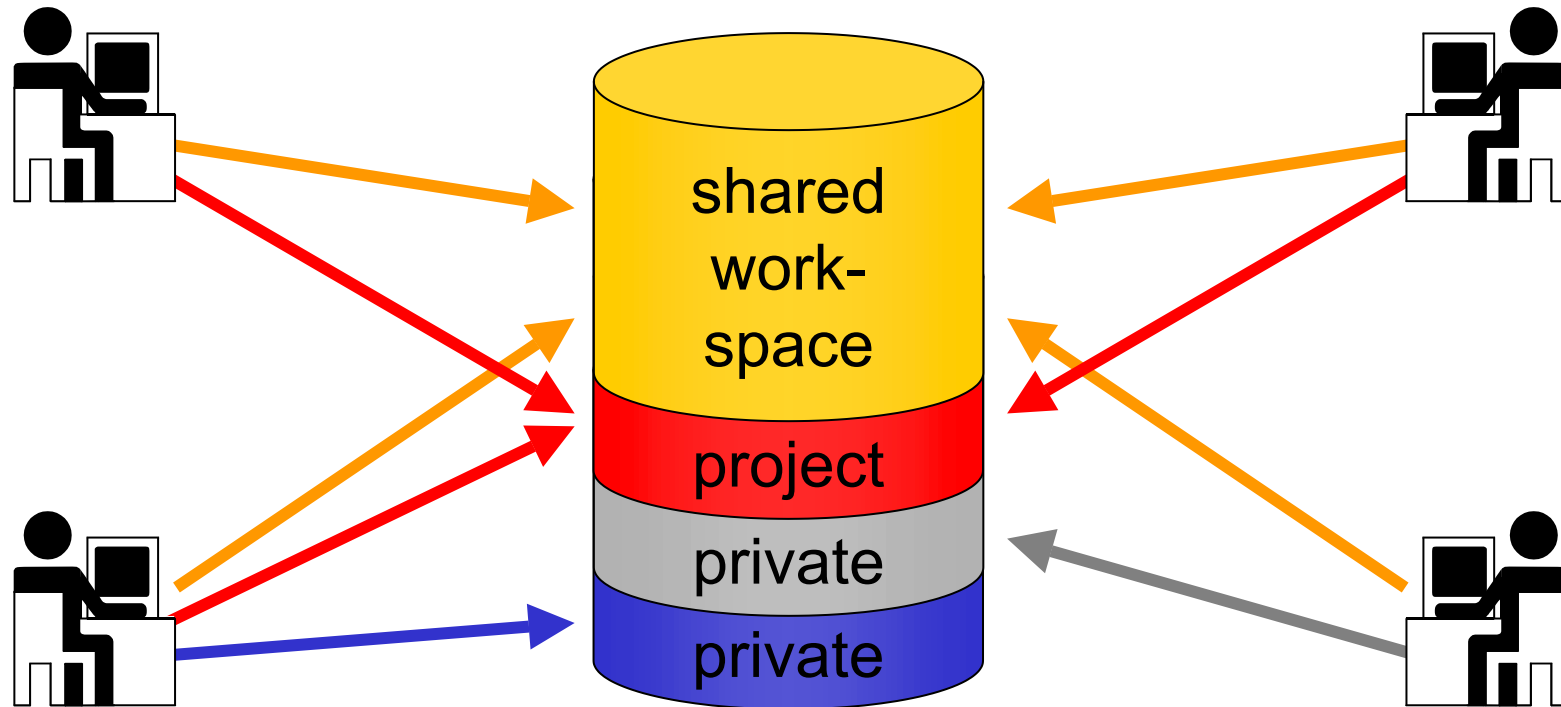
Recording observations



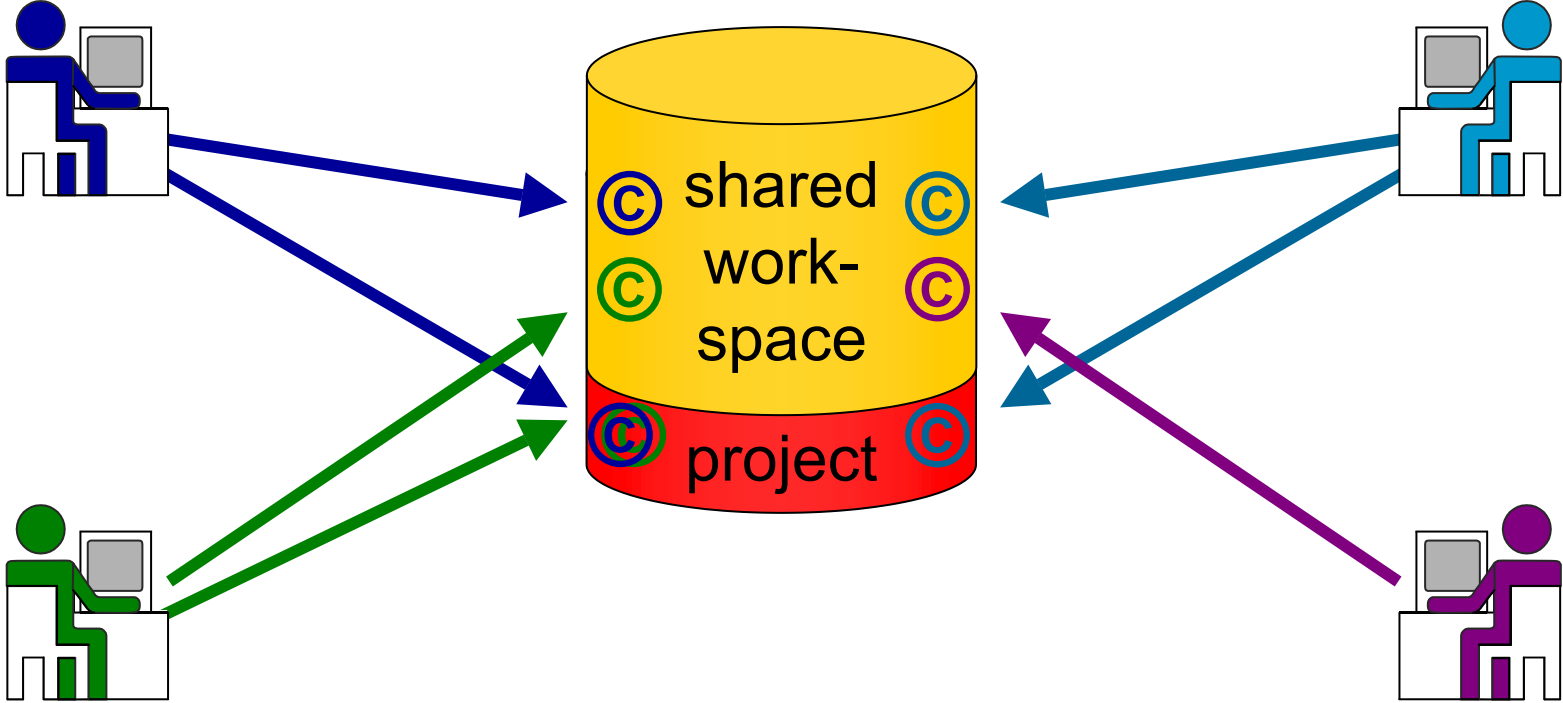
Analysis & publishing



Access and responsibility can be controlled

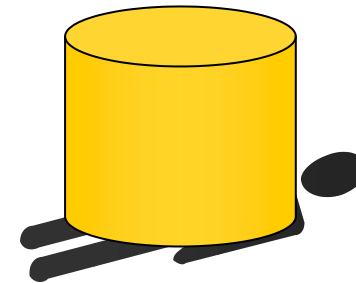


IPR of contribution is recorded independently



Caveats

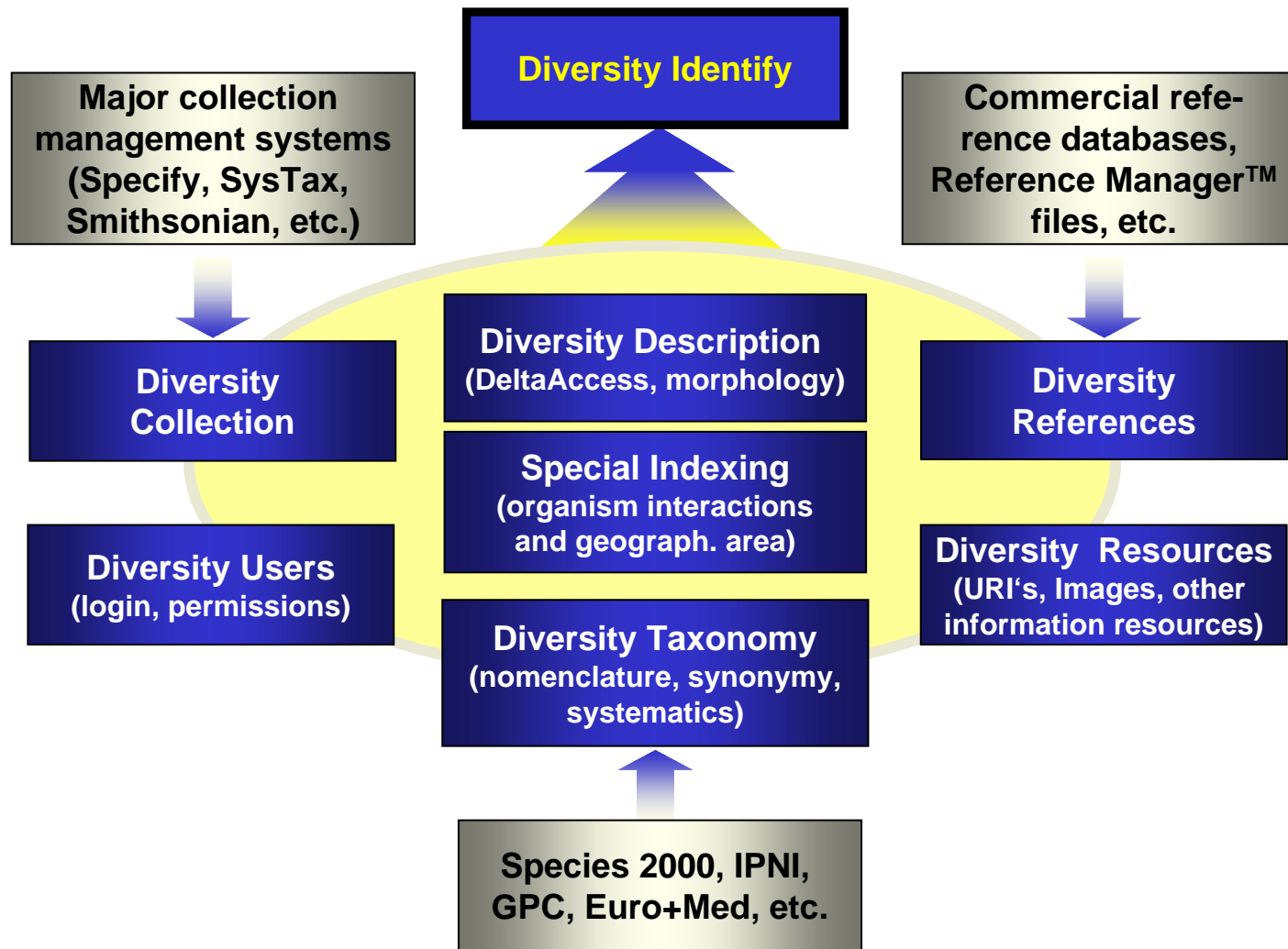
- Recognize the importance of individual enterprise or small scale collaborations in addition to institutional efforts
- Large scale database enterprises usually produce bureaucracy, stifling initiative and "fun"
- Provide for small projects, either
 - as "open workspaces" in an enterprise system, or
 - through distribution of free, locally self-installing applications ("enabling technology")



Productive Workbench Environment

- Applications & tools
- Content & Resources

Diversity Workbench



Erysiphaceae, Erysiphe betae (Vanha) Weltzien - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Erysiphe betae (Vanha) Weltzien – Input Form

Ascospores ▲ LIAS

526. Ascospores number (categorical) 1. 1-2 per ascus
 2. **c. 4 per ascus** 3. c. 8 per ascus 4. 12-16 per ascus
 5. 16-32 per ascus 6. more than 32 per ascus
 (Select a char. state: to add this modifier:)
 (Select a char. state: to add this note/comment:)

528. Ascospores shape 1. globose 2. subglobose
 3. broadly ellipsoidal 4. **ellipsoidal** 5. oval
 6. fusiform-elongate 7. bifusiform 8. filiform
 9. acerose 10. cylindrical 11. oblong-obtuse
 12. oblong-truncate 13. discoid (in surface view)
 14. discoid (in side view) 15. lenticular (in surface view)
 16. lenticular (in side view) 17. sigmoid 18. reniform
 19. allantoid 20. lunate 21. falcate 22. **ovoid**
 23. obovoid 24. pyriform 25. obpyriform 26. clavate
 (Select a char. state: 22 to add this modifier: slightly)
 (Select a char. state: to add this note/comment:)

529. Ascospores length (numerical)

Min:	Lower range:	Mean:	Upper range:	Max:	Unit:
<input type="text"/> 16	<input type="text"/> 18	<input type="text"/> 21.3	<input type="text"/> 26	<input type="text"/>	<input type="text"/> μ m long

530. Ascospores width (numerical)

Min:	Lower range:	Mean:	Upper range:	Max:	Unit:
<input type="text"/>	<input type="text"/> 11	<input type="text"/> 13.7	<input type="text"/> 16	<input type="text"/>	<input type="text"/> μ m wide

Erysiphe betae (Vanha) Weltzien – Description

Data maintenance: Data compiled and standard item. Data record authors: Kainz C. (01-07-20). Record not revised (01-08-28).

Nomenclature: Taxonomic status: accepted name. Taxonomic level: species. Basionym: *Microsphaera betae* Vanha. Family: Erysiphaceae Tul. & C. Tul. Order: Erysiphales. References: Braun U., Beih. Nova Hedwigia 89: 1-700 [217-218] (1987).

Geography and Ecology: Global distribution: Africa, Asia-Temperate, Europe, Northern America, Southern America, and Asia-Tropical. Life habit: phytopathogenic.

Ascoma morphology: Ascomata present, cleistothecoid, gregarious or subgregarious, on thallus, orbicular, (0.075)-0.1-0.12-(0.135) mm in diam.; external filaments present, mycelioid, 3.5-9 μ m in diam., hyaline, numerous, at lower half of ascomata, wall thin, not ramified, septate.

Asci: Asci unitunicate, 3-8, at basis rarely not or indistinctly stipitate, 45-75 μ m long, 30-45-(50) μ m wide. **Ascospores:** Ascospores c. 4 per ascus, ellipsoidal or slightly ovoid, (16)-18-21.3-26 μ m long, 11-13.7-16 μ m wide, aseptate; wall thin and smooth, hyaline, remaining hyaline.

Conidiomata: Present, hyphomycetous. **Conidiophores and conidia:** Conidiophores hyphae ramified. Hyphae foot cells 18-35-(40) μ m long, 7-11 μ m wide; conidia macroconidial, single, ellipsoidal, cylindrical, or ovoid, 30-50 μ m long, (11)-14-22.5 μ m wide, aseptate, not ramified; fibrosin bodies invisible.

Host taxa: Host plant / phorophyte family(-ies): Chenopodiaceae.

Done My Computer

Productive Workbench Environment

- Applications & tools
- Content & Resources



	Desktop reference	Internet
Access speed	— —	+ +
Access reliability	+ +	— —

- Progress in removing technical obstacles:
 - Unicode & xml
 - SOAP interfaces, UDDI registries
 - URI + web service resolution instead URLs

Problems with Intellectual Property Rights

- Database content may have **copyright protection** and **database protection**
- **Copyright** only applies if the selection or arrangement of the contents is the author's own intellectual creation.
- **Database right** relates to the person who takes the initiative in obtaining, verifying or presenting the contents of the database, or bears the cost of doing so.

Legal problems: Database right

Requirements:

- "Substantial investment in obtaining, verifying or presenting its contents"
- No requirement for intellectual creativity: applies to trivial content

Rights granted for 15 years:

- to prevent copying
- to prevent re-arrangement of all or part of the data into a different format
- to prevent it being made available to the public
- 💣 **any update extends the protection by 15 years for the entire data set!**

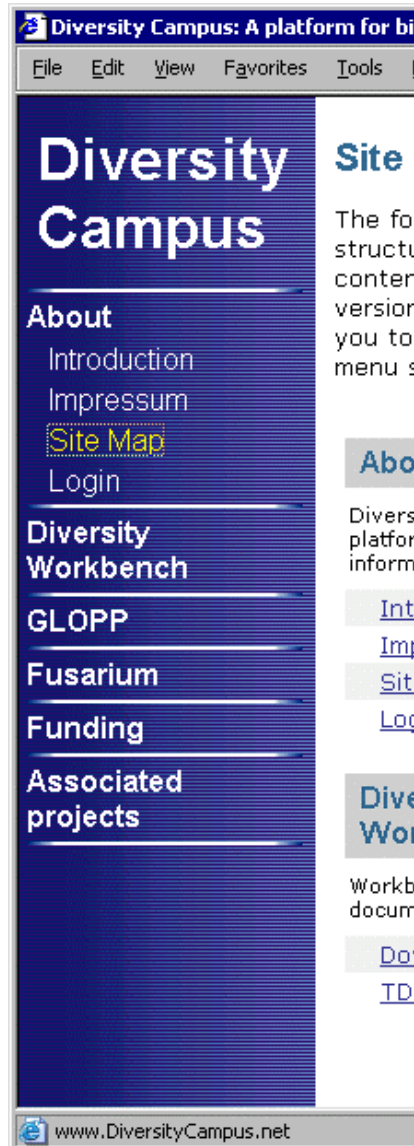
License to solve content IPR problem?

- Allow contributors to completely lock information for up to 2 years.
- Allow extensions for again up to 2 years at any time during that period.
- Once the period has expired, the data will be permanently publicly visible, however.

License to solve content IPR problem?

- **Completely lock information for up to 2 years**
 - for entire data collections as well as revisions and updates in public data collections
- **Incorporate in the license the option to secure a 10 years database right before allowing revision by somebody else**
 - only for entire data collections
 - database rights are not extended through revisions or updates!
- **After that time the data should be under some sort of public (GPL/LGPL?) license**

Web sites



Diversity Campus: A platform for biodiversity information

File Edit View Favorites Tools

Diversity Campus

The following content is available on this site:

- About
 - Introduction
 - Impressum
 - Site Map**
 - Login
- Diversity Workbench
- GLOPP
- Fusarium
- Funding
- Associated projects

www.DiversityCampus.net



LIAS

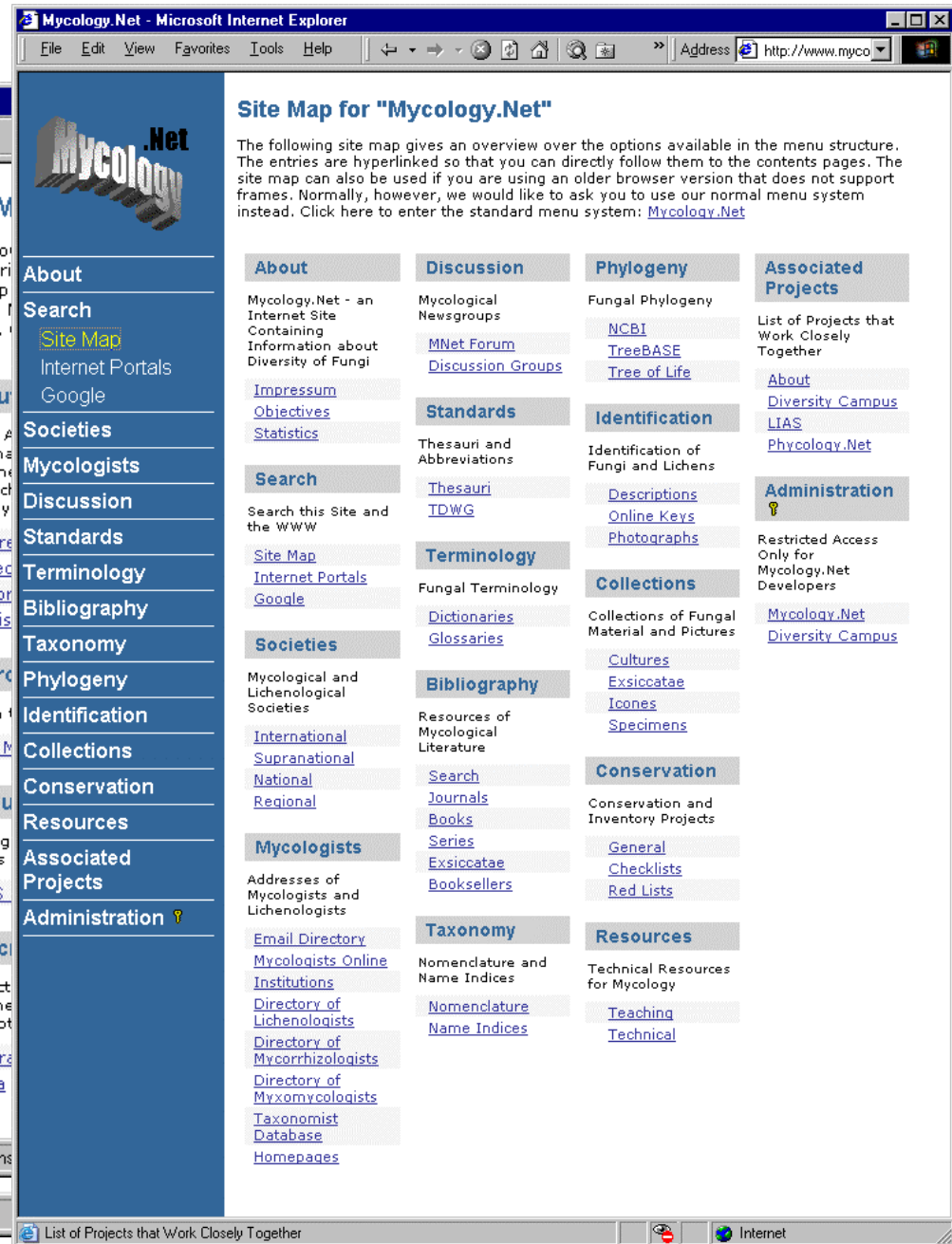
File Edit View Favorites Tools

LIAS

The following content is available on this site:

- About
- Search
 - Site Map
 - Internet Portals
 - Google
- Societies
- Mycologists
- Discussion
- Standards
- Terminology
- Bibliography
- Taxonomy
- Phylogeny
- Identification
- Collections
- Conservation
- Resources
- Associated Projects
- Administration ?

Character Documentation and Descriptions



Mycology.Net - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address: http://www.mycology.net

Site Map for "Mycology.Net"

The following site map gives an overview over the options available in the menu structure. The entries are hyperlinked so that you can directly follow them to the contents pages. The site map can also be used if you are using an older browser version that does not support frames. Normally, however, we would like to ask you to use our normal menu system instead. Click here to enter the standard menu system: [Mycology.Net](#)

About Mycology.Net - an Internet Site Containing Information about Diversity of Fungi Impressum Objectives Statistics	Discussion Mycological Newsgroups MNet Forum Discussion Groups Standards Thesauri and Abbreviations Thesauri TDWG Terminology Fungal Terminology Dictionaries Glossaries Bibliography Resources of Mycological Literature Search Journals Books Series Exsiccatae Booksellers Taxonomy Nomenclature and Name Indices Nomenclature Name Indices	Phylogeny Fungal Phylogeny NCBI TreeBASE Tree of Life Identification Identification of Fungi and Lichens Descriptions Online Keys Photographs Collections Collections of Fungal Material and Pictures Cultures Exsiccatae Icones Specimens Conservation Conservation and Inventory Projects General Checklists Red Lists Resources Technical Resources for Mycology Teaching Technical	Associated Projects List of Projects that Work Closely Together About Diversity Campus LIAS Phycology.Net Administration ? Restricted Access Only for Mycology.Net Developers Mycology.Net Diversity_Campus
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List of Projects that Work Closely Together