

Trees to Trade Reference System

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Background

Practical issues

- Growing number of legal requirements with traded lumber
- Growing number of references
- Inadequately linked species data
- Practical limits on time & available expertise

Motivation

Need for coalesced & accessible data



Photo: USDA APHIS

Objective

Tree species-based reference system

Construct a database that integrates:

- taxonomy
- vernacular
- conservation status
- trade regulation

End users

Organizations monitoring lumber trade for compliance

Philosophy

Approach

- Use existing but disparate data available on web
 - Application Programming Interface
 - IUCN example: <http://apiv3.iucnredlist.org/api/v3/version>
- Provide interconnections between these data
- Simple interface, end user follows data path
- Data remain in existing form from source
 - e.g., leguminosae vs fabaceae
 - updates only in collaboration with source

Contents

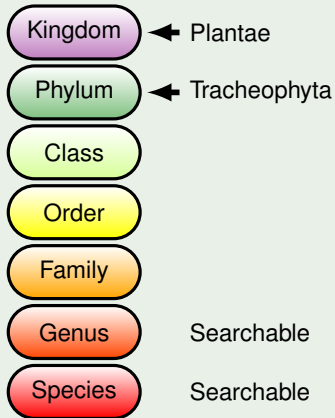
Taxonomy: Roots of the system

Catalogue of Life



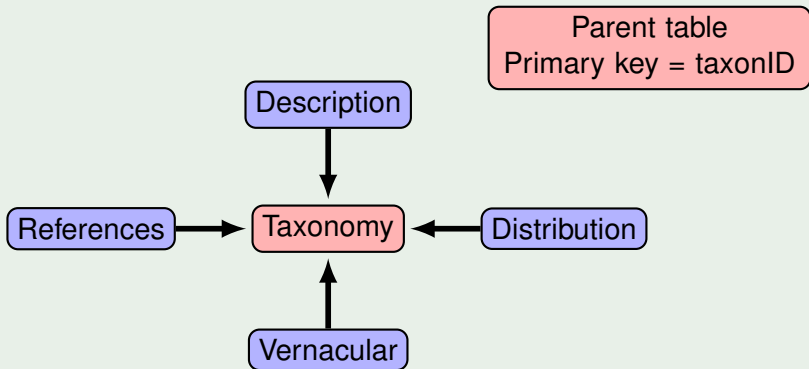
Includes all known taxa

- Tracheophyte data of interest
- 5 separate tables
- Primary key is taxonID in the taxon table
- The taxon table size = 31 columns x 1071536 rows



Contents

Catalogue of Life table structure



Contents

Taxonomy: Roots of the system

- Source of additional vernacular names
- Compiled by Miller & Ilic in (2000)
- Currently dormant
- Table size = 42 columns x 88856 rows



Contents

Conservation: The species of concern

- Vulnerable species listing
- Conservation status
- Table size = 32 columns x 31 158 rows



Contents

Conservation: Preservation attempts

- Cultivated species & style
- Countries
- Tedious data to collect
- Table size = 10 columns x 123 rows



Contents

Export bans: The regulations

- Tariff codes
 - Product scope
 - Table size = 9 columns x 118 rows

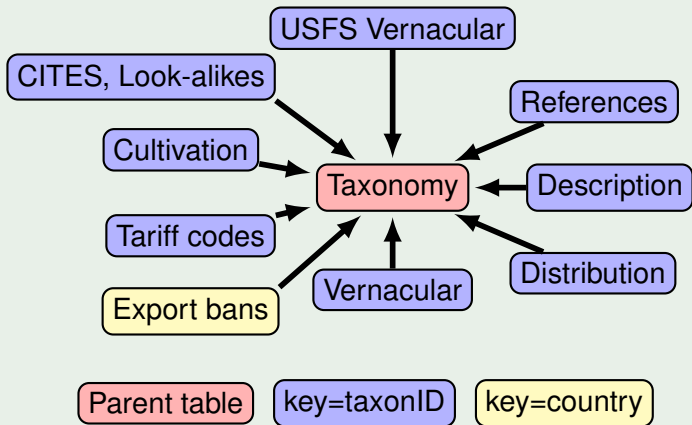
- Export bans
 - Product scope
 - Dates of enactment
 - Primary key = country
 - Table size = 5 columns x 34 rows



WORLD
RESOURCES
INSTITUTE

Contents

Entity-relationship diagram of the Arbor Harbor



Contents

Table	Rows	Size	Source
Taxonomy	1071536	511 MB	CoL
Vernacular	41750	4 MB	CoL
Description	811056	65.6 MB	CoL
Distribution	29732	3 MB	CoL
Reference	332275	31.6 MB	CoL
USFS vernacular	88856	46.6 MB	USFS
CITES-Species+	31158	119.2 MB	CITES
Look-alikes	63	48 kB	CITES, UN
Cultivation	123	26 kB	IUCN, other
Tariff Codes	118	16 kB	US ITC
Export Bans	34	32 kB	WRI
Country	247	16 kB	worldatlas
12 tables	2415486	781.3 MB	

Interface



Trees to Trade Project

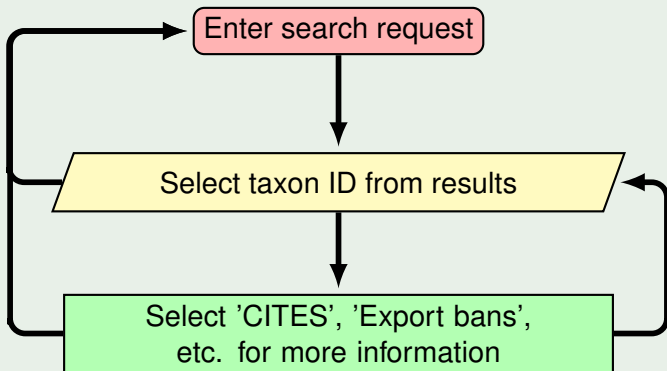
This site is home to a database, constructed as a repository for information on tree species and their global trade. The database integrates information across the four major categories of taxonomy, conservation status, trade regulation, and policy, and is intended for use by professionals working with forest resources.



Direct inquiries to: info@woodID.info

Interface

Search workflow



Interface

Search page

- Each entry is an AND: *Abies* AND *guatamalensis*
- % is a wildcard matching all
- _ is a wildcard matching one character

Enter search

Search by common name, genus, or species. In wildcard searches, please use % in place of unknown letters. For example, "Abi%" and "%malensis" would return *Abies* (a genus) and *guatemalensis* (a species).

Common name:

Genus:

Species:

Country:






Search

For more information on a particular species, click on the 'Taxon ID' following return of the search results and then click one of the buttons to the left (CITES, Lookalikes, etc.).

Interface

Common names results page

- All matching results are shown in the Common names tab
- Clicking on the table header column sorts by that column

Search **Common names**  CITES  Lookalikes  Export ban  Plantations  Tariff codes

9 common name results





Taxon ID	Source	Common name	Genus	Species	Country
18158222	FPL	Guatemala fir	Abies	guatemalensis	Guatemala
18158222	FPL	oyamel	Abies	guatemalensis	Guatemala
18158222	FPL	pinabete	Abies	guatemalensis	Mexico
18158222	CoL	abeto	Abies	guatemalensis	MEX
18158222	CoL	sapin du Guatemala	Abies	guatemalensis	FRA
18158222	CoL	Guatemala-Tanne	Abies	guatemalensis	DEU
18158222	CoL	Guatemalan fir	Abies	guatemalensis	GBR
18158222	CoL	abeto guatemalteco	Abies	guatemalensis	GTM
18158222	IUCN	Gautemalan Fir, Mexican Fir	Abies	guatemalensis	El Salvador, Guatemala, Honduras, Mexico

Click here →

Interface

Common names results page

- Clicking on a taxon ID, narrows the search for specific information on that genus, species, and country

Search **Common names**  CITES Lookalikes  Export ban  Plantations  Tariff codes

9 common name results

Taxon ID	Source	Common name	Genus	Species	Country
18158222	FPL	Guatemala fir	Abies	guatemalensis	Guatemala
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18158222	IUCN	Gautemalan Fir, Mexican Fir	Abies	guatemalensis	El Salvador, Guatemala, Honduras, Mexico

Click here →

Interface

CITES tab information

- The other tabs text will remain grey if no specific information was found
- Direct links to Species+ and IUCN sites if the species is CITES listed

The screenshot shows a web interface with a search bar and several tabs: Common names, CITES (highlighted in green), Lookalikes, Export ban, Plantations, and Tariff codes. Below the tabs is a table titled "CITES information". The table has five columns: Taxon ID, Cites Taxon ID, Genus, species, and Annotation. The first row contains the following data: Taxon ID 18158222, Cites Taxon ID [17704](#), Genus [Abies](#), species guatemalensis, and Annotation Appendix I. Below the table, two arrows point from the text "To Species+ site" to the Cites Taxon ID link and from "To IUCN site" to the Genus link.

Taxon ID	Cites Taxon ID	Genus	species	Annotation
18158222	17704	Abies	guatemalensis	Appendix I

To Species+ site

To IUCN site

Future Considerations

Opportunities and challenges

- Semantic web
- Automated data acquisition and dissemination
 - Scan literature, trade data
 - Establish confidence level on data
 - Web site APIs
- Collaborative effort
 - Forum?
 - Chat room?
 - Incorporate user knowledge into data set



Future Considerations

Opportunities and challenges

- Maintenance
 - Updating old data
 - Adding new data
 - Errors & Anomalies
- User interface
 - Improve work flow
 - Data to include
 - Integration with other sites
- Overcoming language barriers



Acknowledgements

- Funding organization
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 - US Animal & Plant Health Inspection Service
 - World Resources Institute



L^AT_EX with the BEAMER class